A treatise on
Recent Trends and Sustainability in
Crafts & Design

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Prologue

Knowledge is power and education is the means to achieve it. IICD is committed to the growth of the Craft sector through education. Education means over all development and growth of an individual and is much more than mere classroom learning. The faculty of research and innovation and preserving our heritage that teaches us many nuances is of prime importance when we talk of the crafts sector. A congregation of experienced and educated people in the sector of crafts, exchanging ideas and the research undertaken in this field, could create a powerhouse of learning. With this idea in mind, a conference on 'Recent Trends and Sustainability in Crafts and Design' was organised at IICD. Abstracts and full papers began pouring in. We received an overwhelming response from different institutes in India and from outside India too. Each one was unique and we realised the importance of a research platform in this sector. We received excellent papers from professors and students from IITs, NIFTs, NID, MSU Baroda, Lady Irwin College, G.B. Pant University, to name a few.

Alongside the institutes, it was decided to invite our craftsmen, whose expertise is unparalleled and who have so much to offer in terms of skill and understanding of crafts. An artisan Panchayat was held, where eminent artisans from different craft fields were invited and an excellent talk ensued. The *jajam* on which they sat along with the faculty and staff of IICD and exchanged information in the dim light of the evening was a sight to behold. We were all mesmerised by the end of it. The candid conversation was enriched with information, experience and knowledge of each crafts person.

Our Chief Guest Padma Shree Laila Tayabji, Dr Ghada H. Qaddumi (President, World Crafts Council, APR), all our session chairs, namely, Prof. Paul Singleton (Plymouth College of Arts, U.K.), Mr. Yunus Khimani (Director, City Palace, Jaipur), Mr. K.B. Jinan (Design enthusiast), Mrs. Devika Krishnan (Up-cycling enthusiast), Mr. Sharada Gautam (Head of crafts, Tata Trust), Ms. Ritu Sethi (Craft Revival Trust) and Dr. Anamika Pathak (Curator at National Museum, New Delhi; Chairperson of the Textiles and Clothing Research Centre (TCRC)) all the delegates, artisans, craftsmen, presenters and audience added much value to our first International Conference on crafts at IICD. The papers that were presented talked about the need for marketing, documentation and diversification of crafts alongside innovations in the field of dyeing and printing. The people who were present in the conference benefited from it and those not present, have this proceedings book to read from.

I wish you all an enriching journey through the course of this book. I have to thank Prof. Bhargav Mistry, Dean at IICD, for his guidance and many thanks to Dr. Barun Shankar Gupta, Head of Research at IICD, who painstakingly worked for the success of this conference and for the compilation of this book.

Toolika Gupta
Director IICD

Preface and Acknowledgement

This book is a compilation of several chapters that illustrate the diversity of the present day crafts practices which compares the techniques that were practised in old days. As our craft voyage continues through the knowledge lit corridors of the written chapters, it becomes noticeable that the crafts trade got glory due to the patronage from royal families or from the worship and ritualistic practices. In India, it is mostly the Hindu and Muslim emperors and kings, who appreciated the inherited beauty in crafts. The patronage of the royal families and royal traditions were consequently reflected in form of design on various contemporary media. According to Ananda K. Coomaraswamy, the pioneering historian and philosopher, it was fashionable in the seventeenth century to retain court artists. This court tradition brought a positive change in the arts and paintings. Decades later, as we sit now and visualize the past glory of crafts, we realize that there is a need to appreciate the contributions of all who made crafts delicately beautiful. The function of the craftsperson remains the same as it was in the good old days, i.e., to cater to the tastes of the patron. However, in most countries the royal traditions have faded down, leading to fewer numbers of aesthetes and admirers who can still finance a craftsman's work. This change in scenario has caused livelihood problem and migration of craftsperson from traditional practices toward more rewarding works.

The book chapters have been written by authors, who wholeheartedly cooperated with us to bring out this fascinating collection of trends in crafts. We admire their efforts. The techniques and craft practices that have been illuminated by the authors lend a hand to understand the story behind each craft practice.

The authors have consented that there is no ethical issue in publishing their research work. Budding researchers are welcome to contact the authors with their research queries.

We hope that this book will serve as a resource for those who would be passionate about the crafts techniques and designs.

Sincerely,
Bhargav Mistry
Barun Shankar Gupta

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Chapter 1

A Comparative Study of Cooperative Society, Private Sector and Clusters of Kullu Handicrafts in Kullu

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ABSTRACT

Handloom is a key to cottage industry in Kullu valley. The extreme cold winters of the district necessitated wool weaving in form of winter garments and accessories. There were various handloom and handicrafts of Kullu like shawls, topi, pattu, jacket, patti, mufflers, gudma, thobi, pullans, numda etc. The study focuses on pattu, topi, patti and shawls as per feasibility of researchers. The investigator delineated the crafts and made comparative study on cooperative society, private sector and clusters of Kullu on selected handicrafts in Kullu cluster. A comparison was made on parameters such as the heritage and cultural aspect of Kullu weaving, technical specifications of weaving, motifs and colours, the socio-economical and geographical aspects, problems prevailing amongst the artisans. The data were collected in accordance to the required objective. The in-depth knowledge of comparison will help in terms of the prospects of design in terms of marketability and satisfaction of the craftsmen in the field of their expertise and their employment as heritage. Those objectives were accomplished and the findings presented in the research paper demonstrate the potential for merging theory and practice.

KEYWORDS: Handloom, Weaving, Co-operative Society, Cluster

I. INTRODUCTION

India has a long tradition of excellence in making high quality handloom products with extraordinary skills and craftsmanship, which are unparalleled in the world. The intricate workmanship of the handlooms provides this segment a unique identity of its own.

The fragments of finely woven and madder-dyed cotton fabrics and shuttles were found at some of the excavated sites of Mohenjodaro (Indus valley civilization). The evidence shows that of all the arts and crafts of India, traditional handloom textiles are probably the oldest.

The handloom of India or woven textiles varies fabric in terms of cotton, woollen & silk thus fulfilling need of climatic condition as well as expresses the rich heritage and culture of varied states amongst them is Kullu shawls are the woollen fabric from Himachal Pradesh.

Kullu district is situated in the central part of the state of Himachal Pradesh, India. The people of Kullu are known for their simple style of living and perseverance but fairs, festivals, customs, traditions, beliefs, costumes, food form the vital part of culture of Kullu. The purpose of the study was to document the difference as well as compare the shawls on the bases of three working segmentation of the craft-co-operative society, private sector, cluster. The craft delineated the comparative study on the following details such as experience, utilization of government schemes, income, product specialization, training and knowledge, design and innovation, technical specification of weaving, problems faced by craftsmen.

II. LITERATURE REVIEW

The arts and craft of any region is the reflection of its environment, people, traditions and so is in Himachal Pradesh. Handloom weaving and handicrafts are the cultural heritage of Himachali people. In the pre-independence days, secondary occupations like handicraft, spinning and weaving were most common throughout the state. There is a vast variety of beautiful handloom and handicraft products in district Kullu. The extreme cold winters of the district necessitated wool weaving. Thus the cold climate prevalent is suitable for sheep and goat husbandry, which fulfills the necessity of woollens. Almost every household in the district owns a pit loom and everyone can be seen spinning yarn on a spindle. Handlooms have expanded as a key cottage industry in Kullu valley. Initially local wool was used as a raw

material. Some of the weavers depend on their own flock of sheep for wool, while most of them procure the raw material, The wild goats shed their fleece against thorny shrubs and sharp rocks, which is later collected by the weavers.

The raw material includes angora, pashmina, local wool and merino wool. Handlooms were found in every house of Kullu valley who weave for themselves and for commercial purposes. It has expanded as a key cottage industry in Kullu valley having two types of loom Frame & Border loom. The weaves used are plain, diamond and twill weave. The products made are pattu, shawls, caps, kullu patti. The colours used are vibrant and bright which runs over contrasting backgrounds. There are eight colours used in Kullu weaving. Among these seven are taken from the band of the rainbow. In addition to these hues black is included in the palette for the ground fabric. Five prime colours are snapped from five elements of life, red, black, yellow, green and blue.

Supplementary weft technique is being used for making the motifs. The motifs are bounded to geometrical rectangular shapes. These motifs are inspired from the nature and surroundings. The motifs were Tara, Mandir bell, Mor panja, Akhrot, Kanghu, Keedha bel, Kainchu, Dari palla, Char bulbul chasam, Gulab, Ganesh.

Majorly, the craft is practiced by three parties which are as follows:

1. *The Co-operative Society*: A co-operative society is a voluntary association started with the aim of service of its members. It is a form of business where individuals belonging to the same class join their hands for the promotion of their common goals. The philosophy of the formation of cooperative society is "all for each and each for all". Example of co-operative society in kullu is *Bhuttico*.

2. *The Private Organisation*: A private organisation refers to any person, partnership, corporation, association or agency which is not a public body that is operated for profit. Example of private organisation is *bodh weavers.*

3. *Clusters:* During the pre-independence era clothes from industrialised regions couldn't reach the valley due to lack of transportation facilities. As Kullu valley falls under temperate Himalayan regions, the cold climate prevalent is suitable for sheep and goat rearing; this also fulfils the necessity for woollens which initiated the upliftment of clusters in Kullu valley. Eight clusters in four villages were visited which

helped us to understand the difference among three different sectors. Examples of cluster in Kullu are Balak Ram weavers of Sharabai, Maya ram weavers of takoli, Beena patti of Mohal etc.

III. METHODOLOGY

The present study was a descriptive research followed by extensive field work to collect the primary data and the secondary data was collected from various museums, books, magazines. To collect the primary data the locale selected was Kullu as it is a major source of manufacturing of hand-woven Kullu shawls. The purposive random sampling technique was followed to select the co-operative society, private sector and clusters of Kullu. Further snowball sampling technique was carried out while selecting sample and sample size of 20 respondents from each segment of the craft to give the authenticity of the collected data. The tool used was interview schedule was framed in open and close ended form and observation technique to collect data at the workplace of the craftsmen or artisans. The collected data were tabulated and analyzed properly in accordance with the objectives of the present study. The collected data has been analyzed and interpreted with the use of some statistical tools such as frequency distribution, percentage, mean, standard deviation to arrive at afore said objectives.

IV. RESULTS AND DISCUSSION

The data was collected in accordance to the required objective. Two fundamental goals drove the collection of the data and the subsequent data analysis. Those goals were to develop a base of knowledge about the co-operative society, private sector and clusters and to study the differences between the three. These objectives were accomplished. The findings presented in this study demonstrate the potential for merging theory and practice.
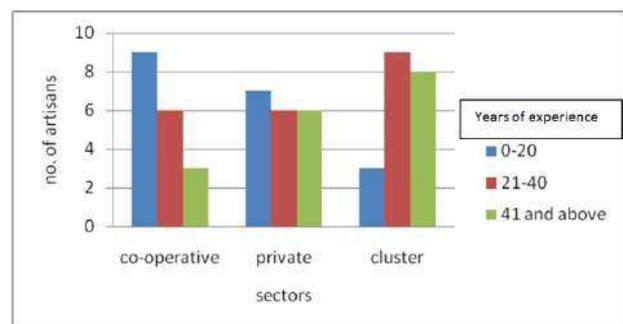
Graph 1: Age of Artisans and their Experience

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Looking at the years of experience, it was observed that artisans in clusters have the maximum experience as they have been practicing since childhood at their home followed by private and co-operative respectively.
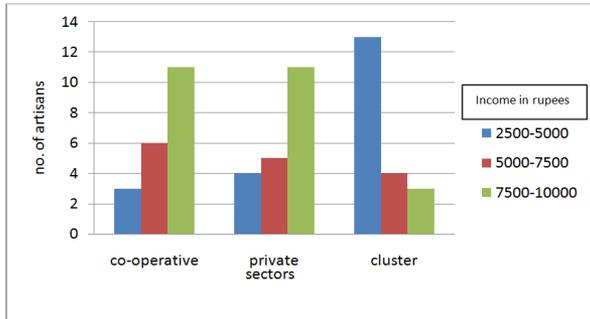
Graph 2: Income of the Artisans

In co-operative and private sector, 10 out of 20 artisans were getting above than average salary whereas in clusters, only 3–4 artisans have that share of income. Therefore, it can be concluded that artisans in co-operative and private sectors are getting paid well as compared to that of clusters.
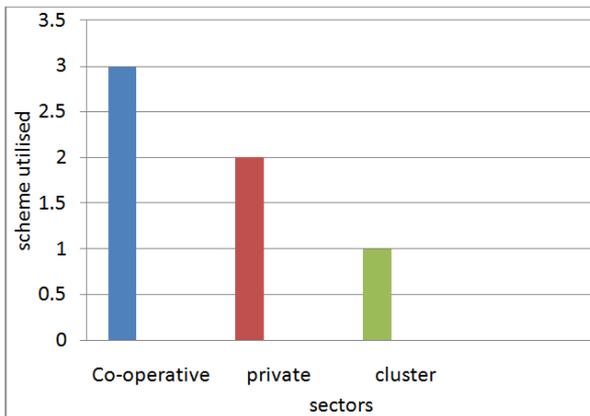
Graph 3: Schemes Utilised by Three Sectors
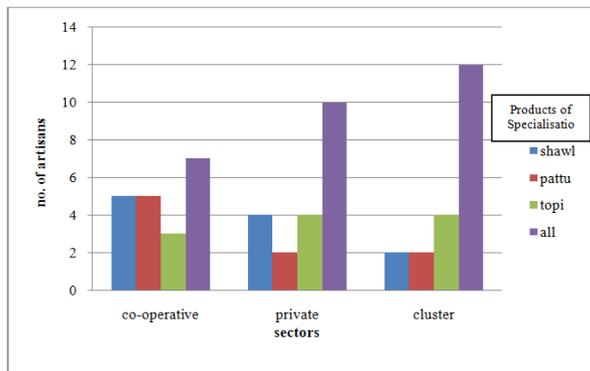
Graph 4: Expertise in Products Fabrication

Government schemes have been provided to all the sectors considering their need and requirements. Maximum benefits are offered to the artisans of clusters but due to lack of awareness, resources and disinterest in getting involved in legal work, they are not able to utilize it to the fullest. Whereas maximum utilization of the scheme is enjoyed by the co-operative society as there are higher authorities having knowledge about it and guiding artisans whenever needed. Private sector lies in between and enjoys a fair share of schemes provided.

When it comes to the product specialization, 12 out of 20 artisans in clusters were specialized in all kind of products. In private, 10 out of 20 were specialized for all products. Whereas in co-operative individual artisans were appointed for specific products.
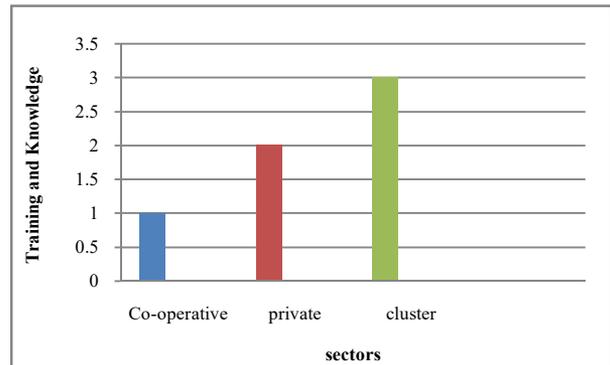
Graph 5: Training and Knowledge

In co-operative society, 25 percent of artisans do not have the technical knowledge about the traditional motifs because of less use of traditional motifs and more of contemporisation. In Private society, 50 percent of artisans have knowledge of what they are making and are trained. Whereas, in clusters majority of artisans are experienced and also have basic knowledge about traditional motifs and designs.
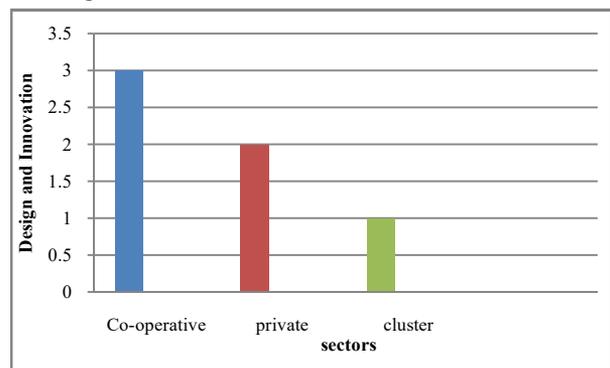
Graph 6: Design and Innovation

It is seen that in the co-operative society, 75 percent artisans encourages new innovation, use of new colors, maximum contemporisation and work according to the

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forecast due to market demand. In Private society 50 percent of artisans make new innovation, use new colors but less contemporisation. Whereas in clusters, 25 percent of artisans mainly working on traditional motifs and colors.

V. CONCLUSION

The study reveals that despite of the fact that the artisans in the cluster has better skills and experience of traditional craft, artisans in the private and co-operative societies are having better income and livelihood. Advantage of government schemes are better utilized by the societies than cluster artisans. New designs, colours and innovation are better adopted by societies but due to lack of innovation skills and reach of design intervention, clusters are lagging behind. The extent of work done by societies has enabled the revival of Kullu weaving and its contemporisation has led to better market of the craft. However, the work done by all the artisans in three parties is appreciable but the scope of craft is never ending and

for that better awareness and implementation of government schemes is utmost required.

REFERENCES

[1] Compendium of Handloom Schemes, Development Commissioner for Handlooms, Ministry of Textiles.
[2] Dhamija, J. and Jain, J. ed. (1989) Handwoven Fabrics of India, Mapin Publishers.
[3] Grosicki, Z.J. ed. (1975) Watson's Textile Design and Colour: Elementary Weaves and Figured Fabrics, Wood Head Publishing.
[4] India Handloom brand for promoting traditional hand woven heritage of India and also assuring quality product to the consumer. Available: http://handlooms.nic.in/User_Panel/UserView.aspx?TypeID=2403 [Accessed: July, 2017].
[5] Indian Handlooms. Available: http://www.india-crafts.com/textile/indian_handlooms/ [Accessed: July, 2017].
[6] Sharma, N. (2008) Handicrafts heritage of Gaddi tribe of Himachal Pradesh, *Indian Journal of Traditional Knowledge*, 7(1), pp. 62–66.
[7] Vishwa, B.S.C., Kaur, B.K. and Kahlon, S. (2013) Land Use Cover Change and it's implications for Kullu district of Himachal Pradesh, India. *International Journal of Geomatics and Geosciences*, 3(3), pp. 538–551.

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Chapter 2

Akola Print of Rajasthan: A Traditional Craft Skill in a Changing & Green Society

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ABSTRACT

Traditional art and craft, practiced by various crafts persons in the country are an evidence of Indian cultural heritage. Dabu is one of the popular forms of block printing. It is a mud-resist hand-block printing practiced primarily in Rajasthan. This ancient printing process is kept alive mostly by the Chippa community. Earlier, Rajasthan province was densely peppered with Dabu printing clusters. Now, very few remain to live the legacy. One of the few clusters is the Akola village, which thrives solely on the fabric demands of neighbouring villages. The colours of the sky–blue of the day, indigo of the night, red of the sunsets–are mostly seen in the regional attire. The village is a self-sufficient system for Dabu printing. Block carvers sculpt the blocks, the earth lends mud and the river bestows water. The fabrics are sourced from Kishangarh and pigments come from Udaipur. The paper explores the process of Akola print and how this craft can be revived in today's contemporary society. Translating the pool of data, worthy to be preserved and diffused among larger mass, into a popular paradigm like new-media is found more accessible by new generation and can act as an educative tool (Kalay, Kvan & Affleck, 2008).

KEYWORDS: Rajasthan, Akola, Chippa, Block-printing, Dabu

I. INTRODUCTION

Crafts are developed out of necessity to fulfil everyday needs of people. The products and objects made were for personal use and were instrumental in expressing their individuality and their way of life. The very act of creation gave a new meaning to their life, to their self expression and to the rituals, and also helped to develop an aesthetic sensibility. In the Indian context crafts have been both for personal use and an expressional fulfilment and economic activity. It evolved out of being a product of use, then was ornamented and given an aesthetic appeal to it (Dhamija, 1979).

The handcrafted products of India are created through fusion of modern technologies and traditional craft skills. Crafts are not only bearer of Indian Heritage but also the foundations of modern design innovations. The soul of Indian handicrafts lies in its rich cultural heritage. Indian civilization with its immense diversity and its history spanning centuries has developed its own language of colour, structure and form expressed in innumerable rituals, objects, art forms and performances. The diverse Rajasthani craft articles range from modern textiles of fleecy soft texture by matchless excellence of handcrafted textiles of finest work and craft, to the exquisite designs etc. These are all the products of unique craftsmanship.

Dabu is one of the popular forms of block printing. It is a mud-resist hand-block printing practiced primarily in Rajasthan. This ancient printing process is kept alive mostly by the Chippa community. The end result of a Dabu printing is a print with a sublime quality and unique appearance. In the making of these printed fabrics, there is a string of manual processes and hard work involved to achieve the end result. One gets drawn to this method of printing as the process uses lots of natural dyes and vegetable pastes, making it environment friendly and non-toxic.

II. MOTIVATION OF THE STUDY

Aim of the research work focuses on preservation of Indian traditional art and craft practices by contextualizing the practice and increasing the connection with society. Through the research the revival of traditional art and craft and rejuvenation of the craft-guilds are aimed.

Due to industrialization, Indian traditional art and craft are losing their potential market. As opposed to mass production, traditional craft practice creates a sustainable model of material usage and environment friendliness (Bhatt, 2007). Survival of a craft practice is mostly dependent on the economic rejuvenation of craft-guilds. Lucy Donkin says revived market can bring back artisans' motivation to practice their occupation and refrain new

generation to turn towards other occupation. This is leading to the damage of guild-system of the society of Indian artisans, which was an age-old tradition of our civilization (Coomaraswamy, 1909; Havell, 2007). Indian craft practice is intertwined with the social practices, rituals, festivals, tacit knowledge of a community and our cultural heritage (Donkin, 2001).

III. LITERATURE SURVEY

Dabu comes from the Hindi word 'Dabana' which means 'to press'. Legend has it, that a cloth dyer accidentally put in his mud-speckled clothing with the rest of the clothes to be dyed in Indigo. When the clothes were left out to dry the next day, he realised that the parts covered in mud, retained the original colour. This, they say is how Dabu printing was discovered. The village of Akola, in the Chittorgarh district of Rajasthan, is said to be the originator of Dabu printing. Dabu printing is often grouped together with other Rajasthani hand block prints like Sanganeri and Bagru, but is in fact quite distinct in terms of its look and method. The designs are said to be very similar to 'Batik' though the techniques used to produce the two are quite different.

IV. METHODOLOGY

For attainment of the formulated objectives of study a descriptive study was planned. The initiating step was to obtain data from various primary and secondary sources. T collect primary data, field visit was conducted in selected areas of Akola district. This method was devised for collecting first hand information about the production process & other details of the craft. For gathering of secondary data various libraries in universities, museums were visited & information was also collected from people familiar to this craft.

In accordance with the planned research strategy, detailed study of socio-economic profile of the artisans involved in Dabu occupation & documentation of the Dabu craft was undertaken.

V. RESULTS & DISCUSSION

The data gathered from the various primary & secondary sources was compiled & the obtained information is stated below:

A. Documentation of the Craft

Dabu Printing with Indigo Dyeing: The "Dabu" is mud used for resist printing. The paste used locally made out by black soil which has been brought from the lakes and ponds nearby. It should not contain any stones or pebbles. The dried mud which has deposited along the river banks after the rains is dug and kept in water till it is

fully dissolved in it. Wheat chaff, and gum along with the mud are mixed to make a sticky paste. The mud resist is applied on fabric using wood blocks, too quickly dry the paste, and saw dust is applied on it. The saw dust also act as binder which prevents colour penetration while dyeing. This process is followed by dyeing of fabric. The process may be repeated for double Dabu and triple Dabu. Indigo is one of the most widely used colours for Dabu printing. After every dyeing the fabric is thoroughly washed so rinsing removed the mud. Finally the non dyed part where the resist has been applied is revealed after washing. Some of the indigo penetrates onto fabric caused by mud cracking. The result is veining which gives batik like look in the fabric. The indigo vats are prepared by mild alkaline lie, jaggery, millet flour, calcium hydroxide and mild reducing agent. After this indigo dips the fabric is open out and aired and given cold water wash.

Block carvers sculpt the blocks, the earth lends mud and the river bestows water. The fabrics are sourced from Kishangarh and pigments come from Udaipur. Their craft speaks of skill and years of experience, as the craftsmen swiftly pattern the clothes. The application of resist and dye are done several times, painstakingly with great artistry, to get various shades of ground and motif colour. As time passed, Alizarin pigment used to impart red colour was replaced by Naphthol and the craftsmen began to use tar instead of mud in case of designs which require sharper contrasts. As told by Master craftsman Gopal Bhai, the native craftsmen known as Chippas, specialize in block printing. Few hundred years ago, Rani Rathorji of Mewar, established a village by the banks of Beduch river for them. Today around 200 people practice this craft in this quaint village.

Fabric: The grey fabrics used for printing is normally cotton, cotton with silk or pure silk mostly used in Pipad. Now they also start wool for printing. The grey fabric sourced primarily from Ahmadabad, Kota and Mumbai by these.

B. Method of Production

It uses conventional method for making of dye mixtures, pre and post treatment of the cloth for printing ornamental design. The colour shade is restricted to black, maroon and red. The black and red colours are mostly used in desert state. The base cloth is treated to make receptive or increase absorbency for printing. The following steps involved.

a. *Scouring*: The grey fabric is dipped into water containing mixture of cow dung/ sheep dung for 24 hours. This process removes natural and added impurities such as starch, oil and dust, then rinsing in water. Thereafter fabric is dried in sunlight preferably on bamboos in open sunlight

or spread on grounds. This process makes fabric more permeable for future process. It increase absorbency and remove size paste from the grey fabric.

b. *Mordating or Tanin Treatment*: Thereafter, The washed fabric is treated with harda or myrobolan. The 15 to 20% Myroblan used for this process. The treated cloth turns yellow after dried. These yellow coloured fabrics are taken up for further processing. The tannic acid found in harda which produce black colour with ferrous.

c. *Black Shade*: This paste is prepared with rusted iron, horse shoe nails and old jaggery. The mixture is kept in earthen pots under shadow for 15 to 25 days depend upon weather. This mixture of black colour used with gum for printing.

d. *Red Shade*: The fabric is treated with alum. In the case of printing about 5 to 10% alum powder from a paste with gum used for developing the red colour. The paste is directly printed on the fabric.

e. *Yellow Colour*: Some flowers like kesula is used to get various tones of yellow admixture with alum as mordent.

C. Indigo Dyeing

To making the indigo bath is tedious process but once the vat is ready for use, it is kept 'alive' by constant addition of indigo, lime and jiggery. He adds the exact quantity of every ingredient required, having learnt it by experience. They used hydro (sodium hydro sulphite) for reduction of vat dye. There is no written recipe with the indigo and family has its own way of handling indigo. The printed cloth is folded with pleats and lowered gently into the indigo tank. When the cloth is totally submerged in the tank, the dyer still holding it under the liquid dye, opens each pleat to allow the fabric to have the indigo dye evenly. Since indigo does not react in the presence of air, any air trapped in the folds or pleats will give "patchy" dyeing. The fabric is then taken out of tank, squeezed and opened out to react with the atmospheric oxygen for oxidation of colours. Oxidation turn reduced indigo into oxidized indigo. For darker shades the fabric is again dipped in the tank, pulled out and oxidized. This process is repeated till the desired dark shade is achieved. The fabric is finally dried flat on the ground. Care is taken that while dyeing or drying; 'Dabu' does not get broken or cracked.

D. Washing

The resist paste or Dabu and superficial dye which is physically attached to fabric is removed by washing of the fabric .The dyed fabric is left in big tanks for at least 3 to 4 hours till the resist paste becomes smooth. The excess dye and paste removed by beating the fabric on large flat slab of stone. The beating of the cloth is generally done where there is a flow of water.

E. Challenge and Strategic Approach

Block printing using natural dyes is time consuming and laborious process. Tedious extraction of colouring components from the raw material, low colour value, long dyeing time push the cost of the dyeing with natural dyes than with the synthetic dyes (Vankar, October 2000). Like the essence of earth, Dabu prints remain the primeval printing method. The prints are now popularly known as Akola Dabu prints. And like the patterns, these fabrics are deeply embedded in the cultural identities of various Rajasthani communities. The forms in which these fabrics are worn are changing with time, organizations like Aavaran and COS-V are giving new direction to this unique craft, yet the soul of the craft is carried forward, untampered, by the motifs and hues.

VI. DESIGN IMPLICATIONS

Designers bridge the gap between the market and the artisan, as today the artisan is geographically apart from his/ her client, to be able to understand his/ her aesthetic and socio-cultural needs. Designers help in finding the relevance of craft with respect to the artisan, the consumer and to the global market. Designers are thus an interface, between the past and the present, the traditional and the modern, trying to match craft production to the needs of modern times and demands (Sethi, 2005). Dabu printed fabrics display a subtle and extraordinary beauty and depth which has admirers around the world. It has also captured the imagination of modern day designers. Dabu today is used frequently in many Indian and Indo western clothes and home décor items. While earlier, they were almost exclusively used to decorate high end sarees made of fine cotton fabrics like Maheshwari cotton, nowadays they are used for all types of garments and in all kinds of fabrics. In particular, silk, crepe and georgette have become very popular amongst Dabu artisans, mainly because they hold the designs and colours very well. However, absorbent and resilient cotton fabrics remain the most commonly used for Dabu printing.

VII. INNOVATIONS

This technique has slowly and steadily gained a loyal and admiring customer base across the world, and this has encouraged the craftsmen to customize their designs and patterns to appeal to their more modern, westernized consumers. Thus, in addition to the ethnic motifs, modern designs of geometric waves, pop culture graphics and artistic shapes are often used. The colour base has also

expanded to unconventional combinations of red, black and green. Manisha Monga of D'ART STUDIO is a practitioner of this form of Art. D'ART STUDIO celebrates the union of Indian fabric with contemporary silhouettes and gives attention to fine detailing to provide exemplary products. Manisha recently came up with her line of Dabu chic collection which has contemporary dresses with unusual Dabu motifs. As per her, "Abu is still in vogue because a lot of new designs have come up and you can keep on experimenting with the blocks. Budding designers like us want to carry forward the old legacy with a new twist," Manisha elucidates. Citing the reason behind choosing Dabu Print for this season she says, "I have always loved Dabu block print and especially in summers it has cooling effect. Since we use all natural colours, it has no side effect and is skin friendly." Talking about her brand she further added, "Our block prints are starkly different from the traditional Dabu prints. We have used innovative and uncommon prints like the coconut tree, Banyan tree and more geometrical prints rather the usual motifs." Based out of Udaipur, Rajasthan, Aavaran was started by Alka Sharma, a textile graduate of IICD, Jaipur. Aavaran's attempt is to evolve traditional Dabu mud resist technique of printing, specifically the indigo dyed phentiya print, while consistently innovating on design and quality.

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Fig. 8

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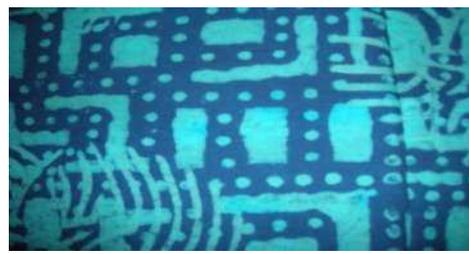
Fig. 9

Fig. 10

Fig. 11

Fig. 12

VIII. CONCLUSION

The research process unfolds the necessity of revitalization of traditional Indian craft guilds. To bridge the gap between cultural heritage and the society a contemporary popular paradigm has to be exploited, where the target audience should be larger community, especially including the young population. As the craft guilds are in economic crisis, awareness generation and knowledge propagation becomes more decisive step in Indian context. During designer-artisan collaboration designers plays a pivotal role to control the core essence of the art form. The process evokes the importance of the Visual designer and

artisan collaboration and co-creation for sustainability of craft-guilds and cultural heritage are necessary. The mode of collaboration should address the pedagogic aspects of cultural heritage preservation by educating more people while retaining the originality of the art and craft practice. The colours inspired by nature and folk traditions put these products in special category in today's competitive markets. Fortunately, a consumer realisation on chemicals pollutants is turning the buyer aware regarding these natural dyes fabric. There are sufficient capacities to this segment to explore and revitalize application of natural dyes on textiles. They have strength to resist the market if proper institution support and expand the marketing facilities of these products. E-marketing platforms is new concept for sailing the products to customers on E-Commerce websites. The artisans sell their products under their brand name and evolve as an entrepreneur selling his products directly to buyers across the country without stepping out there workplace. Ministry of Textiles recently signed as MOU (memorandum of understanding) with Flip kart India" Flip kart's ABHIYAAN Flip kart–Kaarigarkedwar" limited to provide online marketing platform to handloom weavers to boost handloom sector, empower the weavers and boost the manufacturing in the country.

REFERENCES

[1] Sharan M. and Chauhan V. (2016). An Insight into the traditional textile legacy of Rajasthan. *International Journal of Scientific Research,* 5 (4) pp. 47-481.

[2] Gaatha.com/dabu-print-akola/(2013). Dabu Printing [online].Available at: http://gaatha.com/dabu-print-akola/ [Accessed: 3-Oct-2017]

[3] Hada J. (2015). Dyeing with Natural Dyes: A Case Study of Pipad Village, District Jodhpur, Rajasthan in ICFT Jodhpur [online] Jodhpur. Available at https://www.researchgate.net/publication/295812378_Dyeing_with_Natural_Dyes_A_Case_Study_Of_Pipad_Village_District_Jodhpur_Rajasthan [Accessed 28 Sept. 2017].

[4] Liebl M. and Roy, T. Handmade in India: Traditional Craft skills in Changing World [pdf] World Bank. [Accessed on 1 Sept. 2017].

[5] Ghosh, A. (2012). Triggering Innovation & Creativity in Traditional Handicrafts Sectors-An Indian Perspective. SMS Varanasi, VIII (1), pp. 67-71.

[6] Karolia A. and Sardiwal S. (2014). Namda-The traditional felted craft of Rajasthan. Indian Journal of Traditional Knowledge, 13(2), pp. 409-415.

[7] Kapur H. and Mittar S. (2014). Design Intervention & Craft Revival. International Journal of Scientific & Research Publications, 4(10), pp. 1-5.

[8] Wood S. Sustaining Crafts & livelihoods: Handmade in India.

[9] (2015). Cultural Heritage Preservation of Traditional Indian Art through Virtual New-media:"Conservation of Architectural Heritage, CAH" [online] Luxor. Available at: www.sciencedirect.com [Accessed on 15 Sept 2017]

Amalgamation of Various Art Forms (Painting & Sculpture) in the Ambika Kalna Terracotta Art at West Bengal

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ABSTRACT

At the beginning of civilization, human started worshipping nature in order to protect themselves from unknown external enmities and started giving concept to nature as God while building temples. At the same time, the walls of the temples were drawn with stories of divine power so that the evil cannot enter inside (Santra Tarapada, 2014). Contemporarily, therefore, many temples were built at various places in India to depict the stories. The proposed study envisages that the temples in Kalna area of Burdwan district were made from Terracotta because of lack of stone walls. The soft mud from the Gangetic plains helped artists and sculptors to provide delicate form to sculptures. In my study, the relief sculptures made in terracotta walls connecting various art forms are investigated. During the reign of the king of Burdwan, many temples of Lord Shiva and Lord Krishna were built in 17th–19th century at Kalna area, on the bank of river Bhagirathi (Goswami Bijoykrishna, 1999; Mukhapadhya Rakhaldas). Due to the good relationship between the king of Burdwan with the Mughal dynasty (Goswami Bijoykrishna, 1999; Chowdhury Sushil, 2013; Mukhapadhya Rakhaldas), many forms had influences of Mughal art such as clothings, costumes, foliages, turbans, hunting scenes etc. Additionally, the birthplace of the king of Burdwan being in Punjab (Goswami Bijoykrishna, 1999), many arts were seen having influence of Rajput and Pahari art, jewelleries, costumes and subject matter. Moreover, the proximity of Orissa had an influence in the Kalna terracotta wall panels in form of influences from Bhubaneswar, Puri and PattaChitra. In addition, after the king of Burdwan captured Bishnupur and nearby six estates, the artists from those places were brought to Kalna to create terracotta art. Many of those artists from Bishnupur hailed from Orissa causing influence on composition and animal forms on Kalna terracotta (Goswami Bijoykrishna, 1999; Santra Tarapada, 2014). Apart from that, European styles were also found on Kalna terracotta due to the influence of Britishers who captured Bengal in 1857. Especially, the realistic compositions, human shape, business styles were affected by European culture in the Kalna terracotta panels (Goswami Bijoykrishna, 1999; Chowdhury Sushil; 2013). If we analyse the Kalna terracotta in present day context, then it would be visible that the Indian national sovereignty is exhibited in the terracotta art. In addition, due to juxtaposition of contemporary 3D illusion and painting, a new form of art was developed in the Kalna terracotta giving it almost a status of world heritage.

KEYWORDS: Terracotta, Burdwan Dynasty, Kalna, Relief Art

I. INTRODUCTION

In the beginning of civilization human began worshipping nature to protect themselves from the fury of nature and unknown fears. As civilization develop construction of building s started in different forms and styles. In parallel to temple building, carving and painting of God, goddess and of divine tales in the outer walls of temples were done. So that devilish power cannot enter inside the temple (Santra Tarapada, 2014). From ancient times India was famous for Tantra Sadhna or Yoga Sadhna so temples were built in different forms and styles in different times or era. Some temples were built by cutting stones or by using bricks or by using both. In our country the style of terracotta relief was started very early from Indus valley civilization. As time and patronage changes, the art and craft sometimes reached golden point or sometimes see the downfall. In my paper I am discussing about Kalna, Burdwan district, West Bengal, where due to shortage of stone all temples and relief panel were made by gang's soil. That's why the minute miniature quality details of jewelleries, costumes, designs were possible. Many scholars have discussed many different aspects of terracotta temples, but then also a major part is not very well discussed and that is effect of different painting styles in different terracotta panels.

A. Literature Study

From the study of work of different scholars about temples, mosque, sculpture of Bengal we got to know that:

1. The style, technique, subject-matter, time period, introduction of artists of terracotta temples of the temple and mosque built in Bengal (Tarapada 1998).
2. The mythological story, introduction of ruler, time period etc of the temples built in Kalna (Goswami 1999).
3. Origin of Burdwan dynasty, biological tree, political relation between mughals and their neighboring kings, social and economical and condition of Burdwan dynasty (Mukhopadhy, anon.)
4. Introduction of ruler of Burdwan dynasty. Social and political condition, relation with mughals etc (Chattapadhya, 1994).

Above mentioned literatures helped in my research paper. Instead of these magazines, different websites also helped in collection of data and photographs. After reading above mentioned literatures, I felt one topic is not discussed properly that is - The effect of different painting styles in the terracotta panels.

B. Objective

Every research paper have their aim of my research paper is:

To describe the effect of Orissa pattachitra, Rajput and Mughals painting styles over Kalna terracotta panels with the help of different data and proofs.

II. RESEARCH METHODOLOGY

To establish this research paper mainly two technique have been followed:

First: To study the obtained data at home or library.

Second: Field work

Field Work: To search the place where terracotta temples can be found and then to study and collect the details related to my topic.

To collect these data I followed two different methods:

- *Primary Source*: By collecting and analyzing the important data from the terracotta panels found in approx 15-16 temples of Kalna.
- *Secondary Source*: By collecting photographs and data from previously discussed topics related to this.

With this according to need of the subject I had taken interviews, photographs, videos and collection of data to present my topic strongly.

III. DISCUSSION

Geographical location- 23°21'N and 88°36'E, the city Kalna is located at the bank of the Bhagirathi river is famous for its religion activities and business (Goswami Bijoykrishna, 1999).

Later due to different reasons in 17th–19th century many temples of Shiva and Vishnu have been built in many different styles. Maximum temples were decorated from beautiful terracotta reliefs. And in these terracotta panels we can see the effect of different painting styles. In my research paper I had briefly about this.

C. Patrons of Temples and Introduction of Kings

As artist's feeling, emotions, concepts, skill is related to artist in same way any art work is related to religious preacher, or patrons love for art.

In 17th–19th century the terracotta temples or relief panels were made in Ambika Kalna (Burdwan) has effect of their Patron's art for love.

Biological Tree of Burdwan Dynasty

Sangam Rai (C. 16/17 A.D)

Banku Bihari Rai

Aabu Rai

Babu Rai

Ghanashyam Rai

Krishnaram Rai

Jagatram Rai
(Braja Kishori Rajarshwi)

Kirti Chand Rai(1702-40) (Raj Rajeshwari)		Mitrasen (Lakshmi Devi)
Chitrasen Rai(1740-44) (Changa Kumari & Indra Kumari)		Tilok Chand Rai(1744-70) (Roopkumari & Bishan Kumari)
		Tej Chand Rai(1770-1832) (Joykumari, Premkumari, Nankikumari, Setabkumari, , Tejkumari, Ujjwalkumari, Basantkumari Kamalkumari)
	Pratap Chand (B. 1791, D.1822/1852) (Aanad Kumari & Pyary Kumari)	Mehetab Chand(Adopted Son)(1832-1879)
		Aftab Chand Mahetab (Bendeyee Devi)
		Bijoy Chand Mahetab(Adopted Son)(1887-1942) (Radharani Devi)
		Uday Chand Mahetab(1942-1955) (Radharani Devi)
Saday Chand	Malay Chand	Pranoy Chand

Sangam Rai was the founder of Burdwan dynasty. He was from Lahore, Punjab, has visited Baikanthpur (Burdwan district) and due to business purpose permanently stayed there. His grandchild Abu Rai helped mughal army in some problems in 1667. In favour of this mughal emperor permitted him to do business under the fauzdaar of Burdwan district and to collect the mughal tax. This leads to the formation of a good relation between mughals and Burdwan kings. Babu Rai also maintained good relation with Nawab Bahadur of Bengal. But it was Chitrasen Rai who had taken

the position of king from mughal king and hence Burdwan dynasty started. Tilokchand Bahadur and Tejchand Bahadur had taken the Burdwan dynasty to its golden time. Because in this time the kings had worked for the welfare of people like building of temples etc. East India Company had established at the time of Tilokchand Bahadur in Bengal (Goswami Bijoykrishna, 1999; Chowdhury Sushil, 2013; Mukhapadhya Rakhaldas; Chaityapadhya sanjeev Chandra, 1994).

D. Introduction of Temple: Name, Time, Period and Style

Different temples their time period, styles, patrons, founder which were built during the time period of different kings and Queens are given in Table 1:

TABLE 1: TIME PERIODS OF TEMPLE, FOUNDER AND PATRONAGE IN AMBIKA KALNA*

Name of the Temple	Time period	Founder	Patron
Lalji temple	1739 (according to A.S.I) 1740 (according to Rakhaldas Mukhapadhya)	Braja Kishori (Mother of Kirtichand Rai)	Keertichand Rai Siddheshwari Kalimata temple
Siddheshwari Kalimata temple	1740	Raja Chitrasen Rai	Raja Chitrasen Rai
Krishnachandraji temple	1751-55(according to A.S.I) 1752(according to Rakhaldas Mukhapadhya)	Lakshmi Kumari Devi (Mother of Tilok Chand Bahadur	Tilok Chand Bahadur
Ananta Basudev temple	1758	Braja Kishori (Mother of Kirtichand Rai)	Tilok Chand Bahadur
Rameshwar temple (Jagannath Bari)	1758	Changa Kumari (Wife of Chitrasen Rai)	Tilok Chand Bahadur
Jagannath Bari	---------	Changa Kumari (Wife of Chitrasen Rai	Tilok Chand Bahadur
Bhubaneshwar Shiva temple(Jagannath Bari)	---------	Indra Kumari (Wife of Chitrasen Rai)	Tilok Chand Bahadur
Roopeshwar Shiva temple	1765	Roop Kumari (Wife of Tilok Chand Bahadur)	Tilok Chand Bahadur
Kasheenath temple	1766	Tulshi Devi	Tilok Chand Bahadur
Gopalji temple	1766(according to A.S.I) 1768 (according to Rakhaldas Mukhapadhya)	KISHAN Chandra Barman	Tilok Chand Bahadur
Rameshwar Shiva temple	1783 (according to A.S.I) 1784(according to Rakhaldas Mukhapadhya)	Bishan Kumari (Mother of Tej Chand)	Tej Chand Bahadur
108 Shiva temple	1809	Raja Tej Chand Bahadur	Raja Tej Chand Bahadur
Pratapeshwar Shiva temple	1849	Pyary Kumari (Wife of Pratap Chand)	Raja Tej Chand Bahadur
Ramchandra temple	1812-1822	----------	King of Shawrafuli
Brindavan Chandra temple	1810-1838	Raja Ganganarayana	Raja Ganganarayana

*(Goswami Bijoykrishna, 1999; Mukhapadhya Rakhaldas; Santra Tarapada, 2014; Dr Paan Prafula Kumar, 2006)

E. Different Styles of Painting in Terracotta Panels

From history we can found that no kings rule by sitting at one place. They travel other places for the growth of their kingdoms. With them they brought their culture, art, and artist. This leads to the exchange of culture from one place to another. In the same way artists also travel from one place to another for the search of better patronage and bring new styles by mixing their own art with others. Same thing happen with my research place Kalna. By mixing mughal style, rajput style, Orissa pattachitra, European style, local style Kalna terracotta panels develop as a unique style. During 17th–19th century many changes occur in style of relief. Due to these changes Kalna relief see both downfall and golden time.

1) Effect of Rajput and Mughal Style in Terracotta Panel Relief

There is a good relation between mughals and Bardhaman dynasty and its proof can be found in many areas of politics, economics and business.Due to this their effect can also be seen in terracotta panel relief. Especially the costumes, turbans, jewellery, hunting scenes of rajput can be seen in art form of Bengal.

The founder of Bardhaman dynasty is from Punjab, so many people from Punjab, Rajasthan and neighbouring place had also came to Bengal for business and job. After Shahjahan no other mughal emperor showed interest in art and architecture. So the artists from Mughal School travel to different parts of India in search of patronage (Goswami Bijoykrishna, 1999; Chowdhury, Sushil 2013; Mukhapadhya Rakhaldas; Chaityapadhya sanjeev Chandra, 1994). Some artists came to Bardhaman and involved in the formation of Temples. Due to this possible reason the artists depicted the character of mughal architecture through low relief terracotta in different subject matter like mythological stories, daily life, and social issues. That time architecture was given more importance than painting by kings. Like in different parts of world in India also the art and architecture was developed on the basis of religion. The main subject matter of Kalna relief is Ramayana, Mahabharata, nayika bheda, Geet Govinda. The first stage of temple construction their subject is mostly affected by religion. But in second stage we can see a varied range of subjects like daily life, social

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issues, business scenes etc (Goswami Bijoykrishna, 1999; Santra Tarapada, 2014; Chowdhury Sushil, 2013 Dr Paan Prafula Kumar, 2006).

In first stage of temple construction the artists were mainly from North West side. So, we can see the miniature like jewellery, costumes, designs, saree border etc. During that time we can see the effect of Indian art. The lines are bold giving more priority to emotions. But later period temples show the effect of European art. They give more importance to dimensions due to the arrivals of British in India in 1757. Figures become muscular, more dimensional, lack of boldness in lines. And in subject more priority was given to visual elements than to emotions.

The amalgamation of mughal, rajput style with Bengal style is described with the help of some photographs.

Fig. 1: Hunting Scene from Mughal Miniature

Fig. 2: Hunting Relief in Lalji Temple, Kalna
(http://www.alamy.com/stock-photo/miniature-painting-india.html)
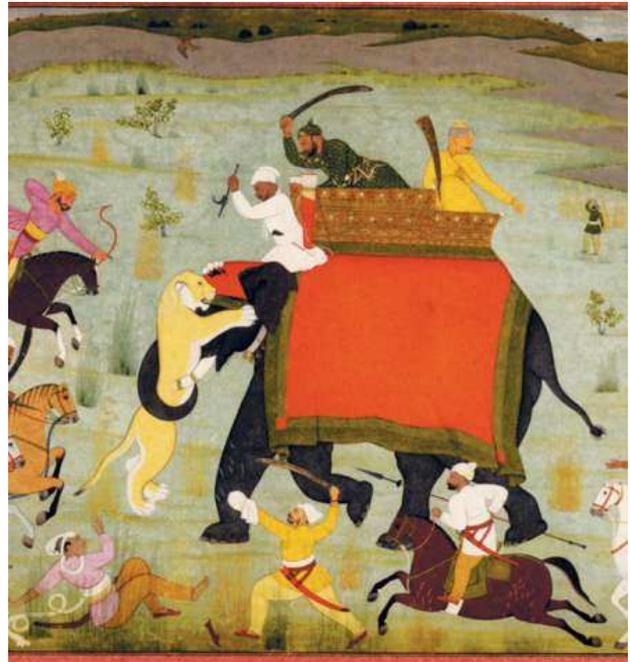
Fig. 3: Hunting Scene from Mughal Miniature

Fig. 4: Hunting Relief in Lalji Temple, Kalna
(http://www.nybooks.com/articles/2013/06/06/visions-indian-art/)

In this relief (Fig. 2, 4) a scene of lion hunting is shown. In Bengal there was very less trend of hunting by sitting at the back of elephant. The artists were inspired by mughals and rajput kings for hunting scene (Fig. 1, 3). In this relief the drawing of lion body is according to Orissa pattachitra but the costumes of king are like of mughal. The composition scheme is very much like mughals. So we can say that in this relief there is the effect of mughal, rajput and Orissa style.

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In this relief a king was depicted whose costumes are like mughal warrior (Fig. 6). If this relief is compared to mughal painting (Fig. 5), than the standing posture, attitude is similar.

Fig. 7: Nayikas in Miniature Paintings

Fig. 5: King in Mughal Miniature Painting

Fig. 8: Lady from Krishnachandraji Temple

(http://www.homz.in/articles/indian-miniature-paintings)

In this relief the costume of female figure is like Rajput ladies (Fig. 7, 8). Her jewellery dresses is similar to miniature style. This type of work is seen only in miniature and it is not found anywhere before miniature.

2) *Effect of Orissa Patachitra on Terracotta Reliefs*

From ancient times Bengal and Orissa had good relation. In politics art and craft, religion Bengal and Orissa is nearly same. During religious movement many devotees from Orissa had came to Mayapur, Navadweep, Shantipur because of Chaitanya mahaprabhu. During that

Fig. 6: Warrior from Krishnachandraji Temple

(http://blog.artoflegendindia.com/2010/12/dhundar-school-of-paintings.html)

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time Kalna became main centre for business and is located very close to Shantipur. As it is located at the bank of Bhagirath River business flourished and many artists came here in search of job and involved in the construction of temples (Goswami Bijoykrishna, 1999; Mukhapadhya Rakhaldas). For religious purpose many artists visited Jagannath temple, Bhubaneswar, Puri etc and they are inspired by their forms and subject matter and they illustrate them in Kalna temple architecture. If observed minutely we can found the similarities with Orissa patachitra.

Kirtichand Rai had defeated Mallraja of Bishnupur. And he captured 7 parganas with Bishnupur, Chandrakona, Barda, Chitura, Manoharshahi under his empire. During that period many artists had came to Kalna and involved in the construction of temples. That's why we can see the effect of Bishnupur in the Kalna temple relief. Many artists of Bishnupur is from Orissa and so the effect of Orissa style became more prominent in Kalna relief (Goswami Bijoykrishna, 1999; Santra Tarapada, 2014). We can show these effects through the pictures in Fig. 9 and Fig. 10.

Fig. 10: Orissa Pattachitra

(http://www.paramparaproject.org/traditions_pata-chitra.html)

Like Orissa patachitra, the height of man is short, upper body part is naked having a drapery around shoulders. Eyes are big, nose and chins are pointed.

Fig. 11: Singhavahini Durga in Lalji Temple

Fig. 9: Musicians and Bakasur Vadh from Lalji Temple
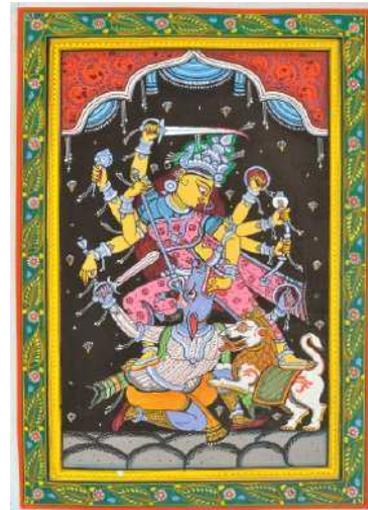
Fig. 12: Mahisasurmardini from Orissa Pattachitra

(http://www.exoticindiaart.com/paintings/)

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The relief compositions in Fig. 11 and Fig. 12 is of goddess Durga sitting on lion. Here the form of lion is the mixture of lion and horse which is common in relief sculpture of Orissa's temple. The drapery of goddess is not like Bengali or rajput or mughals but like of Orissa pattachitra. There is one more similarity with Orissa pattachitra is that there is no background scene.

Fig. 13: Lion in Lalji Temple

Fig. 14: Lion in Konark Temple, Orissa

(http://www.alamy.com/stock-photo-sculpture-of-lion and-elephantkonark-sun-templeindia-56500843.html)

Fig. 15: Lion in Orissa Pattachitra

(https://www.pinterest.com/dollsofindia/orissa-pattachitra/)

Above three photographs (Fig. 13, 14, 15) of lions are shown. All lions are the mixture of lion and horse which had came from Orissa.

Fig. 16: Krishna in Orissa Pattachitra

Fig. 17: Krishna & Balram in Krishnachandraji Temple

(http://www.redbag.in/home-decor/paintings/patachitra-paintings?page=4)

Figures 16 and 17 have different subject matter but the composition style, figures, space division is similar. The tree in panel is similar to pattachitra. Costumes are also similar.

Fig. 18: Horse in Konark Temple, Orissa

(http://www.alamy.com/stock-photo-india-orissa-konark-sun-temple-horse-statue-49078627.html)

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Fig. 19: Horse from Orissa Pattachitra

Fig. 20: Horse in Lalji Temple

(http://helloodisha.blogspot.in/2015/03   art-and-handicrafts-in-odisha.html/)

The relief of horse in terracotta panel of Kalna (Figs. 18, 19, 20) is same as the relief of Konark temple relief and Orissa pattachitra. Both have similar decoration and muscular drawing of horse. There is a mixture of different styles like rajput, mughal, Orissa but then also Burdwan relief stand in a position in world for its uniqueness and originality.

Fig. 21: Warrior and Saint in Ptatapeshwar Temple

As time changes, the effect of Europeans can be clearly seen (Fig. 21). In this time the drawing, composition is more realistic which can be seen in the panel of Pratapeshwar Shiva Mandir of Kalna. In this we can also see the effect of Greco-Roman sculpture. In subject matter we can see the British activity (Fig. 22). Relief became higher. In some relief it gave the impression of 3 dimensional sculptures.

Fig. 22: British Court Scene in Roopeshwar Shiva Temple

In some places artist also uses realistic perspective. Due to carelessness many relief had destroyed. But in some remaining relief we can see how the artist moves from Indian style to more European style. Overall during 17th-19th century artists very well depicted the mixture of different styles and the changes occur with time in a small city Kalna.

IV. CONCLUSION

As the temples or relief sculptures of other states of India like Bishnupur of Bankura district have got importance or published, the terracotta reliefs of Kalna most probably had not yet get that much importance. If we analyze the Kalna terracotta in present day context, then it would be visible that the Indian national sovereignty is exhibited in the terracotta art. In addition, due to juxtaposition of contemporary 3D illusion and painting, a new form of art was developed in the Kalna terracotta giving it almost a status of world heritage.

REFERENCES

[1] Santra Tarapada- Paschimbanglar Dharmiya sthapatyo Mandir o Masjid, Kolkata, January 2014.
[2] Santra Tarapada- Kolkata Mandir Masjid sthapatya alankaran - rupanter, Kolkata, August 2014.
[3] Goswami Bijoykrishna- Itihaser paye paye, Kalna, 14th july 1999.
[4] Mukhopadhya Rakhaldas- Bardhman Rajvanshanucharit o jal Pratapchand mamla.
[5] Chowdhury Sushil- Nawabi aamole Murishdabad, Nov, 2013.
[6] Pal Manabendra- Rajbadhu Rajamata, Kolkata, Feb 2000.
[7] Chaityapadhya Sanjeev Chandra- Jal Pratapchand, Kolkata 1994.

[8] Goswami B.N. - Indian painting in sarabhai foundation, ahmedabad, 2010

[9] Goswami Vijyakrishna-Bharter swadhinta sangrame Kalnar bhoomika, Congress barta sharadiya Sankha, 1420.

[10] Dr Paan Prafula Kumar- Gupta padai shree shree brindavan chandra jiu- abirbhav o rathyatra, 27 June,2006.

[11] Paschimbanga- Bardhman zila Sankhya, tathya o sanskriti vibhag.

[12] Aishee - terracotta temple and architecture of Eastern India. [www.aishee.org/temples/temples.php?Count=422 and region=barddhaman] May 2015

[13] Aishee- outside Bengal temples[www.aishee.org/templesphp?Count =8&region=outside+bengal], May2015

[14] Datta Rangan- Bengal terracotta

[15] Datta Rangan- mahisasuramardini on Bengal terracotta [http://rangandatta.wordpress.com/2012/10/03/mahisasuramardini-on-bengal-terracota/]

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Being in Process: The Timeless Way of Living

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ABSTRACT

Sustainability is the way of Nature. It can't be practiced as an afterthought. Sustainable system is one in which harmony of all aspects of production-man, material, method have a symbiotic relationship. In the act of engaging with the world man is awakened to the cyclic nature of life. This defines the process and the way material-re source-able, renew-able, re generate-able and recycle-able-is used.

Learning is the natural mechanism to sustain life. We are internally designed by nature to learn in order to live. The world awakens the humans to the workings of the world which is also the way of the humans. Traditional artisan's learning is experientially rooted, learner driven. It has the quality of re-creating, re-inventing and re-living knowledge. Naturally they acquire the re cycling quality of nature which is what is their cognitive source, their context as well as their nature.

There is no word for waste in indigenous communities as there is no waste in nature. So the concept of waste is absent. Naturally, they don't waste. An attitude of non-wasting is inbuilt into their consciousness. Just the fact that we keep the waste paper basket in our living space teaches our children 'to waste'. An Attitude for sustainability is built into the COGNITIVE SPACE. This may be due to the fact that there is no 'waste' in nature. The very notion of waste is the creation of 'anthropocentric' human beings whereas nature centric human beings do not have waste in their consciousness as nature itself do not have waste. Most crafts have evolved from utilizing "waste". It is worthwhile to look at how traditional societies have responded to the waste generated by the result of modern knowledge. Plastic in various grades and forms. All around the countryside, one can see interesting reuse of plastic. The potters in my village use plastic to burnish their wares. In the farm, one can see the carry bags hung to keep the birds away. Due to wind the bag flutters and keeps the birds away. Plastic buckets etc are reused by sticking with another piece. I have seen the milk packets turned into chattayi for sitting on the ground. The reuse the modernity's waste is seen all over the traditional communities all over the world. The modernity creates the waste and the tradition clears it.

The Hindi term that describe the process among the folk communities is Jugad. This is true of all 'process culture' which are process oriented unlike modernity which is product oriented.

KEYWORDS: Jugaad, Process Culture, Waste, Recycling, Sustainability, Authenticity

I. INTRODUCTION

Sustainability is the way of Nature. It can't be practiced as an afterthought. Sustainable system is one in which harmony of all aspects of production-man, material, method have a symbiotic relationship. In the act of engaging with the world man is awakened to the cyclic nature of life. This defines the process and the way material-re source-able, renew-able, re generate-able and recycle-able-is used.

The linear, exponential 'growth' of modernity and sustainable, re-cyclic change in tradition are after all formed by respective cognitive conditions. An objective enquiry is called for to understand how the respective world views-one of alienation and other reintegration-are formed. So what need to be explored are the two paradigms of being-one

which the very notion of 'waste' is absent and the other which generates waste from almost all activities it engages with. This is important as we represent the later group and the traditional artisans the first group.

The structure of the relationship between the two groups involved in this transaction is clear. One has power over the other group-politically, economically and technologically and hence defines the meaning and method of all this. The powerful also has a make belief sense of justice that in fact is a means to protect this power relation. This is caused by several myths, misconceptions and misunderstandings we hold about various aspects like progress, educated, developed, sustainability etc. Two things needs to be explored in this context. One is to understand how one is made to believe in what one is

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believing. This needs to be done quite brutally as this will break the self image of oneself and all that one thought were ones identity. Second is to explore the role of cognitive conditions in forming ones world view and self image. But this demands us to step out of the designers role, to step out of the notion that one is developed at least hypothetically and also to step outside the do gooders role. Both makes us feel superior. Can we at least temporarily hold these assumptions and together explore how tradition practiced crafts and how they lived sustainably.

A. Formation of Worldviews

1) Notion of waste

The key to sustainability among the non literate traditional cultures is that there is 'waste' in their cultures. There is not even the word for waste in indigenous communities. So the concept of waste is absent. Naturally they don't waste. An attitude of non wasting is inbuilt in to their consciousness. Just the fact that we keep waste paper basket in our living space teaches our children 'to waste'. An Attitude for sustainability is built in to the Cognitive Space. This may be due the fact there is no 'waste' in nature. The very notion of waste is the creation of 'anthropocentric' human beings where as nature centric human beings do not have waste in their consciousness as nature itself do not have waste.

Most craft have evolved from utilizing "waste". Thus the worldview of the traditional cultures did not allow them to waste and sustainability was part and parcel of their life style. The new found activity 'jugad' explains the sustainability system of artisans in which 'process' is given more importance than the product to solve any problem.

Fig. 1: Basket Made using Pan Paraag Packets by Village People in Ganjam, Orissa

It is worthwhile to look at how traditional societies have responded to the waste generated by the result of modern knowledge. Plastic in various grades and forms. All around the country side one can see interesting reuse

of plastic. The potters in my village use plastic to burnish their wares. In the farm one can see the carry bags hung to keep the birds away. Due to wind the bag flutters and keeps the birds away. Plastic buckets etc are reused by sticking with another piece. I have seen the milk packets turned in to chattayi for sitting on the ground. There are several types of chattayi's depending on the type of plastic. My mother uses it to plant seeds. The reuse the modernity's waste is seen all over the traditional communities all over the world.

Fig. 2: Patch Work Bed Sheet Made from Old Saris etc-Belgaum, Karnataka

Fig. 3: Cart Made from Bottle and Chappal by Children in Aruvacode, Kerala

Fig. 4: Basket Made from Combination of Bamboo and Plastic by an Artisan from Mukkam, Kerala

Fig. 5: Ropes Made from Plastic-Parlekhmundy, Orissa

Fig. 6: Banjara Woman Making Bead Work in a make Shift House

There is also the innovative way in which they process their clay. To powder dry clay pieces, the potters spread them on the road and let enough vehicles pass over them so that by dusk they can collect finely powdered clay. Initially, the pieces of clay were just spread out on the road. Then they were placed over a plastic sheet. Next, between two plastic sheets so that the powdered clay did not get blown off and it was easy to collect and carry the powder to the sheds. Technology appropriation of sorts!

This is seen even among the children of traditional communities there are several toys made from plastic. Observing children make toys with all the discarded metal wires, rubber, plastic, etc. one tends to wonder if all that indeed is a waste! The ideas are innovative and the toys seem to offer adequate lessons in applied physics and chemistry than what the textbooks offer!

It is as if modernity creates the waste and the tradition clears it. There are many crafts that are an outcome of this response. The old torn bits of cloths were stitched together to form what we today call as appliqué or patch work, kantha etc.

Unlike today animals were never killed for the sake of getting leather. The use of leather was a way of making most use of a dead animal. Nothing was ever wasted or unused. Today millions of animals are slaughtered all over the world for making the fancy leather craft.

Brass craft is another instance of re cycling. When a product get damaged it is again given back to the artisan for recycling. Even the other crafts were practiced using materials that are degradable or re usable. This is true of most of the metal crafts.

II. THE CONFLICTING WORLDVIEWS OF MODERNITY AND TRADITION

A. Process vs. Product or Organic Knowing vs. Mechanical Knowledge

So what has been the learning process for traditional communities? How did they sustain this earth for millennia, where as the western, industrialised mayhem has brought the world to her knees in less than a century of callous, insensitive destruction? This disregard of life was unknown to traditional cultures which, the world over, had evolved lifestyles and knowledge systems over a few thousand years that sustained all life around them.

It is interesting to note that the Indigenous, non literate artisans have more verbs in their language and we have more nouns. Our language is actor centered and their language is action centered. In other words theirs is 'happening' culture where as ours is 'doing' culture. or Knowledge paradigm and Being paradigm. You can deduct how control came into our being.

This is reflection of how they live and 'produce' or live the knowledge. Naturally the craft they make is also an 'in process phenomenon'. Among the non literates there is no fixity to product's use. This multi use is the characteristics of process cultures. Here the focus is on process-solving a problem and not on looking for a product to solve the problem. Toy and Play are the two best examples of how verb or 'in-process-nouns' became fully noun in modern culture.

Traditional artisan's learning is experientially rooted, learner driven. It has the quality of re-creating, re-inventing and re-living knowledge. The cognitive space ensures the first handedness in these learnings and helps the learner to situate oneself in the cultural conditions of one's life. Of course the biggest advantage of tradition has been that their living, learning and livelihood are integrated and merged into one and hence it is rooted in experience. Every moment is a learning moment. The child gets to engage with knowledge right from the womb as unlike in modern cultures the pregnant women in traditional societies continue to work even till the ninth month.

The child is all the time immersed in an environment of knowledge creation with total dedication. Yet the child hardly ever encounters teaching or instruction. All this happens in the environment of freedom, care so that the autonomy of the child is at work. The self is given importance without developing the ego.

III. AESTHETIC DIVERSITY OF INDIGENOUS CULTURE *VS.* AESTHETIC HOMOGENIZATION IN MODERNITY

A. *Today Beauty and Ethics are Disconnected*

Using plastic in making craft is another eyesore for the craft activist. Artisan in their wisdom utilizes all that comes to them. So the carry bags, Milma milk packets, plastic cement bags etc. All become raw material for their embroidered carry bags, chattayis for sitting covering grass containers etc. The strength of traditional craft practices are that it is aesthetically and functionally very much rooted to the local context/ culture/ sensibilities. The aesthetic inspiration and vocabulary is based on the artisans experience of their cultural contexts which is in line with the recyclic quality of nature. It helps them to be observant of their environment and sensitive to the life style of material and products. This makes them to use and reuse products in such a way that the beauty is integrated with sustainability.

But with the intervention of modern designer this connection with their context is going off. The Process of making a particular craft dictates the aesthetic characteristics. So changes in the process by introducing machines etc., need to be done sensitively. The craft making is a process that involves understanding the customer, their needs etc. and a mastery over the material used for making craft. The software element-the aesthetic sense and the creativity is the soul of the craft which is the soul of the maker. These needs to be in control of the artisan and to be truly effective steps needs to be taken to enable this to happen.

This is in contrast to what is happening in modernity which is totally homogenizing the aesthetic sensibilities and mechanizing the living process.

(As claimed by a local legend, a 'Raffoogar' (darner) named Alibaba lived in the valley of Kashmir. He was proficient in his job of stitching and mending torn clothes and spent his days doing countless stitches and bringing dead clothes to life. One day a fowl stepped on a white cloth lying around, drying on his porch. The imprints of fowl's feet caught Alibaba's attention and he wanted to preserve this true to nature print. He picked up a needle with a colored thread and stitched around the print, preserving it for lifetime. An all-new technique of ornamenting the fabric, which was later known by the name of 'Kashida kaam' was thus invented.)

IV. HOMOGENIZATION AND MECHANIZATION OF TRADITIONAL CRAFTS

It is important to ask what is craft in the modern context?

Utilitarian products made using hands some time just one piece same times several depending on the demand. Using local materials by using only hand or tools that help the hand (extension of hand). The creator is all the time alert to the activity as there is no mechanical action involved. Even if the artisan is repeating a particular product the possibility of change is always there as there are no moulds used or a one time mould is used which also never prevents the possibility of change. This prevents the mechanization or numbing of the mind of the artisans.

But now the traditional craft sector in India is facing a major crisis which needs to be addressed urgently at various levels. Mechanization that leads to lack of knowledge of the material, introduction of moulds that leads to boredom in work, un wanted scaling up that leads to depletion of natural resources, design inputs that leads to homogenization and lack of artisan participation in the creative process–these all are being introduced which are detrimental to craft in the long run.

Soon the features that made each of these crafts unique will disappear. Soon the kutch embroidery and Kashmir embroidery will look alike so also the santoor work etc. This is happening to all the crafts where modern designers have intervened. With the interference of 'experts' the crafts are undergoing homogenization especially in the aesthetic sense. The quality, as well as the character of crafts are changing and are becoming very factory like. This is happening because the artisan is treated as a laborer to execute someone else's design. He is no longer using his whole being in the act of creation thus losing the innocent character of the crafts.

The main problem of the educated professionals, including designers, working with artisan is that they come with the understanding and logic of industrial culture that undermines the very strengths of craft. So the need of the hour is cultural sensitivity as well as cultural responsibility which will ensure more authentic and original exploration within the space of modernity and learn to respect traditional artisan

V. LESSONS FROM TRADITIONAL CRAFTS

Apart from the obvious aspects like sustainability in their lives, artisans offer lessons in the formation of values and attitudes towards work, learning process, knowledge, skills and learning conditions etc. The biggest crisis in modernity is school education where fundamental and inherent values that are natural to children are being

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destroyed, values like dedication to work or learning, involvement, lack of creativity, self initiative and quest for knowledge, development of skills and even real values of love, care, co operation etc. of course the biggest advantage of tradition has been that their living, learning and livelihood are integrated and merged into one and hence it is rooted in experience. Every moment is a learning moment. The child gets to engage with knowledge right from the womb as unlike in modern cultures the pregnant women in traditional societies continue to work even till the ninth month.

The child is all the time immersed in an environment of knowledge creation with total dedication. Yet the child hardly ever encounters teaching or instruction. All this happens in the environment of freedom, care so that the autonomy of the child is at work. The self is given importance without developing the ego.

The fundamental strength of the craft sector is that-it provides creative and meaningful livelihood to large amount of people in the country. It uses local resources and it helps in retaining the cultural diversity. It is also eco friendly and has potential for being sustainable provided the logic of industry like scalability and mass production is not brought in.

VI. CONCLUSION: HOW DOES ONE WORK WITH TRADITIONAL CRAFTSPEOPLE

The attitude for sustainability stems from their process oriented lives and it is important for the people who intervene understand and respect the totality of this system. As they belong to the 'in process' cultures one will have to find ways of becoming part of their process rather than intervene with products or introduce anything that takes them away from this quality in their being. It is important to develop cultural sensitivity among the designers and an eye and sensitivity to recognize this. One will have to explore how culture gets made, what is to be authentic and original and also to recognize one's own cultural responsibility in making sure authenticity and rootedness.

'Chandua Kama': Applique Magic of Pipili, Odisha

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ABSTRACT

"CHANDUA: APPLIQUE MAGIC OF ODISHA" Once known as 'Utkala: land of excellence in art'; ODISHA is a treasure chest of traditional arts and crafts heritage from times of King Asoka. But over generations its rich crafts heritage has been depleting due to lack of documentation, poor finances, new designs, weak marketing strategies, ignorance and poor lifestyle of the artisans. The 'Chandua Kama: applique work of Pipili' is a beautiful intricate textile craft which has huge untapped potential. In account of this a research project work was undertaken at Pipili and Bhubaneswar involving numerous artisans with an objective to revive and upgrade this traditional "Chandua Kama" craft to create awareness and generate a market on national and international level. New products were designed inspired from mythological epics with a modern touch and were then put for exhibition-cum-sale which fetched huge positive response. A systematic documentation of this unique textile craft will be a boon for generations to come.

KEYWORDS: Chandua, Artisans, Survey, Mapping, Craft Inventories, Challenges, Data Processing, GIS, Craft Management, Training Program, Documentation, Documentation Process

I. CRAFTS AREN'T JUST OUR HERITAGE; THEY ARE INDIA'S GLOBAL

A. Comparative Advantage

Textile crafts and design have always had an important cultural, economic and social impact on human lives. This craft culture is not only about creating, collecting and preserving different textiles (costumes, yarns, fabrics, techniques) but also it needs a strong and effective attention to systematic document of the inherited skills for further study and understanding by future generations.

In the book *'Handicrafts of India'* the diversity of Indian crafts and textiles is beautifully described: "To write about Indian handicrafts is almost like writing about the country itself. So vast, complex, colorful, and yet with a simplicity and charm, difficult to attain under comparable conditions."

The historically imbibed plural aesthetics of Indian handicrafts are priceless economic and cultural assets of the country.[a1] The production of handicrafts is (after agriculture) the largest source of income among rural populations-an estimated 11.65 million Indians were engaged in craft production in 2013. This is expected to grow to 13.93 million in 2017 and 17.79 million in 2022. Data from unofficial sources indicates that up to 200 million artisans depend on their crafts for a livelihood, suggesting the need for a more rigorous mapping and documentation for better understanding of the sector. A 2013 report in *The Hindu* states that the global market for handicrafts is $400 billion with India's share below 2%, representing a tremendous growth opportunity. It further states, "According to the 12th Five Year Plan, handicrafts production is expected to double between 2012 and 2017 and exports are projected to grow at the compounded annual rate of 18% during the same period. As a result, the craft sector will employ an additional 10% of individuals per year up to that time.[a]

However, a growing array of critical issues encompasses the dynamics of the multi-layered crafts sector. While the question of employment viability hovers over artisans struggling to meet ends meet today, there is also a responsibility to ensure that age-old handicrafts sustain into future generations too. The question of posterity becomes vital as we passively witness the fading of certain craft forms (some have already vanished)-the very survival of certain artisan communities is threatened. India has highly skilled and trained artisans or *karigars*, and we must share the responsibility to further boost their livelihood prospects. We need public-private engagement in this segment more than any other, so that the original and historical 'Make in India' products can be revived.

'Crafts are not only our heritage; they are our global comparative advantage.' The last decade has seen several designers and entrepreneurs redefine and explore new avenues of business with the reinterpretation of traditional craft forms through design interventions and collaborative initiatives with craftspeople. The government's 'Make in India' initiative is breathing life into some relatively unknown varieties of indigenous fabrics. Thanks to the efforts of designers and some state governments, fabrics such as Ikat and Uppada silks are seeing a surge in popularity, as are the more popular Banarasi and khadi varieties. This has, in wonderful ways, formed a bridge between rural and urban India and producers and consumers, previously somewhat distanced by geographical and emerging class divides as India economically thrives. While this movement has not been equitably spread, the impact has been laudable. Over the past 30 years, the number of Indian artisans has decreased by 30%, indicating the need to re-invest in artisans to safeguard history, culture and livelihood.

A UNESCO Seal of Excellence winner, recently curated 'Walking Hand-in-Hand' at the National Institute of Design (NID)[a2], Ahmedabad, which witnessed collaboration between several designers and craftspeople to facilitate the inter-exchange of knowledge of skill and craft and market and design development. It empowered artisans in innovative ways, allowing them to perceive their role as "design enhancers" and "entrepreneurs". It has been noticed that the nature of contribution of artisans transforms radically when they feel respected and valued. 'Walking Hand-in-Hand' fruited into a collaborative fashion collection with equal honors shared by designer and artisan. Collaborative experiments certainly show a way forward and could be replicated at a larger level to pave the way for a hierarchical/ structural change. This is also an interesting means to define new aesthetics-integrating disciplines like fashion, design and craft is an ideal way to foster 'Craft in India'[a3] through quality innovation, adding creative value to the contemporary design market through indigenous craft.

Given that the artisans and communities are the custodians of their indigenous craft, documentation training and efforts must be pushed at the ground level.

Sustainability is the way forward, which in this case implies both survival of crafts integrated with livelihood prospects and environmentally sound practices. The handicrafts sector has a low carbon footprint since it is essentially driven by human power. However, most of these crafts are intuitively imbibed and practiced making them temporal assets, dependent on communities and future generations for survival.

As the industry faces the threat of becoming unrewarding, centuries-old techniques and skills could be lost permanently. Over the past 30 years, the number of Indian artisans has decreased by 30%, indicating the need to re-invest in artisans to safeguard history, culture and an important source of livelihood. Documentation of the material and production process becomes highly critical-so far, it's an area that has been given negligible attention. Given that the artisans and communities are the custodians of their indigenous craft, documentation training and efforts must be pushed at the ground level, conjunctly with private and government bodies.

One such textile craft is the exquisite and magnificent applique craft of Pipili, Odisha (India)-'CHANDUA KAMA'. It owes its origin to the mythological stories of Lord Jagannath from 12th century. Legends reflect how the royalties and nobilities patronized this ancient textile craft, which continues till date. But in this modern and highly technologically advanced world this textile craft of Odisha is losing its hold and charm that it deserves to get attention. Various reasons like poor financial and living conditions of artisans, ignorance in product development and its marketing, lack of exploration for developing new designs and product line, poor education of artisans etc. This craft's products were mainly made to be used in religious ceremonies like Rath Yatra (car festival), Shayan yatra, Jhulan yatra, Shayan yatra, Krishna Janmasthami, Radhashtami, Kartik Purnima, Makar Sankranti, Kumara Purnima, marriages etc. but its beauty and exquisiteness has drawn considerable attention and demand for development and production of utility and designer products. Buyers who want new and modern designed bags and purses, home furnishings, lamp shades, belts, shoes, garments, jewelery, etc. Traditionally the products available were limited to sarees and dupattas, bags, canopies, garden umbrellas, bedcovers and cushions, table covers with same old traditional color combinations used for all products.

In comparison to other handicrafts of Odisha namely Pattachitra (Raghurajpur & Puri), Ikat weaving (Sambalpur, Balipatna, Cuttuck), Dokra clay craft (Mayurbhanj), Silver filigree/ Tarakashi (Cuttuck), Lacquer work (Nabarangpur), Hornwork (Paralakhemuni) etc.

This 'Chandua Kama" is lesser known and documented. It has huge untapped potential to capture the national and international market, if explored and given a platform of proper marketing of its products.

II. DOCUMENTATION & INVENTORIES

Documentation is the process of identification and recording of all relevant physical and functional information about cultural heritage assets with a view of formulating an appropriate strategy for its conservation and management.

The complex nature of historic city necessitates detailed documentation and mapping of its cultural and natural characteristics, a thorough understanding of its urban morphology, historical evolution, physical & functional attributes and socio-economic processes to guide the conservation and management strategy.

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III. METHODOLOGY

Since, applique is generally confused with patchwork by common public; wherein both are very different craft techniques; and to clear this confusion cluster workshops and training programs were conducted by researcher at government centers like State Institute for Development of Arts & Crafts (SIDAC) (Govt. of Orissa Organisation, Bhubaneswar), Puri Handicrafts (NGO at Puri) and Pipili In the present research work an attempt has been made to train Chandua Kama craft artisans about latest trends in fashion and textiles design to develop new products for national and international market as per consumer demand for new designs by conducting three workshops at Odisha.

Artisans were taught to handle material, tracing design, and fabric cutting, stitching and embroidering on motifs. Artisans were also taught about to make color combinations which are interesting, care for developed products, packaging and marketing, developing public relations (PR) and attract customers and buyers etc.

B. Selection of Area

The Chandua Kama craft artisans were trained by conducting three workshops at three places of Odisha i.e., Bhubaneswar, Pipili and Puri where the craft is majorly practiced.
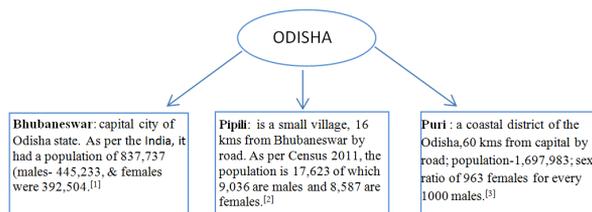
Fig. 1: Selection of Area to Conduct the Workshop and Training Program

C. Selection of Respondents

For conducting the workshops and training program about developing new Chandua Kama products inspired from latest fashion trend. Total 250 artisans were selected. Both men and women from different nearby small villages were imparted training and explained how to develop, explore and market this applique craft according to present market demands.
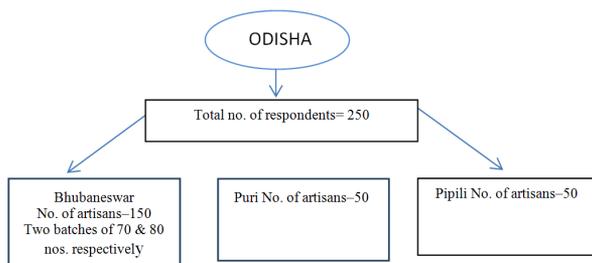
Fig. 2: Selection of Respondents (Area Wise)

IV. CONDUCTING WORKSHOP & TRAINING PROGRAM FOR CHANDUA KAMA ARTISANS

Applique work is done in many parts of India each having its own style and colors depicting different stories which make them separate from each other; among which Chandua Kama has its recognition from motifs and stories depicting Lord Jagannath and other mythological deities and their stories. This craft is done by the tailor caste called 'Maharana' or 'Mahapatra'. This craft's origin dates to 850 years back as mentioned by Dr. Jagannath Pattnaik, a leading historian of Odisha.[4]

V. DURATION OF WORKSHOP & TRAINING PROGRAM

Since the batches of artisans consisted of experienced as well as new learners, so equal training of techniques and material handling was taught by experts and master tailors appointed for the duration of the workshop. The workshop & training program was planned over a period of 5 weeks with classes being conducted for 6 hours, 5 days a week. Out of total 5 weeks 2 weeks were conducted in Bhubaneswar and 3 weeks combined training program at Puri and Pipili.

VI. STEPS FOLLOWED DURING CHANDUA KAMA CRAFT TRAINING TO ARTISANS

Technically the following methods were followed stepwise in Chandua applique work to train the artisans:

Pic. 1: Design Finalization

Step 1: Selection of story, motifs and color combinations: Artisans were explained and convinced by the researcher (designer) how new color trends and designs are influencing the value of the craft and its importance to adapt to new market trends and bring change accordingly.

Step 2: Drawing of motifs by mastertailor (Maharana/ Mahapatra): The appointed master tailor after discussion and approval of the researcher finalizes and draws the motifs on butter sheets (used for tracing) and the other artisans observe the process.

Pic. 2: Design Drawing and Tracing

Pic. 5: Motif Tagging onto Base Fabric of a Wall Décor

Pic. 3: Motif Tagging on Base Fabric

Pic. 6: Embroidering on Cushion Cover

Step 3: Selection of fabrics and tracing of motifs on base fabric: The appointed master tailor then taught artisans about tracing designs onto fabric, about handling different types of fabrics (mainly cotton), measuring and calculating the amount of fabric needed for a certain design, using right kind of tracing paper and tracing neatly, etc.

Step 4: Cutting of motifs and numbering and bundling of motifs (for mass production) according to design: artisans were taught to segregate different motifs according to design, numbering and bundling.

Step 5: Placing and tagging of motifs:
The artisans were taught to spread out the cut motifs and place them to the traced areas on the base fabric according to number and to tag the initial stitches to fix the pieces before further embroidery work.

Pic. 4: Motif Tagging onto Base Fabric of a Cushion Cover

Step 6: Distribution of the raw material for further embroidery and applique work among the artisans.
The major 3 processes in the applique work which was followed during the training are as below:[b]

1. *Stitches*: There are various stitches that are used with local names: Bakhia (stem stitch), Taropa (hem stitch), Guntha (running stitch), Khanja (tag stitch), Kaaj (buttonhole), Ganthi (knot), Kitikitia (type of running stitch), Ruching, chain stitch etc.

2. *Strips (Patti)*: Phula (flower), Sadda/naali, Nahara (cone), Kalasa (pitcher), Beliri, mooda, chakua (square), kandiali (diamond), hansa (swan), suaa (parrot), etc.

3. *Patchwork*: Bigger motifs like haati (elephant), tree, patra (leaves), matsya (fish), sun, moon, dancing women, etc.

Step 7: Collection of the finished pieces and counting.

Step 8: Further distribution of the pieces for thread cutting, finishing, cleaning (if required) and tagging.

Step 9: Folding and packaging: Some few artisans who were not so skilled in embroidery work were taught how to keep inventory records, counting methods and procedure, folding techniques for each different type of product and packaging methods.

The major steps followed during the documentation and preparations of detailed Inventories were:

- Planning-review and learning from existing documentation, finalizing the scope, identification of attributes and selection criteria for listing, selection of tools for documentation and defining processes
- Data acquisition through field surveys and archival research
- Data processing and analysis
- Data management including presentation, storage and dissemination

VII. REVIEWS AND DISCUSSION DURING AND AFTER WORKSHOP AND TRAINING

Through these workshops, with the intervention and efforts of the designers and experts the artisans were taught to make new color combinations by studying and updating their knowledge through recent fashion trends from magazines and news. To design and make modern contemporary motifs according to consumer demand. With increasing demand and market competition Chandua Kama artisans are now trying to revive their product range and design style by introducing a touch of different other techniques like mirror work, embroidery, Patta painting, motifs inspire from other crafts of different countries. Mostly dyed and undyed cotton fabric is used for motifs and base fabric being undyed muslin cloth which gives a strong base to the products and easy handling. But, since new products and designs demand better look so now a variety of different other fabrics which can be handled easily and gives more aesthetic value to the product are being used. Since consumers want cheap but attractive products and there being so much completion in the market, artisans and middlemen compromise on the quality of the products to earn more profit, which is one of the reasons of failure of marketing of new designs and product range.

A. Result Observed

After the completion of the workshops, the artisans were satisfied and convinced with the knowledge gained. The developed products were put to display at various exhibitions and fairs for market study; where it was observed that this craft has huge demand and needs revival, proper marketing and documentation so that it can contribute country's economic share as well as help upgrade the financial condition of the artisans.

B. Current Status of Chandua Kama

Although the applique craft of Pipili is undergoing change, octogenarian artisans still continue to produce traditional and antique product like large garden umbrellas, canopies, lampshades bags etc of classic color combinations to meet the demand of utilitarian and less expensive products range.

C. Observations of the Researcher during the Workshop

During the workshop as observed, there are some drawback points that are affecting the craft's existence and documentation, likely:

- Unorganized production
- Cut-throat competition
- Limited finance facilities to artisans
- Lack of knowledge of use of modern technologies and efforts by artisans
- Poor living and working conditions
- Limited market opportunities and exposure
- Lack of education of artisans, hence no new design ideas or product range

D. Suggestions for Documentation

Since this textile craft is now a primary source of income of the practicing artisans of Pipili and Puri it and needs recognition which can only be done by systematic and strong documentation after conducting such workshops and training programs.

Documentations can be done is various ways, as suggested few of them below:

- *Physical Documentation*: Collection of data through researches and surveys and putting together into book format.
- *Virtual Documentation*: New-media applications can contribute to virtual documentation and social awareness generation in broadly two ways:[e]
  - Virtually simulated digital representation of cultural heritage which falls in the domain of museological interventions.
  - Visual communication design interventions, like game-designs and animations, depicting connotation of cultural heritage through narrative story-telling
- *Motion Capture(MO Cap)*: Now-a-days the most preferred method of collecting data by recording of work and making short documentary films, easily available and accessible for users.
- *Digital Documentation*: Collecting data and putting together for access but in soft format i.e.; uploaded over internet or stored on web library of various organizations sites, etc.
- Mobile application (Mobile app):

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TABLE 1: TRADITIONAL *vs*. NEW DESIGNS

Sl. No.	Traditional Design Products	Size/ Price	New Design Products	Size/ Price (INR)
1	Garden Umbrella	Full Rs. 4000–5000		Full Rs. 6000 Cotton
2	Garden Umbrella	Full Rs. 4000–5000		Full Rs. 6000 Cotton
3	Bed Spread	Double Bed Rs. 300–3400		80" X 100" Rs. 2500 Cotton
4	Hand Bag	Rs. 100		160" X 100" Rs. 4000 Cotton
5	Garden Lantern	Rs. 350–400	Table Mat (set of 6)	Rs. 400 Jute & Cotton
6	Cushion Covers	16" X 16" Rs. 120–150 Cotton Fabric		16" X 16" Rs. 120–150 Cotton Fabric
7	Hand Bag	Rs. 250–350 Cotton Fabric		16" X 16" Rs. 120–150 Cotton Fabric

Sl. No.	Traditional Design Products	Size/ Price	New Design Products	Size/ Price (INR)
8	Wall Hanging	Rs. 680–900 Cotton Fabric		Rs. 800–1000 Cotton Fabric
9	Garden Lantern	Rs. 220–250 Cotton Fabric		Rs. 220–250 Cotton Fabric/ Organza
10	Cushion Covers	16" X 16" Rs. 120–150 Cotton Fabric		16" X 16" Rs. 110–150 Cotton Fabric

VIII.   SUGGESTIONS AS PER OBSERVATION FOR CRAFT DOCUMENTATION

As observed during the workshop and the discussion sessions held during training, and as suggested by artisans, other officials and designers who visited the training sessions and consumers, craft documentation should include the following:

- History, introduction and details of the craft
- Style colors, motifs, pictorial representations etc. with references
- Traditional *vs.* new designs and studies details
- Lifestyle and behavior of the artisans of the particular craft
- Product range and comparisons of traditional and new designed products
- Additions to product range
- Deletions from product range
- Design development process
- Planning, marketing and expansion
- Pricing, sales tax
- Place of distribution/ product positioning
- Consumer behavior
- Promotion and advertising
- Marketing problems and its solutions
- Inter and intra state promotion and marketing
- Global marketing and product positioning
- Financing opportunities
- Design copyright and registration
- Research and development
- Display methods
- Creating awareness among artisans.

IX.   CONCLUSION

"Craft is the backbone of creativity". These exquisite applique work products are attracting buyers on global front where buyers are ready to pay high prices but for authentic and new designs that are in latest fashion trend. But middlemen, channel agents and retailers try to gain more profit taking advantage of such opportunity due to which quality is compromised at some level. This in turn affects the market value of the new developed product as well as the traditional ones too. A systematic and informative documentation about Chandua Kama craft is very much in need to be made available. Hence, documentation of craft and heritage has to become a fountain head for both industrial communication design for creating a platform for this textile craft of Odisha to bring boom in market. And, the workshops conducted have left a strong impact on the artisans to bring remarkable change and revival to the craft and adapt to the changes happening in national and international market.

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REFERENCES

[1] https://en.wikipedia.org/wiki/Bhubaneswar

[2] https://magazines.odisha.gov.in/orissareview; 2005, article by Ramesh Chandra Mohapatra

[3] www.huffingtonpost.in/rana-kapoor/collaborate-to-contempori_b_10043634.html

[4] https://www.isprs-ann-photogramm-remote-sens-spatial-inf-sci.net/II-5-W3/271/2015/isprsannals-II-5-W3-271-2015.pdf

[5] https://www.anthro.ox.ac.uk/sites/default/files/anthro/documents/media/jaso29_1_1998_53_70.pdf

[6] http://www.sciencedirect.com/science/article/pii/S1877042816307157

[7] https://ac.els-cdn.com/S1877042816307157/1-s2.0-S1877042816307157-main.pdf?_tid=56e6629a-b8b0-11e7-ba43-00000aab0f01&acdnat=1508845497_e9aa84f1e9665b726ef48b8aef69c30a

[8] https://books.google.co.in/books?id=3vFnDQAAQBAJ&pg=PA232&lpg=PA232&dq=paper+presentation+on++crafts+and+heritage+documentation&source=bl&ots=2BaRu4cgXE&sig=L5UdytE3AOTDYChQlTu022O7UoI&hl=en&sa=X&ved=0ahUKEwi1g7V_5XWAhVHOo8KHYcOC78Q6AEIVDAI#v=onepage&q=paper%20presentation%20on%20%20crafts%20and%20heritage%20documentation&f=true

[9] Mohanty, B.C. 1980. Applique Craft of Orissa, Ahmedabad: Calico Museum of Textiles.

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Contemporary Challenges to Handicrafts & Artisans of India

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ABSTRACT

This paper addresses to pave new opportunities for crafts and design, its revival and sustainability with the emergence of current new trends through globalization. This paper is a message for an effort to associate, promote, revive, develop a community environment to once again make these crafts art alive, those are on the verge of extinction and losing its sheen and original structure. We must come forward together and raise the hand to support the crafts, artisan, techniques, tradition and culture to preserve and sustain in the era of globalization with recent trends and demands. There is a need to explore new avenues for these crafts to make a sustainable in future with emerging new trends by adopting new techniques and design interventions without losing its heritage. Designer, artisans & family, innovators, entrepreneurs and institutions must collaborate to incorporate new ideas to create a market demand for the sustainability of these crafts. The implementation of new techniques and ideas can be incorporated through new materials, training & awareness modules and involvement of institutions in real manner.

OBJECTIVE: To understand the challenges and new approaches to sustain crafts & design.

KEYWORDS: Emotion, Tradition, Community Support, Environment, Policy Promotion, Association, Customer, Awareness, Generation Transition

I. INTRODUCTION

Craft was a part of life and culture in all civilizations of world. India has always been a cradle of vivid crafts with different styles since the beginning of civilization. India is an important hub of art & crafts with different artisans, religion, culture and tradition for the world. Indian handicrafts play a vital role in the economy of country and sustain the over 7 million artisans. Handicrafts sector provides employment to a vast segment of people in rural and semi-urban areas of country and generate livelihood by preserving the heritage of traditional crafts. A substantial amount of foreign exchange is contributed to Indian economy by these artisan and their skilful hands. Handicrafts sector is rooted in the different parts of country by religion, culture, tradition and family values. India has a long history of rich heritage of different traditional arts and crafts, those are recognised globally.

Majority of Indian population lives in rural areas (approx. 70%) are mostly dependent on agriculture business and small scale cultural & informal industries for sustaining their lives.

Handicraft is a major sector that generates employment for rural areas people. The most of handicraft products are made by hands with the help of tools. This industry is spread in all parts of country with its own distinct art, skill, material, culture and traditional values in each craft. These crafts have maintained the bond among people, society, adherence to cultural values in the each section/ village/ community and parts of country, carried forward from centuries old past to present. Indian communities and societies are emotional attached to their past through these crafts that make us recall of our tradition and signifies our identity in the world social map. The sustainability of these crafts in present scenario of globalization with emerging trends is a major issue to preserve the heritage that has centuries old tradition, emotion and cultural value. At the same time the future of crafts in the world scenario is facing the same setback by industrial revolution and globalism. The exchange of trends is playing a role in loosing the sanctity of these crafts in each parts of the world.

At UNESCO with Sustainable Development Goal 11 (SDG 11), countries have pledged to "make cities and human settlements inclusive, safe, resilient and sustainable". Within this goal, Target 11.4 aims to "strengthen efforts to protect and safeguard the world's cultural and natural heritage". "*UNESCO believes the importance of focusing on cities, where creative industries contribute to the social structure, cultural diversity and improved daily life, while strengthening communities and helping to define a common identity.*2009* (1)

This paper aims to understand how these crafts are important for our society and economy.

II. CRAFTS AND SUSTAINABILITY

World is rapidly changing by getting accustomed to machines, internet, technology and new trends. The modern emerging industry trends have a big impact on the crafts sector and its sustainability. The industrial and IT revolution have made invasion on the traditional crafts market and devastated the original art by manipulation and imitation for the mass market demands. The traditional practices adopted by artisans are not able to meet the expected demand of fast changing industry and world market in the current market trends.

To protect and preserve the art, crafts and its inheritors is a major challenge and question is that are these traditional crafts and skills are no longer viable in this fast pace changing world of modern techniques to sustain their existence or we have not realized the potential of these crafts to generate income and to sustain the traditional crafts and artisans for future.

In the global context, under the UNSECO's 17 goals for sustainable development, the support to crafts can be instrumental in achieving goals towards poverty alleviation and environment protection. With the growing interests in crafts by world fraternity of international organizations and agencies can play an important role in the development process. World bank has expressed its interest and a focus in the potential of creative and cultural industries for future development process. According to the World Bank report and study, manufacturers, producers and artisan in developing countries are faced with state of helplessness against the vast forces of global change (Wolfensohn 1998). In this context, Indian craft sector is a major issue.

In Indian economy crafts is an important sector and its contribution is increasing. Many craft workers in rural areas are involved in working part-time and seasonal pattern, many of them are seasonal agricultural workers and women, all of them sustain livelihood and income by making handicrafts. Their working and production pattern depends on the agriculture season and demands created by festivals and season cycle of the state, zone or community.

Most of them are emotionally attached to traditional crafts and desire to continue making and producing these crafts, though their education level is poor or are illiterate but are highly skilled and have expertise in their crafts. They desire to carry and pass their skill tradition to future generations, but sustainability is an issue that saddens their emotion and cultural value fate. These crafts have formed a major part of their culture and traditional and we all today also relate these crafts to some specific society, community or culture.

However the skills, techniques, sourcing, adopting working methods and other working system are mostly informal, poorly preserved and inappropriate documentation. Factors like limited quality standards, raw material procurement, innovation & development, generation transition, skill enhancement, integrating traditional skills to international market are major cause for weak growth of handicrafts, that will impact the sustainability in future for long run.

*"Due to wide gaps between cultural industries in the developed and developing countries, the challenge lies in strengthening local capacity, improving access to global markets through new partnerships, obtaining support from experts, and combating piracy and defending intellectual property rights."** (2)

*"India's handicrafts exports are likely to cross Rs 17,000 crore mark by the end of current fiscal year of 2015–16 and is further expected to cross Rs. 24,000 crore mark by FY 2020–21."** (3)

III. FINDINGS & CHALLENGES

Indian craft industry has tremendous potential to sustain craft and its inheritors. Artisans and craft producers are emotionally attached to their crafts and skills, hope to pass these traditional skills to next future generations.

- Indian handicrafts have a bright future in the international handicrafts market of USD 400 billion with a share of 2% is minimal as compared to abundance of crafts in country. The Indian handicrafts sector is highly unorganized with over 7 million artisans generating income for sustaining life.

- According to studies and reports in past years, *"42% artisans working out of their homes. Crafts is a small scale industry with 39% artisans incurring production expenditure of less than INR 12,000/ USD 215 per year. 50% of household heads of craft producing families have no education with 90% of the women in these families being completely uneducated. Craft is a family activity as 76% of them attribute their profession to traditions and legacy."** (4)

- Majority of Indian handicraft artisans lack understating of markets demand, channels for approach, new material & methods, development process, policies and benefit schemes, literacy & awareness, latest emerging market and trends.

- Except few major section of artisan are dependent on broker or middle man, because they are not self confident due to lack of knowledge in many area for their growth and development. Major factor is literacy and education. Now in most of families and communities their children do not want to carry this traditional crafts making ahead because they are not happy to see the condition and future

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of family or community. Lower social status of crafts community push their next generation to persuade other works and jobs. One major issue is of recognition in reality, in most of cases recognition and respect is little as compared to the skill and talent we discuss. In India respect of craftsmen/ artisans is linked to caste or community and regarded as low social status in reality.

- Lack of infrastructure–services, training, roads, transport facility to crafts villages, electricity, workshop areas, storage and packaging, health issues related to specific crafts working conditions, wages, social security–pension & insurance, medical care and education to children are responsible for weak growth of crafts. Manufacturing process of handicrafts products require more time for good work, so there is mismatch between demand and supply, so imitation and machine made products fill this gap and give drastic impact to real craftsmen and handicrafts sector.

- Craftsmen/ artisans do not care and understand clearly the "Ownership" concept. They have no understanding of protection of creative traditional skills of their community or craft, and are exploited by middle man and cheap imitations in market. Intellectual property rights drive can help to some extent in country like India, but ownership itself is a complicated issue as craftsmen/ communities moved from one place to another in the past centuries and still migrating for sustaining. Intercommunity marriage is also one factor, that exchange the traditional art & crafts from community to another and is difficult to claim the ownership.

- Govt. organisation like DC Handicrafts and NGOs/ private sector have framed policies and scheme for uplifting and supporting the handicrafts sector, but actual benefits to artisans is not delivered and are deprived of the benefits. There is a need to reform the policy and method to uplift and sustain the livelihood of handicrafts sector and artisans respectively.

- Except few artisans and communities are living in unhealthy conditions in different clusters, under privileged of basic amenities of life, human rights especially health, education and social justice.

- Rural and handicrafts expos and fairs are organised in different parts of country to benefit the artisan by linking direct to consumers. But still there is need to integrate artisans to society in deep extent.

- Lack of quality standards knowledge, substandard raw materials, inadequate designing skills and development process, trends awareness and technical aspects.

IV. SUGGESTIONS

Indian handicrafts sector is facing many problems require reforms and solutions to revive its past glory. Traditional craft skills can't sustain in long future unless there is a viable scope of market and handicraft communities are genuinely given importance for better future.

- Better education and training programs for artisan about new trends, market awareness and innovative design. Promoting new and younger artisans to work for craft sector. Better methods should be developed for design, innovation, process, production, supply chain, finances (micro credits also) and marketing, where artisans should feel comfortable and will be able to adopt more efficiently with the course of time.

- Transformation of traditional craft into innovative customized demands of international market. Better supply chain system to be adopted to meet the targets. For this role business schools, designers, craftsmen, corporate sector, suppliers, government agencies, SHGs and individuals integrate to find solutions and develop models.

- SBLP (bank linkage program) of SHGs (self help group) is a good example for fostering the growth of handicrafts in India. SHGs working methods have proved to be effective in the past years. Families of crafts makers living in rural areas can have better future prospects for sustaining the handicrafts communities through SHGs model. Business schools can provide better business plans and models to foster the future opportunities for handicraft sector. Integration of design schools with technical institutes can develop new technologies that increase efficiency and reduce costs and eliminate the technical constraints.

- Inclusion of handicrafts as an essential part of curriculum especially for art & design institutions, business school and allied programs. Crafts study should not be mere an assignment in the design education, however it should a core subject to understand it deeply and practice project should be conducted in-house with the inclusion of artisans during the execution of process and development. To frame special Scholarship or sponsorship schemes for the education of children of artisans and communities

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of traditional crafts makers in the school and higher level education programs to make them self sufficient and sustain the future of crafts. Urban class society–academia and students should respect and regard the artisans as fellow professionals/ designers and should not be treated as labourers and at lower level. In-house artisans should be invited to conduct craft based activity that will make them feel recognised and contribute to their livelihood and sustainability.

- *Craft Boosters & Environment building* should be initiated and established. Craft Boosters may have all information about crafts, its techniques, history and evolution, material required, production process and procedure, development and innovation, raw material banks to facilitate the supply for production of craft products by artisans. Environment Building-Artisans should be engaged to work, run, develop, innovate, procure, audit and market their crafts to have better understanding for the future sustainability. This crafts boosters can be established with the cooperation and integration of designer, craftsmen and family, entrepreneurs, CSR projects, researchers and institutions (both financial and academia). Artisans and communities will be provided the information about all schemes for promotion and protection of handicrafts including training, education and credit facilities. *Kala Raksha*, Gujrat & *Auroville*, Pondicherry initiatives are such examples of environment building proved to pave the path for sustaining the handicrafts of tribal communities and generation of income for artisan families respectively.

- Under the CSR initiative, corporate sector should hire the artisans and be given direct exposure and opportunities to develop and produce crafts products in-house live or be sourced for the corporate gifting/ souvenir. This will contribute to their annual income directly and different handicrafts will be given recognition on rotation basis. Private organisation can adopt a craft community or family to support and sustain their future by giving them opportunities to develop innovative crafts products every season or annually.

- The policies and schemes of government organisation/ agencies should be audited genuinely to find the real beneficiary. Fake identities and enrolment should be scrutinized from record to stop misuse of schemes and funds. A majority of artisans do not get the benefit of different schemes instead industry owners take the major portion of benefits.

- E-learning and e-commerce can play a pivotal role in the promotion of handicrafts and artisan. Artisans should be given knowledge of computer and e-commerce for the development and promotion of their handicrafts. E-commerce can help in the promotion and marketing for their products at their own, but for that is required the infrastructure. But this problem can be solved with the help of education institution and skill development programs by Govt. of India.

- Craft Tourism–national and international tourist have a big role in the contribution of handicrafts sustainability. In current trends, it has been observed that tourists want to explore the real traditional crafts and craftsmen. They want to have hand on experience of craft product development and making with artisan and their life. Craft tourism can give direct benefit to artisans and client/ customers and make direct channel for the sales and promotion of handicrafts and will sustain their future. Tourist onsite art and craft products making by real artisan on the customized demand will help in generating income for handicraftsmen and give better understanding of clients.

- UNESCO's "*Creative and Cultural Industry*" conservation is a drive to make it an organized sector. Safeguarding and reviving the cultural industries of India through identification and registration of crafts/ arts and artisans, data collection and documenting the ancient, popular and extinct arts and crafts, cultural values, their practices and evolution process. Under sustainable development ecology must be kept in prime consideration while making new efforts and initiative for sustainability of crafts during the process of production and development.

Fig. 1

V. CONCLUSION

Handicraft is one of the major employment sectors of Indian economy. India is a major supplier of handicrafts product in global market with minimal share and has potential for bigger growth in coming years. Integration of government agencies, NGOs, SHGs, craft communities, artisans, professional, private players, designers, business houses and institutions is required for revival and sustainability of crafts in future. Reforms are required in the existing policy and methods for this sector. Impetus must be on the current market demands, techniques, materials, education & training and exploring new opportunities for changing market trends. New ideas and policies should be welcomed seriously by new entries contributing for the better future of crafts that can sustain the artisans and art/ crafts in coming years.

REFERENCES

[1] *http://uis.unesco.org/sites/default/files/documents/unesco-framework-for-cultural-statistics-2009-en_0.pdf

[2] *http://www.unesco.org/new/en/santiago/culture/creative-industries/crafts-design/

[3] *Report from ASSOCHAM(2015)

[4] *https://indiacsr.in/the-declining-legacy-of-india-rural-artisans-report.(2013)

[5] Anubha S (2002) Crafts as sustainable livelihood option in rural India.

[6] ATA (Aid to Artisans). 1987. The New York market link. *ATA News,* fall issue.

[7] ATA 1988. Notes: New York gift fair. *ATA News,* spring issue.

[8] ATA 1989. New York gift show 1989. *ATA News,* spring issue.

[9] ATA 1990. New York gift show 1990. *ATA News,* spring issue.

[10] Belgaumkar, G.D. and Sastry A.K., (2006). Unique Symbols of Karnataka, The Hindu. Published on 2006, December 27.

[11] Campbell, J.Y. (ed.). 1990. *Women's role in dynamic forest-based small-scale enterprises: case-studies on uppage and lacquerware from India.* Rome, FAO. (unpublished draft)

[12] Choudhury S, Agrawal V (2012) Rural Economy: Achieving Inclusive Growth through Khadi, and Village Industries. Journal of Entrepreneurship and Management 1: 37-45.

[13] Din TM, Mir LA, Bhushan S (2014) An Analysis of Current Scenario and Contribution of Handicrafts in Indian Economy. Journal of Economics and Sustainable Development.

[14] FAO. 1987a. *Small-scale forest-based processing enterprises.* Forestry Paper No. 79. Rome.

[15] FAO. 1987b. *Restoring the balance: women and forest resources.* Rome.

[16] FAO. 1990. *A workshop on design and manufacture of bamboo and rattan furniture.* Field Document No. 17 (PAS/86/048). Kuala Lumpur, FAO.

[17] Gearheart, P. & Kerr, K. 1987. *The crafts of Indonesia: their preservation and development.* Farmington, Conn., Aid to Artisans. (unpublished proposal)

[18] Gittinger, M. 1979. *Splendid symbols: textiles and tradition in Indonesia.* Washington, D.C., The Textile Museum.

[19] Government of India (2002). Survey of Foreign Tourists" Expenses on Handicrafts. Economic Services Group, National Productivity Council, New Delhi.

[20] http//:www.ift.co.in.html

[21] http://globalbizresearch.org/chennai_conference/pdf/pdf/ID_C486_Formatted.pdf

[22] http://media.unwto.org/en/press-release/2011-05-11/international-t

[23] http://www.aiacaonline.org/sites/default/files/handmade-in-india.pdf

[24] http://www.fao.org/docrep/u2440e/u2440e06.htm

[25] http://www.ijellh.com/handicraft-artisans-the-struggle-for-survival-2

[26] http://www.jhea.in/indian-handicfrom raft-industry

[27] https://www.technavio.com/report/handicrafts-market

[28] Indian Textile Ministry (2012) Government of India.

[29] International Labour Organization (2012) Working Out of Poverty in Ghana:

[30] Israr M. *et al.* (2010). Role of local food and handicrafts in raising eco-tourism in the northern areas of Pakistan, Sarhad J. Agric. 26(1)

[31] Karthik, S. (2009). Channapatna"s toy story..., Deccan Herald. Published on 2009, January 6. Ngo, D. A. (2005). Blending handicrafts and tourism development the good way of preservation of tradition and poverty alleviation in rural area. presented at workshop on promotion of craft village-based tourism along West-East corridor, Co-organised by Vietnam National Administration for Tourism; ASIA Seed Institute and JODC (Japan)

[32] Kerr, K. 1990. *Crafts development potential in the outer islands and forestry regions of Indonesia.* Report on a Consultancy for the Forestry Studies Project, UTF/INS/65. (unpublished)

[33] Kumar R. (2004) Interview with HLN Murthy, in the morning TNN IST. The Economics Times.

[34] Peluso, N.L. 1989. *The role of non-timber forest products in shifting cultivation communities and households: current knowledge and prospects for development.* Forestry Studies Field Document No. II-2 (UTF/INS/065/INS). Jakarta, FAO.

[35] Planning Commission India (2012) Government of India: Planning Commission.

[36] Prahalad C. (2007) Lecture delivered during India@60 celebrations.

[37] Proceedings of the Second International Conference on Global Business, Economics, Finance and Social Sciences (GB14Chennai Conference) ISBN: 978-1-941505-14-4 Chennai, India 11-13 July 2014 Paper ID: C486

[38] Pye, E.A. (ed.). 1988. *Artisans in economic development.* Ottawa, International Development Research Centre.

[39] Rao R. (1979) Small Industries and the Developing Economy in India. New Delhi: Concept Publishing.

[40] Retrieved from http://www.ethiopianhandicraft-femseda.org/home4.htm

[41] Retrieved from http://www.ifacca.org/events/2006/05/13/recognizing-role-of-handicrafts-intourism/

[42] Retrieved from http://www.tourism.gov.in

[43] Retrieved from www.unwto.org

[44] Saji, M.P. & Narayanaswamy, N. (2011). Local Craft Heritage in Contemporary Tourism:

[45] Sarvamangala R (2012) Challenges and Opportunities for Rural cottage, and Handicraft industries in India Paripex. Indian Journal of Research.

[46] Sellato, B. 1989. *Hornbill and dragon.* Jakarta, Elf Aquitaine Indonésie.

[47] Shariff, A. (2005). Toy town changes with new trends, Deccan Herald. Published on 2005, March 29.

[48] Shiekh A (2012) Handicraft of India.

[49] Soubert, S. & Hay, S. L. (1995). Case study on the effects of tourism on culture and the environment: Cambodia. RACAP Series on Culture and Tourism in Asia 3. UNESCO Principal Regional Office for Asia and the Pacific.

[50] The Ghana Decent Work Pilot Programme. Geneva: ILO.(2006)

[51] The Indian Scenario, Tourism Development Journal 9(1). (2016)

[52] UNESCO/ITC (1997) International Symposium on "Crafts, and the International Market: Trade, and Customs Codification" Manila, Philippines.

[53] Weinstock, J. & Sunito, S. 1989. *Review of shifting cultivation in Indonesia.* Forestry Studies Field Document No. VIII-1 (UTF/INS/065/INS). Jakarta, FAO.

[54] Weir, J.S. & Manan S. 1989. *Environment and conservation aspects of forestry in Indonesia.* Forestry Studies Document No. VIII-1 (UTF/INS/065/INS), Jakarta, FAO

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Chapter 7

Crafting a Weed into a Wonder: A Sustainable Future

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ABSTRACT

The present study was conducted to explore potential uses of water hyacinth for its eradication by developing value added products. The green mat of floating water hyacinths covering the surface of water bodies made a strong impact on us all and we came to understand the many problems that the ecosystem as well as inhabitants in many parts of the world face due to its presence. We decided to focus on how this invasive species could be utilised as a resource, turning what many have regarded as a nuisance to something that is seen as advantageous. It has been found that the water hyacinth pulp has good potential in developing handmade paper that can be used in making value added products.

KEYWORDS: Water Hyacinth, Problem, Products, Solution, Craft Items

I. Introduction

Water hyacinth is aquatic vascular plant with rounded, upright and shiny green leaves and lavender flowers similar to orchids (U.S. EPA, 1988). Individual rosette is erect and free floating with numerous stolons (Center *et al*., 2005). Each one carries six to eight spirally arranged succulent leaves that are produced sequentially on a short vertical stem. Petioles are bulbous and spongy with many air spaces (U.S. EPA, 1988) which allow plants to float on a water surface. But floating leaves can vary in size and morphology according to growth conditions and the stage of colony development. A plant that was introduced to India to beautify has become dangerous to its surroundings by suffocating the water body it inhabits, depleting oxygen and preventing sunlight from reaching other species. While the water hyacinth was being removed by the Harike Forest Department as a part of their habitat improvement activity, the removed hyacinth was left lying in heaps after removal for rotting or for making compost.

Such a perspective is not easy to accept, given the hardships it causes for so many people, and how difficult its removal is. It does, however, have some positive attributes: It is abundantly available. It grows readily without any need for sowing, weeding or fertilising. It does not require any land space. It costs almost nothing. To harvest it, is to do an environmental favour. The massive growth of water hyacinth is a direct result of human activities—We pollute water bodies and the water hyacinth thrives on nutrient rich water. Though there are various physical and chemical methods of controlling aquatic weed, all are labour intensive and expensive. Complete eradication of this species is not possible. Mechanical removal generates large amount of plant biomass which, if not removed, adds to the same problem. Therefore, scientific interests have been directed towards the utilization of water hyacinth such as pulp for paper making in conjunction with manual or mechanical harvesting to recover some costs.

II. Scenario in India

In India water hyacinth abundant states are Delhi, Uttar Pradesh, Bihar, West Bengal, Orissa, Andhra Pradesh, Tamil Nadu, Kerala and Gujarat. Water hyacinth has no climatic or geographical limitations, it grows in all types of fresh water.

For instance in the city of Chennai, Velachery lake, boundary of pallikarani drainage swamp, portion of adyar river, Buckingham canal and Otterinullah have turned eutrophic due to *Eichhornia crassipes*. This is the case with water bodies around Trichy, Madurai, Triunelivi, in coimbatore, salem and other town. The Indian Government has taken initiative and implanted machinery in various states for removal of water hyacinth plant**.**

III. PROBLEMS CAUSED BY WATER HYACINTH

Water hyacinth can cause a variety of problems when its rapid mat-like proliferation covers areas of fresh water. Some of the common problems are listed below:

- *Hindrance to Water Transport*: Access to harbours and docking areas can be seriously hindered by mats of water hyacinth. Canals and freshwater rivers can become impassable as they clog up with densely intertwined carpets of the weed. It is also becoming a serious hazard to lake transport on Lake Victoria as large floating islands of water hyacinth form, while many of the inland waterways of south east Asia have been.

- *Clogging of Intakes of Irrigation, Hydropower and Water Supply Systems*: Many large hydropower schemes are suffering from the effects of water hyacinth. The Owen Falls hydropower scheme at Jinja on Lake Victoria is a victim of the weeds rapid reproduction rates and an increasing amount of time and money is having to be invested in clearing the weed to prevent it entering the turbine and causing damage and power interruptions. Water hyacinth is now a major problem in some of the world's major dams-the Kariba dam which straddles the Zambia-Zimbabwe border on the Zambezi River and feeds Harare has pronounced infestations of the weed.

- *Blockage of Canals and Rivers Causing Flooding:* Water hyacinth can grow so densely that a human being can walk on it. When it takes hold in rivers and canals it can become so dense that it forms a herbivorous barrage and can cause damaging and dangerous flooding.

- *Micro-Habitat for a Variety of Disease Vectors:* The diseases associated with the presence of aquatic weeds in tropical developing countries are among those that cause the major public health problems: malaria, schistosomiasis and lymphatic filariasis. Some species of mosquito larvae thrive on the environment created by the presence of aquatic weeds, while the link between schistosomiasis (bilharzia) and aquatic weed presence is well known. Although the statistical link is not well defined between the presence of aquatic weeds and malaria and schistosomiasis, it can be shown that the brughian type of filariasis (which is responsible for a minor share of lymphatic filariasis in South Asia) is entirely linked to the presence of aquatic weeds (Bos, 1996).

- *Increased Evapotranspiration:* Various studies have been carried out to ascertain the relationship between aquatic plants and the rate of evapotranspiration compared with evaporation from an open-surfaced water body. Saelthun (1994) suggests that the rate of water loss due to evapotranspiration can be as much as 1.8 times that of evaporation from the same surface but free of plants. This has great implications where water is already scarce. It is estimated that the flow of water in the Nile could be reduced by up to one tenth due to increased losses in Lake Victoria from water hyacinth.

- *Problems Related to Fishing:* Water hyacinth can present many problems for the fisherman. Access to sites becomes difficult when weed infestation is present, loss of fishing equipment often results when nets or lines become tangled in the root systems of the weed and the result of these problems is more often than not a reduction in catch and subsequent loss of livelihood.

- *Reduction of Biodiversity:* Where water hyacinth is prolific, other aquatic plants have difficulty in surviving. This causes an imbalance in the aquatic micro-ecosystem. Diversity of fish stocks is often effected with some benefiting and others suffering from the proliferation of water hyacinth. People often complain of localised water quality deterioration. This is of considerable concern where people come to collect water and to wash.

- *Quantification of the Problem is Often Extremely Difficult*

IV. CONTROL OF WATER HYACINTH

There are several popular control mechanisms for preventing the spread of, or eradication of, water hyacinth. The 3 main mechanisms used are biological, chemical and physical control. Below we will briefly discuss each of these methods.

A. Biological Control

Biological control is the use of host specific natural enemies to reduce the population density of a pest. Several insects and fungi have been identified as control agents for water hyacinth. These include a variety of weevils, moth and fungi. Biological control of water hyacinth is said to be environmentally benign as the control agents tend to be self-regulating. Control programmes are usually inexpensive due to the fact that the control agents are known and only a small numbers of staff are required to run such programmes.

In Kenya work is being carried out on the development of a biological herbicide from a locally found fungal pathogen.

B. Chemical Control

The application of herbicides for controlling water hyacinth has been carried out for many years. The common herbicides are 2,4-d, Diquat and Glysophate. It has been found that there is a good success rate when dealing with small infestations but less success with larger areas. Application can be from the ground or from the air and requires skilled operators. As mentioned earlier the main concern when using herbicides is the environmental and health related effects, especially where people collect water for drinking and washing.

C. Physical Control

Mechanical removal of water hyacinth is seen as the best short-term solution to the proliferation of the plant. It is however costly, using either land-based 'clamshell' bucket cranes, draglines or booms or, alternatively, water based machinery such as mowers, dredges, barges or specially designed aquatic weed harvesters. Such methods are suitable for only relatively small areas. Many of these techniques require the support of a fleet of water and land-based vehicles for transporting the large quantities of water hyacinth which is removed. Manual removal of water hyacinth is suitable only for extremely small areas. It is difficult, labour intensive work and in some areas there are serious health risks associated with the work (crocodiles, hippopotamus and bilharzia in Lake Victoria for example).

Transportation of the harvested weed is also costly, because it has such a high water content. Chopping can reduce the volume and the water content. Irrespective of the method of weed control used high cost is incurred. If this extracted weed can be put to some use as in making craft items, mats, ropes etc will result in sustainable future.

V. POSSIBLE PRACTICAL APPLICATIONS OF WATER HYACINTH

Although water hyacinth is seen in many countries as a weed and is responsible for many of the problems outlined earlier in this fact sheet, many individuals, groups and institutions have been able to turn the problem around and find useful applications for the plant. The plant itself, although more than 95% water, has a fibrous tissue and a high energy and protein content, and can be used for a variety of useful applications. Below we will consider a number of possible uses for the plant, some which have been developed and others which are still in their infancy or remain as ideas only.

A. Paper

The Mennonite Central Committee of Bangladesh has been experimenting with paper production from water hyacinth for some years. They have established two projects that make paper from water hyacinth stems. The water hyacinth fibre alone does not make a particularly good paper but when the fibre is blended with waste paper or jute the result is good. The pulp is dosed with bleaching powder, calcium carbonate and sodium carbonate before being heated.

Similar small-scale cottage industry papermaking projects have been successful in a number of countries, including the Philippines, Indonesia, and India.

B. Fibre Board

Another application of water hyacinth is the production of fibreboards for a variety of end uses. The chopped water hyacinth stalks are reduced by boiling and then washed and beaten. The pulp is bleached and mixed with waste paper pulp and a filter agent such as china clay and the pH is balanced. The boards are floated in a vat on water and then finished in a hand press and hung to dry. The physical properties of the board are sufficiently good for use on indoor partition walls and ceilings.

C. Yarn and Rope

The fibre from the stems of the water hyacinth plant can be used to make rope. The stalk from the plant is shredded lengthways to expose the fibres and then left to dry for several days. The rope making process is similar to that of jute rope. The finished rope is treated with sodium metabisulphite to prevent it from rotting. In Bangladesh, the rope is used by a local furniture manufacturer who winds the rope around a cane frame to produce an elegant finished product.

D. Sanitary Napkins

The fibre extracted is a new initiative, an effort was made to use it as pulp fibre for sanitary napkins. The fibres were used in 100% proportion as well as they were blended with the wood pulp which was being used conventionally at the manufacturing unit.

E. Basket Work

In the Philippines water hyacinth is dried and used to make baskets and matting for domestic use. The key to a good product is to ensure that the stalks are properly dried before being used. If the stalks still contain moisture then this can cause the product to rot quite quickly. In India, water hyacinth is also used to produce similar goods for the tourist industry. Traditional basket making and weaving skills are used.

F. Water Purification

Water hyacinth can be used to aid the process of water purification either for drinking water or for liquid effluent from sewage systems. In a drinking water treatment plant water hyacinth have been used as part of the pretreatment purification step.

Till now Water Hyacinth has been explored for rope, bags and craft items etc. Some more possible applications of water Hyacinth that were explored during the study were optimization of the process for extraction of fine fibres was done. Subsequent to this blended yarn in various composition were made. Modified the pulp of water hyacinth was used to develop sanitary pads.

Fig. 1: Water Hyacinth Plant

Fig. 2: The Green Part on the Map Shows Various
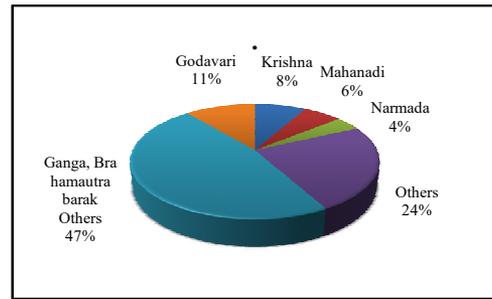
Fig. 3: Statistical Representation of Water Bodies Water Bodies Containing Water Hyacinth

Fig. 4: Machinery for Removal of Water Hyacinth in Hyderabad

There are picture of the products that is developed by water hyacinth.
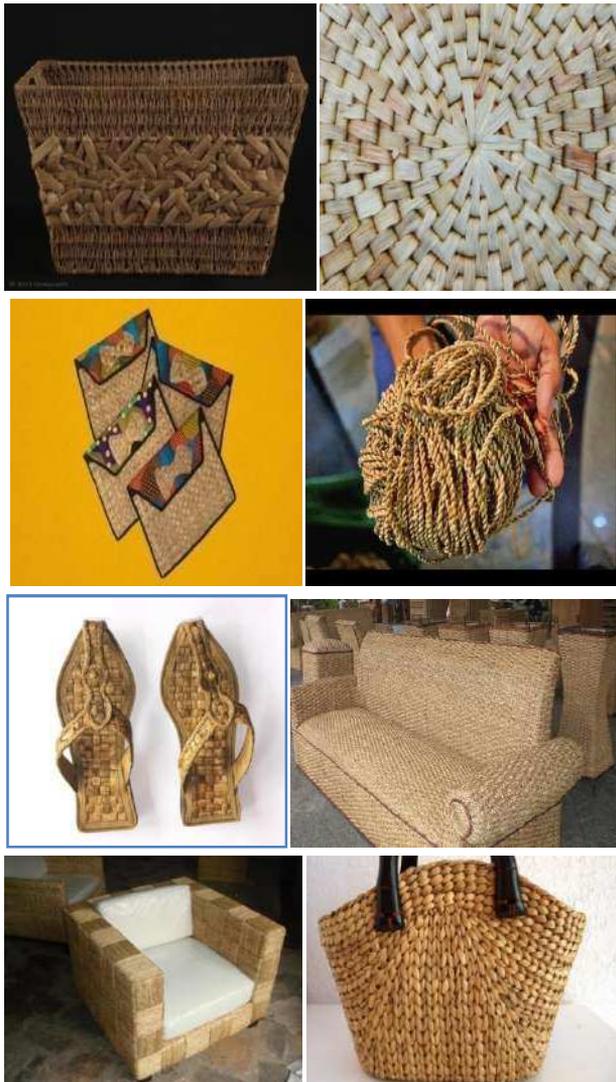
Fig. 5

Fig. 6

VI. CONCLUSION

The present study highlights that water hyacinth, a noxious weed, can be a potential source of income. Cottage industry, if established in areas where it occurs in plentiful amount, can benefit the local population by way of collecting, drying and supplying. It will also help in eradicating this weed thereby reducing water pollution. Water hyacinth, therefore has great potential in textile and paper industry.

REFERENCES

[1] B. Gopal Water hyacinth, Elsevier, New York, NY, 1987.
[2] R.V. Visperas Chronology of handmade paper and paper making. Internet: http:// www.calricestraw.org/Papermaking.html., 1991.
[3] JR Muli Environmental problems of Lake Victoria (east Africa): what the international community can do, lakes and reservoirs: research and management. 2,47–53, 1996.
[4] R.K. Gupta and S.K. Saikia. Ecofriendly handmade paper making. Extraction of jute fibre. Internet: http/nerdata bank.nic.in/ nepaper.com, 1998.
[5] B.K. Sharma. Water pollution. Environmental chemistry, Ninth Ed. Goel Publishing House, Meerut: 32–39., 2005.
[6] Haider, Dr. S.Z., Recent Work in Bangladesh on the Utilization of Water Hyacinth, Commonwealth Science Council/ Dhaka University, 1989.
[7] Making Aquatic Weeds Useful: Some Perspectives for Developing Countries, National Academy of Sciences, 1976.
[8] Herfjord, T., Osthagen, H. and Saelthun, N.R., The Water Hyacinth, Norwegian Agency for Development Cooperation.
[9] O'Riordan, B., Notes on Water Hyacinth in Lake Victoria.
[10] Eden, Robert, Water Hyacinth Utilisation, Unpublished Thesis, Warwick University.
[11] Gopal, Brij, Water Hyacinth, Aquatic Plant Studies Series, ELSEVIER, 1987.
[12] Harley, L.S., Julien, M.H. and Wright, A.D., Water Hyacinth: A Tropical Worldwide Problem and Methods for its Control, Proceedings of the first meeting of the International Water Hyacinth Consortium, World Bank, 18–19 March 1997.

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Craftsman and Consumer: Need Driven Innovation for Handloom Silk of Bihar

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ABSTRACT

Craft is a living tradition of any region. Hence it is very dynamic in nature and needs to be changed as per the preference of consumers to continue the tradition. If we trace the old and contemporary history of any craft we can identify several changes in journey of that craft. It is important to preserve the core characteristics, iconographic and essence alive as a constant feature. In this entire process role of craftsman, craftsmanship, consumer need and market trend becomes very important. In this entire practice all these elements are interrelated but the need of consumer act as most important driving factor behind any craft innovation. So the handloom silk weaving of Kadirganj and Gopalganj of Bihar has also witnessed huge change due to change in lifestyle, need and preference of consumer. At present it is facing huge crisis. Weaving of these regions are wonderful combination of various material and texture which can be used for diversified purpose. It has immense potential to fetch decent revenue, popularity and promotion to its practitioners. Viewing this strength researcher has planned this study to analyze current craft situation and develop new product, keeping infrastructural availability and salient features of this craft constant, so that poor and marginalized weavers could be included into value chains of craft business.

KEYWORDS: Craftsmen, Consumer, Need, Trend, Innovation, Sustainability

I. INTRODUCTION

Handloom and handicrafts are important asset of our culture and heritage which has been passed from one generation to other. It evokes our ancestral belief, rituals, aesthetics, dedication, effort, utility and diversity. In every region we can observe one or the other craft being practiced. It had been a way to lead our life. Our association with these products can be experienced in our everyday life as well as special occasions. It is all about indigenous knowledge, traditional wisdom of artisans who make our fest and festivals special whether it is Diwali with earthen lamps, any worship with votive products or any social institution from birth to death with ritualistic and utility products. Especially, textile plays a crucial role in this. It is also because of its association with basic need of life and availability of enormous and varied choices of raw materials. Earlier craft and craftsmen were very sturdily interlaced into socioeconomic canvas of our existence but in few decades it has enfeebled in several contexts like disposable income generation for sustenance of dependents, quality, retention of feature and style, market and many more. In this study, researcher is going to study two craft pockets of Bihar namely Kadirganj and Gopalganj located in Nawada District. These two villages are adjacent to each other and one of the most important centers for wild silk weaving especially Tasar, Katia and Muga along with fine Mulberry. Tasar silk is specialty of Bihar which is also known as *Bhagalpuri silk*. It is a wild coarse silk which has a peculiar texture and deep gold color. The thicker and coarser variety of Tasar silk is Katia. Tasar yielding Cocoon which is damaged is used to produce Katia.

These artisans mainly belong to "Patwa" community. In these centers mainly fly shuttle pit loom is used. The whole weaving process is managed manually. In most of the households the outer shades of the houses are generally used for setting of loom, or if not available then the outer room is generally used for this purpose. The whole intricate and lengthy process is managed by the entire weaver family. Almost every member of the house participates in one or the other activity of the production process. The outcome is overall result of their patience and dedication. The process starts from procurement of cocoon which is locally known as "*coba*" to the folding of finished yardage. Earlier they used to make head scarf (*murretha/ pagdi*) and dhoti of silk. But with the passage of time its demand became negligible probably due to change in lifestyle and increased rate of raw materials. So with change in time this craft have witnessed change too depending upon consumer's need and market trend. Earlier both warp and weft used to be of silk in all varieties of fabric. But later cotton came into existence in

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few varieties of fabric, which still exist. At present around 180 families are practicing this craft in these two villages whereas around 10 years back there were around 300 hundred families involved in this. This downfall is severe and attention needs to be paid for its sustainability. Earlier a high value and craftsmanship were reflected in product which revealed the satisfaction level and prosperity of producers. Today disparity is seen in their social and economic status which is reflected in their work also, sustainability of this craft is a big question. That is why it is important to go with behavioral, physical, social, trend, demographic, agronomic, ethical, traditional and cultural change/ need of consumer to sustain economic, social prosperity of artisan, efficient utilization of existing skill and manpower without encouraging carbon footprints.

In recent craft history lot of good examples for revival and revitalization has been seen in relation with design intervention which has helped to sustain, revive, withheld quality, recuperate lapsed market, and tap new market along with promotion and branding of that craft. Stress should be given to create viable commercial opportunities to empower artisans.

When India is all prepared to compete in international markets, there are still voluminous of artisans who are struggling to retain and save their skills alive and to delight growing demand of high-quality products and designs. Being so artistic, skillful and creative; they struggle for safety and security of their basic needs. Weavers are often supposed to be the creator of lower strata who are often found to be deprived of basic need and other facilities. They deserve security of good health, food, sanitation, safety as well as social recognition. Therefore it is high time to link them massively with main stream income generation through design intervention and innovation. Efforts that have been made so far are not enough. Creating highbrow aspiration, turning handlooms, including Khadi, into affordable luxury for a discerning clientele, fashioning the weave, modernizing the handwoven sari, making design interventions to save weaves from the sea of power-loom fabrics, launching sustainable businesses with weaving clusters—designers have introduced an urban sensitivity to handlooms(8).

Ritu Kumar's contribution in progress of handloom in revival of Indian fashion is incredible. She was the pioneer to introduce handloom wrapped in high fashion and high end market. Her work includes variety of craft techniques and style like hand block printing, Matka silk, hand-woven Bhagalpur fabrics, Banarasi brocade and many more for garments and saris. Other popular designers from senior cadre to young brigade who have paved the way for handloom and traditional techniques are Tarun Tahiliani, J.J. Valaya, Nachiket Barve, Rimzim Dadu, Swati Kalsi etc. They have worked extensively in reinventing and rediscovering traditional techniques. These examples show the potential of handloom and handicraft, that the only need

is a vision to look at, execute and act. Textile technologies and skills that are seemingly lost to us do perhaps have a possibility of being recreated, however long and painstaking the process. A special mention is the work of Berozgar Mahila Kalyan Sanstha led by Niranjana Poddar, whose luminous colored Tasar saris and fabrics were introduced to urban audiences. Then Rehwa revival of Maheshwari textiles in Madhya Pradesh, Brigitte Singh's block-prints in Jaipur, with their stylized motifs reminiscent of Mughal textiles and many more (Sethi, 2016: 3).

Currently artisans of Gopalganj and Kadiganj have major market linkages with Bhagalpur only. Apart from that they are selling their product to nearby cities like Nawada, Gaya, Patna, Sasaram or other nearby places to retail cloth merchants and whole sellers. Many times it happens that customer needs new patterns and artisan is not able to meet this, then in this case he sells his available product at lower price. Design innovation is just not a matter of mere innovation and variation but a matter to build unique selling proposition. It is a way to fetch higher value for a product. Another, One of the major issues behind exploring new market is that they have not updated them self with the need, trend and preference of time. Now a days loom made articles like stoles, scarfs are very much in fashion with both traditional as well as western outfits, but still they are focusing upon making piece good articles. Though few artisans are working for stole but only for Bhagalpur market and again the consumption of artificial banana silk have been observed a lot due to lower rate. There is dire need to shift good percent of entire production into loom made articles, to explore new market and to move towards pure silk in most of the varieties to secure the identity and crisis generating in this craft.

In entire world there is huge shift of people from machine made to handmade products. Awareness towards green fashion is just not a single statement but a momentum which has accelerated opportunities for handloom product for those consumers who believes in fashion, ethnicity, comfort, tradition, premium quality, style, status and social recognition. It is good opportunity for this pocket to showcase excellent craftsmanship in terms of texture and quality which hasn't got proper recognition and remuneration so far.

From reviews also, we can see what strength a craft has when a holistic approach is taken for its survival. There is dire need to move with consumer requirements and to cater needs like stole, scarf, runners, muffler, table cover, curtains, cushion covers etc. As this craft is dealing in various qualities and varieties it will be suitable and easier to work with diversified line of product. Hence, Capturing the current preference of consumer, going through various studies in field of craft revival, analyzing existing infrastructure, visual vocabulary and style of these centers researcher has designed and developed few samples for stole to explore new market.
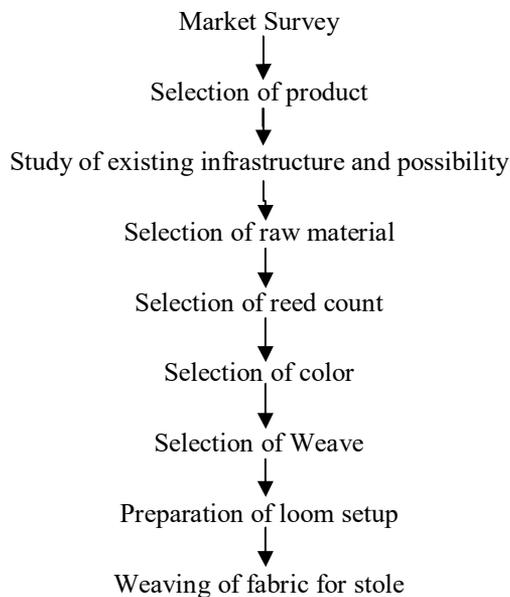
A. Objective of the Study

- To analyze current craft situation of Kadirganj and Gopalganj handloom silk weaving.
- To design and develop new product keeping infrastructural availability and salient features of this craft constant.

II. METHOD

This section deals with the description of the methods and procedures used in order to obtain data, their analysis and interpretation. It is an exploratory cum experimental research where various tools were used to collect data pertaining to the two objectives of the study. Here study started with secondary data collection regarding stated handloom craft pockets, its present status (possibilities and challenges) followed by, visit to local of the craft-Kadirganj and Gopalganj. For 1st objective of the study researcher has used survey method and have used interview schedule, observation, group discussion and photograph to analyze entire situation. Later on the basis of analysis of data of 1st objective 2nd objective was initiated for design and development of stole, keeping loom setting and salient feature of the craft constant as per 2nd objective. Here it started with market survey where random sampling was used for the selection of users and convenience sampling was used for the selection of artisan for the study of possibility in existing infrastructure and development of samples. During development of new product special attention was given to nature and selection of raw material and especially selection of reed and density of yarn as per end use and costing. Procedure followed for the 2nd objective is as per following flowchart.

Market Survey

↓

Selection of product

↓

Study of existing infrastructure and possibility

↓

Selection of raw material

↓

Selection of reed count

↓

Selection of color

↓

Selection of Weave

↓

Preparation of loom setup

↓

Weaving of fabric for stole

III. RESULT AND DISCUSSION

A. Analysis of Current Craft Situation

During discussion with artisans it was found that 80% of entire production is sold in Bhagalpur since it is renowned globally for silk production and rest of the produce is sold in local market, nearby cities like Nawada, Gaya, Patna, Bhagalpur etc. and neighboring states like West Bengal, Jharkhand. It has enormous prospective to expand and penetrate in immediate local and global market. Generally artisans work for mahajans (traders) where they gets either money or raw material in advance from weaver and time line of around 1 month for 100 meters of fabric. Few artisans also invest their own money which is more profitable. It fetches 5–7 rupees extra per meter. If there is defect in fabric then in many cases as penalty 15–20 rupees per meter is deducted. In case of selling fabric after own investment artisan gives fabric to trader in advance on credit basis and collect money after 15–30 days. One satisfying aspect of this place is that role of middle men is almost negligible otherwise situation could have turned vulnerable. In most of the cases they have direct contact with buyers. Average income of artisan stands 6–8 thousand per month which is very less after such hardship of work. Generally they work from 8–10 hours. Entire family members are involved in one or the other activity. Female members are generally involved in preparatory process like drawing of yarn from cocoon, dyeing, preparation of warp beam whereas male members are involved in weaving process. Generally at the age of 12–13 children gets involved in this process.

Artisans are not much aware about existing benefits and subsidies like loan etc. Those who are aware says that rate of interest is high which they won't be able to pay back, other thing is that whatever amount of loan is sanctioned they cannot withdraw whole amount at a time. Apart from this there are two cooperative societies also none of them are functioning well for welfare of artisans.

Rate of abandoning this ancestral profession is very high due to low income generation. They feel that with this kind of hard work then can earn elsewhere better. Many of them have migrated to Surat, Mumbai and other power loom setup for work. Few of them have gone into profession of making edibles. 10 years back there were around 300 families but today this number has reduced to 180 around.

Maintenance of quality is a major challenge over here; if we analyze dress material fabric then it is available in various quality, reed, and pick ranging from 70 to 90. Due to expensive raw materials many artisans have reduced yarn density to meet competition which has degraded the quality of existing fabric as per end use. In case of dyes also lower grade dyes are quite common in use. Artisans are not even aware that which category of dye they are

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using and which is suitable for silk dyeing. They simply know by name of cheaper one (*sastawala*) and expensive one (*mehangawala*).

Cheaper power loom imitation of silk fabrics are very much available in market, it is a chronic threat for this handloom craft. It is difficult for an end-user to differentiate between genuine and fake products. To avoid this weaver can be guided to go for handloom mark or geographical indication.

While surveying local market businessmen it was analyzed limited variety of fabric has been coming so far. So customers are demanding some variation in color and pattern. Most of the end users are males of age group between 45 to 60 years or from political background. They use it as upper garment fabric (*kurta*) mostly. Buyers from younger age group have not been found very keen for silk fabric. Recently few bright colored top dyed fabrics has been added in their product gamut, because of which demand among younger generation has been accelerated for both upper garment fabric (*kurta*) as well as half shirt. Numbers of female consumers are almost zero. Figs. 1–7 shows existing variety of fabric. During study in context of trend and fashion forecast it was found that locally as well as globally handloom silk products is popular among both male and female for their personal attire. Especially among young generation products like stole, dupatta, and scarf are very much in demand. These products go with traditional as well as western outfits. These artisans are mainly working with piece good products. This opens good opportunity to shift certain percent of entire production to loom made articles as well as to catch new age group consumer. Apart from these products there is huge potential in furnishing products also like cushion covers, table runners, sofa covers, wall hangings etc. Overall this craft has enormous prospective to target extensive market.

Fig. 2: Mulberry X Muga

Fig. 3: Bleached Mulberry X Katia

Fig. 1: Bleached Mercerized Katia

Fig. 4: Mulberry X Tasar

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Fig. 5: Mercerized Katia

Fig. 7: Sample 1

B. New Product Development

This experimental study was undertaken to create stole fabrics of various set of warp and weft combination retaining existing craft character, loom setting and its capacity. This collection of stole was targeted to upper middle to upper class urban consumers. One major feature of the entire collection was to develop various classic, sophisticated, low contrasts, textured fabrics depicting taste of urban mass. A detailed study of product, market, material, color, trend and quality was done through various sources like magazines, stores, traders, fashion forecast, and lifestyle trends to understand the attributes needed to be incorporated into the product. Hence, for new development combination of existing infrastructure and product viability in market has been studied to impart earthy feeling to all products which is a specific feature of this craft. The inherent natural colors of the yarns were utilized to maximum level. Reed was selected as per the need of product end use. In all samples rawness of silk is visible. Total five samples were developed during the study in combination of different warp and weft. Their details are given in Table 1.

Fig. 6: Full Dyed Mulberry X Tasar of Different Color

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TABLE 1: DETAIL OF DEVELOPED PRODUCTS

Sample No.	Variety	Warp	Weft	Reed	Denting Order	Bleached/ Unbleached	On Loom Width (inch)	Off Loom Width (inch)	Cost/ Meter
1	Tasar by Tasar	Tasar	Dyed and undyed Tasar	72	2/Dent	Unbleached	30	28	450
2	Tasar by Katia	Tasar	Katia	72	2/Dent	Bleached	30	28	520
3	Tasar by Tasar	Tasar	Tasar	72	2/Dent	Bleached	30	28	520
4	Tasar by Katia	Tasar	Katia	72	2/Dent	Unbleached	30	28	490
5	Tasar by Tasar	Tasar	Tasar	72	2/Dent	Unbleached	30	28	480

C. Design Intervention

A series of value has been added into existing craft through design intervention. Like an attempt of substantial shift from yardage or piece good to loom made fabric. This has scope to fetch a new segment of consumer. Stole is such a wonderful product which is preferred for personal attire by male as well as female, any age group, any occasion. It goes with both traditional as well as western cloths. Apart from this in contemporary history of this craft artificial fiber has also been introduced to a great extent but in this product 100% pure silk has been used with its natural texture which retains the core characteristics of this craft. It can prevent to some extent, shift from natural to artificial fiber and maintaining ethnicity. Change in reed pick has been done as per the end use of product. In yardage fabric they were using reed from 70–90. In this reed quality of fabric vary a lot. The higher reed is good for dress material keeping it thick and compact but the lower reed pick make the fabric poor as per end use. So the lower ongoing reed pick fabric can be effectively used for stole in lower width as it needs to be light weighted and good in drape. This has made cost effective and which can be easily sellable. Earlier in these centers only undyed fabric were produced and since 2–3 years back full dyed fabric (top dyed) also came into existence. Here researcher has made an attempt to develop combination of dyed plus undyed fabric along with different combinations of warp and weft than the existing one. One best aspect about the products are that in single warp different visually looking patterns can be developed by low production cost. This incremental change can return better profit to artisans by making it commercially viable for both producer and consumer as per need.

IV. DESIGN IMPLICATION

There is enormous scope to be explored in this craft, along with focusing upon traditional products, other feasible and viable diversification of product can be done. Study can be done towards improvising of better supply chain management and market expansion. These products can be promoted as premium products.

Fig. 8: Sample 2

Fig. 9: Sample 3

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Fig. 10: Sample 4

Fig. 11: Sample 5

V. CONCLUSION

Silk weaving in Kadirganj and Gopakganj have been hampered due to limited variety, poor market connectivity, promotion, product quality sustenance, cheap mechanized imitation and limited use based products. This craft has tremendous potential which is reflected in their craftsmanship and existence of wide variety of silk fabric at a single place. If effort is paid in direction of new design development and product diversification then more value could be added to the product to fetch better income which could be used for sustenance of good quality for craft as well as craftsman. It will be suitable from both craftsmen as well as consumer point of view. Handlooms are just not mere precious cultural benefit but also an economic force which need proper guidance and support to take off for those who are considered as mere workers rather than traditional designers. Hence to empower handloom artisans it is essential to understand consumer need and link them with design houses or any organization which understand consumer need and preference of existing and potential consumers. Overall it is important to understand the relation and need of both craftsmen and consumer for comprehensive growth of craft.

REFERENCES

[1] Yusuf, A. (1900). *A Monograph on Silk Fabrics Produced in the Northwestern Provinces and Oudh (1900). Oudh*, N.-W. Provinces and Oudh Government Press.

[2] Kaul, M. (2016). Towards Recent Histories of Indian Textiles. *Marg A Mazine of Arts*, 67(4).

[3] Sethi, R. (2016). Shaping Textile Futures: Those Who Led the Way, *Marg A Mazine of Arts*, 67 (4).

[4] Kapur, H. and Mittar, S. (2014). Design Intervention & Craft Revival. *International Journal of Scientific and Research Publications*, 4(10).

[5] Ghouse, S. (2012). Indian Handicraft Industry: Problems and Strategies. *International Journal of Management Research and Review*. 2(7).

[6] Rakhin, K. (2015). Traditional Handlooms of India: The Role of Designer into Market Opportunity Recognition in the Globalization Era. *International Journal of Emerging Research in Management and Technology*, 4(4).

[7] Rosemary, C. (2015). *The Fabric of India*. London. Victoria and Albert Museum Publishing.

[8] http://www.livemint.com/Leisure/mBTU108AJvfJQCoXhbhtpM/Handloom-in-fashion-design.html

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Chapter 9

Craft Sustainability and Endurance

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ABSTRACT

It is human characteristic to create, innovate, improvise and construct. The worth of 'making' of creative industries in the UK economy is £84.1 billion that comes from trades like fashion, graphics, film, textiles etc. The handmade and life style is inspirational as they promote character and individuality. In U.K., Plymouth College of Art focuses purely on art, craft, design and media. This paper will address and illustrate the endurance and resilience of 'crafts' in the market and the empowerment of crafts people.

KEYWORDS: Art of 'making', Crafts Entrepreneur, Craftsperson Empowerment

I. CRAFT SUSTAINABILITY AND ENDURANCE

This presentation will address and illustrate the endurance and resilience of 'crafts'. It is not my intention to redefine 'crafts', or become tangled up in the terminology which we use to describe the act of making.

I am concerned with the positioning of makers in the economies of the capitalist world, the empowerment of crafts people and the employment of craft practices in the industrial and commercial context. Ensuring that the act of making items by hand continues and feeds into mainstream economies.

In recent decades we've seen a number of TV shows which satisfy the curiosity of large numbers of the public with examples of 'making'–'Armchair Creatives'.

The BBC's Saturday night TV show Strictly Come Dancing has achieved a viewing public of 9.4 million each night.

The BBC's TV show The Great Pottery Throw Down has achieved a viewing public of 1.9 million each night.

The BBC's TV show The Big Sewing Bee has achieved a viewing public of 2.3 million each night.

Even if the viewers don't personally create or make, they have fascination for it and in part their fascination helps to fuel the 'maker economy' in mainstream culture. Often these TV shows promote the unnecessary, the frivolous and fit within the 'light entertainment' genre but they do promote making and creativity into the homes of millions of people. These shows have the power to resurrect forgotten crafts and skills.

One of the defining characteristics of human kind can be found in our endless need to create, innovate, improvise and construct. In short we are driven to 'make,' to create and manufacture the decorative, whimsical and the practical life sustaining objects, which imprint upon our cultural identities. The proliferation of TV shows which, are focused on 'making', is a testament to our need to make and our curiosity about making.

It's worth considering that for a moment the value of the creative industries in the UK economy-£84.1 billion–fashion, graphics, film, textiles etc. The crafts economy alone is worth £3.4 billion. The Crafts Council estimates there are around 23,000 "micro-businesses" in the crafts sector, mostly consisting of sole practitioners. The Crafts Council's Jill Read told Dezeen (magazine) that the research, contained in a report called *Measuring the Craft Economy,* showed that craft skills had a far wider impact on the economy than previously realised.

The hand made item, the hand made life style; these are aspirational to a new generation of urban 'hipsters'. Their take on life is fuelled and supported by a range of independent magazines, which merge country chic, urban cool, outbound explorer, distance traveller. The common element in the photojournalism is rejection of the mass produced and a passion for the unique, the handmade, the retro, the novel, items which promote character and individuality, just as they themselves wish to be perceived as displaying character and individuality.

Large numbers of craft makers have embraced 'the entrepreneurial spirit' to position themselves as marketeers of the handmade. Craft, the act of making, being elevated to the high cultural ground, marketed, tweeted and instagrammed. The craft maker's material invention coupled to a disruptive approach to material process is often the driver of true invention, which in turn supports the elevation of craft and hand making.

Plymouth College of Art is a small specialist HE institution, focused purely on Art, Craft, design and Media. We are focusing considerable resources to help student's position themselves as highly creative auto entrepreneurs. Last academic year we launched a set of new benchmarks for Professional Development Planning and recently

employed an enterprise officer. Students entering our BA (Hons) degree programmes receive weekly lectures, presentations and assignments, which introduce a range of business skills, entrepreneurial attitudes and professional networking skills. Importantly this aspect of the study programme is embedded within the creative subjects and so is considered as fundamental as designing and making. This academic year we have launched the PDP Toolkit, a learning resource for staff and students.

Plymouth College of Art hosts *'Making Futures'* a biennial conference, which attracts an international audience. Now in it's 5th edition, this years theme was *'Crafting a Sustainable Modernity: towards a maker aesthetics of production and consumption.'* Making Futures 2017 was one of the most international editions to date, with abstracts from 23 countries from across Europe, the Americas, and the Asia-Pacific regions. This growing international awareness is important because through *'Making Futures'*, a much needed trans-national community of practice-based researchers is developing that can share and critically interrogate cross cultural perspectives emerging the *'Making Futures'* agenda.

"When I make a spoon I am also chasing a feeling or rather to be able to communicate or prompt an emotion in a person when they pick it up" - Barn the Spoon

Fig. 1

Recently appointed as a consultant to the British Council, I have begun working on a project in Myanmar. The project title *"Lat Khat Than" (Weave-Create-Empower)* aims to empower women textile weavers through the development of education programmes in vocational weaving schools.

The project is at an early stage but already it is clear that the support needed is not in design or craft skills but in entrepreneurial thinking, awareness of export markets and basic business skills.

When educating our new creative talent, a singular focus on the 'making' is too limiting. For new talent to develop successful, sustainable lives, they need to be equipped with a much broader understanding client context. Empowerment through education will be more effectively achieved when the student becomes the active researcher. Crafts people are ideally suited to this approach. Often through necessity they improvise with equipment, processes and materials. However the level of invention in relation to markets and approach to markets is often limited. Devising study programmes which encourage enterprise and entrepreneurial thinking in equal measure with designing and making is paramount to ensuring small scale craft producers can achieve a sustainable business model.

Fig. 2

http://blog.patternbank.com/chris-taylor-decorative-ceramics/

Fig. 3

REFERENCES

[1]   https://barnthespoon.com/
[2]   https://www.princess.co.uk/new-yachts/?infinity=ict2~net~gaw~ar~197248757733~kw~princess%20yachts~mt~e~cmp~Brand%20-%20New%
[3]   http://blog.patternbank.com/
[4]   http://christaylorceramics.co.uk/#
[5]   https://www.theguardian.com › Arts › TV & radio › The Great British Bake Off
[6]   https://www.theguardian.com › Arts › TV & radio › Television
[7]   https://www.dezeen.com/.../measuring-the-craft-economy-3-billion-pounds-uk-crafts-
[8]   https://www.plymouthart.ac.uk/

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Cultural Diversity of Varanasi & Its Impact on Visual Identity of Soft Stone Craft, Ramnagar: A Perspective of Design Led Innovation to Empathize Multiplicity

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ABSTRACT

India is known for its cultural diversity. Varanasi is the most prominent city in India which lives its true sense. Varanasi today is the "archetype of India", perceived as a site of vividness with diversity and unity are easily envisioned in its religion, culture, society and economy. The transfusion of the cultures significantly contributed to the cultural development of the Varanasi city. The Foremost, sector which is prominently affected were the Crafts of Varanasi.

Since time immemorial, Varanasi became a city known for its intricate craft skills in various forms & medium. Due to the presence of many Hindu, Buddhists and Islamic centres of learning, Varanasi has always encouraged the growth of the arts and tried to integrate the stylization in various forms. Varanasi continues to be the city of myths and attracts tourists, pilgrims and immigrants around the country. People from different parts of the country came and settled in Varanasi and brought with them the skills of their homeland. These skills were then introduced in Varanasi and were beautifully blended with the ethos of the city, thus giving these crafts of Varanasi a unique character. Soft stone craft of Ramnagar, Varanasi is one of the many crafts significantly influenced by the diversity of the place, people, religion and different school of thoughts a true symbol of India's "Ganga Jamuni Tehzeeb".

On the other hand the most recent competitive market and globalization brought an ample opportunity for craft to grow. However the craft is very much commercialized slowly forgetting its relevance and intention with time. Unfortunately there is a significant decline in young generation artisan, entrepreneur not so keen to take this as a livelihood opportunity.

In the given scenario the role of Design is very crucial, closely understand the component of the craft identity, what makes the craft unique in a culturally diverse setting and understood its substance and create a scope for skill and product diversification in Soft stone craft for the practicing minority community in Ramanagar, Varanasi. The creation and sustenance of an identity of craft is very crucial considering its socio cultural ecosystem and economic stability considering that time. The design intervention was planned with certain hypothesis and the very 1st workshop was so far conducted to keeping the Empathy as a strategy for diversity. The other intention is also to bring an updated knowledge base and techniques to the young practicing artisan and encourage them to diversify the visual identity of the craft with much clever way and appreciate the ethos of the city and sustain its Diversity for time to come.

KEYWORDS: Culture Fusion, Diversity, Varanasi, Craft Identity, Design Diversification, and Skill Development, Empathise Multiplicity

I. INTRODUCTION

India is known for its traditions and culture. Minority communities in India are known for their traditional skills, arts and crafts. But due to forces of competitive market and globalization, and also due to deteriorating socioeconomic condition of master craftsmen/ artisan, these skills are not being pursued by the young generation. Government of India is of firm conviction that these arts/ crafts are needed to be preserved. There is a need to augment traditional arts and entrepreneurial skill which are the backbone of cottage and small scale industry and establish better market linkages, enhance branding and ensure access to credit.

'Soft Stone Craft of Varanasi' is a part of a Design Intervention project titled "Upgrading the Skills and Training in Traditional Arts/ Crafts for Development"

(USTTAD). The project, launched by the Ministry of Minority Affairs, Government of India, is for the benefit of the religious minorities who are engaged in the practice of traditional arts and crafts. National institute of design, Ahmedabad contributed as a knowledge partner worked with the minority artisan of Ramanger stone artisan in upgrading the skills with a responsibility and work around the new product development considering the ecosystem.

The Design development gone through a prior field study included. Who are the people engaged in the craft– the craftsperson? What is the craft history? What are the socio-cultural factors that influence the craft? What are the current trends in soft stone practice? Most importantly, what is the core identity of the soft stone craft? And how can design intervention be conducted within this context?

The state of Uttar Pradesh, inhabited by Hindus, Muslims, Jains, Buddhists and Christians, is known for its rich craft heritage. For the purpose of the project, Varanasi and the neighboring locality of Ramnagar has been identified as a key cluster where several minority along with hindu families actively practice the craft of soft stone carving.

II. RESEARCH METHODOLOGY

The project was initiated with field visit to Varanasi A team comprising of researchers, designers and a photographer visited Varanasi and Ramnagar to collect data in the form of photographs, information related to the socio-cultural attributes of the community as well as to gain an understanding of the craft–raw material, techniques and processes through Various research methodology such as participatory research, interview with the experts, observation research and Task analysis. During the course of the field visit, the team also understood the history of the state, its cultural and social heritage from the 2ndry research of relevant literature from library of Banaras Hindu University, National institute of design & few Personal collection of old scripts from the scholars in varanasi, since it was found imperative to the study the craft holistically. Further to the visit a strategy and series of Design Development Workshops was worked out around the identity creation, diversification & preservation by understanding the present skill of the artisan, economic environment and strategy for sustenance.

III. DISCOVERING THE SOUL OF THE CRAFT

In its history, Varanasi boasts as being a city that has attracted people from varied religions and communities. It is the city's mythical connect, its location on a river that sustains life and its commercial status, that has made it India's first cosmopolitan city, with many cultures thriving within the same space. The interflow of these cultures also contributed to the cultural development of the city. Foremost, in this sector were the crafts. (Greaves, 1909)

Since time immemorial, Varanasi became a city known for its weaves and other forms of crafts. People from different parts of the country came and settled in Varanasi and brought with them the skills of their homeland. These skills were then introduced in Varanasi and were beautifully blended with the ethos of the city, thus giving these crafts a unique character. (Singh, 2003)

Being a seat of learning, due to the presence of many Hindu, Buddhists and Islamic centres of learning, Varanasi has always encouraged the growth of the arts. Many sectors of Varanasi flourish with varied art forms. (Crosthwaite, 2017)

Varanasi and Ramnagar, have only grown culturally, socially and commercially since independence. Varanasi continues to be the city of myths and attracts tourists, pilgrims and immigrants from around the country. Ramnagar, on the other hand, is a city and municipal board in Varanasi district.

Varanasi today is the "archetype of India", "perceived as a site of vigour and vividness and multiplicity, diversity and unity are easily envisioned in its religion, culture, society and economy–altogether making a mosaic, called 'microcosmic India'." (Singh, 2003)

The miniature stone carvings that one sees today in parts of Varanasi and Ramnagar, assumed its current form after undergoing a prolonged historical process that began as early as the stone ages. Before the embryo carved elephants of Ramanagar arrived, stonework in Uttar Pradesh centered on building monumental stone structures that were embedded with carvings. It is from these intricately carved buildings that stone work in Varanasi and Ramnagar originated.

Therefore, the history of the craft will be traced from the times it focused largely on architectural designs under varied dynasties in northern part of india till when it acquired the form of miniature forms and figurines. (Kasturi in Dodson, p. 110)

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TABLE 1

Dinasty in Ramnagar	Identity of Stone Craft
Ancient Period	
Harsha's (60-647 BCE)	*Intangible Heritage* Representation of Gupta style primarily, Inspired from paintings of Ajanta, conscious moral sense, personified symbols *Tangible Heritage* Methods like printing, coloring, metal works and ivory works are dominant Architecture was prominence, Chaityas, Viharas and temples were built, Copper statue of Buddha, which is eight feet high is a very prominent sculpture. *Materials & Craftsmanship* Red sandstone & Chunar sandstone most preferred. The art of Harsha's period is so much influenced by Gupta art that it cannot be separated from it and has no independent existence of its own
Gupta Period (321–550 BCE)	*Intangible Heritage* Conscious moral sense, Nudity as rule was eliminated. distinguishing images, personified symbols or weapons. *Tangible Heritage* Snakes form an essential genre, four-armed Lord Vishnu standing with unadorned cylindrical crowns, elegance from Amravati. plasticity from Mathura, characteristic elements of the Indian temple emerged, *Materials & Craftsmanship* Red sandstone & Chunar sandstone most preferred. Terracotta was also used to make figurines, smooth and shining texture, 'Udaigiri' style. Moulded form as part of the general architecture. pliant body style sculpture.wet or transparent clinging drapery was the fashion.
Kaushana's (30–375 BCE)	*Intangible Heritage* The Kushans were descendants of nomads from various parts of Central Asia. *Tangible Heritage* There were two artistic centers of the Kushan empire, each with a distinctive style: a northern one in the Gandhara region centered around Peshawar and later in Taxila, and a southern one in Mathura, south of present-day New Delhi Art from the Gandhara region shows the strong impact of Greek and Roman sculpture owing to the conquests of Alexander the Great and to the strong diplomatic and trade relations between the Kushans and Rome *Materials & Craftsmanship* - Sculptures were usually created from dark gray phyllite, schist, stucco, or terra-cotta - The sculptures from this era wear toga-like garments and have wavy hair and straight Roman noses. Art from the southern Mathuran region developed from Indigenous Indian traditions, emphasizing rounded bodily forms. Its voluptuous sculptural images wear minimal garments and are usually carved from red mottled sandstone.
Mauryan's (326–180 BCE)	*Intangible Heritage* Mauryan art reflected an influence of the spirit of the Persian and Hellenistic art. All monuments built during this period have teachings of Buddhism engraved on them *Tangible Heritage* The 'stupas' are solid dome like structures built with bricks and stones initially created as symbols of artistic tradition in Mauryan Dynasty. The Pillars were one of the major works accomplished by Ashoka of Mauryan dynasty. Construction of gateways is also an unique architectural technique used by Mauryans. The pillars of monolithic and smooth columns (50 ft in height) had carved with lotus capitals and animal figures. Inscriptions containing principles of 'Dhamma' or righteousness were also embedded on all pillars. *Materials & Craftsmanship* Fine grained hard sandstone of Chunar near Varanasi as well as spotted white and red sandstone from to Mathura the famous raw materials. Besides pillars, rock-cut caves, palaces and buildings constructed in Mauryan dynasty are also unique in artistry. The stone elephant was another characteristic element of sculptures from this era with the elephant emerging out of the rock face.
Medieval Period	
Delhi Sultanate (1206–1526)	*Intangible Heritage* Religious tolerance and patronized art *Tangible Heritage* Pointed arches and domes characterize the Delhi Sultanate architecture. Turkish, Egyptian and Persian characteristics are clearly evident in the architecture throughout the Delhi sultanate. Their amalgamation with the Hindu architecture was possible due to common features in both idioms. The dome evolved as the main decorative element of the Muslim architecture and sculpture. The pointed arches drifted away completely from the kinds of arches used in the ancient Hindu temples. These were further decorated with thick foliage sculptures *Materials & Craftsmanship* - Use of bricks and adaptation of Hindu temple style & decorative designs were characteristic of the Muslim architecture of the period in Bengal. In Malwa, palaces were mostly built of marble and sandstone. - Over time, the features of Delhi Sultanate architecture met with regional variations. The Persian domes soon had the Hindu lotus motifs. The artisans who built the Muslim monuments belonged to the Hindu community too. - The Delhi Sultanate sculptures left behind a lasting Persian influence on the native sculpture and art. The features of the Delhi sultanate were also adopted by Hindu architecture. The features of the Rajput sculptures is an evidence of this fact.

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Dinasty in Ramnagar	Identity of Stone Craft

Mughal Architecture (1526–1857)	*Intangible Heritage*
	    Tangible Heritage
	    The trabeated stone construction, shallow arches made out of corbels rather than richly ornamented carved piers and columns are some typical Hindu features that have been incorporated in the Mughal architecture. The design of gardens provided the setting for tombs and palaces and also helped for relaxation.
	    Perfect or near perfect radial or bilateral symmetry, geometric ornament, domes which are slightly pointed instead of hemispherical ones and garden surroundings are some of the key features of Mughal architecture
	Materials & Craftsmanship
	    - White marble is often associated with the Mughal architecture. Other material of choice were red sandstone with white marble inlays, which was later pure white marble surfaces
	    - Extensive use of tile-work, the iwan as a central feature in mosques, the char bagh or garden and the use of domes are the features borrowed from the Persian architecture. The kalash on top of the Hindu temple was borrowed and replaced by a dome and Hindu style of decoration their arches.employed artists that were mostly Hindus and taught them designs that were within the tenets of Islam.
	    - Decoration of the buildings was done with ceramic tile-work, pietra dura inlay with coloured and semi-precious stones, carved and inlaid stonework. Carved stonework ranged from shallow relief depictions of flowers to intricate pierced-marble screens known as 'Jalis'

Later Medieval Period (Regional Dynasties)	

Nawabs of Awadh (1722–1856)	*Intangible Heritage*
	    - The architecture under the nawabs was heavily dependent on the Mughal style established during Shah Jahan and Aurangzeb. Buildings were modelled closely on Mughal prototypes
	Tangible Heritage
	    - Emphasis on the building's height recalls Mughal buildings. Original characteristics such as multiple entrances on the facade and elaborate parapets on the roof, significant features in the developing independent Awadhi style architecture
	    - The architecture style can be placed into two broad categories. One, the structures built by the nawabs for their own residences or public works often reflected European influences, while religious structures were generally based on earlier Indo-Islamic houses
	Materials & Craftsmanship
	    - Typical of the Awadh nawabs' architecture, the gateway was highly creative, as opposed to the more orderly structures of the Mughals.
	    - Features like Palladian-style columns, triangular pediments and Adam-style fanlights were all widely utilized. The fine ornate stucco work in the shape of fish (the nawabs' royal emblem) and the floral motifs standing out along exaggerated cusped arches were highly influenced by European art.

Narayan Dynasty (Varanasi) (1770–1947)	*Intangible Heritage*
	    Patronized varied art forms. Buddhism and Jainism have had considerably influence stone art and architecture in Varanasi and Stone carvings from the Mauryan Empire (326–187 BC), have also served as an inspiration for the kings that followed in the years to come
	Tangible Heritage
	    Stone art moved beyond architectural buildings to a smaller but refined version–that of carving miniature forms of animals, nature etc. Stone art and architecture revived under the Maharajas of Varanasi, who patronized various art forms. Under the Maharaja of Varanasi, stone art moved beyond architectural
	Materials & Craftsmanship
	    Buildings to a smaller but refined version–that of carving miniature forms of animals, nature etc.
	    The ganga jamuni tehzeeb or the interflow of cultures is also reflected in the city's architecture

Stone art and architecture suffered a massive decline during this period of instability. However, it witnessed a revival under the Maharajas of Varanasi, who patronized varied art forms. Under the Maharaja of Varanasi, stone art moved beyond architectural buildings to a smaller but refined version–that of carving miniature forms of animals, nature etc.

Interestingly, the now used soft stone was not the initial raw material used for these carvings. Ivory was largely used to carve miniature elephants, flowers, figurines of Gods and Goddesses. These ivory pieces then adorned the palace rooms of the Maharaja's family. Soft stone was introduced sometime in the late twentieth century by the communities who migrated from parts of Vindhyachal, neighbouring Jhansi. These migrations largely took place during the Revolt of 1857, when people from Jhansi moved to Varanasi, the hometown of Rani Lakshmibai, to seek refuge. After Varanasi became their permanent homes, many of these communities brought with them soft stone, quarried around parts of Jhansi, to Varanasi and Ramnagar. Thereby, soft stone replaced ivory as being the raw material to be used for the craft.

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IV. Strategy of Patronising the Craft & Establish Diversity

TABLE 2

Strategy of Patronising	Reflection in Craft	Establishment of Diversity
Maharajas of Ramnagar founded many royal workshops or karkhanas, employing several local craftspersons who carved miniature elephants, flowers, figurines of Gods and Goddesses. Maharaja bought land, where residential areas were created for their many craftspersons. The royal karkhanas were also constructed within these lands.	The most commonly carved form was the elephant, a symbol of royalty and strength. These pieces then adorned the palace rooms of the Maharaja's family. This free flowing support of Maharaja was not only restricted to finances but was also abundant with creativity.	Self reliance on craft making, economic development and employment was achieved by the individual artisan reflected in social growth.
With the fragmentation of the Mughal empire and the coming of the British, many royal principalities in India were on the verge of a decline as we enter the eighteenth century. Varanasi had provided a residence to many kings and queens who had lost their empires.	The many royal families that made Varanasi their abode created a culture of patronage in the city. As the number of royal families increased in Varanasi, the city began to acquire a cosmopolitan outlook.	Along with the kings also came his artists, crafts persons, cooks, musicians and poets. They brought the culture of their home states and attempted to recreate the same in Varanasi; this also explains the diversity of architectural forms along the ghats.
"Banaras is a city of myths more than historicity." Myths abound the city and it is these myths that have created an enigma in the minds of people across the country. That the city is Shiv ki Nagri (city of Lord Shiva) and also a resting place before death attracted many to this city of myths.	Along with being a religious centre, Varanasi was also a crucial trading city–thus making it a city with lucrative economic opportunities. This diversity was reflected in its food, architecture, languages and most importantly its crafts.	. What emerged from this intermingling of cultures was the famous ganga-jamuni tehzeeb, a fusion of many cultural elements. The artisan is by choice inspired from it.
The inspiration was always evolving and as the Maharaja's control over Varanasi ended with the Indian independence in 1947.	The number of royal karkhanas also dwindled and the craftsperson was on his own. The craft become independent and adopted its substance with time search	The craftsperson looked beyond the royal quarters for newer ideas that would influence them.

Ever since its inception, this form of art was initiated and later encouraged by the many dynasties that were able to establish their stronghold in Uttar Pradesh. Therefore, it was never a craft that began with the craftsperson. The craftsperson was brought under the ambit by the ruling king, who imparted training, employed them as his karigars and then ordered them to construct wonders in stone.

V. Discovering Design Language and Diversity

The design vocabulary of the many crafts of Varanasi was significantly influenced by this diversity. Therefore, the designs that appeared on soft stone forms sometimes appear Islamic due to the regular use of floral and geometric patterns, along with also representing forms of Hinduism and Buddhism, such as animals, gods and goddesses.

In recent times, the various elements of urbanization, such as influx of media, telecommunications etc. widened the horizon of the soft stone craftsperson. With an increased knowledge of the outside world, the craftsperson now not only carved elephants from other geographical condition also varied utilitarian forms such as candle holders, aroma diffusers, tea coasters, pencil stands, chess boards etc.

The number of foreign tourists and pilgrims also increased in the decades following independence. Their demands and needs also became a deciding factor for the soft stone craftsperson to create forms that will be purchased by visitors, thereby increasing their economic viability. Thus, this floating population in Varanasi and their needs also became a chief source of inspiration for the craftsperson.

In the case of soft stone craft, a variety of soft stones, namely, Khorai, Gorara, Palewa, and Selum is used. Interestingly, the names of these stones are derived from the place they are found in. For instance, both Gorara and Palewa are found in places by the same names. Quarrying sites are largely located in these regions, and Bijri is a significant quarrying village. Dealing in soft stone–entrepreneurs, exporters, draftspersons etc. make their way to a place called Lalitpur, which is an important stone collection centre.

The soft stone is a byproduct of lead mining. The quarrying sites are primarily for lead. Soft stone are acquired after lead mining process. When a stone is being purchased, its quality is determined by the presence of lead. Stones with traces of lead are rejected since the lead deposits, locally known as Bispotaks are harder than the tools, damages the tools used during the making of the craft. If significant amount of lead deposits are found in the stone after it has been purchased, then the stone is considered waste and disposed.

Quality check of the stone is also based largely on experience. A person who has been associated with soft stone for a long time will be able to asses the quality by a physical touch and merely observing the stone. Sometimes the stone is also hammered to understand its strength.

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TABLE 3

Aspects of Craft and Craft Making	Unique Craft Technique	Creation of Craft Visual Characteristics
The aesthetics and perception of the raw materials: The stones have a variety of colours, prominent amongst them being black (palewa), white, red, green (gorari and Khorai). Several colours within the stone are also found when the stone is cut.	Each of these stones have a different set of properties which also influences the making processes and methods. For instance, for filling up gaps and cracks in selum stone, wax is used and not stone powder, which is normally used in the other stones.	Material with image: The texture and colour of the stone majorly natural & no uniform in nature. mainly utilized for the products with less of surface decoration. However The intelligent use of the texture creates an interesting identity in contemporary craft making. but it has a negative perception with in craft person and craft appreciator Material without image: Gorari like stone have mainly materials without images. The materials are used for highly decorative objects because of its visual clarity achieved while texture making. Natural defects: It is part of the visual existence such as breakage or natural defects in stone. Somehow the artisan see it as waste materials but contemporary artist see as an opportunity of expression.
Material Properties: The colour of the stone, however, may also change if any other liquid substance seeps into it. If soft stone products are used for storing water, there colour may change over a period of time. This is made possible due to the porous and soft property of the stone, which allows for water to seep inside	Stone like Paleba once applied with oil turned black colour stone. jewellery industries extensively manipulate stone colour in extreme pressure, heat to get various colour stone which is a very recent phenomena.	Artificial coloured stone have market specially appreciated in fashion industries however limits to few organisation who are investing in R&D. It is not an universal practice
Workability (technique vs stone properties). In the case of soft stone craft, a variety of soft stones, namely, Khorai, Gorara, Palewa, and Selum is used. The fine carving possibility lead to choice of materials an opportunity for individual technique for their expression.	Stone Undercut with very organic form and texture is also the indication of comfort to easy workability	Mechanical texture: The tactile texture is obtained because of machine means. It is not only visible but also creates a surface texture. This is created because of repeated movement of the machine tools on a soft stone. Tactile spontaneous texture: it is intentional texture created with a very stylised movement of craftsman modified the natural texture of the stone. Organised texture: A repeated organised pattern creates more sensation beyond the materials.
Methods of carving Subtraction methods: Soft Stone Undercut, which includes making a sculptural piece in stone or wood in which the inner material is removed to encase multiple layers (maximum 3 or 4) of sculptures/figurines while retaining a comparatively thinner outer layer of stone on which intricate carving is done. Visualisation of form: The Animal form are predominantly as part of the product catalogue because of the royal patronage however it has its socio cultural relevance by different community	Undercut carving: stones are heavy weight and going against the properties of stone, and manipulate to make it lightweight gives an identity to the craft.	Material Manipulation and form visualisation. The form visualisation and representation rendered a realism of human or animal world. However the abstraction has no meaning to artisan. The symmetry is the only way of representation and hint of asymmetry is slowly coming into craft. Mainly compound forms are seen to share a situation and story however artisan has limited awareness with it rather it is like a pattern with commercial return.
Sharing a common tools, machinery platform between craft. To make cylindrical, round, elliptical and bulbous forms turning is the fastest way of making round and spherical objects, along with removal of material. The turning Machines for wood is also suitable for stone crafts. The most common tool used is the pen drill, which seeks its inspiration from the drills used for engraving on metal. These drills were then modified and adapted to the soft stone requirements, making it lighter.	Drill bits, locally known as burma, are also important components. Made from MS Rods, the craftsmen make the drill by cold forging process beating it into a desired shape. drill also functions through a motor and so does the cutter coming from a combination of tools of different trade. heavy machineries like circular bedsaw, bandsaw, buffing machines, pulley, table lathes, bench lath and small tools such as compass, hand saws, various cutting tools used are from the wood craft industries. source of power is cleverly used by the craftsperson in a way that a number of machines are used at the same time.	A journey of machine made to hand made: A conscious choice for commercial viability and Ease of production bring both technique such as handcraft and turning combined together to bring out another identity to the craft. The material properties allows the sharing of skills and machines between the craft such as wood and soft stone craft.

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Aspects of Craft and Craft Making	Unique Craft Technique	Creation of Craft Visual Characteristics
Finishing elements: Protection of soft stone (porosity) from moist weather gave opportunity for surface finishes. Applying different finishes like Varnish, wax etc are the Protection technique from surrounding weather gives different possibilities of colour opportunity. Eventually increase the life of the products.	The oil, petrol like liquid once applied on a particular stone gives a permanent colour black which is giving a interesting selling point to their customer.	Natural clear finish to the form is always appreciated by the consumer. However color on the surface is a very recent phenomena attract some more consumer.
Revisiting the waste Stone powder, that emanates as the stone is being cut is also a relevant raw material and is used in everything from fertilisers, putty, polish, paints, printing dyes to soap, powder and detergents.	Few innovator in the artisan group see as an opportunity of creating a block of stone by combined with regin. The same craving technique is used to make similar looking cheap product. the innovation have lot of potential to create a range of product which is not a competitive product to existing stone products.	In the last few years, the scarcity of quality soft stone given birth to new technique and methods of craft creation. Through it is perceived to be inferior quality of stone work. The potential of innovation can be extended by choosing the right quality and right product domain.
Work space and resources: With every workspace left to evolve organically, there is no homogeneity in the design of the workspaces. All the workspaces that were visited during field visit displayed a character of their own. While some workspaces were created within residential premises, others were in spaces located outside the house.	The house also has its own 'craft ecosystem' with every member of the house engaged in some form of craft related activity–the women were involved in weaving related activities while the men focused on soft stone. The labour exchange and role of gender in a particular craft is happening considering the urgency of business.	It creates an opportunity of knowledge transfer when there is change in the role. The intricacy is also seen by the artisan or the expression of artform is more prominent when a artisan is involved in different craft form.

VI. PERCEPTION OF CONSUMER TOWARDS PRODUCT IDENTITY

Since the days of the Maharaja is the elephant. Animal forms and other designs such as floral patterns were made extensively for the royal family. However, with times, the forms and products also underwent a drastic change. Over the years, soft stone became a craft driven by commercial factors. The decades following independence, brought several changes in India's urban life, soft stone craft was greatly impacted.

The demands of the tourists and the pilgrim are an important prerequisite for deciding what forms are to be created. Based on the demands different markets have come into being, namely Indian and Foreign.

For the Indian market, comprising mostly of pilgrims visiting Varanasi and for a clientele living in other Indian cities, specific products are created. Information collected on field reveals, that since Indians don't prefer undercut items, mostly figurines of gods and goddesses are made for them. A variety of kitchen based utility products, and other products such as tea sets, lamps, candle stands, flower pots, pen stands are also made for the Indians visiting Varanasi or markets in other Indian cities.

It is the demand from the foreign tourist and countries abroad that challenges the craftsperson to make a variety of designs; designs that are not even a part of the Indian way of life. These include bath salt cases, soap dispenser, flower vase, aroma containers, small boxes, soap cases, tray, tooth brush holder, incense stick holder etc.

Forms such as owl, which is commonly seen, is made for the Japanese market along with several Feng Shui items such as a three-legged frog etc. Figurines of Lord Buddha are also commonly seen, especially in Sarnath, a relevant pilgrimage for the Buddhists. The European market continues to prefer the elephant and also prefers other items like chess sets. Chess sets are also popular within the country.

There is no limited variety of soft stone products and the soft stone craftsperson is willing to experiment with newer designs. Therefore, from dinosaurs, owls, elephants, birds to dinner sets, jewelry boxes, cups, tea makers, everything is cut and carved on soft stone exist in the same market.

The craftsperson also seeks inspiration from other crafts, such as metalwork and wood work, and attempts to recreate those designs on soft stone, thereby ensuring a continuous inflow of a diverse range of products and making this process of creation a never ending one.

Soft stone products are known for their fine carvings that impart a royal look to the final product. Therefore, these products find their ways in five star hotels, where they are used as decoration items. The hospitality industry is a huge buyer of these products, used not only for decoration purposes but also as products to be sold in the shops located within these hotels. A primary visitor of these shops is once again the foreign tourist visiting India.

The chief item for this particular sector is once again the embryo carved elephant along with other products, used only to adorn one's houses. For this kind of market,

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the products made are known for their 'Indian' features, since they are bought as souvenirs.

In case of packaging, the material used for packaging depends on the type of products and the market for which the products are made. If the client pays well, the packaging investment also increases and expensive materials are used.

The main materials used for packaging are Styrofoam sheets, corrugated sheets/ boxes, cotton and bubble wrappers, and shredded paper.

For the exporters, products that are transported via sea are packed in wooden boxes whereas the ones that are sent by air are packed in corrugated boxes. Wooden boxes are not used for flights as it increases the weight and in turn the cost of exporting.

The soft stone craft economy is hugely depended on packaging and transportation. While the transportation network is established and well worked out, packaging is in need of improvement. The material used for packaging is basic and sometimes also damages the goods in transit, thus making it imperative to further enhance the quality of packaging.

VII. THE CRAFT CREATOR: INDIVIDUAL EXPRESSION *VS* IDENTITY

Whatever the type of craftsperson, the driving force of every soft stone carver is economic sustenance. It is the need to fulfill the financial demands of his family that the craftsperson takes on the craft and continues to work in workshops enveloped with stone dust, emanating from drilling and cutting of the stone. It is this economic need that becomes his motivation, inspiration and also becomes a significant aspect of the soft stone craft sector.

The 'permanent' soft stone craftsperson belongs to a family who has been engaged in the craft for several years, some even from the days of the Maharaja. In this case, the craftsperson has acquired the skill from their fathers, brothers or uncles. For years, members of the family learn the craft and continue it to create a family legacy.

On the other hand, there exists a 'temporary or moveable' craftsperson too; their numbers in fact higher than the 'permanent' ones. The 'temporary or moveable' craftsperson is one, whose sole motivation is to fulfill the economic needs of himself and his family. He thereby takes several skill-based jobs. With Varanasi being a hub of many crafts, the opportunities are steadily available. Thus, the craftsperson keeps moving within these crafts– sometimes a weaver, sometimes a wood carver, sometimes a soft stone craftsperson.

The many crafts of Varanasi reflect the adroit skills of the craftsperson as also their social world, inspirations, working patterns and much more. Those working in the soft stone sector of Varanasi and Ramnagar are all fine

craftsperson, however, some of them, while being craftsperson, also function as retailers, businessmen or export house owners.

Stone carving in Varanasi follows a unique learning system, one that does not adhere to a fixed pattern or process. That there is a skilled stone carver in a village or a specific area of the city, becomes known to people through the word of mouth. Thus, if an individual wishes to learn the craft, he then makes his way to the said craftsperson and becomes his chaila (student).

The workshop of the craftsperson also becomes a training centre where his chaila learns different stone carving processes and forms that are being made. Sometimes the guru may specialize in carving a particular form, like an owl or an elephant, his chaila follows in his footsteps and learns the same dutifully.

Once trained, the chaila either works in the same workspace with his guru or moves on to create his workspace. No more the chaila, the craftsperson then becomes his own boss, carving stone and selling it to middlemen or retailers. The *chaila* is now the *guru* and will soon have potential stone craftsperson flocking to him to learn the craft–the learning system, therefore, evolving organically and growing everyday.

The worldview of the stone carver also altered. With access to television and other forms of mass media, the stone carver gained an understanding of the outside world, his inspiration, therefore, coming from countries that were miles away from his workshop.

Interestingly, along with the famous embryo carved elephants of Ramnagar, a series of African elephants also began to be made. When probed about the introduction of the African elephants today, the stone carvers unanimously say, "Hum discovery channel pe dekhe the, toh socha yeh haathi pather pe bana kar dekhen." (It was on Discovery channel that I saw the African elephant and then decided to carve it on the stone).

Muslim craftsperson may not be permitted by his religion to make figurines, he continues to do so in order to meet the unstinted demands of those who buy the undercut figurines. The soft stone craftsperson of Varanasi is in tune with the likes, demands and needs of his customer and is constantly making an effort to be innovative. This innovation leads to the creation of an array of designs, forms and lends a diverse character to the product range.

VIII. CHALLENGES & OPPORTUNITY OF THE TIME

Health hazards pertaining to soft stone craft come across as the chief deterrent towards pursuing this craft. The stone dust that emanates as a result of drilling and cutting, of course has a harmful effect on the craftsperson health. The resultant dust, juxtaposed with the working environment, which does not adhere to any health and

safety norms, only adds to the misery of the craftsperson. Continuous exposure to the dust only leads to respiratory related problems, which only aggravate as the craftsperson spends a maximum amount of time in these workshops.

It is this health hazard that has kept away a majority of potential craftsperson from the soft stone sector. On the other hand, craftsperson have also quit after being in the soft stone profession for sometime, the reason being the associated respiratory problems.

Yet another challenge faced by the craft is the increasing 'quantity' and not 'quality'. Over the years, Varanasi has evolved as a town bustling with tourists and pilgrims. Due to this heavy inflow of tourists, the city mass produced souvenirs such as weaves, wooden crafts, stone crafts and many products that can be sold commercially to the unending visitors. As a result, one finds a variety of products in markets and shops across Varanasi. While there is no dearth of goods, however, there persists a paucity of quality product, one that has finesse and fine craftsmanship.

Over the years, Varanasi's association with soft stone craft has dwindled only to be taken over by other cities such as Agra, that claim to be the chief clusters of stone carving. This threat indicating a decline in the relevance of soft stone craft of Varanasi, only increases the number of challenges the craft faces.

Tourist visits North India, he/ she follows a very fixed itinerary. Following the itinerary they visit several cities in a span of few days. In such a scenario, they prefer not to buy products that are fragile and may suffer damage during their continues travels. The soft stone products being fragile, as also heavy are found rather inconvenient to buy. The tourists therefore refrain from buying them in Varanasi and would rather buy them from a shop in New Delhi, on their way back.

Despite the challenges that the craft faces, it continues to be an intrinsic aspect of the city's life and culture. It is also a source of employment for many who dwell in Varanasi. So, how does a craft facing persistent threats continue to flourish? It is perhaps the soul of the craft embodying the city's history and culture that makes it inextricable to the city and its people. It is the soul of the craft that brings us to another key feature of the craft–its core identity., an understanding of which will lead to further development and progress of the craft.

The Ganga Jamuni tehzeeb as this cultural interflow is referred to, is a fine description of the ethos of Varanasi. This ethos has over the years appeared in the city's architecture, its food, its cultural practices and also its many crafts- with Soft Stone being an inseparable part of it.

The flowers, the animals, geometrical shapes–all representing design inspirations of varied communities– come together to make the core identity of the craft. It is this tehzeeb that makes soft stone products distinctive and impart to them an attribute, which is different from the profusion of stone work one sees across the state of Uttar Pradesh.

IX. Design Intervention to Sustain Multiplicity

A documentary film on Craft Capturing the strength, weakness, threats and opportunity of the soft stone craft shared with the artisan to bring a bird's eye perspective. That gave a design team grounding to discuss and clear many ambiguity of artisan and artisan believe on the mentor.

The Design workshop was targeted with an intention to increase the creative thinking of the artisan and help them with an intention of an independent thinker. The steps followed are 1) Learning artisan's strength 2) Creation of art form 3) Creation of form 4) Defining an utility 5) Expression of quality. NID team always given a guidance to the Artisan to build on their strength. believe in their intuition and help articulating their imagination.

A. Method 01

Learning artisan's strength & built on their knowledge. Design team discussed with every form and understand the meaning from the artisan and their intention of doing. During the discussion the origin of the motif and its interpretation are learnt from the makers. Most of the element coming from the art and architecture of the locality which is inspiring to the artisan. some blindly follow their master. However the meaning of the elements are forgotten over the years. It become a decorative elements on the animal form as described by the artisan. In order to bring the importance and meaning to the elements artisan are asked to see the chosen elements in isolation. Later it is multiplied, composed to bring different expression. When the artisan are asked to compose the elements, a particular symmetric pattern were emerged. To bring the variation the NID team introduce a asymmetric and random composition. The exercise gave interesting results, the artisans were able to witness and understand the importance of each individual element in their existing library of textures. Combining the textures with undulated, uneven, flat and rough-smooth surfaces gave us possible directions for new product ideas and possible surface ornamentation for products. The first exercise being working with their existing library of textures, it was very easy for them to play around with the textures and their attitude was also positive and wondered how their own elements created a different meaning when it is composed differently. Each artisan has their distinctive strong points. Some were good with traditional textures while some were better with contemporising them. Artisans with a strong understanding were able to apply and alter the textures to

suit the exercise while others took more time to achieve similar results.

B. Method 02

Creation of visual library inspired from their surroundings. A methods introduced to empower the artisan with new way of interpretation of their own surroundings. Nid Team realised the inspiration of the artisan is limited to their present skills. The team wanted to give unending source of inspiration and its interpretation. Artisans are asked to take natural form in their surroundings such as leaves, flowers, feather. Further they used the stamping technique to transfer the form on to the paper. The technique are introduced considering the artisan's fear towards the pencil drawing. Creating patterns and motifs by stamping gave a new perspective to the artisans to look at texture formation and helped them develop an understanding of drawing inspiration from their surroundings. There was a notable difference between patterns they made earlier & the patterns made after the stamping exercise (choosing random natural elements from surroundings, mainly leaves, twigs and vegetables). For instance, the level of detail on floral and leafy patterns were enhanced due to the stamping technique. The number of compositions the artisans were able to create with a single element gave way to interesting texture developments which can be used on different categories of products. From time of inspection to translation the flexibility of artisan increased, time management are more efficient, and the detailing of the form increased with the reference. The POP material and the hand carving tools were introduced for easy visualisation. The artisan had an initial struggle of handling both tool and materials. Later they realised the importance of the in between step of making a prototype. Guidance were given for asymmetric composition. Negative and positive space. Later the artisan realised the importance of blank spaces and minimal composition. With time the artisan also realised the work they are producing has a very different visual language then the former one.

C. Method 03

Creation of visual library-learning to create multiplier. Tessellation was introduced to empower the artisan with contemporary visual language. The concept of grids being completely new to the artisans, around 6 basic grid were introduced and hands on practice were made to learn the drawing on the grid. It took them some time to come up with their own patterns. Few artisans were able to resolve it to some extent, others not so much. It was easier for the artisans to create the symmetric compositions as it came naturally to them. Creating asymmetric compositions was bit of a challenge for them but after a few attempts they

were able to produce good results. Translating the traditional patterns and contemporising them was the biggest challenge for them. Using two different kinds of ink to mark and distinguish between similar elements was something they came up with to mark the different levels of carving on stone that would follow. The artisans slowly developed a sense of composition and segregating them into different categories (audience specific). Later artisan were introduced with one design elements and explore the possibilities of repetition on various other grids. Suddenly artisan felt empowered with their endless possibilities of creation. As the grid changes the overall form changes. From some of the experienced artisan it was an eye opener activity. That started discovering the grid in their traditional jali work. According to them it has opened their mind.

D. Method 04

Integration of nature and manmade. Challenging the boundaries of craftsmanship and bring an artistic thinking. During the training certain biases about the stones were observed. Such as breakage of the stone, colour of the stone gave them the feeling that the stone is not worth for commercial use. Nid Team took that challenge to teach a new form language. In this picture artisan asked to carve with reference to the existing defects on the stone. The freedom for imagination give an opportunity to dream island with sea water. The artistic expression was a pleasant surprise to artisan and NID team. It helps to change the perception of an individual for craft creation.

E. 3d Interpretation of a 2d Visual form

Extending their thinking by manipulating and interpreting a single form with multiple interpretation. For better understand the difference between different categories of product and their characteristics, the artisans were asked to interpret and represent one composition created by them in four different ways. Artisans took one basic composition which they had created and created multiple iterations of that single unit in each row on stone. Various carving techniques/ material removal methods were introduced such as low relief, high relief and sunken relief. With their knowledge of creating textures and different carving techniques, they were able to produce some very unique results. They realised even if they take one unit and repeat throughout the surface they can produce an endless possibilities of visual language.

F. Time Travel Through Composition

A time travel of a single composition from traditional to contemporary. As they got mastery with the technique they realised the elements can play an important role in differentiating the age of an object. Such as past and

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present, old and new. The object is capable of expressing certain emotion through visual and tactile feel.

G. Empowering the Individual with Technology

New age technology empower the individual visualization strength. To intimate the artisans about the possibilities of technological intervention in the craft, they were introduced to pre-laser cut and etched foam stamps. During our material research, it was noticed that the soft stone absorbs ink very well. In this exercise this property was used to explore different compositions and possible product decorations. The foam stamps helped cut down time on making compositions as well as ensured consistency in terms of shape and size. Different foam stamps of varying shapes and sizes helped the artisans in creating interesting compositions. This process also helped the craftsmen to see and understand the importance and possibilities of exploring with different scales of one basic shape.

H. Knowing their Consumer & Linking the Visual Language

Artisan's choice to segregate the visual library and discover their potential consumer. NID team helped defining and bringing the clarity. In order to make new products in the coming workshops, it was important for the artisans to be able to differentiate between traditional, contemporary, eccentric etc. By discussing and debating on their creations from the exercises of the workshop, they were able to reflect back on their thought processes when they were making things. This discussion helped NID team and the craftsmen to align thoughts in a similar direction. The artisan can segregate and relate to the personalities discovered from the research as a potential consumer.

I. Introduction of a New form Language Knowing Diversity

Artisan are introduced to the 5 different platonic solids forms. A discovery of platonic solids which appeal to different religious group as a potential consumer who come to varanasi as a tourist. it was also discovered the solids well connected with the belief system of islam, buddhism and hinduism. The craftsmen were first introduced to the three basic 3d solids, Cube, Tetrahedron and Octahedron. Once they developed a basic understanding of these three solids, Dodecahedron and Icosahedron were introduced. Two techniques were adopted to make these solids, (i) by sculpting it out from a solid cubical block and (ii) by joining geometrical shape stone slabs together. Icosahedron was easier to produce by sculpting it out of a cubical POP block. With every POP model the artisans made, their understanding of the form and the process of making it became clearer to them. As anticipated, making the solid forms by joining stone slabs,

it was easier and faster to make the models comparatively with very less wastage. Upon developing an understanding of the 3d solids, the artisans were able to make manipulations in the forms which was used to explore possible product applications and ideas.

J. Borrowing the Knowledge from other Craft

Artisan are introduced to turning techniques with an intention to explore a merger. Turning was identified as a quick and easy way to make products. By changing the nature of work done on a turned form/ solid, it can change the meaning and the intended use of the product completely. The turning process was demonstrated in front of the craftsmen to help build an understanding of the entire process. The artisans will do turning exercises in the coming workshops. The practice of turning technique existing in Varanasi but isolated from ramnagar artisan by choice. it was also a great opportunity to combined methods and availability of resources and skills around them

K. Learning to Translate with Quality

Artisan are introduced templates and demonstrated to achieve the quality of curves. Like the foam stamps used for the motif making exercise, lasercut MDF cut outs were used in the turning process to ensure consistency in the form, shape and size. The craftsmen also witnessed and understood the importance of templates in the process.

L. Nurturing Ideas of an Utility

Creating different utility is possible by manipulating visual element and construction elements of a form Ex. When a basic form is manipulated on edge gives a decorative edge accommodate another object. On the other hand the face manipulated gives a volume connected with other object.

M. Relationship of Space and Utility

One form with multiple interpretation. Artisan are introduced different way of thinking such as scaling in various sizes. Different ways of opening. The space plays an integral part in determining the language and nature of the product. By introducing the artisans to four different kinds of spaces, namely, home, hospitality, retail and commercial, this concept was explained to them. Using a 3d solid, different craftsmen made different styles of products. This was achieved through manipulations in scale of the solid and the nature of work done on it.

N. Integrating 3d form and 2d Motifs

Artisan are introduced to combine both the form with right quantity to achieve the desired utility. In this exercise the craftsmen combined all that they had worked in the

workshop to create final products. The motifs that the artisans had created were used as the differentiating factor for the products. They used these motifs on a base form and each piece had different style of work done on them. The end result of the exercise were two-three products made from the same form but belonged to different categories and served different function.

X. Discussion

This paper explicitly presents the scope of design for a complex socio cultural situation where multiplicity is core matter. Momentarily it is established that the dependency between the artisan, craft and its sustenance depended on the commercial viability. However the core visual knowledge of the artisan is deeply influenced by the environment which is particularly historical lost its meaning in present time. The evidence of extension of visual knowledge not anymore confined to geographical limitation because of the globalisation. The style of forming is depend on the individual knowledge, imagination and interpretation of surroundings. The identity is also depends on the availability of raw materials, tools and technology of that time. The manipulation of materials going with the property or against the property can be the cause for identity. The interpretation of visual form is governed by the external forces like spirituality, nationality, aspirational and lifestyle. The strategic patronisation helps to develop craft and community. Design helps to connect present community ethos to visual interpretation. The identity gives momentary commercial success some time highlights a particular choice of that time. A design thinking helped making aware/ connect the stone carver to various creative methods of recreating the environment through visual form and build a story around their creation which has an emotional connect to the present day buyer.

When a visual narration understand multiplicity, means going to the core of human values, appreciate the common among the religious difference. The above design approach is giving an opportunity in basic, further research will help to establish how to bring the identity and sustain it.

XI. Acknowledgement

References

[1] Dodson, Michael (ed), Banaras: Urban Forms and Cultural Histories, New Delhi: Routledge, 2012.
[2] Greaves, Edwin, Kashi. The Illustrious City, Allahabad: The Indian Press, 1901.
[3] H.S. Crosthwaite, Monograph on Stone Carving in the United Provinces, Allahabad: Government Press, 1906.
[4] Motichand, Kashi Ka Itihas, Varanasi:Viswavidyala Prakashan, 2010.
[5] Pirani, Khalil and Attilio Petrucciolio, Understanding Islamic Architecture, Routledge: Canada, 2008.
[6] Singh, Rana P.B., Banaras, The Heritage City of India, Varanasi: Indica, 2009.
[7] Smith, Vincent Arthur, Asoka, The Buddhist Emperor of India, Oxford : Clarendon.
[8] Thapar, Romila, The Penguin History of Early India, New Delhi: Penguin, 1990.

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Development of Toda Embroidered Garments using Conjoint Analysis

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ABSTRACT

Toda's are tribal community living in the areas of Nilgiris hills, Tamil Nadu. The Toda's of the Nilgiris are one of the most widely studied tribal groups both in India and abroad. The unique style of embroidery called pugur, is done on the shawls by the women of toda community. The shawl called putkuli, has red and black threads that end at intervals of 6 inches which gives an embossed effect. The project aims in understanding the craft, gain skill and applying the craft on range of apparel products. Consumer preferences were studied using conjoint analysis, which is a statistical technique widely used in market research to determine how people value different attributes/ features/ functions/ benefits that make upon individual product and services. To perform conjoint analysis, SPSS (Statistical Package for the Social Sciences) software was used. This resulted in utility score, important score, and preference of the consumers. Consumer preferences were studied using four attributes namely fabric, colour, style and price. Among the different options given for fabric, style, colour and price; people mostly preferred kurthi as style, linen fabric, toda embroidery in red and black combination, price in the range between Rs. 500–Rs. 1000. Hence, Kurthi was constructed in 3 different styles using linen fabric, toda embroidered in red and black threads and at the price range of Rs. 500–Rs. 1000. Style 2 (kurthi with toda embroidery in placket) received higher ratings for overall appearance and fit by the subjects.

KEYWORDS: Toda Embroidery, Toda Cluster, Craft, Conjoint Analysis

I. INTRODUCTION

The Toda tribe are the widely studied people all over the world. The culture of the Toda people was noted for many aspects. The study is conducted in order to know their tangible cultural objects and intangible cultural practices. Tangible aspects of Toda culture are embroidered mantle, semi-circular shaped hut, conical or semi-circular shaped temple. Whereas, intangible cultural practices are embroidery which is put on shawls and the language Toda people speak. In this present study, Putkuli, the embroidered fabric of the Toda people was studied in the original cultural contexts by going for study trips to the various Toda villages present in the Nilgiris. The Putkuli and embroidery on fabrics are taken up for a study. Badugas are the neighbouring tribal community of the Todas, claimed that the craft Putkuli was not introduced by the Todas but by Ms. Catherine F. Ling. Later, with empirical data and cultural evidences it was proved that Todas were the one who were the starters of this craft (Maheshwaran 2010).

A. Limitations of the Present Study

- It is difficult for a non-toda person to work toda embroidery. It is done by counting the yarns and to bring the resultant design one needs to have good practice from their small age
- It will be difficult for a non-toda person to learn about their tradition because according to their tradition they will not allow any non-toda person to stay in their village.

B. Culture of Toda People

1) Tradition of Toda People

The embroidered fabric is called as Putkuli is worn by both men and women of all age groups. During ritual functions like pre-puberty marriage, pregnancy rites the Putkuli is worn by the Toda people. In present days, each member in a family has their own Putkuli where as in early years only the aged person of a family has a Putkuli. Putkuli is worn such away that it covers their whole body leaving the left arm free. The best and the most elaborately

worked designs are only worn by the important persons of the Toda tribes at ritual gatherings. The elderly Toda people are seen draped with intricately designed shawl over their bodies when they are dead. Traditionally, snake motif is seen in the fabric which is used to drape the bodies of the dead person. The life of Toda people; the house, the temple, and the work nature is shown in Fig. 1.

Fig. 1: The Life of Toda People

2) Pre-Puberty Marriage

Among the Todas, a boy and a girl get engaged at their young age. They get engaged even before they attain puberty. Such ceremony is called as 'pre-puberty marriage'. During these rites the boy gives the Putkuli to the girl with whom he is engaged. Till she attains marriage age the girl lives with her parents. Every year the giving of Putkuli by the boy to the girl is practised till they attain puberty. On attaining puberty, the girl starts to live with the boy.

3) Pregnancy

When the married Toda women becomes pregnant she is been decorated with the Putkuli which is called as 'pregnancyrites'.

4) Funeral

When an important person or an elderly person in Toda community dies, they are wrapped with the Putkuli which is usually of dual colours. Red and black are the two colours used. A snake motif is usually seen at the Putkuli which is used to wrap the body. The wrapping is done to safely transport the body to other place and it also does not spread diseases.

5) Temple

The toda's worship buffalo as their god. They use red and black colour in their embroidery because the colour of buffalo is black and its blood is red. The temple entrance has a buffalo picture carved and it has a small entrance which would be of knee level as seen in Fig. 2. The priest can only go inside the temple. Toda men will stand out of the temple and women are not allowed to come near the temple. They don't have any statue inside the temple, only a lamp which is lightened by the priest is seen from the outside of the temple. The outsiders are also not allowed inside the temple. Usually, two structures of temples are seen, one is conical in shape and the other one is in semi-circular shape as shown in Fig. 2. The conical one is burnt every 10 years once and the semi-circular one is rebuilt every 10 years once.

Fig. 2: Toda Temple with Buffalo Symbol

C. Toda Motif and Material

The Putkuliis made of a coarse unbleached white handloom cloth of 1 metre in length. The edges are sewn together to form a garment of double thickness. The fibre, obtained from Nilgiri nettle is used as yarn to stitch the Putkuli with steel needle. The motifs used are modhirypukaor (flower of a marshy grass), peshkpukaor (giant squirrel), kwudrkorrpukaor (honey-comb), awkhofkeirshypukaor (body design of a cobra). The motifs developed in recent years are peershpukaor (sun), tegolpukaor (moon), pobpukaor (snake), petzkpukaor (lamp) (Maheshwaran 2010).

D. Handicraft of the Toda Women

The Toda women during their leisure time engage themselves in doing embroidery. They use red and black threads in the woven cotton fabric. Younger Toda girls observe their elders of their family and imitate the craft by participating it at a very younger age. They use a special sewing needle of steel called 'kaag' as tool and the technique they use is that of darning and counting of threads of the material to get the desired geometric design. The cotton fabric with open weave structure is used because the gaps between the threads are seen more prominently. The raw materials-woven cotton fabric, woollen threads of red and black colour and needle used for toda embroidery are shown in Fig. 3.

Fig. 3 Raw Materials Used

II. Objectives of the Study

The Toda embroidery is most widely studied by people all over the world. Now, the craft is getting extinct due to very low population in their community. They do not teach the craft to non Toda people which is a major drawback of this craft. The project aims to design garments with toda embroidery. Taking fabric, colour

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combinations, price & garment style as the key attributes, consumer preferences were studied using conjoint analysis. The garments were constructed with the consumer preferred fabric, colour combination and style. Subjective wearer trials were also carried out to analyse the overall appearance and fit of the garment.

III. METHODOLOGY

Cotton fabrics, needles and woollen threads of red and black are the required tools for this craft. The fabric is laid in the lap of the women. She starts to stitch the fabric by sitting in front of natural sceneries because they consider it as a gift to nature. The yarns are counted and the needle is inserted such that the desired motifs are achieved. The stitch used is simple running stitch. The embroidery is done in a continuous way; the threads are not cut and knotted anywhere. Finally, after the stitching is done the embroidered fabrics are send to the Toda bank where the fabrics are converted into bags, pillow covers, blankets with the help of skilled tailors.

A. Materials

Materials selected for working toda embroidery was cotton and jute/ cotton blended fabric. The physical properties of these fabrics are shown in Table 1. Shirley fabric thickness tester is used to find the thickness of the fabric. EPI and PPI was found using pick glass. GSM was calculated using GSM cutter and warp and weft yarn count was analysed using Beasley balance.

TABLE 1: PHYSICAL PROPERTIES OF THE FABRICS

Properties	Cotton	Jute/ Cotton
Thickness	1.26 mm	0.72 mm
EPI	23	45
PPI	18	37
GSM	145.83	106.37
Cover factor	15.8	18.3

B. Conjoint Analysis

To know the requirements of the customers a conjoint analysis was carried out (Srinivasan 1990; Yoram wind 1984). The conjoint study was conducted in Coimbatore city. The consumers were females studying in college and working women. The conjoint study was conducted only for the female consumers. Three different styles of garments were chosen like saree, skirt and kurthi. The materials given for the conjoint analysis study were cotton, linen and jute/ cotton. Three different price ranges was taken for study i.e., Rs. 500 to Rs. 1000, Rs. 1000 to Rs. 1500 and above Rs. 1500. The options given for colour

combination were red colour threads on white base, black colour threads on white base and combination of red and black threads on white base. The results were then studied using SPSS (Statistical Package for the Social Sciences) software. This resulted in utility score, important score, and Preference of the consumer.

1) Attributes

To understand the attributes which influence the consumer preference in apparel garments, the consumer opinion data was collected. Consumer opinion data was conducted in 2 steps. In the first step, the consumers rank the options. Then in the second step, the utility and important scores were found using SPSS software. The attributes and levels are shown in Table 2.

TABLE 2: ATTRIBUTES AND LEVELS

Sl. No.	Price	Model	Colour Combination	Fabric Material
1	Low (500–1000)	Kurthi	Red colour in white base	Cotton
2	Medium (1000–1500)	Skirt	Black colour in white base	Jute/ cotton
3	High (1500–above)	Saree	Red and black in white base	Linen

2) Card Design

For the consumer opinion data, four attributes, ie. style, fabric, colour combination and pricewere chosen for study. And their levels are style–saree, skirt & kurthi; fabric–linen, cotton & jute/ cotton; colour combinations for embroidery–red, black & both red and black; price–low (500–1000), medium (1000–1500) & high (1500 and above). A combination of four attributes with three levels which resulted in nine profiles. The cards were designed as per the nine combinations which is an orthogonal array arrived using SPSS software and is shown in Table 3. The cards were only inverbal and the designs were shown to the people visually.

TABLE 3: CARD DESIGN

Card	Style	Fabric	Colour Combination	Price
1	Saree	Jute/ cotton	Red and black on white base	Low
2	Saree	Linen	Red on white base	Medium
3	Skirt	Cotton	Red and black on white base	Medium
4	Skirt	Linen	Black on white base	Low
5	Skirt	Jute/ cotton	Red on white base	High
6	Kurthi	Linen	Red and black on white base	High
7	Kurthi	Cotton	Red on white base	Low
8	Saree	Cotton	Black on white base	High
9	Kurthi	Jute/ cotton	Black on white base	Medium

3) Questionnaire Design

The attributes and levels were explained to the respondents. The evaluations were in the form of rating method. The questionnaire contains 5–1 Rating scale in

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which 5 represent most likely to purchase, 4–likely to purchase, 3–may or may not purchase, 2–less interested and 1–not at all interested. It also includes 2 open-ended questions about the respondents such as their age and profession.

C. Data Collection

The data's where collected from females aged between 18 and 40. The collected data were studied and analysed using SPSS software. Totally, 50 samples responded to the survey. The utility score shows the highly preferred attribute by the respondent. The utility score is shown in Table 4. Table 5 shows the important scores. The values in the important score show the priority of the respondent towards the attribute while purchasing.

TABLE 4: UTILITY SCORES

	Types	Utility Score
Model	Kurthi	+0.180
	Skirt	-0.220
	Saree	+0.040
Fabric	Cotton	+0.193
	Jute/ cotton	-0.667
	Linen	+0.473
Colour	Red on white base	+0.093
	Black on white base	-0.247
	Red and black on white base	+0.153
Price	Low	+0.100
	Medium	-0.060
	High	-0.040

IV. RESULTS AND DICUSSION

A. Consumer Preference Analysis

From Table 4 and Fig. 4, it is observed that among the different models (styles) of garments kurthi was highly preferred by the respondents and received utility score of +0.180.

TABLE 5: IMPORTANT SCORES

Sl. No.	Attributes	Scores in Percentage
1	Fabric	36.899
2	Colour	22.814
3	Model	21.488
4	Price	18.799
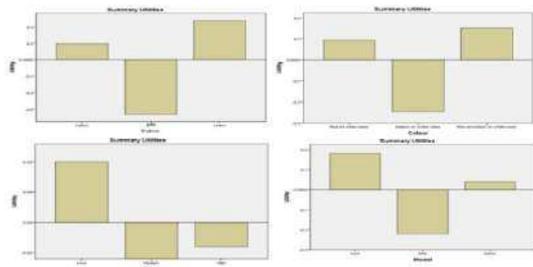
Fig. 4: Utility Score (Consumer Preference)

The least preference was given for skirt. Among the fabrics, i.e. Cotton, Jute/ cotton and linen; linen fabric received higher ratings and the utility score is +0.473. Jute/ cotton blended fabric received lowest rating and was least preferred by respondents. Among the different colours, red and black colour threads on white base received the higher rating with a utility score of +0.153 whereas the least preferred colour combination was black on white base fabric. The consumers preferred lowest pricing in the range of Rs. 500–Rs. 1000 which received score of +0.100. From Table 5, it is observed that among the different attributes ie. Model (style), fabric, colour and price; respondents considered fabric as the most important attribute while selection of clothing. The score for the fabric was 36.899%. The next priority was for the style of the garment and then the colour. The least priority was given by the consumers for the attribute price.

B. Problems in Working Toda Embroidery on Jute/ Cotton Fabric

An attempt was made to work toda embroidery on jute/ cotton fabric. Jute/ cotton blended fabric of 40's count is used and toda embroidery was done using red and black threads of ordinary 6 strand embroidery threads. The fabric was woven in plain weave with open construction. The toda embroidery worked out in jute/ cotton fabric is shown in Fig. 5. The working of toda embroidery in jute/ cotton did not come out well due to the following reasons:

- The cover factor of the jute/ cotton fabric is higher when compared with cotton fabric that is used for toda embroidery.
- Six strand embroidery threads were used for embroidery. The appearance and effect of the toda embroidery using 6 strand embroidery threads was not appealing as the 6 strand threads were thin and appearance of design was not prominent on fabric.
- The jute/ cotton fabric was put on the frame while working toda embroidery. When the fabric was removed out of the frame, it was observed that the fabric contracted due to lower weight and the embroidery threads used.
- Hence, cotton fabric was used for toda work. Instead of using ordinary embroidery threads, 3 ply woollen threads were used for better stability in embroidery.

Fig. 5: Toda Embroidery Worked on Jute/ Cotton Fabric

C. Construction of Garments with Toda Embroidery

British size (BS3666) for women clothes, size 12 was chosen as the desired size criteria. Ten women aged between 18 and 40, who met the desired size criteria of size 12 (normal and slim Figure) were selected as subjects to participate in subjective wear trial. The standard measurements and pattern drafting procedure was used for drafting kurthi (Zarapkar, 2008). A pattern consisting of front, back and collar were drafted. Three different sleeveless styles of kurthi were constructed. The material used for kurthi was linen in white colour as preferred by the consumers. A sleeveless style kurthi with v-neckline (style 1), kurthi with tailored placket (style 2) and kurthi with collar (style 3) was constructed using the measurements of size 12 dummy. To embellish the kurthi with toda, embroidery was worked on cotton fabric and was applied to the linen garments in the hemline; in the placket and on the shoulders. Toda embroidery was applied in the hemline for Style 1; embroidery applied in placket for style 2; embroidery applied in shoulders for style 3 as shown in Fig. 6.

Fig. 6: Live Model Wearing the Garments

Wearer's perceived appearance and fit evaluation consisting of four attributes was used to attain feedback from the subjects regarding wearing comfort, fit and appearance. Subjects were asked to express their

agreement or disagreement on a five point response scale from 1 (strongly disagree) to 5 (strongly agree). Question no. 1 inquired on wearing comfort. Question no. 2 concentrated on appearance of toda embroidery on the garment. Question no. 3 focused on fit of the garment. Question no. 4 enquired on overall appearance of the garment. Each subject was asked to remain in the garment for 10 minutes. The subject' sperceptions of clothing appearance and fit were determined after 5 minutes.

The wearers perceived appearance and fit responses to four questions on each style were analysed to compare the wearer's responses for each style. Mean score ratings for ten subjects in each style were calculated. Higher scores indicated good fit and appearance in garment. The mean scores at each parameter on wearer's perceived appearance and fit evaluation for styles are shown in Table 6.

TABLE 6: MEAN SCORES FOR EACH PARAMETER ON WEARERS PERCEIVED FIT AND APPEARANCE EVALUATION (N=10)

Parameters	Styles		
	1	2	3
The garment is comfortable	3.3	3.6	3.1
Appearance of toda embroidery on the garment	3.5	4.5	3.2
The garment provides good fit	3.6	3.9	3.4
Overall appearance of the garment	3.3	4.6	3.0

It is observed from Table 6, style 2 (kurthi with toda embroidery in placket) received higher ratings at each parameter and maximum score in wearers' perceived appearance and fit evaluation. Subjects rated style 3 lowest towards each parameter. Style 2 was perceived as providing more comfort, good appearance and satisfactory fit. It is hypothesized that this result may have occurred because of the toda embroidery work on the placket was seen closer and it was noticeable to the subjects and hence received higher ratings.

V. CONCLUSION

The Toda tribe, are the most searched and studied group in the world. Their culture is unique both tangible and intangible. A Putkuli (toda embroidered fabric) is an embroidered textile made of hand woven white cloth consisting of two coloured threads which is embroidered in the fabric using running stitch. The Putkuli is done by counting the yarns and as a result geometric designs are arrived. In this study the toda embroidery on garments were developed according to the consumer preferences which were studied through conjoint analysis. The conjoint analysis results show that-kurthi was mostly preferred

style; linen fabric was highly preferred, embroidery using red and black combination and low price (Rs. 500–Rs. 1000) was preferred by the respondents. Toda embroidery is done on a cotton fabric and it is embellished on linen garments. Three different styles of kurthi were constructed with toda embroidery. Style 2 received higher ratings towards each parameter in wearer's perceived appearance and fit evaluation. This study reveals that there is a good welcome for toda embroidery on apparels from the consumers Subjects appreciated the use of toda embroidery on garments. Toda embroidered fabrics are used merely as bags, key chains, pillow covers, bed spreads and stoles, an attempt of making toda embroidery on garments resulted successful. The results of this study would be useful to designers and manufacturers in developing toda embroidered apparels. The study will also help the designers and manufacturers in designing garments with traditional toda embroidery that would give uniqueness and enhance the appearance of the garment.

REFERENCES

[1] Maheswaran C., 2010, the embroidered textiles of the toda tribes of the nilgiris.
[2] Srinivasan, 1990, conjoint analysis in marketing: new developments with implications for research and practice.
[3] Yoram wind, 1984, conjoint analysis of price premiums for hotel amenities.
[4] Zarapkar K.R., 2008, Zarapkar system of cutting, Navneet Publications Limited.

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Design and Development of Handcrafted Tissue Lamp and its Feasibility in Home Decor

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ABSTRACT

Lamps are an integral part of home decor. In this paper, an innovative, sustainable and economical lampshade is designed and developed using paper tissues and metal wires. Lampshade was designed by getting inspiration from the greens and blossoms around us. It was then meticulously handcrafted, step by step. Upon completion of the product, its feasibility was tested by a survey. Positive reviews were obtained from the survey regarding the design, cost of the lampshade and its sustainable and economical aspects. The respondents were willing to buy the lampshade and use it for their home. This innovative handcrafted lampshade may serve as a boon for reviving sustainable craft, by merging modern technology and traditional craft. The study concludes by proposing means of adapting the design and craft in various applications such as curios, wall decor for successful commercialization of handcrafted tissue lampshades in the Indian craft sector.

KEYWORDS: Tissues, Metal Wires, Lampshade, Sustainability, Economical

I. INTRODUCTION

Indian handicrafts have been a traditional craft and the skill of making handicraft has been passed from generation to generation and it represents the heritage and culture of a particular place (Jain 2017). Craft today is defined by preciousness and an extra ordinary value is attributed to the handmade craft. Design innovation is not just about coming up with new ideas and products; it's also about changes that lead to growth and differentiation. The handcrafted tissue lampshade is a new craft and its design is inspired from the plants and flowers around us. Since, I love making something new, I came across the designs of Italian lamps and wanted to make one of my own. When I was thinking about ways to do it, I remembered the traditional stocking flowers making which is found in most of the houses and I wanted to implement that idea in a different way. The design of products and processes that reduce or eliminate the use or generation of hazardous substances is known as sustainable. In this craft, paper tissues and metal wires are used and so it is completely sustainable. The handcrafted tissue lampshade is an innovative version of sustainable lamps which can become an integral part of eco-friendly and sustainable home décor (Jain 2017). Tissues are usually used in making small flowers and used in wall hangings. They are also used in texturing the boards which are then painted for value addition. In this paper, I have used tissues in making lampshades for home décor thereby widening the applications of tissues.

A. Motivation of the Study

Italian lamps were the ones which motivated me to try this lamp. They are inspired from the flower blossoms. On seeing the images of the lamps I could recognize the type of material that are used for making lamps and I was visiting different stores to find the type of material which maintains transparency also it should have the ability to be painted. I sourced for rice paper, handmade paper even interlinings but none of these worked out and finally the economical soft tissues was the final try and it worked out while the others couldn't be painted or they weren't transparent. But painting on the tissue paper really needs patience and it was very hectic. I have used tissues and metal wire in developing a completely different product.

II. METHODOLOGY

A. Materials Used

Tissue paper, wires (19 gauge and 26 gauge), pliers, stem making green tape, doll making thread, photo transparent colors, fancy bulbs, bulb holder, twister cookie box, plug, extension wire, jute rope and A4 sheet as shown in Fig. 1.

Fig. 1: Materials Used

B. Methods

1) Designing of Lampshade

The design of the lampshade is inspired from the blossoms as shown in Fig. 2. Since, I wanted a new combination I took inspiration from the color of the rare orchids and petal structure from lotus flowers. The stems were made to be thin and slender like the tulips. This unique combination was implemented in the lampshade design as evident from Fig. 3.

Fig. 2: Inspiration Board

Fig. 3: Sketch of the Inspired Design

2) Development of Lampshade Petals

The template of the petal is first designed in an A4 sheet. The wire is placed on the template and measured. It is then cut 3 inches longer than the template using plier. The petal outline is then moulded, fevicol is applied on either sides of the wire and the tissue paper is stuck on either sides and allowed to dry for 3–4 hours as shown in Fig. 4 (a–h). The extra tissue is then cut off and the petal is ready. It is shaped by placing on soft surfaces like a sofa or bed. It should not be pressed firmly and should be handled carefully as evident from Fig. 4 (i-j).
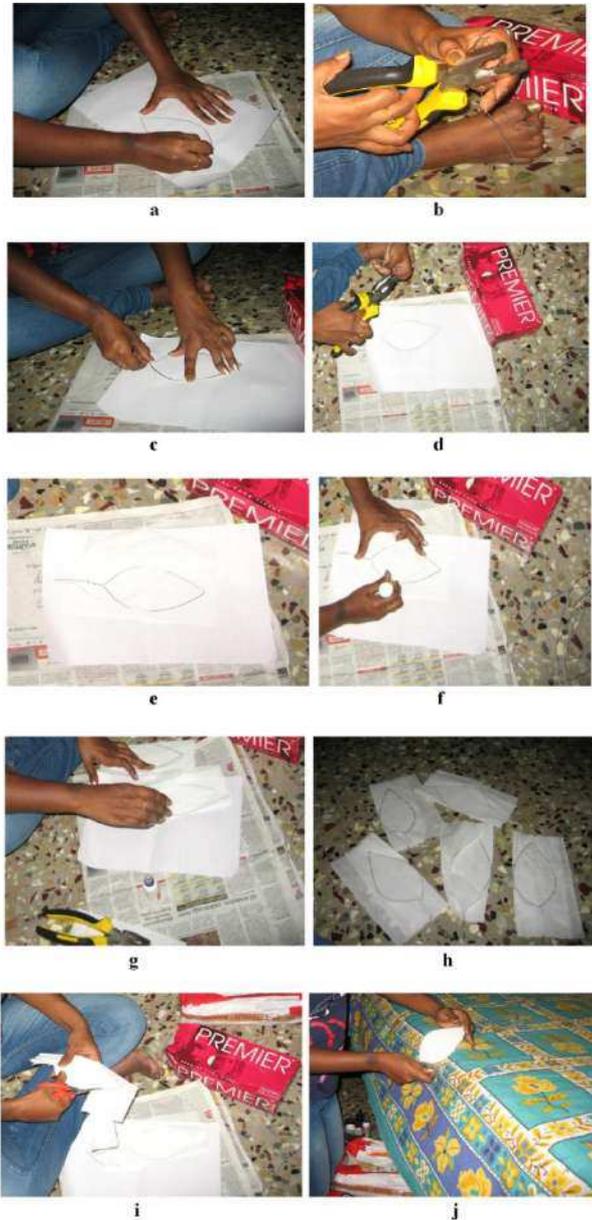
Fig. 4: Development of Lampshade Petals

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3) Value Addition by Painting

As shown in Fig. 5 (k–o), using photo transparent colors, Indian ink and fevicol the tissue petals are painted. Just enough water is added and in order to make the tissue petals thick and durable the paint is mixed with fevicol. Petals are painted very carefully in order to prevent ripping off of tissue. Then the tissue is allowed to dry for 3–4 hours.

Fig. 5: Value Addition by Painting

4) Assembling of Petals to the Stem

As shown in Fig. 6 (p–s), the stem was made ready by moulding the thick metal wire in the required shape. Then it was tied at points using thick thread, the bulb's holder is fitted on the ends of the metal wire and the holder's wire was also wound around the stem. Using green tape, the stem is completely covered with green and the stem is made ready. Then the petals are taken one by one and wound using thread around the neck of the holder. The shape of the petals was maintained as the petals are assembled around the holder. It was ensured that the petals are tightly wound. Then, using green tape the thread is hidden and the flowers are made ready. The holder's wire ends were connected with the plug with the help of an electrician.

Fig. 6: Assembling of Petals to the Stem

5) Setting up the Flowers on a Proper Base

A cookie box was taken and it was wound using jute twines and filled with sand inside in which the stem and flowers are balanced as evident from Fig. 7 (t–u).
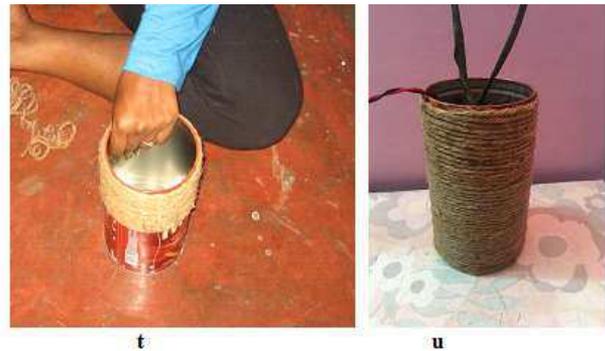
Fig. 7: Setting up the Flowers on a Proper Base

6) The Completion of Tissue Lampshade

As evident from Fig. 8 (v–y), the bulbs were fixed in their holders and plug was connected to the electric point and the blossoms shone with light. The lampshade looked very beautiful and the colors of the petals due to transparency adapted itself in beautiful and appealing colors. The tissue lampshade was thus completed.

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Fig. 8: The Completed Tissue Lampshade

C. Feasibility of The Tissue Lampshade in Home Decor

In order to test the feasibility of the lampshade for home decor, a survey was conducted. 25 respondents of my locality were surveyed. A sample questionnaire is given below:

Sample Questionnaire

We have designed a handcrafted, sustainable tissue lamp shade. We need to check on its feasibility in using as a home decor. We would like you to share your views about this lampshade.

1) Do you currently use a form of lamp at home?
   Yes   No
2) Do you think the lampshade is sustainable?
   Yes   No
3) For each of the following categories, please rate your satisfaction level with our handcrafted tissue lampshade.

Design
Excellent   Very good   Good   Fair   Dissatisfied

Quality
Excellent   Very good   Good   Fair   Dissatisfied
Usability
Excellent   Very good   Good   Fair   Dissatisfied
Convenience
Excellent   Very good   Good   Fair   Dissatisfied
Overall appearance of the lampshade
Excellent   Very good   Good   Fair   Dissatisfied
Brightness of the lampshade
Excellent   Very good   Good   Fair   Dissatisfied

4) How much will you be able to pay for the lampshade?
   a) Less than Rs. 300
   b) Rs. 300–Rs. 500
   c) Rs. 500–Rs. 1000

III. RESULTS AND DISCUSSION

A. Feasibility of the Tissue Lampshade in Home Decor

According to the survey, it was found that 95% of respondents currently use a form of lampshade at home and 90% of respondents found the lampshade to be sustainable.

With respect to design, 76% of respondents said that the lampshade design is excellent and 16% of respondents say that the lampshade design is good.

In terms of the quality of the lampshade, 60% of respondents said that the lampshade quality is excellent and 36% of respondents said that the lampshade quality is good.

With respect to the usability of the lampshade, 80% of respondents said that the lampshade usability is excellent and 12% of respondents said that the lampshade usability is good.

In terms of the convenience of using lampshade, 76% of respondents said that the convenience of the lampshade is excellent and 12% of respondents said that the convenience of lampshade is good.

When evaluating the brightness of the lampshade, 80% of respondents said that the brightness of the lampshade is excellent and 8% of respondents said that the brightness of lampshade is good.

Based on the survey, it was observed that 60% of respondents said that the overall appearance of the lamp is excellent and 32% of respondents said that the overall of the lampshade is very good as shown in Fig. 9.
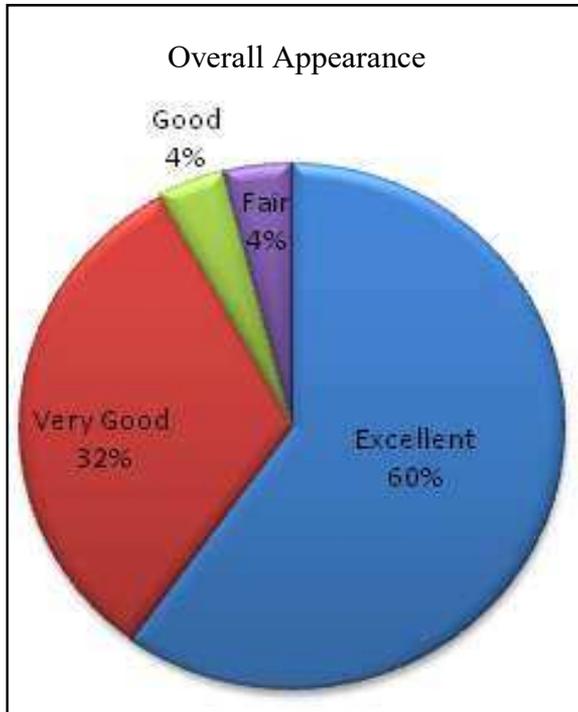
Fig. 9: Overall Appearance

Based on the survey, it was observed that 32% of respondents were ready to buy the lamp at a cost of Rs. 500–Rs. 1000 and 60% of respondents were willing to buy at a cost of Rs. 300–Rs. 500 and 8% were ready to buy it for less than Rs. 300 as evident from Fig. 10.
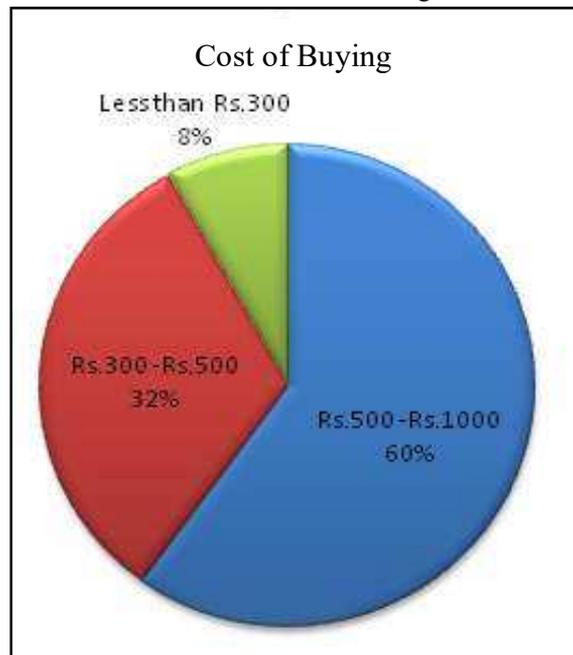
Fig: 10: Cost for Buying the Lampshade

B. Costing of the Lampshade

The costing of one lampshade which includes raw materials and other expenses are mentioned below in Table 1.

TABLE 1: COSTING OF THE LAMPSHADE

S. No.	Materials	Cost
1	Tissue	Rs. 60
2	Metal wire (19,26 Gauze)	Rs. 45
3	Bulb, holder, plug and extension wire	Rs. 165
4	Green tape and doll making thread	Rs. 60
5	Manpower	Rs. 150
6	Total	Rs. 480

Thus, the lampshade was priced at Rs. 480/-

C. Design Variations

This handcrafted lampshade can also be implemented in various styles like creeper style lampshade as shown in Fig. 11, in which the lamp is inclined on the wall and the other design variation in the lampshade is ceiling fixed lampshade as shown in Fig. 12, where the flower is placed in inverted direction.

Fig. 11: Creeper Style Lamp   Fig. 12: Ceiling Lamp

D. Commercialization of the Tissue Lampshade

As designers, we must bridge the gap between the market and the artisan. Designers should be trained not only to solve problems, but what is more important is they should be trained to help others to solve their own problems. Commercialization of the handcrafted lampshade can be done by teaching this innovative, sustainable, and economical handcrafted lampshade to the handicraft artisans and can be sold to retailers to revive handicrafts. Self-help groups and non-governmental organizations (NGO's) generally have broad anti-poverty agendas. Self-help groups are seen as instruments for goals

including empowering women, developing leadership abilities among poor and the needy people, increasing school enrollments, and improving nutrition and the use of birth control. In countries like India, SHGs bridge the gap between high-caste & low-caste members. Commercialization can also be done by teaching the craft to self- help groups for their welfare and development.

IV. CONCLUSION

Art and craft has always been an integral part of India's rich tradition and heritage. They are in fact the cultural symbols of the nation. As a designer, I have designed and sculpted the handcrafted and sustainable tissue lampshade step by step and surveyed its feasibility of using it as a home décor and got positive results. The lampshade was also found to be very economical, sustainable and eco-friendly. Commercialization of the handcrafted lampshade can also be done by various means for the welfare of handicrafts and handmade industries. The applications of tissues can also be widened in home decor by using it for wall decoration, showpieces, and other arte facts. Thus, the design and development of handcrafted tissue lamp as a home decor will serve as a boon for the handicraft industry.

REFERENCES

[1] Jain, V., 2017, 'Ethno- biology of exhibits in a mega handicraft fair of Rajasthan', Indian Journal of Traditional Knowledge, July, 524–532.

[2] Kapur, H., Mittar, S., 2014, 'Design intervention & Craft Revival', International Journal of Scientific and Research Publications, October, 1–5.

Design Repository of Wood Block Maker from Pethapur, Gujarat

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ABSTRACT

Crafts are not just a means of employment for the rural people. They are also a creative expression of each community's distinct culture and identity, through which utilitarian objects are transformed to art forms. Pethapur situated near Gandhinagar is famous for its finely carved wood blocks with only a handful craftsmen presently engaged in this craft. The study was conducted to document the wood block making craft which has gradually diminished due to development of screen printing industry. The research paper focuses on the classification and documentation of designs made by the Master craftsman, Shri Maneklal Trikamlal Gajjar–a world renowned wood block maker. The classified designs were collected from the master wood block maker's collection available in the form of original impressions of designed block on paper and actual wood blocks. As the master wood block maker had vast collection of designs a small percent of designs were collected, classified and recorded keeping in mind the time and resources available for the study. The documentation of carved designs reflected the workmanship of Maneklal Gajjar and his fore fathers and also brought to light the endless design possibilities that can be carved in a wood block.

KEYWORDS: Wood Block making Craft, Master Craftsman, Carved Designs, Documentation, Design Repository

I. INTRODUCTION

India has since ancient times, enjoyed a monopoly of cotton and in particular of printed goods (Robinson 1969). The main tool of hand block printing is wooden block which is made up of teak or sesame wood. Pethapur situated about 8 km north from Gandhinagar, capital of Gujarat is famous for its finely carved wood blocks since ancient times. The renowned *Saudagiri* Trade of the late 19th–mid 20th century has made Pethapur a Block Making hub. Traditionally the *Gajjar-Suthar* (Carpenter) community has practiced this craft. The present study was limited to the National award winner Craftsmen Shri Maneklal Trikamlal Gajjar who elevated the craft of wood block making to an art form by expressing intricate designs through blocks. He had a vast collection of designs in the form of original impressions of wood blocks. The collected designs were classified to understand varieties of blocks that were carved and their design inspiration.

A. Motivation/ Background

A chance meeting with the Master craftsman Shri Maneklal Gajjar during a study tour revealed that the ailing master craftsman in his prime of life was worried about preserving his collection. He had almost lost his vision but his passion of wood block making would come alive when he explained his craft to the visitors in his workshop. Hence, the proposal of documenting his design collection before they were lost in oblivion was formulated and pursued as a master's research. This work is now furthered into a fulltime Ph.D. study to ensure that the master craftsman's work and his craft survive even when he is no more.

II. DISCUSSION

In the present research, the designs were first classified in five different categories and in each category; the designs were purposively selected to be representation of the whole.

- Designs of *Saudagiri* blocks
- Designs that replicated the woven, embroidered and painted textiles
- Design that replicated fine art-paintings
- Typical traditional designs
- Designs made for atypical purpose

A. Designs of Saudagiri Blocks

Maneklal had a collection of *Saudagiri* designs of his grandfather's time. *Saudagiri* designs were geometric. These designs were first drawn on the wood piece by making grid and carved using a special chisel called *edi*

(dies/ punches). The designs were very intricate and the small shapes of leaves, flowers were repeated in the design. Thus, it required more concentration, consistency and uniformity in the design. The *edi* (dies) which were available in different shapes was used to achieve uniformity in design and to save time. There were two kinds of blocks used for printing *Saudagiri* cloth, the all over/ field motif block (see Plate 1) and the pallav/ end motif block (see Plate 2). Size of the all over block was usually 6" x 5" while the Pallav block measured 8" x 4". The *Saudagiri* blocks were printed in single colour as well as in two colours. A peculiar feature of these blocks was that the name of buyer was carved on the pallav block beside the Tumpal design (candle flame like design) in Thai language (see Plate 2). These blocks were printed at Ahmedabad and exported to Siam (Thailand). The Siamese people used this cloth as their lower garment and the clothes were known as "*Pha Gujarat*". Here '*pha*' means cloth and '*Gujarat*' since the fabric came from Gujarat.
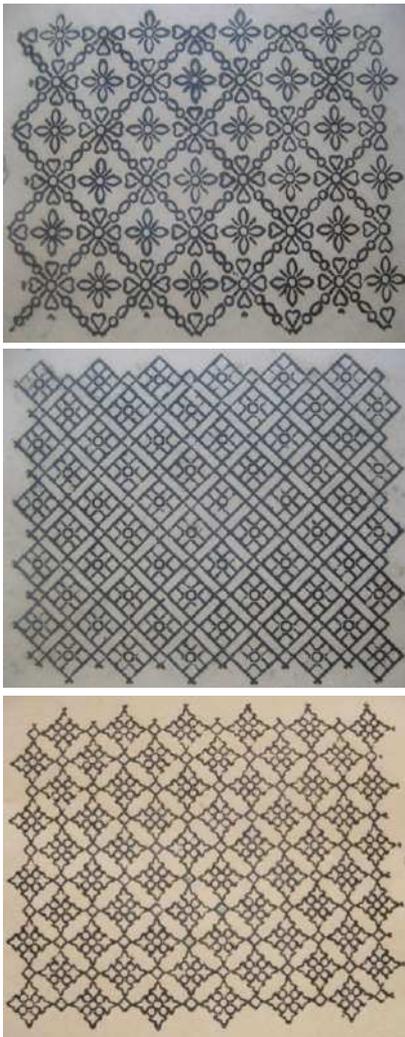
Plate 1: Saudagiri Field Motifs
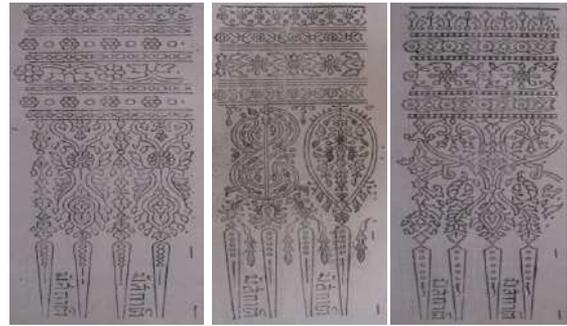
Plate 2: *Saudagiri* End Motifs

B. Designs that Replicated the Resist Dyed, Woven, Embroidered and Painted Textiles

Several designs in block making were taken from various traditional textiles such as woven, embroidered, resist dyed and painted. The block was made in such a way that the effects of print appeared similar to the original textile. The designs were replicated from Patola of Gujarat (see Plate 3a), Ikats of Orissa (see Plate 3b), Bandhani of Gujarat (see Plate 5), Kalamkari of Ahmedabad (see Plate 6) and Kalahasti, brocades (see plate 3c), Dhakka Saris, Assam mekhla, Kashmir embroidery (see Plate 4b), Kutch and Kathiawar embroidery (see Plate 4a) etc. in such a way that the print resembled the original textiles.

(a) Patola of Gujarat

(b) Ikat of Orissa

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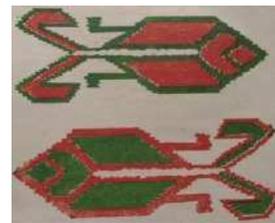
(c) Brocade

Plate 3: Designs Replicated from Yarn Resist Dyed and Woven Textiles

(a) Kutch and Katiawar Embroidery (b) Kashmir Embroidery

Plate 4: Design Replicated from Embroidered Textiles

Plate 5: Design Replicated from Tie-Dyed Textiles

Plate 6: Design Replicated from Kalamkari (*Mata ni Pachhedi*) Textiles

C. Design that Replicated Fine Art-Paintings

The blocks made had no limitation; any kind of design was possible in block making. The block maker could carve very intricately to capture even the line of small strokes of brush. Many artists gave him paintings as designs for block making. The carving was so fine that the print itself resembled a painting (see Plate 8) making it difficult to recognize the difference at first sight.

Plate 8: Designs Replicated the Fine art Paintings

D. Typical Traditional Designs

These designs were created by block maker especially for block printing only and they were the signature designs of block printed fabrics. These were the typical designs widely used in block printing (see Plate 9).

Plate 9: Typical Traditional Designs

E. Designs/ Blocks Made for Atypical Purpose

Maneklal had a different kind of work experience. He has made blocks of various sizes and for different purpose.

Two blocks were carved in size of 30 cm x 40 cm of same design with the mirror image for the Museum of Calico Mill (see Plate 10) around 1970.

Zodiac designs of Indian astrology, sun motif and calendar dates-Butta design in 47 blocks were carved by master craftsman in 1985 showing zodiac signs of lunar calendar arranged around the sun, in six segments representing six seasons. The design was visualized by a

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graphic designer for SANDOZ India Pvt. Ltd (see Plate 11) and printed as a calendar on silk.

Traditional Design: An all over block in five colours was made. The size of the block was 6" x 4". It was an intricately carved traditional design of elephant and parrot motif poised on a flower and arranged alternatively in between columns resembling a Jharokha (window) (see Plate 12). The craftsman Maneklal Trikamlal Gajjar received the National award for this design in 1979.

Plate 10: Mirror Image Blocks for Calico Museum

Plate 13: Sun Motif Block Published in Scotland Magazine

Sun Motif: A butta design size of the block was 5" x 3". It was a contemporary sun motif designed by his cousin Damodardas Gajjar and carved by him, which was published in the Scotland magazine named "The Weekend Scotsman", in 1977.

Plate 11: Zodiac Signs of Indian Astrology Made for SANDOZ India Pvt. Ltd.

Plate 14: Block of Boot House, Mumbai

Plate 15: Landscape of Popular Monuments of Bombay for Sari Design

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Plate 16: Butta Block Made for Victoria and Albert Museum

Plate 18: Small Butta Design of Boot House, Mumbai for Bharat Dyeing and Printing Works Ltd.

Landscape Design 'Boot House': All over block in eight colours and the size of the block was 8" x 6". The landscape of 'Kamla Nehru Park' in Bombay (see Plate 14) was carved by the master craftsman in 1975 for Bharat Dyeing and Printing Works, Mumbai. The wood block was made with copper strips.

Landscape Design 'Bombay City': All over block in five colours and size of the block was 8" x 6". A landscape of popular monuments of Bombay city-Gateway of India, Church gate, Victoria Terminus, Bombay High Court, and Fountain etc. was carved by master craftsman around 1976. Sari design was given by Bharat Dyeing and Printing Works, Bombay (see Plate 15).

Ful vela no Butto (Floral Sprig): Butta design in four colours and size of the block was 8" x 5". An elaborate floral design carved by Maneklal Gajjar in 1986 was displayed in Victoria and Albert museum, London. (see Plate 16).

Geometrical Design: All over block in single colour and the size of the block was 6" x 5". A geometrical design resembling *Saudagiri* design was carved by the master craftsman in 1986 for Victoria and Albert Museum, London (see Plate 17).

Small Butta Design of 'Boot House': A butta design of "Boot House" in two colours and size of the block was 4" x 5", was carved by Maneklal Gajjar for Bharat Dyeing and Printing Works, Bombay (see Plate 18).

1) Vocabulary of the Design Collection

According to Maneklal any design could be used in block making with slight modifications done during carving. The block makers maintained a design catalogue to take orders and at times new designs had to be drawn. Sometimes the designs were given by the buyers. Most of the time buyers selected the designs from the block maker's catalogue. There were names assigned to the designs by the block makers. These are listed below along with their images:

Plate 19: Choras Butto (Square Motif)

Plate 17: Saudagiri Block Carved for Victoria and Albert Museum

Plate 20: Single Butti Small Motif in Single Colour

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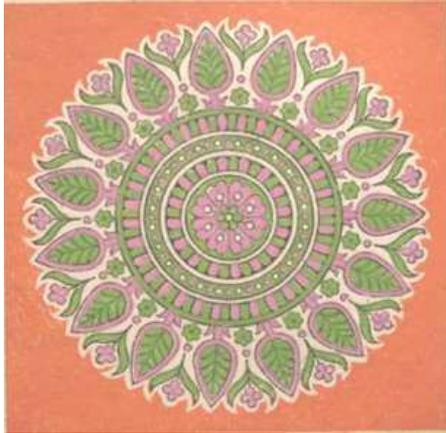
Plate 21: Gol Butto (Circular/ Round Butta)

Plate 24: Velo (Creeper)
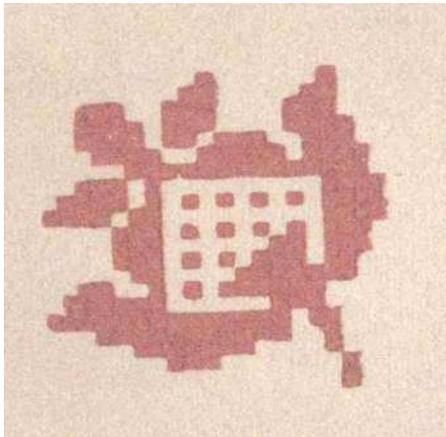
Plate 22: Addhariya Butto (a Butta without Outline)

Plate 25: Single Velo (Creeper in Single Colour)

Plate 26: Dhanka ni Design
(Designs Inspired from the Woven Patterns of Dhakka Saris)

Plate 27: Kangari Vali Kinar (Pointed Edges, Always on
Top of the Border)

Plate 28: Badamwali Kangari (Almond Shapes at the Edge of a Border)

Plate 29: *Fitta Kinar* (Very Narrow/ thin Borders Having Width
of 1" to 1.5")

Plate 23: Mor Butto (Big Motif of Peacock)

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Plate 30: Pipingwalo Leheriya Velo (The Borders Edged with One or More Wavy Lines of Various Thicknesses)
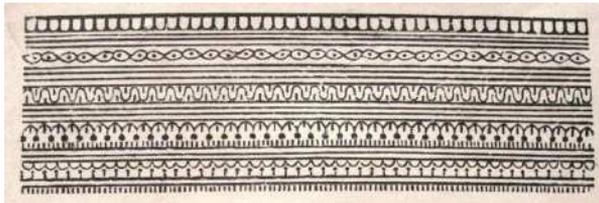
Plate 31: *Sali* (Thin Lines)
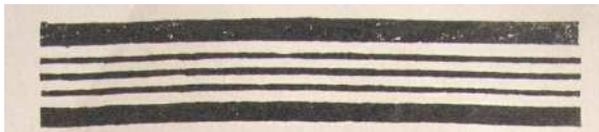
Plate 32: *Sutio* (Lines)
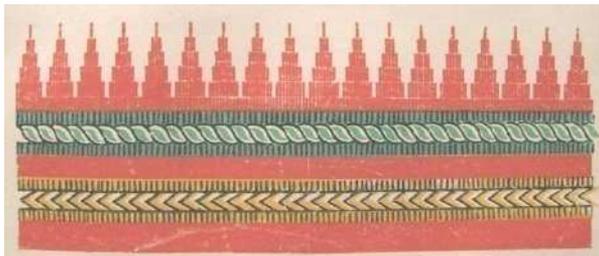
Plate 33: *Lamba Aniyavalo Kinar* (The Borders Edged with Long Pointed Angles)

Plate 34: *Piping valu lehriyu* (The Borders Edged with Two or more Wavy Lines)

III. SUSTAINABILITY

Wood block making craft has survived as a traditional occupation for the Gajjars residing in Pethapur which however, is diminishing in its art form as well as a craft. Documentation of selected designs from the vast collection of Master craftsman brought to light the design possibilities which could be carved from wood. There is a whole gamut of design ranging from bold to fine lines, small to large size designs, one to multicolour designs which have been used for regional and global markets in apparel, home and lifestyle products. This design repository of the master wood block maker thus, is a spark of light amidst the darkness cast by its gradual extinction. Predictably, it shall not only help to preserve and popularize this craft but also help in promoting the craft for its multitude design possibilities and application in several fields. This will ensure in providing a greater scope for the craft to survive by escalating its usage. Art lovers and academicians can further contribute towards the growth and sustainability of the craft by using this collection as a design resource to train the old and new artisan to build on a traditional knowledge and warrant its sustainability through ages.

IV. CONCLUSION

The documented carved designs from the master craftsman's collection reflected the workmanship of Maneklal Gajjar and his fore fathers. It also brought to light the endless design possibilities that can be carved in a wood block. The variety of designs treasured in his collection is a testimony to his dedication and artistic skills he possessed; that fetched him continuous work and it shows endless possibilities in wood block.

REFERENCES

[1] Buch, H., 2007, Documentation of the Ajrakh of Gujarat and designing kurtis by exploring various ornamentation styles with other textile crafts of the region, unpublished master's dissertation, The Maharaja Sayajirao University of Baroda, Vadodara.

[2] Chatopadhyay, K., 1975, Handicrafts of India, Indian council for cultural relation, New Delhi, p. 46-47.

[3] Dhamija, J., 1980, Crafts of Gujarat (Living traditions of India), Mapin international, p. 65-108.

[4] Ghia, A., 1979, A study on different hand printing methods done on saris in Gujarat, unpublished master's dissertation, The Maharaja Sayajirao University of Baroda, Vadodara.

[5] Pant, B., 1981, Indian kalamkari: a comparative study of the art in Kalahasti and Masulipatnam, unpublished master's dissertation, The Maharaja Sayajirao University of Baroda, Vadodara.

[6] Robinson, S., 1969, History of printed textiles, M.I.T press, Cambridge, p. 6-9.

[7] Sanghavi, S., 1982, A study of the Sanganeri printing, unpublished master's dissertation The Maharaja Sayajirao University of Baroda, Vadodara.

[8] Sharma, A., 1983, A study of the Bagru printing, unpublished master's dissertation, The Maharaja Sayajirao University of Baroda, Vadodara.

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Design, A Medium for Sustainability of Crafts Globally

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ABSTRACT

The human curiosity of seeking for something new keeps us moving forward, however with the paradigm shift in catering to the demands of the market and preserving the dying crafts like string puppetry, bamboo craft etc. while bringing awareness about the social scenarios amongst the budding designers as there is an entire world within a world to be discovered. Even though the global market seems to be overflowing with the creative energy yet sustainability of the same needs to be looked into. Even though there is a culturally rich and skilled craft market in India yet there are bigger market issues prevalent that cannot be neglected. With all the globalization, we tend to miss out on what Justin Mc. Gurik said "craft is what design was before it became 'design'." interior design, therefore, could be an effective medium to embellish these craft while keeping the sustainability factor intact. The craft industry seems to be defused and loosely organized and that there is a need for the national centre for design and product development to work in a more established manner. Both craft and design go well hand in hand and rather the modern day calls for an integration of the creative professions for a sustainable future.

KEYWORDS: Design, Craft, Interior, Designers, Market, Products, Spaces, Design Thinking, Education, Artisan, Sustain, Strategic, Industry, Space, Environment

I. INTRODUCTION

India is a land where craft is evident in every corner; it can be seen from the objects of daily use like garments, jewellery, home furnishings, furniture, wall art etc. There is a perfect blend of the traditional techniques with the modern design requirements. Yet, as per the report on 2005 of the Indian export promotion council for handicraft the global market is in a state of flux due to low cost cloned products.

The term Design is used in many ways from engineering to wallpaper with every form having its distinctive skill requirement. At times it is also referred to higher priced products as it is linked with customization. The design is also used to describe a process. However, it would be better to define design as a process of seeking customer satisfaction incorporating its high performance, quality, appearance, cost etc. in connection with the economy and market identity. The design is generally associated with all the branches of the economy like the design process, technology, risk management skills, creativity and communication skills along with intercultural approach.

Understanding of interior design is generally associated with residences as these spaces are very close to us. People confuse interior designers with decorators. However interior design can be better defined as a professional activity of constructing homes, workplaces, retail spaces, hospitality outlets etc. It is actually the art and science of enhancing the interior spaces and making them aesthetically pleasing for the user. Interior design is a versatile profession that includes conceptual development, space planning, site inspections, programming and research, communicating with the stakeholders of a project, construction management, and execution of the design.

A paradigm shift may be referred as the basic assumption to describe a change within the current theory of science. However, since 1960 the concept is being used in many non-scientific concepts as well describing an intellectual change in the basic model of functioning and understanding.

Sustainability is defined by the National Council for Interior Design Qualification (NCIDQ) North America as "a method of practice or use of materials that is capable of being continued with minimal long-term effect on the environment." Sustainable interior design practices are actions that lessen impact on environmentally caused due to site selection, water use, energy use, and material selection. (Rider, 2005)

Education can be one of the ways to sustain crafts and it would be right to state that craft education can be a

design-oriented activity as it is going through a stage of change. It is important to understand the technological phenomena and be able to emphasize on the cultural heritage while further developing crafts. Design can be used in a strategic manner for the well being of the society.

A. Motivation

The whole idea of using Interior design as a medium for sustaining the crafts came up while working for the 59th annual NASA (national association of students of architecture) convention held at Poornima University, Jaipur in January 2017. The entire activity involved about 300 students of architecture and interior design planning a convention for over 4000 Architecture students from pan India. These 300 students were divided into groups to enhance the campus using various local crafts and in a manner so that they are sustained and cherished for a longer time. These students worked on crafts like metal sculptures (Fig. 1), bamboo, pottery, rug making, puppet making, Araish, lime jail, Sand art, Lac and Thikri, paper machete, blue pottery, woodworking (Fig. 2) etc. The outcome of all the workshops transformed the modern building and gave it a traditional and cultural look that still is.

Moreover, the learning that these budding designers carried with them to the various parts of the country that would be used in various projects will give these crafts a boost.

Modern craft is becoming an antidote to the uninspired workspace, not only heightening functionality and aesthetics but also humanizing the workspace experience. Craft is not always customized; it can also be replicated, as well as mass produced and yet have intrinsic value. Craft and design are significantly being used together now a day as they beautifully complement each other.

Interior design if used well as a strategic tool can enhance craft products and the environment due to its multidimensionality.

Fig. 2: Thikri Work

Fig. 3: Metal Working

Fig. 1: Puppet Making

Fig. 4: Wood Working

II. The Provenance

The origin of crafts can be said to have been from the origin of mankind as then everything was made by hand, whether it be textiles, homes, buildings, furniture, jewellery, tools etc. The evidence can be seen since the recording of history as archaeologists have been conducting excavations and discovered various handmade products. This can be termed as initial or the first stage of craft acknowledgment, application, and acceptance. The second stage can be the Cultural Revolution during the Renaissance.

With the industrial revolution in the 1800s craft was replaced by mechanized methods that caused the disappearing of the role of designers and craftsmen. This affected the crafts like pottery, ceramics, furniture making, glass making and all other such crafts and the quality was compromised for increasing the profits. People preferred replacement of products to sustainability. Design had become a machine made mass production method rather than the experience of the time and place that it happened in. This marked the beginning of the Art and Craft movement. This movement marked a technological and social change in the society. To be able to understand these movements it is important to understand the genesis of; who we are and what we make today.

Later came in the revolutionary concepts of Bauhaus that dramatically changed the process of design and further bridged the gap of what is designed in the context to what the end user wants. It started with the philosophy of form following function, simplicity, materials, and quality at the time of world's greatest recession along with the idea of making life better through design and that is when the education in design made a 180 degree shift from the Victorian to what we see today with the interconnectedness of all the creative fields.

It's been more than 5000 years since handicraft has been an integral part of India, traces of the same can be seen from the Indus valley civilization. The religion and culture of the country has been the apex of all the crafts being practiced.

Collaborative learning between interior design, engineering and art has lately increased in interior design education and has been quite successful. Interior design is not a mere play with ideas; it needs material, practical exploration and prototyping. Like craft, Interior design also works on a 3-dimensional use of materials and therefore collaboration of interior design with craft can highlight the artefact or the product being emphasized in a built-up space.

Craft education has an independent system, if merged with interior design education would have a higher output potential. It's time we redefine the craft education, where we answer the questions like: 1) what is the role of craft education? 2) How can we integrate craft in our school curriculums? 3) Are our students well equipped for the changing market demand? Integrating Interior design and craft education can create new possibilities both for the artisans and designers by bringing in updated designers who work on market-ready craft products. Interior design is a complex process with visual, aesthetics and technical skills enabling the designer to transform the identified problem/ idea through visualization and bring it to functionality through proper testing and prototyping.

There is a great potential if we have an integrated curriculum, especially at the elementary level of design education. Interior Design based pedagogy can provide new values for craft education and take it to a sustained level during this paradigm shift.

III. The Craft Industry

India is a country that lives craft in its every breath. There is a perfect blend of traditional techniques with the modern day requirements. As per the Dasra's report, there are about 7 million artisans engaged in craft production to earn their living.

However, there are various factors that directly or indirectly affect the global awareness towards crafts amongst the common people. If taking a SWOT analysis of the craft industry the following could be a result:

A. Strength

1. A potential market that is diversified.
2. Diverse cultural variety of products.
3. Availability of economic labour.
4. Low capital investment.
5. The flexibility of production.
6. The uniqueness of products.
7. Low capital investment.
8. Few competitors as crafts are handmade.

B. Weakness

1. It lacks the desired infrastructure.
2. The artisans are unexplored towards the market requirement.
3. There is a dearth of coordination between the government and the private sector.
4. Unawareness towards the new technologies.
5. Lack of skilled labour.
6. It doesn't have the sufficient information about the current trends and the ways to promote their products.

C. Opportunities

1. The possibility of direct marketing through e-marketing.
2. Rising demands in the developed countries.

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3. Handicraft requirement in the design industry.
4. Increasing requirement in the real estate industry.
5. Development in tourism creates a promising future.

D. Threats

1. There is a constant threat of the market competition.
2. It is being difficult for the artisans to generate sufficient supply for the growing demands.
3. The competent countries are producing craft product of better quality.
4. The competitive countries offer better research opportunities and technical support to their artisans than that available in India.

The craftsmen face various issues and they could be illustrated as follows.

- *Market:* At first the artisan should be clear with the need of the target customer.
- *Quality:* The artisans face many choices in the quality of material and workmanship that are visible to the consumer and talks about its quality. The artisans need to look for the affordable quality for the customer.
- *Sustainability:* Buyers expect a certain level of sustainability of the product.
- *Appearance:* The buyers also look at a pleasing look and a distinctive exhibit of the product.
- *Cost:* The artisans need to work within the budget so as to suit the market.

IV. INDIAN CRAFT INDUSTRY

To talk about the Indian crafts is like talking about the country itself. It is vast and diverse yet simple. The richness of Indian craft can be seen from the garments, jewellery or home furnishings and artefacts, furniture etc. It is a perfect mixture of traditional designs and modern techniques that bring about the diversity in design along with marketplace awareness.

Craft can broadly be classified as: 1) Folk craft like Phulkari, Kolam (floor painting) etc. that are specific to the folk culture of a particular area 2) Religious craft that is created with religion as there the theme or used for religious activities like Sanjhi and 3) Commercial craft like gold smiting and carpentry.

With the various public and private awareness campaigns run throughout the country there has been a gradual increase in the demands for crafts like table mats, napkins, bed sheets, lamp shades etc. that are made beautifully with the use of natural material, textile printing, block printing, tie and die, hand printing etc. Gems and jewellery are other obsession of India. Garments such as woollen shawls and phirens from Kashmir and Himachal, traditional sarees ranging from Banarsi Amru, Tanchoi, Paithani, Patola, and Kancheevaram are most popular in export. The Indian zardozi and brocade are also known for its richness. In addition to these the other utilitarian craft products like cushions, curtains, bedcovers, sheets, metal furniture, wood furniture, boxes, cabinets, terracotta items, utensils, garden pots, paper-Mache products, brass and silverware, carpets, rugs and durries, jute and coir items, wood and stone sculptures, traditional paintings, decorative pieces, embellished wooden sculptures, stone and wood carvings, and many more are on the rise in India as well as globally.

V. DYING CRAFTS

Even with all the effort being put in we still have a long way to go. Many traditional crafts like string puppetry of Rajasthan, Dhokra of Chhattisgarh, and bamboo art of Assam etc. are dying due to modernization. The artisans put in months of hard work to produce these crafts however the machine made products are taking over the market due to its visibility and marketability. If this trend continues it will soon put the Indian crafts in danger of being extinct. Moreover, the commoditization of products is adversely affecting the craft market. The visual and aesthetic appeal of these crafts needs to reach a larger audience. It is time for design intervention where if need be the traditional craft products are tailored to meet the changing demands of the end customer.

VI. DESIGN THINKING OR STRATEGIC FORESIGHTEDNESS

Design thinking can be used as a tool like management skills or leadership to apply strategic thinking into the process of sustaining the crafts for the future. It can help the interior designers solve problems along with exploring new ways for futuristic development.

Even though at most occasions good designs are often defined by their labels or financial success however it is now starting to be defined as contextual, social and functional. Interior designers have brought up the value of their work by using the tool called design thinking and innovation in the last two decades.

Change is the key for future and is expected of everything now, therefore new strategies and skills are needed to go beyond what is known and understood so far of problem-solving. Interior design has become evident from the smallest of areas around us. We can take the following examples for reference.

A. Provision Stores

Traditional provision stores seen in Indian in the 80s portrayed a small dingy shop overflowing with daily goods that only the vendor had access to (Fig. 5). This changed to well stacked departmental stores where the customer has the access to the entire product range (Fig. 6).

B. Saree Shops

Saree showrooms looked plain and simple in the 1970's (Fig. 7) and since then there have been a remarkable change in the way these stores now project their products (Fig. 8). The businessmen have come to realize the importance of creating a good ambiance as the end user wants to have a good buying experience along with the product.

C. Hotels

The most evident change has appeared in the hospitality industry. The role of interior designers have increased in all sectors of hospitality, be it thadi's to tea destination or the transformation of the 5-star hotels from within, the transition is visible. (Fig. 9)

The paradigm shift is evident in our environment through the designs; therefore these designers can be the medium and change agents to bridge the identified gap by innovation and making the crafts visible for future by intervening craft, technology, culture and social values. This could give an interpersonal dimension to crafts. Design thinking or in other words strategic foresightedness can be used in fields like design, management, entrepreneurship etc. in the same manner as design management. It can be creative and help strategize however not driven by the industrial economy.

It is the time we look beyond design thinking in interior design and move to strategic foresightedness of the same. Even though at times this could be ambiguous as there is more research work done on design thinking than strategic design thinking, however, adopting 'Strategic Design Thinking' or 'Future Thinking' will help us build a sustainable future not only for our designs but also for the crafts that we are willing to present to the global market. Interior design with a futuristic approach can give a human-centred approach to craft along with giving it a structure and form towards futuristic designs that would sustain crafts.
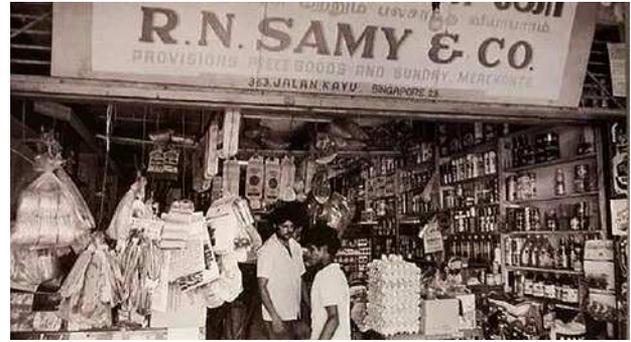

Fig. 5: Provision Stores in the 80's

Fig. 6: Supermarkets Today, Patel Brothers' Indian Grocery Store

Fig. 7: First Saree Shop in Belgrave, Leicester 196

Fig. 8: An Exclusive Silk Sari Showroom in Bangalore, Mumbai, Designed by Monnaie Architects & Interiors

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Fig. 9: The Taj Hotel, Mumbai

VII. Role of an Interior Designer

With the increasing trend of project-based nature of work, a diverse range of skilled people being engaged in execution.

An Interior designer has a responsibility towards the future and to which craft plays an important role, as it enables strategic foresightedness that enhances the capacity of a designer and his practice. It is important for an interior designer to be a thinker, forecaster and to be able to bring out the global wellbeing of the society by not only enhancing the marketability of the craft along with the artisan but to be able to sustain the market for them. This can be possible if the Interior designers focus on sustainable designs bringing about the desired enhancement in the craft products. This would work if the designers have a clear understanding of the global transition or the paradigm shift along with supporting the social goals of sustainability and longevity of the designed craft product, further improving the value of the same over a longer span of time.

By developing one's capacity to be a future thinker and applying the same to design thinking and innovation an interior designer could expand the extents of their efforts towards bringing up a sustainable environment wherein the crafts being used are also sustained for a longer duration.

VIII. Medium to Sustain Crafts

Interior design can become a tangible link between crafts and the end user through its real-world technological approach. As the objective of Interior design is to create satisfaction for the end consumer and profit for the manufacturer by seeking a blend of creativity quality, durability, appearance etc. The key is to condition the environment and creating scenarios that are powerful so as to clarify the future vision considering questions like "Who are the artisans", "what do they want" "what is the future we are heading to", "Who is at risk", "What does the end customer want". Interior designers can help the artisans go through the paradigm shift as they can

articulate the future through blueprinting the future of crafts through its presentation in the spaces we exist. It can help create a new value chain. What matters is how craft is interpreted through the use of interior design to address the insight of the real world of craft.

India has a developed national design policy to strengthen the small scale and cottage industries and crafts involving designers to develop the design profession, branding establishing Indian design globally.

To be able to visualize on a larger scale helps the interior designers to incorporate various crafts in one space creating emphasis along with maintaining the harmony of the space. They are also trained to work with the effect of light creating a balance between the positive and the negative space. As a result of this, they enhance the value of the craft due to the emphasis created.

Interior designers can help create a market distinctive image to a craft while creating a personality of a newly launched product and helps to make selection easier for the end customer.

Craft alone face the prevalent challenges, however, they also possess certain strengths seen through the SWOT analysis if presented well can sustain them.

With rich ancient craft tradition, Interior design in India has shown high use of crafts within a built environment. Crafts applied in a space can help create a lifestyle statement. They are applied to the built area from the elementary level to creating focal spaces of visual delight. Some of the examples are as follows:

- With the changing trend, crafts are now being used in Residential spaces as the Interior Designers understand the importance of sustaining these crafts. They are being used to accessories homes, fabricate and furnish, decorate walls etc. (Fig. 09 and 10)

- Public spaces are largely affected by population and the environment. Craft being used enhances the larger spaces. Architects and Interior Designers are using crafts to enhance built up Interior Spaces in the hospitality sector like the hotels and restaurants. This is increasing the awareness about crafts amongst common people that in turn sustains these crafts. Examples of the used of crafts being used in a manner that they are sustained for a much longer period are: 1) The Jaali Installation Art at Mumbai CSI Airport, Terminal-2. (Fig. 13) 2) Restoring the history by redefining old traditional spaces exhibiting the culture is also a means of showcasing the richness of craft through Interior Design as seen at Alsisar

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Haveli. (Fig. 14) 3) Lobby designs at The Lalit Jaipur had abundantly used marble stone carving craft of Rajasthan (Fig. 11) 4) Hotel Marriott, Jaipur has a great showcase of the wood carving craft of Rajasthan. (Fig. 12)

- Global impact is evident as many designers are using Indian crafts as inspiration to design interior spaces worldwide. They take inspiration from textiles, woodworking, cane work etc. Especially craft of Rajasthan are making their presence prominent on the international forum and one of the important modes for this is through their use by Interior designers in their designs. Various designers like Catherine M. Austin (Fig. 15), Ken Johnson (Australia), Mary McDonald (Los Angeles), Martyn Laurence-Bullard (Los Angeles) (Fig. 16) etc. almost consider India as the hub of inspiration due to its rich craft. Therefore it is not inappropriate to state that Interior design can help sustain crafts.

Fig. 10: Wood Carving Used in Residential Interiors

Fig. 9: Cane Used in Residential Interiors

Fig. 11: Stone Carving Wall at the Lalit, Jaipur

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Fig. 12: Crafts Used in Marriott, Jaipur

Fig. 13: The Jaali Installation Art at Mumbai CSI Airport, Terminal-2

Fig. 14: Restoration of Alsisar Haveli

Fig. 15: Catherine M. Austin uses Indian Textile Crafts in her Designs

Fig. 16: Martyn Laurence-Bullard's Work in Los Angeles

IX. CONCLUSION

People very often have an association with their surroundings and consume that they see around them. Interior designers play a critical role in this as they are trained with the basic understanding of Architecture along with design thinking, aesthetics and materials implementing the same with the use of current technology, they could prove to be a medium for sustaining crafts globally.

They can bridge the gap between the demand and supply of the crafts by linking the artisans with the needs of the industry and increasing the visual value of the crafts. On one hand the design industry has reached new heights and matured over time and on the other hand, it still remains invisible in its statistical context. In this paradigm shift, interior design is making its move from art in design to an independent field contributing to the growth of craft and education.

Primarily Interior design can become a mode to sustain crafts by 1) incorporating intense Craft understanding through material exploration approach along with material study in their educational curriculum. 2) By using craft as the basis of their design in Exhibition design, retail design, residential design, hospitality design etc. 3) incorporating strategic and futuristic design thinking 4) implementing their understanding of the environment and its suitability to sustain the endangered crafts.

The creative industries need to operate in a strong interpersonal fashion. There is a need to have a collaborative approach in order to extend the craft vocabulary so as to capture the modern markets. This integration will help project a holistic vision for an affirmative outcome. If we do not work now we could endanger a lot of crafts. It's time we sustain it.

REFERENCES

[1] Bridgette Engeler, 12-14 April 2017, Swinburne University, 12th EAD conference, Towards prospective design
[2] Philip Kotler and G.Alexander Rath, 2007, A journal of business strategy, Design: A powerful but neglected strategic tool.
[3] Andra Irbite, May 23 – 24, 2014 Faculty of Education, Psychology and Art University of Latvia, Proceeding of the International Scientifical Conference, Volume II
[4] Surpritkaur Dang, 2015, National Institute Of Fashion Technology, Showcasing Crafts in the Public Space: Space that speak about Craft
[5] Harita Kapur, Suruchi Mittar, October 2014, National Institute of Fashion Technology, Hauz Khas, New Delhi–110016, India, International Journal of Scientific and Research Publications, Volume 4, Issue 10.
[6] Nisha Vikram, Nisha Vikram, 15 Feb 2014, http://www.craftcanvas.com/blog/
[7] rangdecor.blogspot.in
[8] http://www.tandfonline.com
[9] https://indianbydesign.wordpress.com/2012/03/21/design-feature-katran/
[10] http://www.shabadinteriors.com
[11] http://www.indianmirror.com/crafts/crafts.html
[12] http://www.vintageimagecraft.com/history-of-crafting.html
[13] https://blog.jaypore.com/2015/05/22/india-inspires-global-design/
[14] https://www.flickr.com
[15] http://thearchitectsdiary.com/50-indian-interior-design-ideas/
[16] https://www.bangaloreaviation.com/wp-content/uploads/2014/01/Art-at-Mumbai-CSI-Airport-Terminal-2.jpg
[17] https://blog.jaypore.com/2015/05/22/india-inspires-global-design/
[18] http://news.bbc.co.uk/local/leicester
[19] https://www.bonappetit.com/story/patel- brothers
[20] http://news.bbc.co.uk/local/leicester/hi/people_and_places/history/newsid_9290000/9290940.stm
[21] http://www.monnaie.in/attachments/bengaluru/project-3.jpg

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Chapter 15

Evaluation and Illustrations of "Choli": A Timeless Women Upper Garment, According to Fashion Trends & Society of 17th Century in Rajasthani Miniature Painting

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ABSTRACT

The Indian costume from historical era can be traced from literacy evidences, archeologically and visual materials. Illustrations and painted characters from manuscripts, stupas and miniature paintings are also one of the resources to collate the idea of historical Indian garments.

The stitched garment in India can be seen in Indian Art in accordance with the Regional climate and cultural reflections. The amalgamations of diverse traditions are reflected in some specific costumes and as a part of upper garment of women. "Choli" is one of the timeless costumes which is worn till now in different regions in India. Choli is a stitched fitted garment fastened with strings or tie-cord at the back; has erotic and romantic expressions through its artful silhouette and received major attention in Rajput Miniature Painting.

In Gujarat, the synonym for "choli" is "Kapadu" derived from "kapda", means cloth. The textiles used mainly are malmal (very fine woven cotton), woolen fabric, linen and silk with embroidered motifs. Chinese brocades are also used in some of the attire of this time period. Choli is a zero waste garment as every piece of the fabric engineered very mathematically. Every part of choli has a particular name like: 'katories' (cups), 'Diver' (wall), 'Pan' (betel leaf), 'Chiriya' (sparrow) etc.

According to the Rajasthani Miniature Painting, we can see different styles of choli portrayed as women upper garment. This paper will describe the detailed information of choli and its different styles illustrated in Miniature Painting in 17th century. It also focuses on socio-cultural influence on clothing of that period and why "choli" is still known as a timeless garment.

KEYWORDS: Choli, Rajasthani Miniature Painting, Illustrations, Fashion Trends & Society, 17th Century

I. INTRODUCTION

India is a country with diverse cultures. Despite the differences in socio-cultural activities, climatic conditions, language, communications and traditions, invaders from different places made this country very prosperous but the fundamentals of local needs and influences became common to the whole of India. Merger of new customs and styles with the existing ones is visible in all aspects like –art, music, dance, sculptures, architecture, culture and lifestyles.

When northern India was under the rule of Muslims from 13th century onwards, the Rajputs were the leaders for both in resisting alien invaders and preserving Hindu culture and tradition in their courts. The fashion of stitched garment in Rajasthan can be seen in Rajasthani miniature paintings in accordance with the regional diversity in traditions which are reflected in some specific costumes as part of upper garment of women. "Choli" is one of the timeless costume which worn till now in different regions in India. Choli is a stitched fitted garment fastened with strings or tie-cord at the back; has erotic and romantic expressions through its artful silhouette and received major attention in Rajput Miniature Painting. To incarcerate the sensuality of the female figures in Rajput paintings, women were depicted wearing transparent fabrics draped along with "choli" and "ghagra". Earlier Rajputana constituted with small states and also shared common ethics and dignity. In painting also, some common themes like "Ragmala", "Nayak-Nayika", "Baramasa" ect. been shared among different Rajput states. In Rajasthani

Miniatures we can see proper distribution of harmony, balance, unity, rhythm & proportion to create mind blowing composition. Colors were filled with very classical manner to achieve richness, lustre, depth and transparency.
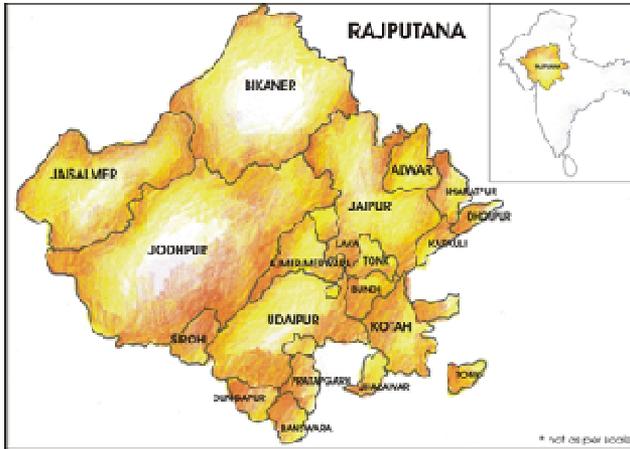
In 17th and 18th Century Rajputs emerged as the new ruling community on the Indian political scene in Rajasthan or Rajputana. They generally followed a traditional life style for living which shows their martial fortitude, traditions and dignity. The name "miniature" is derived from the Latin word "minimum", where red lead used for painting medium of ancient or medieval illuminated manuscript. The simple decoration of the early codices too has been illustrated with that pigment only. My research goal is to study that how a distinctive style of choli evolved in 17th Century life style, which is approached and illustrated in Miniature Paintings. A different school of Miniature Painting form Rajasthan is of particular interest to me. This research topic will be meaningful commotion to explore the topic through purpose and intention.

II. LITERATURE STUDY

Some documents, books, journals, blogs referred to collect preliminary data as follows:

- *Mahajan V.D.*: History of Medieval India; 10th Edition, S. Chand & Company Ltd. New Delhi. The detailed picture of medieval history specially emphasised on social, religious and economic condition of early medieval India, disintegration of Mughal Empire and later Mughal periods.
- *Brunel Francis*: Splendour of Indian Miniature; Vilo Inc, New York.

Comprehensive descriptions with universal correspondence of harmony, color, sculpture & rhythm depicted for each painting. Total 121 very rare Indian Miniature paintings from different region have been enlisted in this book.

- *Guy Jhon & Swallow Deborah*: Arts of India: 1550-1900; 1990, Victoria and Albert Museum association with Mapin Pvt. Ltd, Ahmadabad, India.

This book contains numbers of paintings and artefacts of Indian subcontinent displayed at Albert museum, London. written by the museum curators on pre-Mughal, court arts of Mughal, provincial courts of Rajasthan, Deccan & Punjab's finest treasures.

- *Basham A.L.*: A Cultural History of India; Oxford University Press 1975, Oxford, New York.

This book is the resource for many important topics written by famous scholars from all over the world. It's a compiled version by the author and well planned representation of cultural history of India.

- *Goswami B.N.*: Indian Costumes: In the collection of the calico museum of Textiles; Volume V, 2nd Edition.
- *Kumar Ritu*: Costumes & Textiles of Royal India; Christies.

Details descriptions and discussions of royal garments with good photography of elite personalities of India.

- *Sarkar Sumit & Sarkar Tankia*: Women and Social Reform in Modern India, A Reader. Indiana University Press.

Describes the socio-cultural and socio-economic status and positions of Indian women.

- *Topsfield Andrew*: Court Painting of Rajasthan, Vol.51, No-3, 2000; Marg Publication, Mumbai

Detailed descriptions of Rajasthan Miniature paintings.

- *Topsfield Andrew*: Paintings from Rajasthan: in the National Gallery of Victoria; National Gallery of Victoria, Melbourne. 1980

This book has collections of Rajasthani Miniature Paintings and has a very well written brief history of Rajputana in introduction.

- *Rahi Onkar*: Growth & Tradition of Pahari Miniature Painting; National Publishing House, Delhi. 2013

This book narrates about all pahari style of miniature Paintings with research study and descriptions.

- *Reiff Robert*: Indian Miniatures: the Rajput Painters; Charles E. Tuttle Company, Tokyo, Japan. 1959

Painters along with theme and thought process of each painting described very adequately.

- *Dr. Daljeet & Prof. Jain P.C.*: Indian Miniature Painting: Manifestation of a Creative Mind; Brijbasi Art Press Ltd. New Delhi. 2006

Descriptions of aesthetics and story behind each painting have been edited very skilfully.

- *Okada Amina*: Indian Miniatures of Mughal Court; Harry n. Abhrams Inc, New York.

This book describes origins of Mughal Paintings, Characteristics, Story behind of each painting, narrates of every mood of painted character.

- *Mookerjee Ajit*: Rural Art of India; Thames and Hudson Ltd, London. 1985

This book describes all about painted art form being practiced by rural India. Various "sadhana" and progressive unification with vital principles also discussed here.

- *Sivaramamurtti Calambur*: The art of India; Harry N. Abhrams Inc, New York. 1977

This book has very good photographs of various arts with descriptions and in-depth discussion in every aspect.

- *Bhari Shalini*: Female Attire in Miniature Painting; Literacy Circle, Jaipur. 2012

This a translation of PhD works of the Author. Attires of women in Indian Miniature Painting have been described as an overall view.

- *Beach Milo Cleveland*: The Imperial Image: Paintings from the Mughal Court; Freer Gallery,Arthur M. Sackler Gallery, Mapin Publishing-Ahemadabad; 2012

This book describes all about pre-Mughal traditions, manuscripts, paintings and artists.

- *Dr. Pancholi Ramanuj*: Tales of Love in Rajasthani Paintings; Publication Scheme, Jaipur. 2005

Local stories and expressions of paintings described in this book with many photographs and illustrations.

III. OBJECTIVE

The main objective of this research is to investigate the links between the unique styles of choli in relation with women of medieval society.

"Evaluation and illustrations of "Choli"-a timeless women upper garment, according to fashion trends & society of 17th Century in Rajasthani Miniature Painting."

More exclusively, I like to focus on how painted women characters and illustrations expressed its fashion image and popular elements through Miniature Painting.

IV. RESEARCH METHODOLOGY

The two main areas that were taken in consideration while doing this research:

Secondary Resources: Historical study related Visual arts, Performing arts, Medieval Indian Miniature Paintings, Wall Painting: murals and fresco for inspiration, Different Dynasties of India, Social and Political Thoughts and Institutions, Renaissance and its imprints on 17th Century

society & art, Auto Biographies of that Era, Indian Epics, Purans etc.

Primary Resource: To justify the research area, the audio-visual recordings, personal interviews, other information even in different language can be incorporated for the same.

V. DISCUSSION

The history of clothing in India is age old but evidence of stitched clothes can only be traced to Gupta period, the golden age of India (320 AD to 550 AD). In this period, stitched garments along with basic draped fabrics became very fashionable and the sign of royalty. In Ajanta Paintings, it's revealed that women used to wear only lower garment leaving bust part bare in those times but later on various kinds of blouses (choli) evolved. Some of them have strings to tie from back side or from the front by exposing midriff. Gupta period was mainly for cut & sewn garments. Closely woven silk, cotton, linen and wool were the basic materials for fabrics. Block printed fabrics were also used to construct garment. A long sleeved brocaded tunic kind of garment became the popular costume for privileged people like the nobles and courtiers. Mughal dynasty incorporated magnificent costumes that that harmonized interest in art, poetry & culture. Clothing fabrics generally included very fine quality cotton (malaml), silks, velvets and brocades.

VI. RAJASTHANI MINIATURE PAINTING

In 17th and 18th Century Rajputs emerged as the new ruling community on the Indian political scene in Rajasthan or Rajputana. They generally followed a traditional life style for living which shows their martial fortitude, traditions and dignity.

The name "miniature" is derived from the Latin word "minimum", where red lead used to be a painting medium of ancient or medieval illuminated manuscript. The simple decoration of the early codices too has been illustrated with that pigment only.

Rajasthani Painting"- the one of distinguished style of miniature painting that flourished and evolved mainly under the independent royal Hindu courts of Rajasthan in western India in the 16th–19th century. In the last decades of the 16th Century Rajput art schools began to build up unique styles combining indigenous as well as with foreign influences (Persian, Mughal, Chinese, and European). Rajasthani painting consists of four principal schools and within that there are number of artistic styles and sub styles that can be traced to the various princely states that patronized the particular category. The four most important schools are as follows:

1. The Mewar school- Chavand, Nathdwara, Devgarh, Udaipur and Sawar styles
2. The Marwar school- Bikaner, Jodhpur, Kishangarh, Nagaur, Pali and Ghanerao styles
3. The Hadoti school- Known as Kota, Bundi and Jhalawar styles
4. The Dhundar School- Jaipur, Amber, Shekhawati and Uniara styles

Inspirations are mainly drawn from local surroundings, Themes are depicted mostly on court assemblies and hunting expeditions, hills-valleys, religious festivals of that time period, pageants and scenes from the life of Lord Krishna etc. The ideal medium for miniatures are seen in manuscripts or single sheets to be kept like an album, but many artworks were painted on the walls of palaces & havelis, inside compartment of the forts,, particularly its most visible now in the havelis of Shekhawati. The painted female characters can be alienated in to five categories according to their social-status:

Female Characters in Miniature Painting

- **Goddess:** Durga, Sita, Laxmi, Parvati
- **Elite class:** Princess, Chief Queen, Queen
- **Middle class:** Mother, House wife, maids of queen
- **Nayika:** Radha, Nayika
- **Others:** Door-keeper, Messengers, Maids, Slave girls, Musicians
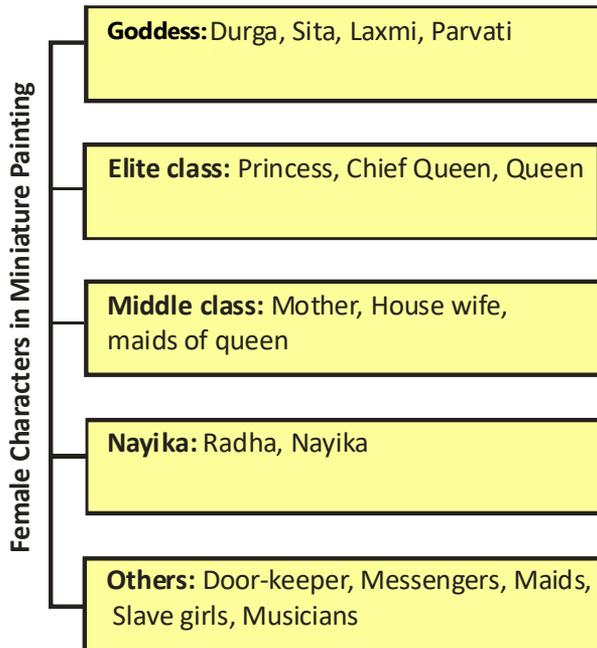
The costumes of women, which appear in Rajput miniature paintings as a fashion statement of that period, are highly embedded with design aesthetics and engineered techniques, which probably is the consequence of amalgamation of indigenous styles with immigrated traditions of different cultures.

VII. "CHOLI"-A TIMELESS UPPER GARMENT FOR WOMEN

"Choli" is one of the timeless costumes which is worn till now in different regions in India. It's the most sensuous of all garments constructed for women. It not only compliments the feminine form, but also enhances the romanticism in a woman. Choli is a stitched fitted garment fastened with strings or tie-cord at the back; has erotic and romantic expressions through its artful silhouette and received major attention in Rajput Miniature Painting.

In ancient period, three-piece attire worn by women and the choli evolved from the chest band known as "Stanapatta", "Stanasuka", "Stanvarana", "Stanbandha", "Kurpsika", "Kasani", "Tani", "Angia" or"Kanchuki" which pointed out in Sanskrit literature and Buddhist Pali literature during 6th century B.C. Rajatarangini (river of kings), 10th Century legendary work by Kalhana, describes that the Choli in Deccan started popularize under the royal order in Kashmir. Early choli used to be tied at the back. Choli of this type are still familiar in Rajasthan. Pre-Christian era paintings of Maharashtra and Gujarat are well known of the first recorded examples of choli. Poetic references like "Silapadikkaram" specifies that during the Sangam period 3rd -4th Centuries A.D in ancient South India, a single piece of clothing used as both lower garment and upper shawl. Based on paintings and sculpture, the "Stanapatta" evolved into choli by 1st century A.D in various regional styles. In Nepal it's known as "cholo", where as in Southern India it's known as "ravike" both of these styles are tied in the front instead of tied at the back. The general words for bodies in 16th and 17th Centuries were "Angia", "Angi", "Kanchuk", "Kanchuki", "Choli" or "Chola" originated from the word "choak". Mostly in Rajasthan, Haryana and Uttar Pradesh women use vest-like garment known as "Kanchli" on top of the choli and this entire attire is known as "Poshak". It seems that choli became a favorite garment for Rajput women as they started combination with Ghagara & Lahenga. Some of Miniature Paintings exhibit choli as covered only half part of the breast. The back part of the choli is covered by transparent dupatta. The colors of choli often used in a single color with contrast border of gold or silver embroidered or printed work done. Dotted design also seen as surface ornamentation. In special occasion stripped or transparent choli also displayed in Miniature Painting.

Plate no. 001: Early Form of Choli Tied at the Back with Front Covering. The Elongated Front Panel of Fabric Tied at Back. Ajanta Cave, Gupta Empire. 320 CE
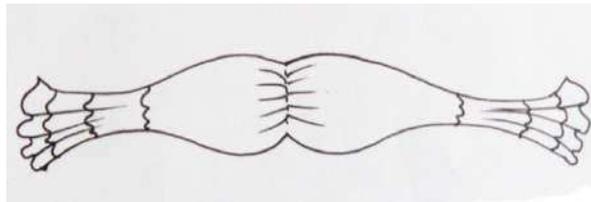
Fig. 1: Illustration of the Choli
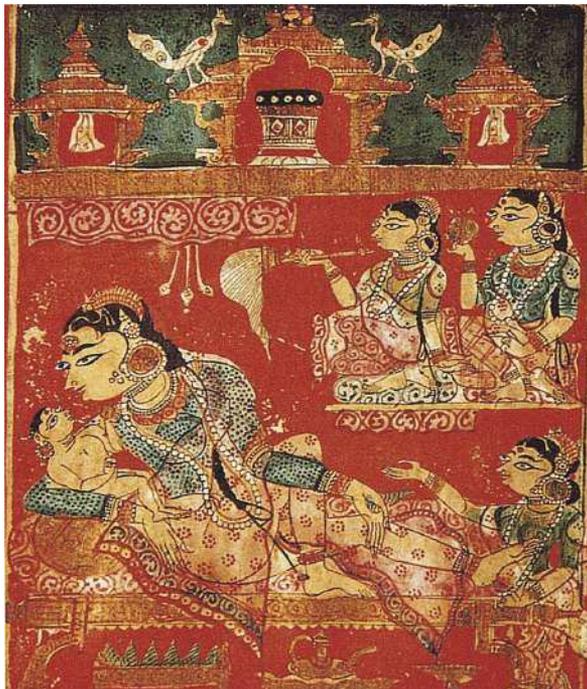
Plate no. 002: Example of Early Form of Full Sleeve Choli. The Dotted all over the Textures Indicating the Material would be Tie-dyed (Bandhni) Cotton. Kalpasutra Manuscript 1375-1400 CE
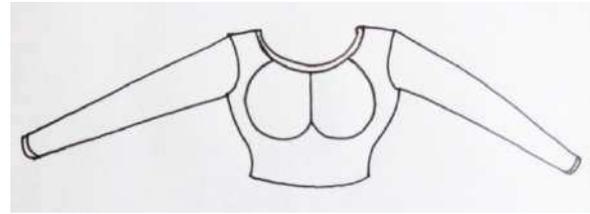
Fig. 2: Illustration of the Choli

According to Professor G.S. Ghurye, ladies used to wear choli throughout the ancient and early mediavial period. Vidya Pati, Sur Das, Vyas and other all Hindi poets of 16th and 17th centuries have explained women's beauty through choli. The 'Mughal Paintings" and "Rajput Paintings" of A. Kumarswami and the paintings of Lalitkala Academy of Rajasthan referred frequent examples of choli. Synonym for "choli" is "Kapadu" in Gujarat and it's derived from "kapda" which means cloth. The textiles used mainly are malmal (very thin cotton), block printed fabrics, tie-dyed (bandhni) fabrics and silk with embroidered motifs. Chinese brocades are also used in some of the garments. Choli is a zero waste garment and every piece of the fabric is engineered precisely. Every part of choli has typical name like: 'katories' (cups), 'Diver' (wall), 'Pan' (betel leaf), 'Chiriya' (sparrow) etc. Although "choli" was seen as Kushana artifacts in pre-Gupta Period and in Ajanta Art, this garment only used to wear by noble women of that time. In Rajput Period the usage of Choli started increasing. In 8th -9th century Rajputs had migrated from Central Asia to India and to all over Rajasthan.
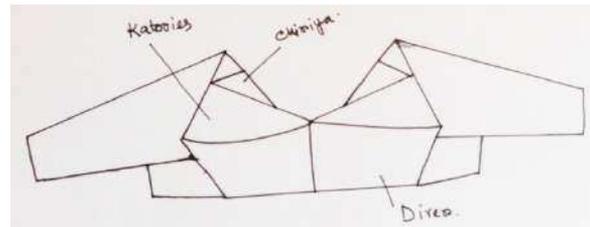
Fig. 3: Basic Illustration of Choli in Medieval Period

In pre-mughal period, the status of women was equal to men. But at the time of Mughal rule, women position in society deteriorated. The practiced like "Sati", Child Marriage, ban on widow re-marriage, "purdah" system and "devdasi" custom became popular in this time only. Due to polygamy practices in medieval society, women stippled from every aspect. Among the Rajputs of Rajasthan, "Jauhar" was one of the self immolation of women. Though exceptions were there as many women at that time glorified their existences through various actions and activities. Nur-Jehan (1577-1645 AD, wife of Jahangir), Jahanara Begum (1614-1681 AD), Bahinabai (writer, 1628-1700 AD), Jijabai (1598-1674 AD, Mother of

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Shivaji), Jankibai (1675-1700 AD, Express Consort of Maratha Empire), Mumtaj Mahal (1593-1631 AD, Express Consort of Mughal Empire), Bibi Dalait Kaur (she fought against Mughals) are one of them. Bhakti Movement (800-1700AD) was also one of impactful event of that period but it was not that much successful to make huge revolutions in women status and lifestyle. In a general view, status of women with different practices had set up a new dimension which reflected through art and sculptures of that period. Many poets and painters described women with attires which illustrate beauty as well as seductive expressions.
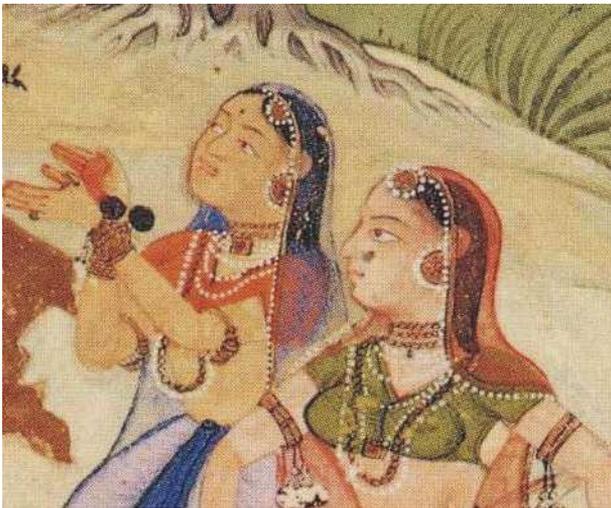
Plate no. 003: Detail of Vasant Ragini, Rajastani Painting Showing Early form of Choli Tied at the Back with Strings. Its Clear that there will be Two Pair of Strings, One Pair would be at Neck and Another would be just Beneath the Bust Line. Rajput Miniature Painting, Rajasthan

Plate no. 004: Detail of Rajmala Serice, Bundi Style of Rajastani Painting Showing Colorful Choli of Two Women. The Construction of Choli Mainly Half Slevels with Narrow Brest Line. Interesting Neck Line which Overlapped in Front Joining Line. Rajput Miniature Painting, Rajasthan

Fig. 4: 1500 CE Illustration of the Choli
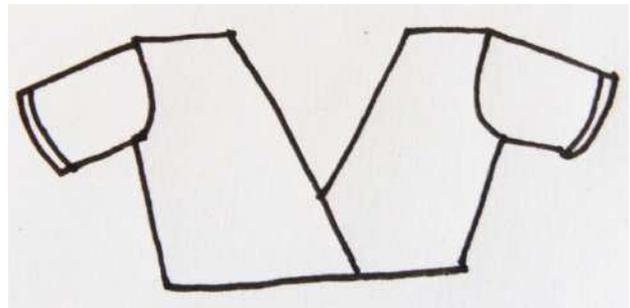
Fig. 5: 1662 CE Illustration of the Choli
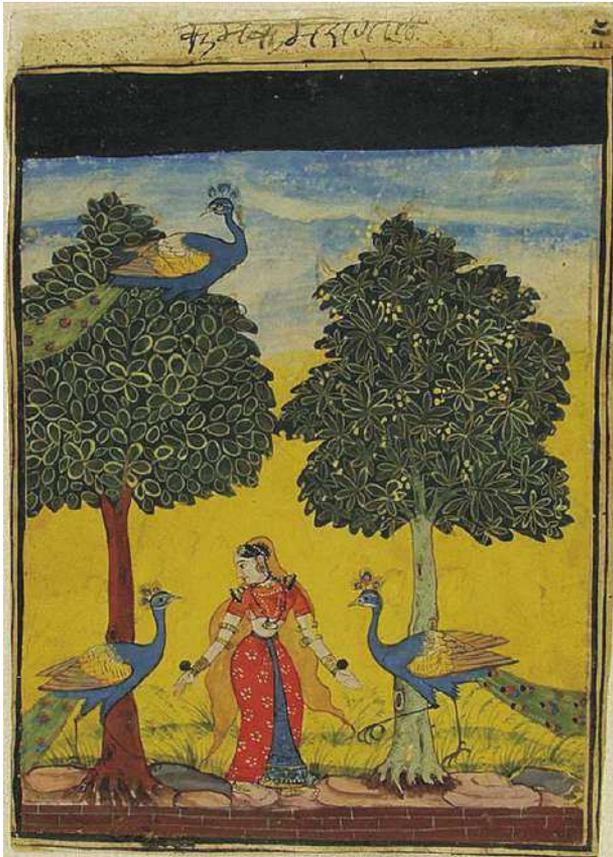
Plate no. 005: Kakubha Ragini alone with 3 Peacocks. She is Wearing Back-less Choli Tied with Strings. Ragamala Series Bikaner, Rajasthan, 1620 CE
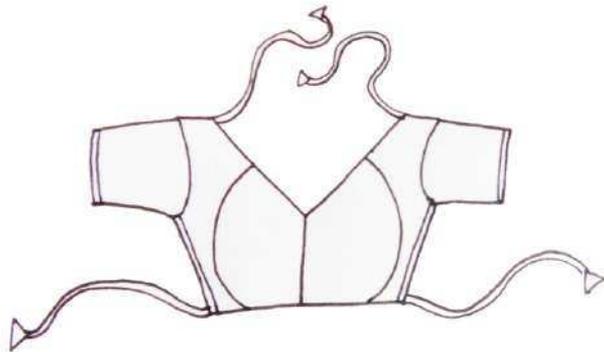
Fig. 6: Illustration of the Choli

VIII. CONCLUSION

The emergence of a new cast, the Rajputs of the political & social stage of Indian and their extent as ruling elite created a new dimensions and churned out new novel and complex element in the arena of society, polity and culture. My paper aimed the uniqueness in to relationship between these changes and Rajput Miniature Painting of 17th Century and its reflections in the women, her body and mind came to be perceived in the medieval ages, her journey from being an individual to becoming an object. My paper established how the sensuous and erotic inferences of choli, the garment of study mirrors both the romanticism that we celebrate to this days and the objectification of feminine in medieval society.

REFERENCES

[1] Prachya Pratibha, 1978 "Prachya Pratibha, Volume 6", p.121
[2] Agam Kala Prakashan, 1991 "Costume, coiffure, and ornaments in the temple sculpture of northern Andhra", p.118
[3] Katiyar, Vijai Singh (2009). Indian saris : traditions, perspectives, design. New Delhi: Wisdom Tree in association with National Institute of Design, Ahmedabad. p. 211. ISBN 9788183281225. Retrieved 31 October 2015.
[4] India: past & present – Prakash Chander – Google Books. Google Books. Retrieved 13 November 2011.
[5] Prachya Pratibha, 1978 "Prachya Pratibha, Volume 6", p.121
[6] Bhandari, Vandana (2005). Costume, textiles and jewellery of India: traditions in Rajasthan. Mercury Books. p. 84. ISBN 9780811810845.
[7] Gupta, Toolika (2016) The influence of British rule on elite Indian menswear: the birth of the Sherwani. PhD thesis. http://theses.gla.ac.uk/7809/
[8] https://en.wikipedia.org/wiki/Choli
[9] http://www.irapub.com
[10] http://theses.gla.ac.uk/7809/
[11] https://www.google.com/culturalinstitute/beta/exhibit/CAKCEmjVNnveJg
[12] https://www.google.com/culturalinstitute/beta/exhibit/PgLSknKVv0F_JQ
[13] http://paintingsgalleries.blogspot.in/2008/11/akbarnama-paintings-of-mughal-costumes.htm
[14] https://www.pinterest.co.uk/tiedyetravels/16th-century-indianmughal-costume/
[15] http://paintingsgalleries.blogspot.in/2011/01/mughal-miniature-paintings.html
[16] http://www.wikiwand.com/en/Tuzk-e-Jahangiri
[17] https://archive.org/stream/tuzukijahangirio00jahauoft#page/n11/mode/2up
[18] http://www.navinkumar.com/content/books/india1983/big/152.jpg
[19] https://vintageindianclothing.com/
[20] https://books.google.co.in
[21] https://googleweblight.com
[22] https://www.britannica.com/place/India/The-Rajputs

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Chapter 16

Kachchh Shawls: Rematerializing Products with Contemporary Motifs using Natural Dyes

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ABSTRACT

Bhujodi is the prominent village for Shawl production of Kachchh. The woven craft of Kachchh has its roots for barter system in the earlier time. Weavers were very dependent upon other communities to get work. The traditional craft has been accepted from one generation to another; the passage of time has created newness in design to remain its interest. The current study was motivated to document the occurrence of change in the traditional shawl weaving. The data was collected and documented based on interviews of weavers and through observation. Motif bank was created which was a contemporary version of traditional motifs. Finding of the present study revealed that shawl is the existing style of original *Dhabla* weaving. The observation has found unaffected placement of motifs and designs since its beginning. It was felt the creative skills of craftsmen were subdued in regular and unchanged placements of creative contemporary motifs. So the investigator has designed and developed products that it enhances the best part of craftsmanship. Selected natural dyes were used for value addition of developed product. Silk yarns dyed with natural dyes were used as extra weft for weaving contemporary motifs. Products were displayed for preferences and evaluation. The responses for the products were positive and found appropriate for the market.

KEYWORDS: Revitalization of Indigenous Craft, Contempararization, Unique Design Development, Innovative Changes, Yarn Dyeing (Extra Weft), Natural Dyes

I. INTRODUCTION

Arts and crafts are inimitable creations where as Innovations and changes are inevitable.

Beauty of Indian textiles, throughout centuries has been expressed in various prehistoric descriptions. Exclusivity of traditional woven craft is found not only in colors and designs but also in qualitative raw material and techniques to produce it. The craft of hand weaving has perceptive elegance of its own local tradition which has contributed when compared to other countries in the world. The wide range of textiles of India is influenced by region, surroundings, rich culture and needs of the local people. Handlooms are symbols of national pride which has been nurtured at various segments of India.

Gujarat' one of the states of India is tremendously rich, in cultural fairs and festivals that reflect its variety in essence of its heritage. The vibrant state of India has wealth of excellent craftsmanship willing to create awesome traditional artifacts. Textiles of Gujarat are expressions of love for colors and functionality of its applied art. The villages of Gujarat region have conserved its own craft form and retain the technical skills even after several years of its origin. According to Handloom census June 2017, there are 23.77 lakh handlooms in our country out of which 3.9 hundred are in Gujarat. 43.31 lakh weavers are working where as 9.4 hundred weavers are in Gujarat.

Map 1

'Kachchh' district of Gujarat is a holy centre for pilgrimage and interesting for historic lovers. The land of Kachchh has been occupied by distinctive desert area which is geographically more than half of total land. Tourist may have

memorable experience and could become pleasing for traditional craft lovers. Weather in Kachchh is hot during day time and very cold during night. Many different nomadic communities and tribes have been settled in kachchh while searching grazing ground for their cattle. Tribes started and survived their own traditions, customs and rituals. The main occupations of various ethnic groups of Kachchh are agriculture and raising animals.
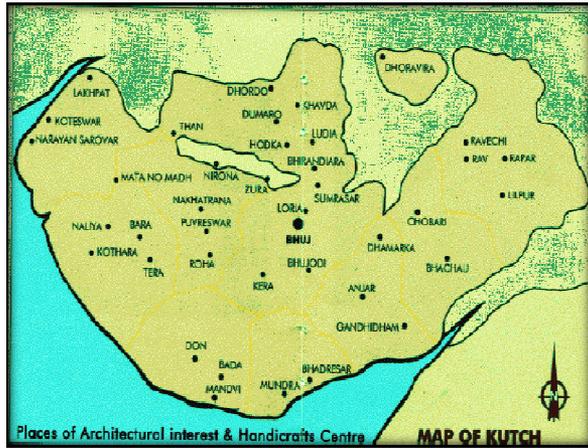
Woolen weaving is praised craft of Kachchh which is featured for the local needs for which raw material was being provided by other local communities which were involved in breeding animals. Other communities whose main occupation was farming were used to grow cotton to provide it as a raw material for weaving of *Dhabla*. Thus, woolen weaving on handlooms is also being practiced in the desert areas as well. Artistic weaving of Kachchh is famous for its traditional intricate designs, arrangement of motifs and rural based handicrafts. The pattern is always treated in a peculiar way. Usually the effect of delicacy and rich in vivid and contrast colour combinations are imparted in patterning.

In the new era of synthetic colorants, research into natural dyes largely changed focus, shifting from economic issues to historical, archaeological and heritage aspects. The discovery and use of natural dyes and pigments contributed to the maintenance of the age-old bond between humankind and nature and could now help to revive and enhance the traditional craft. The investigator is keen to use natural dyes for traditional weaving and its acceptance. Although this research cannot pretend to offer a complete, detailed overview of the current cultural and economic importance of natural dyes and colorants in the world today, it may serve to highlight some promising development trends in this field, both in traditional craft and in economic development.

This study was an effort to rematerialize the traditional shawl weaving of Kachchh for product development. It was carried out to touch upon the futuristic vision of the traditional textiles, their status and strength, providing a change of the old craft and innovations of modern creations by developing products which, in turn will provide a better market for the traditional textiles and promoting new opportunities in the designing field.

II. MOTIVATION OF THE STUDY

Shawls were traditionally worn as veils by women of local communities. The shawl incorporates the traditional motifs inspired from Dhabla (The woolen blanket). Despite the competitive market gives lot of challenges, there is great demand for Kachchh's handloom shawls. The weavers have continued to design their monopolized production (mainly shawls & stoles) as well as consumption of yarns like wool.

The investigator was keen to popularize the hereditary skills of artisans that will cater to niche market. Also to boost up craftsman's confidence that suits the taste of contemporary demands. The study was taken for the visionary of the traditional textiles by providing a change to the old craft and innovations of attractive creations by developing products which will promote new opportunities for the craft in the designing field.

The researcher was keen to overcome the factors that create problem for the weavers such as direct marketing facility and monotony in products. To overcome the barriers and retain interest of the weavers it was necessary to increase the demand for this craft by product development. Also for country like India diverse strategies in socio–economic developments are required with multiple forms. To find a meaningful source of employment that is culturally deep creative ideas through product development for the people without getting displaced from their roots.

The natural dyes have been contributing to the age-old bond of human and nature and now can help to enhance the traditional craft through product development. There is also need for encouraging decentralized operation of craft so that profit and gains can be shared for weavers and well being and healthy society. Rapid emergence of Indian handicrafts over the universe needs to be appreciated. It is time now to communicate their achievement to everyone and to promote artistic weaving, for current relevance and thus safeguard our rich textile heritage before it submerges.

III. OBJECTIVES

- To trace demographic information of shawl weavers of Bhujodi village of Kachchh Gujarat.
- To study contemporary form of Kachchh shawls.
- To design products with contemporary motifs and borders of Kachchh shawls in different layouts.
- To construct products using natural dyes for motifs and borders.
- To analyze products for aesthetic appeal and market acceptability.

IV. DELIMITATION

- The study will be limited to designing and development of stoles only.
- The study will be limited to the Bhujodi village of Bhuj district only.

V. REVIEW OF LITERATURE

The literature reviews are a basis for any research subjects. It includes the current knowledge including substantive findings, as well as theoretical and methodological contributions to a particular topic. Related research reviews were collected that impart batter aspects for the current research Secondary source of information for the current subject was gathered from various secondary sources such as books, magazines, journals and internet enlighten the investigator about the researches on related topic, its methodology and results obtained. The review of literature has been discussed under following heads:

1. Theoretical Review
2. Related Research Review

A. Theoretical Review

During the theoretical reviews researcher came to know several stories about origin of weaving in Kachchh. It was very interesting to know development of traditional Kachchh shawls that helped researcher as a part of contemporary study of the same. The reviews also throw light on types of products those were used to be multifunctional called *Dhabla* for man. Another woolen product made up of *desi* wool traditionally worn as veil by the woman. These products were very heavy in weight and border in dimensions. Unique characteristics of these traditional products were larger borders on both the edges, central joint with fishbone stitch and interlocking borders running continuously parallel to the selvedges throughout the length. Theoretical review was collected to identify the original form of Kachchh shawls that formed bases for the researcher to identify the contemporary form of Kachchh shawls that weavers were practicing today. It also helped researcher to identify the geography of mass population of shawl weaving artists in Kachchh.

B. Related Research Review

A literature review is an evaluative report of information related to a selected area of the study. Related research review formed the bases for the current research that supported researcher while collection of data. It describes, summaries, and clarifies the subject to proceeds in a correct direction. Related researcher review regarding the documentation of traditional woven craft, its product development, and product diversification were collected to form the center for the current research.

- Documentation of traditional woven craft
- Product development and value addition of traditional woven craft
- Product diversification of traditional woven crafts
- Documentation of traditional natural dyeing process
- Experimental studies for various aspects of natural dyes
  o To create color palette
  o Application of natural dyes
  o Various techniques to apply natural dyes
  o Various medium for Appling dyes

VI. METHODOLOGY

The current research topic was undertaken to impart unusual angle to the traditional woven craft of Kachchh, Consequential to objectives descriptive, experimental, applied and analytical research was designed. Sample was purposively selected through deliberate sampling method for case study. Interview schedule and observation method was used for case study. Questionnaire was formulated with close as well as open ended questions to gain first hand information. Photographs were taken to keep account of contemporary form of traditional woven craft.

The phases for the current research were as follows:

- Documentation and comparison of traditional and contemporary form of woven craft of Kachchh.
- Designing and construction of products
- Evaluation and analysis of constructed products

The methodological process adopted for the research was as described below:

1. Documentation of contemporary form
2. Designing and construction of products
3. Evaluation of constructed products

A. Documentation of Contemporary Form

The data was collected through observation and propped with photography for the study. The content was analyzed to recognize features of changes occurred in provisions of raw material, dyes and colours, motifs, design (Layouts), etc. The investigator has done Preliminary survey to identify the traditional craft information to relate theoretical aspects about the Kachchh shawls that proved very helpful to analyse. Through the reviews it was found that Bhujodi village of Bhuj has been granted the Geographical Indication (GI) tag, which is famous worldwide. Hence, Bhujodi was purposively selected for the study. The data for the study was obtained from primary and secondary sources. Primary data was collected through case study as well as observation method. It was supported with questionnaire and photographic documentation. The secondary sources of information were acquired from the books about traditional woven craft, journals. The data collected was analysed to identify occurrence of changes. The data collected was further used for the purpose of designing and construction of products.

B. Designing and Construction of Products

Weavers themselves have worked very effectively to accept the change for sustainability. Observation has found unaffected placement of motifs and designs even after several years of its beginning. Weavers have kept constant to use older layouts with new concepts of motifs. It was felt the creative skills of craftsmen rather to highlight were subdued in regular and unchanged placements of creative contemporary motifs. During the observation most of the contemporary motifs were collected to document. All the motifs were classified according to their original form. The investigator has designed and developed products that it enhances the best part of craftsmanship. New designs (layouts) were prepared keeping in mind the craft that would draw attention to their contemporary motifs. Three layouts of each selected contemporary motifs were prepared for further selection to construct them. Total forty eight designs were prepared for selection. All the layouts were prepared on 1:6th scale for the selection. Sixteen designed layouts out of forty eight designs were selected for construction.

The raw material was purchased for further construction of the products. Off white cotton yarns were used for plain woven foundation. Silk yarns were procured and were dyed with natural dyes and used to weave motifs using extra weft technique. Hanks of silk yarns were scoured with mild soap at 60°C temperature for 45 minutes. Scoured hanks were rinse in running water and dried in shed. Scoured silk yarns were dyed with natural dyes for value addition of the constructed products. Coconut husk, Indigo, Katha, Manjistha and Ratanjyot were used to dye the yarn hanks. Harda powder for myrobalan treatment, pomegranate rind for post deep and potassium dichromate metal mordents were used. All the treatments for dyeing were followed based on safety measures to obtain even application of dyes to the hanks of silk yarns.

The following table showing the general procedure of dyeing for the silk yarn.

TABLE 1: GENERAL PROCEDURE OF DYEING USED FOR THE SILK YARNS

Step–1	Step-2	Step-3		Step-4	Step-5	Step-6
Pretreatment	Pre Mordanting	Dye Extraction		Dyeing	Post Dip	Wash
Scouring	Mayrobalam	Manjistha		Manjistha	-	Washing in aritha powder
	-	Manjistha		Manjistha	Indigo	
	Mayrobalam	Ratanjyot		Ratanjyot	Pomegranate rind	
	Mayrobalam	Katha		Katha	Pomegranate rind	
	Mayrobalam	Coconut Husk	Coconut Husk	Coconut Husk	-	

C. Evaluation of Constructed Products

A preference schedule was developed to evaluate the constructed products. Total thirty respondents have given their opinions for product. The group of respondents was purposively selected which include students and staff members of Clothing and Textile department and consumers. The evaluation of products was done for:

- Aesthetic appeal
- Market acceptability
- Newness in the product
- Cost effectiveness

The data obtain from the evaluation were analyzed.

VII. RESULTS AND DESIGN IMPLICATIONS

This research was taken with the purpose of identifying changes occurred in the traditional craft of Kachchh shawls. It was documented in terms of raw material, dyes and colours, motifs, designs (layouts), products etc. Results and discussions have been discussed under following phases for fulfilment of the objectives.

A. Documentation and Comparison of Traditional and Contemporary form of Woven Craft of Kachchh

The information regarding demographic details of weavers in the locale Bhujodi helped researcher in identifying and determining recent working looms in total. Researcher has observed and collected information regarding changes occurred and was analysed for fulfillment of further objectives of designing and construction of products. The researcher had deliberately selected sample size of five weavers from total weaver's population for the case study. The collected details revealed that the selected sample fall in the age group of 74 to 38 years. That proved that even younger generation was equally paying attention in traditional woven craft that afford changes by keeping alive traditional touch. The information regarding different aspects of the shawl weaving in terms of earlier and recent usages that could be compared and analysed for further designing and construction process. All the collected data through observation and discussion had been organised in sequential form for analysis.

1) Yarn Content

As per the review of the traditional woven craft of Kachchh, weavers were used to use hand spun sheep wool and cotton which were procured from the local community for whom the weaver is weaving. During the case study it was found that mentors of weaver's community had established one social organization in the year 1953 at locale Bhujodi. The purpose of the organization was to

provide raw material and job for weavers. During that period of time weavers of Bhujodi village had started weaving for marketing. At the present time weavers are using various combinations of finer quality of raw material to weave different products. It includes Natural as well as synthetic type of yarn to match the taste of the market.

2) Dyes and Colours

Case study of the weavers revealed that earlier weavers were used to use sheep hairs with its original colours they were not dyeing them. Afterwards only red and black colours were used as vegetable colours. These colours were used to dye woolen yarns. Red colour was obtained from lac where as black colour was obtained from babul leaves. These two colours were used to weave cloths for Rabari community. Case study also revealed that Acid dyes and direct dyes were in practice since 1950 as elder most respondent Mr. Premji Virji said that he had dyed yarns with chemical dyes during his early age. Chemical dye shades namely red, orange, pink, blue, purple, green, black and white were used. These colours were used to weave products for Ahirs and Patel community.

3) Motifs

Fourteen traditional motifs were found from the old products conserved by the respondents. These motifs were discussed with the respondents for their distinguished feature and identity in woven products. These traditional motifs were inspired from the nature and surroundings which weavers had developed as motifs and incorporated in their woven craft. Recently weavers have developed several newer motifs by creating changes in original traditional motif thus they have monopolized their creation and changes. It was also said that some of the Rabari ladies were used to make permanent tattoo designs to which weavers have incorporated in their woven products as motifs. Contemporary motifs were collected from weavers of Bhujodi based on the willingness of the weavers to allow researcher to click pictures of their motifs. Researcher has also tried to find out the name given by the weaver to their new creation to identify their motif. Hodathiyo, Chaumukh, Dhulki, Dhungalo, Latth, Chokadi, Dhandha mutarno or ladhar or vankiyo, Satkhani, Undhi Sathkhani, Sachchi Kor, Panchako, Miri, chhad, popati, etc are name of the traditional motifs. Below are some of contemporary motifs.

Fig. 1

Fig. 2

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Panchako + Miri

Fig. 3

Panchako + Chhad
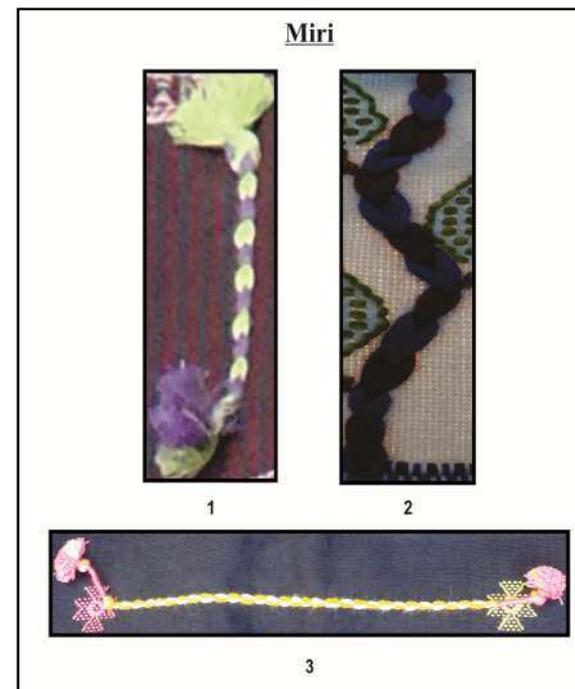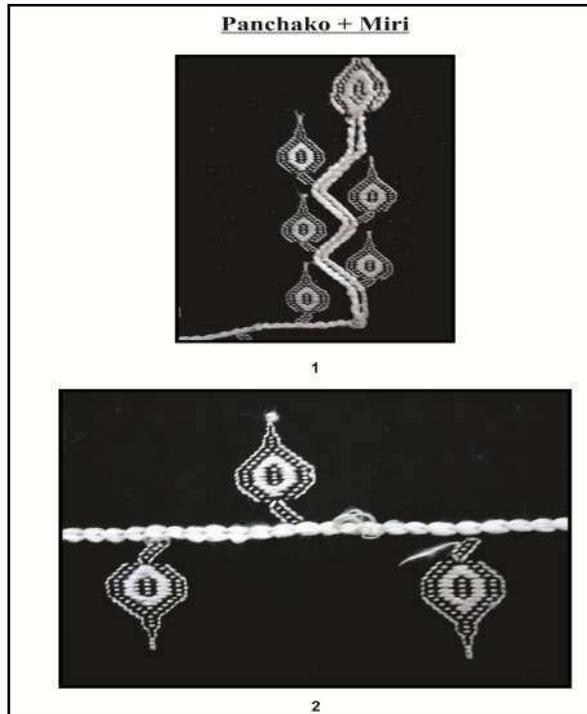
Fig. 4

4) Designs (Layouts)

No changes were observed in the layouts of the woven products. Shawls incorporate traditional motifs inspired from dhabla weaving and similar placements as that of dhabla. Layouts of dhabla could be divided into three-pallu, field and borders. Very common layout of dhabla which had horizontal borders running from selvedge to selvedge at pallu, vertical borders parallel to the selvedge and plain field. Layouts of shawls and placements of motifs were similar as dhabla.

5) Products

The old products were observed to identify their yarn content, dyes and colours used. The shops in Bhujodi village were also visited to know various products that have been woven by the weavers recently. Local market was found to be full of several ranges of woven products such as draping, house hold, clothing and accessories.

6) Designing and Construction

The data collected was analyzed and used to design exclusive layouts which can help weavers to highlight their newer efforts they have already carried out for other aspects. Stoles which are size version of traditional woven shawls were designed with contemporary forms of traditional motifs for construction. Total forty eight layouts for stoles of 80" × 24" in size were designed on 1:6 scales for further selection. Three different layouts for one motif were displayed for selection. All the layouts were displayed along with two to four colour combinations that can be used while construction. Total sixteen layouts with suitable colour combinations from forty eight designs were selected, constructed and analysed.

7) Evaluation and Analysis of Constructed Products

The products were displayed for evaluation in terms of aesthetic appeal, market acceptability, newness in the product, cost effectiveness. The response from the subject experts and consumers were taken. They found that layouts were suitably planned for each motif. The placements highlighted the contemporary motifs and found to be appealing. The idea of designing stoles with contemporary motif was a unique idea that would get good scope in the designing field. The designed stoles would surely be accepted in the market since the motifs and layouts were very creative.

Fig. 5

Fig. 7

Fig. 6

Fig. 8

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The present study was undertaken to touch upon the futuristic vision of the traditional textiles, their status and strength, providing a change of the old craft and innovations of modern creations, which in turn provide a better market for the traditional textiles and promoted new opportunities in the designing field. Contemporary motifs in silk yarns dyed with natural dyes for product development were woven to provide range of varieties to the craftsman as well as consumers. The change in layouts would help the weavers to venture into new dimensions of product designing. It would fetch a new market for them.

REFERENCES

[1] Jethi, P. (2010), "*Kutch achija*.' Bhuj, Kutch: Shree Limbaja Prakashan.
[2] Jethi, P. (2011), "*Kutch: people and their handicrafts*," Bhuj, Kutch: Shree limbaja Praksshan.
[3] Government of India, Geographical Indications, Journal No. 40, may 03, 2011 / Vaisasakha 13, Saka 1933
[4] Gohil M. (2013), "*A study of a coconut calyx on the textile materials for the development of colour palette and designing products taking inspiration from wood grai.,*" (Unpublished Master's dissertation), Department of Clothing and Textiles, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara.
[5] Vashishtha P. (2013), "*An experimental study on using waste flower for extraction of dye and development of color palette on silk and wool.*" (Unpublished Master's dissertation), Department of Clothing and Textiles, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara.
[6] Solanki P. (2011), "*Documentation of Dhabada and Kharad weaving of Kachchh and their prduct diversification.*" (Unpublished Master's dissertation), Department of Clothing and Textiles, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara.
[7] Buch H. (2007), "*Documentation of the ajrakh of Gujarat and designing Kurties by exploring various ornamentations styles with other textiles crafts of the region*." (Unpublished Master's dissertation), Department of Clothing and Textiles, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara.
[8] https://commons.wikimedia.org/wiki/File:Gujarat_district_location_ map_Kutch.svg [26th September, '17; 23:03 pm]
[9] https://setupanchayat.wordpress.com/about-us/about-kutch/ [3 Map 26th September, '17; 23:03 pm]

Chapter 17

Making of God

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ABSTRACT

Stories, folktales and myths have been an integral part of any community. These, stories, myths, etc. are evolve fromand within culture. In the collection of tales, there is an incessant addition of contemporary folklores but *how* and *why* are these myths developed? Howdo they sustain within a culture? Why is there a constant need for such stories or tales? This article is an attempt to answer these questions basing the answers on field research. *Om BannaJi* is a recently developed 'Folk God' in the district of Pali, near Jodhpur, Rajasthan, India. This provides context for the origin, reasons, and formation of the myth. By comparing it with other well-developed folk narratives from the same region. Such as the myths of *Pabuji* or *Dev Narayan Ji* one canestablish the structure of myth. And by integrating it with the great epics of our cultures such as Ramayana and Mahabharata one can establish the relation between 'Great Traditions and Little Traditions'. This study explores the immensity and multiplicity in the existence of oral narrative. The stories could be memories of,or mediation between reality and aspirations of a society and what it wishes to express about itself. It is a form of communication by the community. Therefore the objective of this study is to communicate what the community communicates through their oral narratives and through their folk mediums. The research also explores themediums that actas a bridge between various communities of Rajasthan such Phad artists, Bhats, musicians, storytellers etc., thereby creating an effective communication of the stories which are a part of Rajasthan's culture, that is derived from the people, by the people, and for the people. The end product of the field research talks about the process of *Om Banna's* myth-making, the evolution of myth, the room for coexistence of multiple narratives, the relationship between little and great tradition etc. The presentation of this research article can be done in the form of a short film.The language of the film would be in form of the traditional *Phad* painting, integrating the idea of myth-making with *Phad*-making. Scenes showing the temple of *Om Banna*, stories and experiences of devotees, their beliefs, practices and rituals have beenrecorded.Along with this, the process of visual depiction of the field stories, done in the form of *Phad* painting is documented to absorb the process of making myths, beliefsand traditions.

KEYWORDS: Myth, Community, Great Traditions, Little Traditions, Local Deity, Phad Painting, Communication

I. INTRODUCTION

Stories, tales, folklores area fascinating creation of any culture, as it can be extremely imaginative, almost surreal, and yet it holds a particular relevance in the real world. These are stimulating and thought-provoking ideas of the factual world but are not to be understood in a literal way. There are stories where animals talk like humans, possess characteristics like humans, perhaps these are a communication for humans by humans and this communication is done in varying forms and mediums. A language is a dialect that has acquired an army, but all these myriad dialects carry oral literature, this is how A.K. Ramanujam describes the folklore (1). Communication requires language and there is an immense amount of oral literature within our culture. The literature, which is not written or read, can only pass verbally from one person to another. These oral narratives are the symbolic language of the non literate part of us and our culture. Therefore, every community has myths, folktales, stories rooted into their culture that depict their beliefs, ideas, customs and lifestyle.

There are various facets of myth-making, storytelling, dealing with various purposes. Ramayana and Mahabharata, the great Indian epics are considered a part of the Great Tradition. As Redfield (2) mentions, 'there is a great tradition of the reflective few and there is a little tradition of largely unreflective many'. However, these little traditions always do establish the relationship with the Great Tradition that is how certain castes and kinship groups seek to elevate their status in society. These myths, tales, stories build up parallel to new stories, new traditions, new customs and there is always room for multiple narratives around the main narrative. Therefore, the story builds around the real incident but in a glorified manner. The stories could be reminiscences of reality and aspirations that reflect culture.

II. BACKGROUND

We have been deeply rooted in oral narratives. *Bhopa* narrating *Phad* paintings, *Kavadiya* artists painting wooden shrines, women singing, *Bhats* telling genealogies, people worshipping folk god and goddesses are examples that go

on to tell us that Rajasthan is very rich in such folk traditions. These in turn have different ways of narrating stories, with distinctive mediums, and yet one narrative mode maybe directly or indirectly connected with another. One can find many local gods in Rajasthan such as *Dev Narayan, Pabuji, Gogaji, Tejaji* or *Ramdev Ji*, each catering to different castes, serving a different purpose, and presented through different mediums. *Om BannaJi* is also one such local god but interestingly, his existence is fairly recent with a unique set of practices and common beliefs.

The temple of *Om Banna Ji,* is located alongside the highway in the village of Chotila, near Pali district, Jodhpur, Rajasthan. About a thousand to two thousand believers visit this temple every day, and this number is increasing as we speak. Here, *Om Banna Ji* is worshiped in many forms, and one such form is that of his Royal Enfield motorbike. There are multiple stories that have co-exited to form this new folk deity. I have collected and documented few of these stories, based on field research. More or less the conclusion of each story turns out to be the same.

Om Banna ji was born in a Rathore family. His father, Jog Singh Rathore was the sarpanch (head) of the village of Chotila. Based on my interviews, *Om Banna Ji* was leading a normal life without any miracle but he had an extraordinarily tender heart. He was always eager to help the needy. He was a royal child and he was the only person in the village that owneda Royal Enfield motorbike. Back then in the late 80's, it was unusual for people to own motorbikes, let alone the possibility of owning it in a small village like Chotila. Because of his Royal Enfield, Om Singh Rathore was quite famous in the village. He was also known to have liked drinking alcohol. He was the married man at the age of 24.

On 2ⁿᵈ December, 1989 (verified by police records), *Om Banna ji* was traveling from the town of Pali to Chotila. On his way to Chotila, he lost control of his motorcycle and hit a tree. Now from this part onwards, there are multiple existing narratives. According to Rohet police station, *Om Banna Ji* has a criminal charge for driving carelessly, leading his own life and the lives of those around him in danger. Some say that, owing to the fog light of an approaching truck he met with an accident. Some maintainthat in order to save a cow, he sacrificed his own life. A few people mentioned that he was drunk while driving. There existmany other versions to this story. This is a peculiarity of oral narrativesthat there builds a complex net around one incident.

Nevertheless, he came to be a god-like figure, that directed his grandmother in her dreams to build a temple at the site of the accident, from there Om Banna ji promised to protect people from further mishaps or road accidents. Many believers also believe that, after the accident the motorcycle

was taken to the police station but it kept returning again and again to the site of the accident. This story among many other miracles, where people claim that they were granted protection by Om Banna, especially saved from road accidents on that particular highway, turned *Banna ji* to a deity (he is still in line to attain the position of a local deity). This is how people started following *Om Bannaji* and one ordinary incident turned into the extraordinary, an ordinary person turned into the divine. However, the myth is still progressively building, even more stories are being attached to this particular folktale.

III. METHODOLOGIES

To understand how a myth evolves and its relationship with greater traditions, one has to explore every aspect of myth-making. By studying the breaking of the myth, understanding its construction, comparing it with other similar myths and analysing it, one can develop meaning out of narratives. Since building the archives of the *myth of Om Banna Ji* from the stories taken from the field would provide a better and holistic point of view, ethnographic research and documentation was taken as the primary method to pursue this research. A major concern was, to collect the narratives from differentperspectives to achieve a Rashomon effect (3). Each of the following interviews was recorded in the video format:

- The Police thanawala
- The typical devotees
- The typical female devotees
- The purohit of the temple of *Om Banna*
- *Om Banna's*family (particularly son, uncle, friends etc.)
- The temple manager
- The bardic singer
- The urban sceptic
- The tour-guide

After collecting various stories from the field and analysing each of these, I developed a script portraying the idea of major concern of this research. Based on the script, I tried to develop a small *Phad* of *Om Banna Ji*, the process of making *Phad* was documented and a song (to praise *Om Banna Ji*) for that particular *Phad* was developed. The additional short documentary supports my final findings.

Comparing the narratives of fully-developed folk myths such as those of *Pabuji* and *Dev Narayan Ji* and creating a new narrative (script) depicting the above mention concepts of formation of god, this script is an attempted take on how myths are evolved. The execution of the script in visual form is a part of visual ethnography which depicts the various art forms of Rajasthan.

IV. DELIVERABLES

The end product of this research is a 2D animation film. This film, "log Kehtehain" talks about the concepts of myth-making which are presented in the form of the myth of Om Banna. The narrative was crafted in a humorous way with an approach that the story is found to be relatable to the people. The language of the film also comes from the native place-Bhilwara, Rajasthan, which I found, best suited to narrate the story of the newly-born deity. The other half of the project is a document of the making of the film, which supports the research, the string of decisions, stories, technique etc. used in the animation film. Both of these films are interlinked but each film can be seen separately. Therefore, both films can stand independently as well.

V. ATTAINING DIVINITY

This is a study of 'Apo-theo-sis' (deification or divinization)-the glorification of a human mortal subject to a divine level or rather in other words, it is the elevation of an ordinary person to the level of a god. There is a long tradition of heroic gods in Rajasthani culture. *Pabuji, Tejaji, Dev Narayan ji* are some of the significant folk gods of the region. In fact, *Pabuji* and *Dev Narayan ji* are extremely famous as local gods all over Rajasthan. These gods have well-developed genealogies and well-developed narratives. Such gods have existed in particular communities for quite a long time. Therefore, with the course of time oral narratives are progressively developed. *Pabuji* and *Dev Narayan Ji* have a distinctive medium to narrate their stories or myths, these gods have their own *Phads* which are painted scrolls of muslin fabric, that are considered as moveable temples.

Phad is a folk-art form of Rajasthan, where heroic acts and genealogies of particular gods are painted by *chitarkars*. These *chitarkars* belong to specific Joshi family (Chippa Community). They have a distinctive style of visually depicting the narration. The visual depiction of folktale or story in *Phad* is not linear. The *Phad* can be about 15 to 18 feet long, wherein space is divided not according to the narrative but the division is geographically decided by *Phad* artist. These paintings are one element of an elaborate ritualistic song and dance performance, that are carried out by folk balladeers. These folk balladeers travel from village to village, performing folk epics in the form of stories. The paintings are the visual backdrop, against which the songs, dances, and narrationsare performed by the priest of the *Phad*, commonly called as '*Bhopa*' or '*Bhopi*'. There are different *Phad* for different gods. The *Phad* of *Papuji* and *Dev Narayan Ji*, are so well developed and complex that it is referred to as 'Folk-Mahabharata' by Jhon D. Smith (4)

in his ethnographic research. There are different portions, depicting different episodes of the same narrative, and they are opened or unrolled only after sundown, in conjunction with an all-night performance. This is why these paintings are called *Phad* as it means 'folds' in the local dialect.

Phad paintings are made on muslin cloth (unprocessed fabric). As mention before, these paintingsrepresent a folk epic narrative through a very peculiar style of representation of figures and pictorial incidents. All *Phad* paintings have certain common features. Every space of the canvas is jam-packed with only profile figures in the flat construction of the pictorial space. While these profile figures are harmoniously distributed all over the area, the size of figure depends on the social status of the character they represent and the roles they play in the story.

The artwork is communicated by *Muhkvanchi Bhats* known as *Bhopa* or *Bhopi*, as mentioned earlier. These *Bhopas* and *Bhopis* are the priestly singers of the folk deities (it is as if they actually market their deities). They perform in front of a *Phad* that depicts the episodes of the narrative of the folk deity and functions as a portable temple. The Bhopas carry this phad traditionally and are invited by villagers to perform in their localities during difficult times. Only folk deities are called for such matters or a specific deity will be called for a specific matter or for a specific community. Such as *Gogaji* will be called specifically if the issue is related to cows. *Tejaji* will be called specifically if the issues are related to snakes, *Om Banna Ji* will be considered for the issues related with road accidents (a new god for a new local issue) and so on. Hence the local godis invoked for local issues with their local customs and that is how little traditions are developed. Based on their popularity among the believer group, these local gods attain divinity or positions among gods. As believers increases in number, the temple will also increase in number and ways to promote the god will also be increased. For a contemporary god there are contemporary mediums, *Phad* is also one of the mediums. Traditionally, the *Phads* are kept rolled in transit, after reaching a village or town, the *Bhopas* erect the phads between two poles in a suitable public place shortly after nightfall. The performance goes on throughout the night and terminates only early in the morning.

The oral narratives of the folk deities are sung and performed by the *Bhopa, Bhopi*during the *jagaran (the vigil)*. The reasons for performing the *Phad* is to invoke local deities. The sequence, which a *Phad Vachno* (performance) follows, can be summarized as follows:

- Before installing sacred *Phad*, the ground needs to be well cleaned and purified. Once phad is installed it will be worshiped like deities as they are worshiped in the temple.

- The Bhopa would be properly dressed for the event. The costume is locally called as "*baga*". (13)
- Then offering are made in front of the moveable temple, which can be in form of money, grains, fruits etc. The offering will depend based on the fondness of particular local god.
- The reading of *Phad* will start by invoking the greater god first. Such as *Ganesha, Saraswati-vandana* and then *Dusaavtar (the tenincarnations) of Vishnu*.
- After invoking greater god, the Bhopa begins to narrate the heroic deed of the local god in form of *gavs* and followed by prose sections known as *arthavs* (explanations). The *gavs* consist of a number of *karis* (couplets). While *Bhopi* points out each scene on the *Phad* depicting the particular pictorial incident with an oil lamp in her hand.
- This narration of epic folktale is not a very formal gathering. People can leave in-between for food and drink. A donation is also made in-between of the performance. After receiving any form of donation, Bhopa will make a loud announcement to praise the donors.
- An *aarati* for the deities and the characters on the *Phad* is carried out at the end of the performance.
- Before sunrise, offering is made again immediately after the main *aarati*.

The depiction on painted *Phad* is symbolic. For instance, *Pabuji* and *Dev Narayan Ji* are always depicted with their horse. The horse is a symbol of divinity, as for our new folk god *Om Bannaji* his Bullet motorcycle has taken the place of the horse instead. Therefore, worshiping the motorbike with the relationship it has with *Om Banna ji* merges the deity and the object related to the deity into one. This object then attains a particular position in future, which is in accordance with Roland Barthes' (5) description of objectification and simplification of the complex phenomena. Hence the complex narrative is oversimplified into the specific objects and they maintain their position as divine relics. Perhaps, there is nothing that is ever lost in culture, the past is always present in the future, maybeinan altered form. By the elevation of *Om Banna* to the heroic level, certain caste and kin groups seek to elevate their status in society as well. *Om Banna* and his Bullet have become the Guardian Deities of safe journeys on highways, and are becoming increasingly common in Rajasthan.

VI. CONSTANT NEED OF FOLK TALE

What do myths do? Why is there a need for such myths? By considering the myth of *Om Banna Ji*, one can derive almost instantly that humans feel vulnerable with respect to dangers that are beyond their control, hence they need an external force which can provide power and security to them and myths do this in a mystic, magical way. It is also true that people manipulate myths according to their needs and perspective, as nobody is sure about the exact or the specific narrative of the myth. Hence myths are open to interpretations. For example, in the narrative of the myth of *Om Banna Ji*, he is considered to protect people from road accidents, particularly on that Pali-Jodhpur highway, which was considered to be a highlyaccident-prone area. *Om Banna Ji* was also victimized for the same thing, whatever may be the reason for the accident is not important. The accident itself is important or in other words, the incident is significant, and to remember that incident the myth was initially created. I believe that myths are open to interpretations, which is why the Roshomon effect is so prevalent in this particular narrative. Possibly, as *Om Banna Ji* doesn't belong to any specificcommunity, therefore, every community (36 sub-caste groups of Rajasthan) has its own way to believe in the local deity. Most of the believers that flock the temple of *Om Banna ji* are drivers (who can be from different castes but are linked by profession), they have a unique ritual of offering alcohol to their deity and consuming the alcohol as *Prasad*. Even though, drinking and driving is illegal but *Om Banna's* followers are protected by the mystical power of the myth. There might be groups consuming alcohol that may not consider it well, hence the narrative of the myth is altered accordingly without changing the offering (*Prasad*) for the god. Perhaps narratives alter but the incident still holds importance. Therefore, the imperative probe would be "do the practices enforce beliefs or the beliefs enforce practice"?

Actually, it can happen both ways, in this particular case initially beliefs enforce the practice, as it is believed by believers that *Om Banna Ji* prefers alcohol as his offering. This notion is deeply embedded in the Rajput community; hence this part of the myth is the reality of the community from which hails *Om Banna*. Thereafter practices enforce beliefs, as one can find out multiple narrations attached to one incident and also ritual attached to it. This is altered constantly based on the community's culture. Therefore, I think it is interesting to note how people make meaning out of something or anything within the culture and how different threads, when interlaced with each other from the common thread as a result.

According to Brathes', 'myth' (5) is a second-order semiotic system. It takes an already formed sign and turns it into a signifier. For instance, in this particular myth, *Om Banna Ji's* Royal Enfield bike is turned into a horse (*Vahan*). Horse (*vahan*) in the epic folk stories of Rajasthan signify divinity. Such as *Kesari Kalmi*, the black

mystic horse of *Pabuji*. This horse was an incarnation of some heavenly nymph. Similarly, Dev Narayan will always be identified by his white horse and Maharana Pratap is identified from his *Chetak* (vahan). Here the bike is juxtaposed to the horse. Therefore, the bike attains a superlative quality. Now, this bike is not just a bike. It is much more than that. This bike is actually a superbike which possesses magical power. The Bike from which petrol was drained out, the bike which was chained in the local police station, even then the bike keeps returning to the point of mishap. The Myth is a met language. It turns language into a means to speak about itself. However, it does this in a suppressive way, masking the structure of signs. As Andrew Robinson mentions "The system of myths tends to reduce the raw material of signifying objects to similarity". Hence *Om Banna* is objectified and simplified to his motorbike, like Barthes' Einstein is objectified and simplified to his brain (5). That is how the bike became the signifier to signify divinity. As this power to turn something into agodly substance is within the culture, community, and oral tradition, to drive power out from such substance again, the particular community or society tries to associate with its myth. For example, the bike of *Om Banna Ji* is a divine object, portraying magical and saintly miracles. Now people want to attain that holiness by procuring the same no. "7773", which was the number of *Om Banna Ji's* Royal Enfield. By doing so, people somehow became a part of that superlative object and that godly man. Through this, they attain the spiritual power of the myth.

Myths have its own kind of signifiers. One can find similarity with the structure of the myths (6). They have uniformed signifiers which are not arbitrary. They always contain some kind of analogy which motivate them. In contrast to ideas of false consciousness, myths are relatively transparent, they do not hide things. Instead, myths modify or distort particular metaphors or signs to convey a specific connotation. "Myth doesn't hide things, it distorts them. It alienates the history of the sign." (5)

VII. CULMINATING INTO THE PHAD

Myths are created and evolve as culture evolves. With contemporary culture and issues, myths or stories alter itself. Myth gains its strength with the relationship of greater traditions. (8) *Om Banna Ji's* myth is still budding, this is a very recent incident which might accumulate many other oral narratives (layers) with the course of time. Therefore, to comprehend the culture and myth fruition for this particular myth, one has to deploy aspects from traditional storytelling. *Om Banna Ji'* stories from the field itself would give an understanding of the certain cult, groups and their reflection, aspirations or fear. Integrating those stories with folk medium turns the myth into rituals.

Rituals are enforced by beliefs and beliefs are enforced by rituals but the process of the becoming of rituals to beliefs and beliefs to rituals is extremely slow.

Based on field stories, *Phad* artist Prakash Joshi from Bhilwara, was asked to depict the story of *Om Banna* in the form of *Phad*. This is how the first ever *Phad* of *Om Banna* was created. The dimensions of the *Phad*made were 2' by 4'. The *Phad* was made as similar to traditional *Phad* of *Pabuji* or *Dev Narayan ji*. The uppermost left corner is delegated to *Lord Ganesha* followed by *Saraswati-vandana* and *dash avatar*. The male figure of *Om Banna* is in the center which dominates the space because of its size and position.

The stories are taken from the community and depicted by the community itself. My role as a designer was to bring these ends together by deploying aspects of culture. This *Phad* now can be a ritual if it is read or narrated by *Bhopa* and *Bhopi*. Perhaps, we could be looking at a ritual of the near future.

REFERENCES

[1] A.K. Ramanujan, Who Needs Folklore?: The Relevance of Oral Traditions to South Asian Studies, Center for South Asian Studies, School of Hawaiian, Asian, and Pacific Studies, University of Hawaii at Manoa, 1990 - Folk literature - 32 pages

[2] Anon, (2017). [online] Available at: http://www.manushi-india.org/pdfs_issues/PDF%20files%2069/who_needs_folklore.pdf [Accessed 5 Oct. 2017].

[3] Davenport, Christian (2010). "Rashomon Effect, Observation, and Data Generation". Media Bias, Perspective, and State Repression: The Black Panther Party. Cambridge, UK: Cambridge University Press. pp. 52–73, esp. 55

[4] Smith, J. (1993). The Epic of Pabuji: A Study, Transcription and Translation. Asian Folklore Studies, 52(1), p.236.

[5] Anon, (2017). [online] Available at: http://the einstein brain rolandbarthes mythologies [Accessed 5 Oct. 2017].

[6] Levi-Strauss, C. (1955). The Structural Study of Myth. The Journal of American Folklore, 68(270), p.428.

[7] Levi-Strauss, C. (1979). Myth and Meaning. RAIN, (31), p.11.

[8] Richman, P. and Blackburn, S. (1990). Singing of Birth and Death. Texts in Performance.Asian Folklore Studies, 49(1), p.172.

[9] Pandya, V. (2004). RathwaPithoro: Writing about Writing and Reading Painted Ethnography. Visual Anthropology, 17(2), pp. 117-161.

[10] PINK, S. (2010). The future of sensory anthropology/the anthropology of the senses. Social Anthropology, 18(3), pp. 331-333.

[11] Barber, K. and Finnegan, R. (1994). Oral Traditions and the Verbal Arts: A Guide to Research Practices. Man, 29(2), p.486.

[12] G., E., Dharwadker, V. and Ramanujan, A. (2001). The Collected Essays of A. K. Ramanujan.Journal of the American Oriental Society, 121(3), p.537.

[13] Rustom, B. (2003). Rajasthan, an Oral History: Conversations with Komal Kothari. By BharuchaRustom. New Delhi: Penguin Books India, 2003.

[14] Geertz, C. (2005). Deep play: notes on the Balinese cockfight. Daedalus, 134(4), pp.56-86.

[15] Luomala, K. and Campbell, J. (1950). The Hero with a Thousand Faces. The Journal of American Folklore, 63(247), p.121.

Fig. 1: Front View of Om Banna's Temple (Self-Clicked)

Fig. 2: Inside View of the Temple (Self-Clicked)

Fig. 3: Om Banna's Shrine (Self-Clicked)

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Fig. 4, Fig. 5, Fig. 6, Fig. 7, Still Images from the Movie
"Log Kehte Hain"

Fig. 8: Ambience of the Om Banna' S*temple* (Self-Clicked)

Fig. 9: Offering as Prasad (Self-Clicked)

Table 1: (+ Positive, - Negative) Comparative Study of Some myths from Rajasthan

Character (folk God of Rajasthan)	Pabuji	Devnarayan ji	Teja Ji	Om Banna Ji
Painted Phad	(+)	(+)	(-)	(-)
Born (Unnatural Birth)	From Celestial nymph (+)	Born on that jet of water in a lotus blossom, the infant Devnarayan falls into Sadu Mata's lap (+)	Born by the blessings of Nāga-deity (+)	Born normally but it was raining heavily (-)
Incarnation	Lakshmana (+)	Vishu (+)	Shiva (+)	(-)
Shrine	Kolu ,over which pabuji is said to have ruled. (+)	The principal shrine of Devnaryan is located at Sawai Bhoj near Asind town, the battlefield of Bagravat Bharat (+)	Sursura is a village in Kishangarh tehsil in Ajmer district. This is the place where the Jat folk-deity Tejaji died from a snakebite (+)	Mast Baba (Died in road accident on bullet bike) is a shrine located on Jodhpur-Ahmedabad highway, named as Rohet 20 kms before Pali city Rajasthan (+)
Protector of	Rajput's God Local context (agricultural, animal protection, such as cow)	Gujjar's God	Mali Caste's God Snake Bite	? Accident
Ride	Black mare (Kesar Kamali)	White Horse	Teja mounted his mare Lilan	motorcycle is a 350cc Royal Enfield Bullet
Promises lead to death	Promise made to Lady Deval (+)	Promise made Savai Bhoj (+)	Promise made to snake and Lachhan Gujari (+)	(-)
Death lead to Deification	(+)	(+)	(+)	(+)
Sati	Phulvanti (supposed to be wife become sati	Sadu mata Become sati	Childhood wife and sister both become satis	(-)
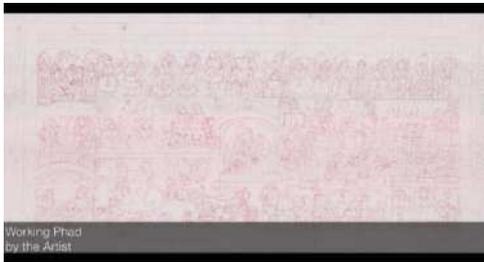
Fig. 10: Working Phad

Fig. 11: Final Om Banna's Phad

IICD

New Perspective in Textile Designing with *AIPAN* Design through Tie and Dye Technique

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ABSTRACT

India artisans and craftsmen are an integral part of Indian art and culture but owing to the modernization these artisan are losing their importance. Therefore, the folk art needs to be adapted sensitively to revitalize and reinvent folk skills. In Uttarakhand, *Aipan* is popularly applied at the places of worship and entrance of houses. Escalating demands of newness by customers requires modification in the fashion industry. Therefore there is a need to add dimension with respect to designing with traditional techniques. Hence the study was planned to use the tie and dye technique with adapted *Aipan* motifs for product development. Original twenty five *Aipan* motifs were adapted according to the suitability for tie and dye technique and evaluated. The top ten ranked designs were selected and combined to make five design combinations that were further used for design arrangements for products namely, bed sheet, cushion cover, bolster cover, stole and bag. Five design arrangements for each product were developed. One arrangement scored rank I for each product was selected for development of article through tie and dye technique. The tie and dye technique can be used for textile designing with adapted *Aipan* designs. The prepared articles were appreciated by the consumers.

KEYWORDS: Textile Designing, Surface Enrichment, Aipan, Tie and Dye Technique and Adaptation

I. INTRODUCTION

Textile designing is full of creativity and scope with vast horizon, and is a demanding and emerging field. Throughout time, textile designers from all over the world have been inspired to decorate their fabrics by looking at many things either natural or manmade. The sheer abundance of colour in form of art and craft in India, have attracted most of the people worldwide. Indian craft tradition has no parallel in the world, in diversity as well as in technique and use of materials. The craft traditions of India vary from region to region. These crafts not only cater to the day-to-day needs of the people but are also used for decorative and religious purposes. The most important aspect of Indian art and architecture has been the strong impact of folk art. The rich craft heritage of India is unique and diverse as its customs and traditions. Each traditional art and craft is the product of some particular and identifiable region or community and is dependent upon the traditions and materials in that region.

Folk art in India apparently has a great potential in the international market because of its traditional aesthetic sensibility and authenticity. Folk art tends to involve things like pottery, woodworking, and fabric work (like weaving) and many more or products that are needed by the people in a community for survival and financial security. Some of the most famous folk art or paintings of India are Patachitra & Saura paintings of Orissa, Kalamkari & Nirmal paintings of Andhra Pradesh, Gond art & Mandana Paintings of Madhya Pradesh and Rajasthan, Warli Painting of Maharashtra, Kalighat pats of West Bengal and Madhubani paintings of Bihar etc. The rich and elaborate motifs, designs and colour of the various arts and crafts can be readily adapted into contemporary forms. From last few years Indian designers have begun to fall back on the richness of age old traditional crafts. Many researchers are engaged in using the folk as sources of inspiration and also adapting traditional motifs to make them suitable to incorporate them into textile products like adaptation of warli, madubani and kalamkari for different apparels like kurta, suit, sarees and dupataas.

One such art form called "*aipan*" that rest in lush green trees, silvery snow mountains, clear blue sky and

vibrating music of bells of Kumaun region in Uttarakhand state. *Aipan* is one of the traditional arts (painting form) of Kumaun. It has a great social, cultural and religious significance. The raw material used for *Aipan* is *Geru* (simple ochre) colour and rice paste. Recently, these designs are being used on many textile items through different surface enrichment technique such as screen printing, block printing, batik embroidery and embroidery.

One such conventional technique of making the textile material more appealing and attractive is "tie and dye".

The purpose of study is to preserve, diversify and to document the art of Uttarakhand (aipan) through the fusion of the motives with some techniques (tie and dye technique), to create an embodiment of distinctive and unique design pool.

Therefore, the present work was taken with an idea to use the adapted motifs of folk art of Kumaon, the floor painting, for textile designing using tie and dye technique. The existing traditional designs of *Aipan* were adapted so as to use them in different arrangements on articles like bed sheet, bolsters, cushion cover, bags, and stole using tie and dye technique.

II. MATERIAL AND METHODS

The aim of the study was to develop designs by adaptation of floor painting art of Uttarakhand, *Aipan* for textiles designing through tie and dye technique of colour application. Therefore, traditional motifs of floor painting art of Uttarakhand, *Aipan* were collected from various secondary sources like website, stickers, books, cards, photographs and personal visit to houses of people living in *Kumaon* region. These motifs were selected to develop designs keeping in mind the suitability for tie and dye technique without distorting the originality of the basic design.

Total twenty five *Aipan* motifs were selected on the basis of their distinctive and specific characteristics representing cultural aspects of Kumaun region of Uttarakhand. The adaptation of these motifs was carried out by simplification method to develop them through tie and dye technique. The adapted designs were first sketched initially in line form and then in tie and dye form to visualize the suitability of designs for tie and dye technique. The adapted designs were used to develop samples with object tying method.

The fabric (poplin) used for tie and dyeing was washed to remove impurities and to enhance its dyeability. The adapted motifs were marked on fabric sample with the help of carbon paper and then beads of different sizes were tied with the help of waxed thread according to the marked motif. Finally, the prepared fabric samples were immersed in the dye liquor using red colour direct dye. The dyeing recipe is given in Table 1. The samples were prepared with red background and white design that has resemblance of Aipan folk art.

TABLE 1: COMPONENTS OF DYEING LIQUOR

S. No.	Parameter	Amount
1	Dye	20% owf
2	Common salt	20% owf
3	MLR	1:50
4	Temperature	100 ºC
5	Time	30 minutes

After dyeing the samples were washed with cold water and dried in shade.

The tying threads were removed and the samples were ironed to remove wrinkles. The tie and dyed samples were assessed by panel of 90 judges consist of 30 teaching staff, 30 students from College of Home Science, G.B. Pant University of Agriculture and Technology, Pantnagar and 30 working Kumauni women. The samples were evaluated on five point scale given in Table 2.

TABLE 2: FIVE POINT SCALE FOR TIE AND DYE SAMPLE ASSESSMENT

Preference Order	Rating/ Scale	Level
I	5	Excellent/ very high
II	4	Very good/ high
III	3	Good /medium
IV	2	Fair/ low
V	1	Poor/ very low

The total score and rank for each design was calculated by multiplying the rating with number of response. The design with highest score ranked I and so on. Finally, top ten ranked designs were selected to developed design arrangements for 5 different articles (cushion cover, bed sheet, bolster cover, stole and bag) on the basis of their utility and fashion.

The design arrangement for the articles were developed with the help of Corel Draw Software. The two motifs were combined together for preparation of design combination and thus, five designs were prepared from ten selected motifs. The size of motif was increased and decreased according to the size of article. Five design arrangements for each article were prepared thus total 25 arrangement were developed. The prepared arrangements were evaluated on five point scale visually by a panel of thirty judges comprising of ten each teaching staff, Ph.D. and M.Sc. student from Department of Clothing and Textiles and Family Resource Management, College of Home Science, G.B. Pant University of Agriculture and Technology, Pantnagar. The arrangement which secured rank I for each article was selected for final article.

The prepared articles were further enriched with embroidery, sequins and beads as per the requirement of end product. The final products were evaluated on seven parameters namely, suitability of motifs used in combination, suitability of design arrangement to the article, suitability of tie and dye technique to design, suitability of surface

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enrichment/ finishing to end use, overall appearance of article, distinctiveness from regular articles in the market and appropriateness of cost of finished articles.

III. RESULT AND DISCUSSION

A. Evaluation of Adapted Designs

The tie and dye samples using twenty five adapted Aipan motifs were assessed by panel of 90 judges for overall appearance on five point scale ranging from excellent to poor. Total scores obtained by different designs in samples are given in Table 3. The design no. 14 and 18 got highest weighted mean score (4.56 each) and were ranked I.

TABLE 3: WEIGHTED MEAN SCORES OF SELECTED ADAPTED *AIPAN* DESIGNS

S. No.	Design No.	Weighted Mean Score	Rank
1	3	4.5	III
2	8	4.43	IV
3	9	4.1	IX
4	13	4.28	VII
5	14	4.56	I
6	18	4.56	I
7	19	4.36	VI
8	21	4.1	IX
9	24	4.16	VIII
10	25	4.3	V

Laxmi pau lata   Machhia bel   Syo Aipan   Singli bel

Design Combination 1   Design Combination 2

Patia bel   Sua bel   Shankhi bel   Chhaja bel

Design Combination 3   Design Combination 4

Pan Patiya bel   Swastika

Design Combination 5
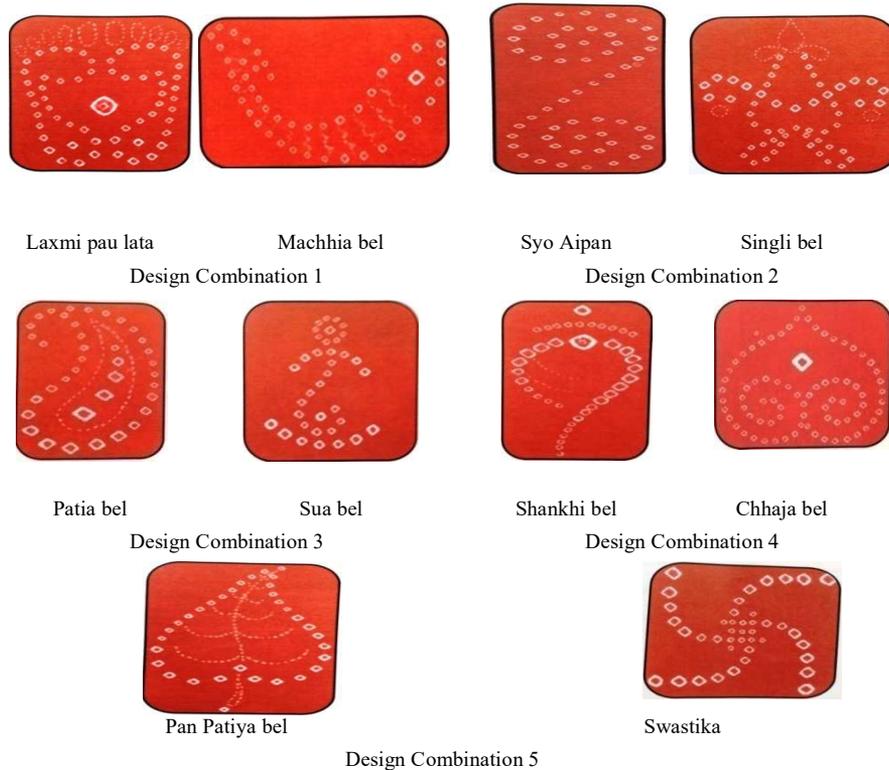
Fig. 1: Design Combination of Selected Motifs

Similarly the other designs were ranked according to the weighted mean score. Therefore, the ten designs that scored highest ranks were design no.s 14,18, 3, 8,19, 25,13, 24, 21 and 9 that were selected for development of design arrangement for articles and are presented in combination in Fig. 1.

IV. EVALUATION OF DESIGNS ARRANGEMENTS

The selected designs were used to prepared five design arrangement for each article namely bed sheet, cushion covers, bolster cover, stole and bag. Hence total twenty five design arrangements were made using 10 selected designs.

The weighted mean score of arrangements for different article is presented graphical in Fig. 2. All the design arrangement scored Weighted Mean Score above 3. The design arrangement no 3 for bed sheet and bag scored highest weight mean of 3.6 and 3.56 respectively; in case of cushion cover and stole design arrangement no 4 score highest weighted mean with 3.5 and 3.36 respectively. Similarly in case of bolsters design arrangement no 5 scored highest weight mean score (3.53). Thus the designs arrangement for each article scored highest weighted mean was ranked I and was selected for final article preparation. The selected arrangement for different articles is shown in Fig. 3.
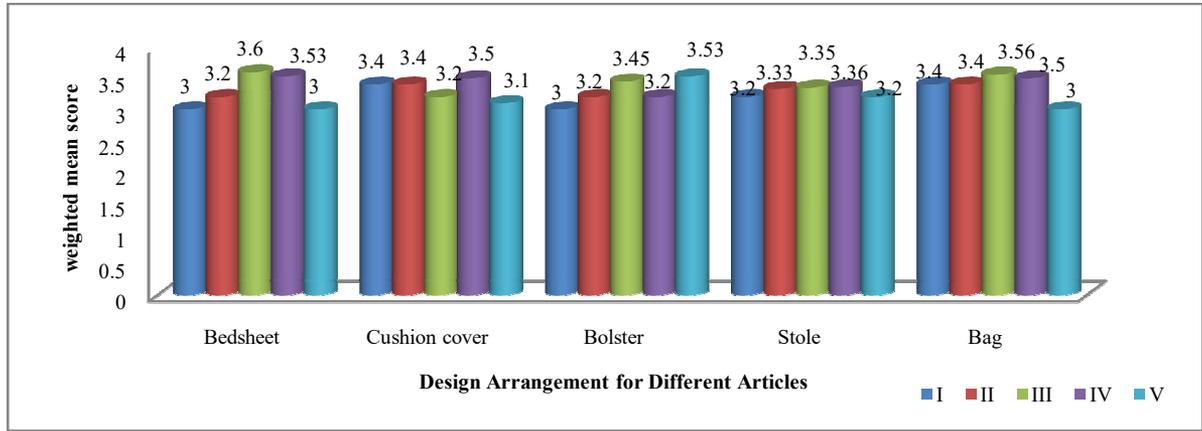
Fig. 2: Weighted Mean Score of Design Arrangement for Different Articles

Bed Sheet

Cushion Cover

Bolster

Stole

Bed Sheet, Cushion Cover and Bolster

Bag

Bag
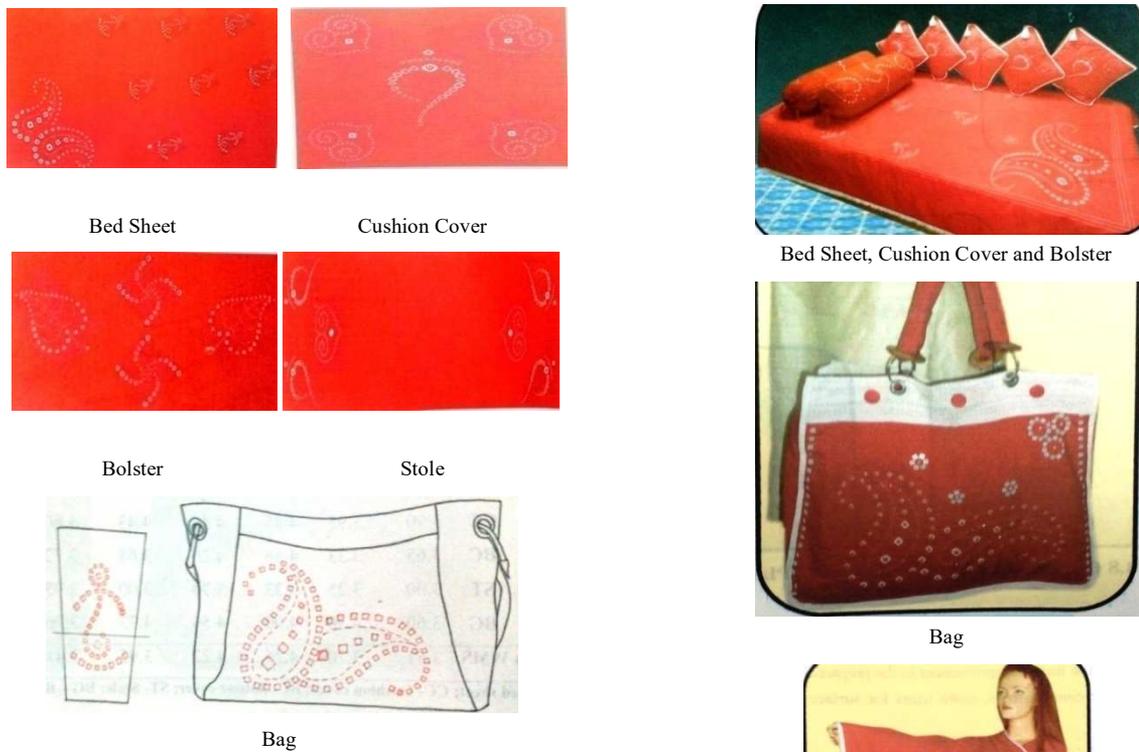
Fig. 3: Selected Design Arrangement for Articles

The prepared articles were assessed by the female consumers i.e. selected respondents on seven parameters mentioned above. The articles were accepted by the consumers very well as the weighted means scores value was above 3 for all the articles. The bag scored highest weighted Mean Score (4.15) followed by cushion cover, bolster and bed sheet with WMS of 4.07, 3.72 and 3.64 respectively. The stole scored lowest weight Mean Score (3.47) among all other articles. The final prepared articles are shown in Fig. 4.

Stole
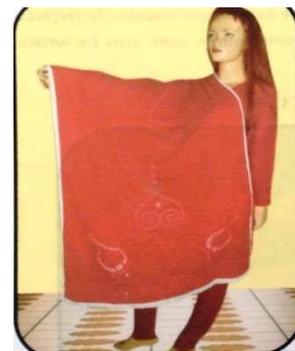
Fig. 4: Prepared Article

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V. Conclusion

The folk of Kumaun is strong clue of the skilled abilities of its local artisans and the prosperous cultural heritage of the state. The *Aipan* designs can be used for the surface enrichment of textile based articles using various surface enrichments. One of such exquisite approach is tie and dye that offers opportunity to develop unique designs on textiles. The amalgamation of folk art with the conventional technique also contributed in product diversification and value addition.

All the adapted motifs, design arrangement and the final prepared product were appreciated by the respondent and the consumers. Thus, it also provides a possibility to incorporate Aipan designs on textile surface and thus helps in the preservation of Aipan and also broaden the design base for the textiles products. Women of Uttarakhand can also utilize their skills in experimenting with folk motifs and design to make them suitable for textile in innovative ways. This type of work also motivates people to come up with an ingenious work, which indirectly help in upgrading the art and craft of Uttarakhand and thus India's both at national and international level.

References

[1] Aipan and other art forms.2012. www.euttaranchal.com. Retrieved on April, 21, 2015.

[2] Art and craft in India.2012.www.goforindia.com.Retrieved on August, 2, 2016

[3] Arya, A. 2009. Design development for pichhora through adaptation of kumuni Aipan design of Uttarakhand. Thesis. M.Sc.GBPUAT, Pantnagar.

[4] Chattopadyay, K.1981. Handicrafts of India. New Delhi, Indian Council for Cultural Relation.pp25-37.

[5] Folk art of India, 2011. Retrieved April 10, 2011 from http://atheism.about.com/sitesearch.htm?folk+art+of+india.

[6] Negi, M., Rani, A and Singh, A. 2015. New horizon for aipan (folk art of Uttarakhand) motifs through appliqué. International Journal of Research–Granthaalayah, 3(9): 36-48. http://www.granthaalayah.com.

[7] Negi, M., Rani, A and Singh, A. 2016. New prospects for women empowerment through value addition of remnant fabrics with aipan applique. Indian Res. J. Ext. Edu. 16 (3):84-88.

[8] Sharma E., Paul, S. and Sheikh, S. 2014. Fusion of Indian Folk Arts Madhubani and Warli for Designing of Apparels using CAD. (Electronic version). International Journal of Interdisciplinary Research. 1(8).

[9] Folk and tribal art. 2014. Retrieved on august 13 from https://www.storyltd.com/categories/fine-art/folk-and-tribal/

[10] Tie and dye.2012.www.indiandesigns.wordpress.com.Retrieved on August,6, 2016.

[11] Traditional crafts. 2013. Retrieved on May 5 2014 from http://www.bharatheritage.in/traditional_crafts.htm

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Chapter 19

Preface on Green Conservation of the Museum Objects

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ABSTRACT

Professionals related to cultural properties and heritages are try to develop newer processes, materials and equipments, etc. for achieving a primary goal of preservation is to prolong existence of cultural property and heritages through minimize the prevent loss of informational content and any other deterioration. Museum objects are mainly deteriorated by physical, chemical, biological and human factors. From the past decades conservators follow many techniques and equipments, but reflection of the green processes is much more of our accepted wisdom. Green process or sustainable process in art conservation approaches to prevent damage at the design stage of any conservational process and hence it prevents damage before it begins. Thus, the use of greener processes in conservation of art objects is called as *green conservation*. Green conservation is focuses on intrinsic hazard of the conservation processes of the art or museum objects by utilizing renewable raw materials, minimum wastes and through avoiding or minimum use of toxic and or hazardous solvents & reagents in conserving the artifacts. This paper introduces the significance of greener process in the museum which necessary for prolong existence of museum objects without or less harm to chemist, conservator and the environment.

KEYWORDS: Greener Process, Art Conservation and Museum Objects
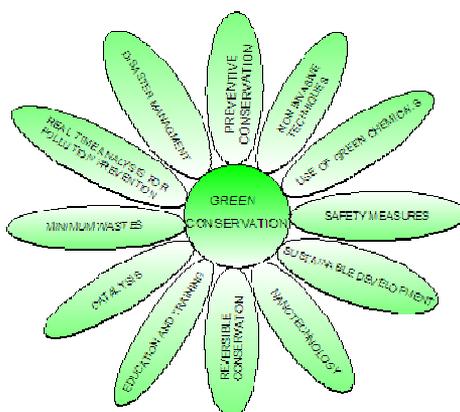
Fig. 1

I. INTRODUCTION

Professionals related to cultural properties and heritages are try to develop newer processes, materials and equipments, etc. for achieving a primary goal of preservation is to prolong existence of cultural property and heritages through minimize the prevent loss of informational content and any other deterioration.

Museum objects are mainly deteriorated by physical, chemical, biological and human factors. From the past decades conservators follow many techniques and equipments, but reflection of the green processes is much more of our accepted wisdom. It doesn't mean about the colors, trees and environment protection, water and solar energy conservation. It related to the use of green chemistry in the art, science and technology. Green chemistry is the branch of chemistry which deals with the purpose to design chemical processes, materials and products that will be less harmful to human health and environment. It approaches to prevent pollution at the

design stage or at its source of a chemical process and hence it prevents pollution before it begins [1–2]. Thus, the use of greener processes in conservation of art objects is called as *green conservation*.

The present study introduce the significance of green process in conservation of museum objects which focuses on the intrinsic hazard of conservational process by utilizing renewable raw materials, minimum wastes through avoiding or minimum use of toxic and or hazardous solvents & reagents in conserving the objects, without or less harm to chemist, conservator and the environment.

II. METHODS AND CHARACTERIZATION

One of the main goals of the green conservation is to minimize the deterioration process of the collected objects in the museum by determining the material characterization, chemical and technical aspects of cultural heritage, most suitable conservation treatment, fabrication, authentication and previous restoration treatments. Like green chemistry, green conservation is also based on the twelve principles

A. Preventive Conservation

Preventive conservation is the indirect conservation defined as all the actions and measures that aimed to prevents or reduces further deterioration to collections rather than individual object by improving their surrounding environment in which they breathe freely. Preventive conservation provides optimum temperature, relative humidity, light, pollution & pest control, storage, safety measures for handling objects, equipments & chemicals, packaging & transporting, security, housekeeping, emergency planning, education of stuff, public awareness and legal compliance. Preventive conservation is an ongoing process that continues throughout the life of collected objects, and does not end with interventive treatment [30–10].

The scientific research framework for preventive conservation involves; identifying threats to collections, substantiating the risk identifying the cost efficient (means to measure risk) and developing methods to reduce or eliminate the risk [11].

TABLE 1: THERE ARE SOME IMPORTANT FACTORS
AFFECTING THE COLLECTIONS

S. No.	Process	Environmental Factors	Materials Affected	Deterioration
1.	Soiling	Dust, Humidity, Air flow, Electrical discharge	Mostly surfaces	Change in Color, Loss of Contrast, Blackening
2.	Photo-degradation	Light, Chemicals, Humidity	Dyes, Organic Substances	Fading, Color & Chemical Changes
3.	Erosion	Polishing, Dust, Air & Water movement	Solids	Loss of surfaces details, Scratches, etc.
4.	Hygrometric Stress	Humidity	Composites & Organic materials	Swelling, Warping, Loss of paint

5.	Chemical Attacks	Trace gases, Light, Humidity, Air-flow, Catalytic particles	Metal Tarnishing, Corrosion	Rusting of metals, Patina formation, Weathering of glass, stone, Discoloration of dyes, etc.
6.	Biodegradation	Organisms, Humidity, Low ventilation, High radiation	Substrates with nutrients & water	Mould, Lichen growth, loss of details, Mechanical damage
7.	Hydration	Humidity, Chemicals on the surface, Temperature	Surface corrosion	Bronze disease, etc.
8.	Radiation	Ionizing Radiation	Solids at high dose	Discoloration, Transformation

B. Use of Green Chemicals

Today in industry, various chemicals and reagents are used as a carrier solvent (evaporate quickly to leaving behind other material) and cleaning agent (to dissolve materials to remove them). These are also used to allow mixing of different constitutions i.e. for a chemical reaction. In the conservation of art objects many solvents are used to dissolve adhesives, varnishes, oil, paints, resins, lacquers, waxes; to thin or mix dyes, pigments, paints, glues, pesticides and for cleaning purposes.

But we ignored the impact of risk, hazard, exposure & toxicity on us and our environment during the treatment. So as a conservator we try to promote the use of green chemicals to reduce or minimize the risk factors of chemicals. Any solvents used in the conservation treatment must have ensured that is safe to use on and around the objects. With respect to green chemicals, solvents are commonly divided into three categories; preferred, usable and undesirable which are used in order of least green to most green or least toxic to most toxic.

TABLE 2

S. No.	Preferred Solvents	Usable Solvents	Undesirable Solvents
1.	Water	Cyclohexane	Pentane
2.	Acetone	Methylcyclohexane	Hexane(S)
3.	Ethanol	Methyl *t*-butyl ether	Di-isopropyl ether
4.	2-Propanol	Heptanes	Diethyl ether
5.	Ethyl acetate	Isooctane	Dichloromethane
6.	Isopropyl acetate	Acetonitrile	Dichloroethane
7.	Methyl ethyl ketone	2-MethylTHF	Chloroform
8.	1-Butanol	Tetrahydrofuran	Dimethyl formamide
9.	*t*-Butanol	Dimethyl sulfoxide	N-Methylpyrrolidinone
10.		Xylene	Pyridine
11.		Acetic acid	Dimethyl acetate
12.		Ethylene glycol	Dioxane
13.		Toluene	Dimethoxyethane
14.			Benzene
15.			Carbon Tetrachloride

The above table represents the solvents used in the conservation treatment, mostly in first two categories (i.e. preferred solvents and usable solvents) [12–16].

C. Sustainable Developments

The professional field of conservation and conservation science has developed continuously since the foundation of the Rathgen Research Laboratory (first museum laboratory) on the 01st April, 1888. Now days, Sustainable development is the new approach in the field of art conservation which deals with the sustainable development through following three main topics:

- *Understanding Environmental Issues:* It includes environmental challenges with respect to temperature, humidity, light, climatic changes, pollutants, biocides and integrated pest & waste management.
- *Understanding Material Behavior:* It deals with the interaction of conservation materials including production, uses and disposal of materials employed. Such as panel & canvas painting, paper & photography and modern materials like time-based media, wood, porous building materials, mural painting, metal, glass, textile, mixed media, and composites.
- *The Economic and Ecologic Dimension:* It contains re-evaluation of best-practices, tourism impact, capacity and capability, emergency and theft response.

Sustainable development focuses on the present generation responsibility to regenerate, maintain and improve planetary resources for use of future generations [17–21].

D. Nanotechnology

The application of Nano-science & technology and the physiochemical phenomena at the nanoscale is the novel consideration to the conservation of museum objects. It deal with study of nanostructures and nanoparticles (means 10^{-9} sized particle) have a great surface area than the regular material which make it more reactive and give greater accuracy and minimal disturbance to the original work, time and environment.

Nanomaterials or particles for the conservation of tangible and intangible objects includes dispersion of nanoparticles, micellar solutions, micro-emulsions and gels for cleaning, consolidation, de-acidification and protect cellulosic materials of art work in conservation of artistic or historical wall & easel paintings, stone, paper, canvas and wood. For example, nanoparticles of calcium, barium & magnesium hydroxide and carbonate are used to conserve ancient art works, hydroxyethylcellulose used as a cleaning agent to dissolve organic polymers on the surface of the painting and others [22–28].

E. Non Invasive Techniques

Non-invasive technique (i.e. samples do not need to be removed) and non-destructive methods (i.e. no damage caused) has many applications in science, medicines and technology. Now days, these are more considered in conserving and preserving the variety of museum objects including fiber and plastic, because it requires rather no samples taken from the object but also the object does not move from its original location, hence it is the forward step to greener application. These sophisticated analytical methods and techniques are able to provide qualitative and quantitative data about specific material properties and decay phenomenon. Some non-destructive techniques for analyzing condition of the art objects are as near infrared reflectography, ultraviolet fluorescence, Nuclear magnetic resonance, false color infrared photography, Fourier transforms infrared spectroscopy, Raman scattering spectroscopy, autoradiography, etc. Portable instruments like as X-ray fluorescence spectrometer, are also a favored choice of scientists, conservators, curators and archeologist.

These techniques are often essential for study, examine and understanding painting methods, binder aging, deterioration of paper, wood density, material composition, moisture content and also the other information like past conservation measures and even evolution of stone etc. Recently, Atomic Force Microscopy is a new innovative tool to allow an extensive and complete characterization of the surface materials and also applied for monitoring the cleaning process [29–37].

F. Catalysis

The word catalysis was first used by Berzelius in 1836. It is the process by which the rate of reaction is influenced by the addition of a substance called catalyst. Catalyst is any substance which change the speed of the reaction without being consumed in that reaction.

Catalyst in art conservation is applied in the form zeolites, titanium dioxide, ionic liquids, etc. Zeolites are capable to trap pollutants due to its large surface area. TiO_2 is widespread nanoproduct used effectively in conservation of historical monuments and archeological objects due to its photocatalytic effect which allow the removal of dust, dirt and biological stains from surface of the object. Ionic liquids along with enzyme are used for cleaning and removal of proteinaceous materials like varnishes in art conservation surface treatments [38–44].

G. Minimum Wastes

During the conservation of art objects, conservator and curators trying to giving best treatment for conserving the museum object but besides these they frequently used

lots of chemicals and materials. Through this paper I have appeal to all the conservators and curators that please try the minimum intervention of chemicals and appropriate used of materials in the conservation of artifacts to minimize wastes and appreciate the green conservation of the art objects. We know that pollution of any kinds are the greatest problem in the world but its not an immediately affect on the objects, it has a certain degree of risk. Therefore, for solving these problems we must acquire the minimum waste treatment in the laboratory because it will be serious problem for both human and the environment if appropriate measures are not taken.

H. *Real time Analysis for Pollution Prevention*

In Museum indoor pollutants in libraries and galleries are originate from the outgassing of structural or decorative materials, heating plants, activities of visitors & staffs, by intrusion of outdoor pollutants and in some cases artifacts themselves emits dangerous amount of gases. In the atmosphere many pollutants are presents like gases and particulate matters such as gases oxides & peroxides of sulphur, nitrogen, carbon, hydrogen sulphide, formic acid, ozone i.e. SO_2, NO, NO_2, CO, H_2S, $HCOOH$, O_3, etc. and in particulates soot, soil, ash, molds, fibers and disfigured materials due to industrial emissions, burning plastic, fuels like petrol, diesel, automobile exhausts, etc, which have the huge adverse effects on the artifacts.

TABLE 3: THERE IS SOME INDOOR AIR POLLUTANTS LISTED BELOW WHICH DAMAGES THE MATERIALS:

Materials	Deterioration	Pollutants	Environmental Factors	Methods of Measurement
Metals	Corrosion, Tarnishing	SO_X, H_2S and other acidic gases	Moisture, air, salt, particular matter, ozone	Weight loss after removal of corrosion products, change in surface characteristics
Paintings & Organic Coatings	Discoloration	SO_X H_2S, alkaline aerosol	Moisture, sunlight, ozone, particulate matter, micro-organism	Surface reflectivity loss, chemical analysis
Paper	Embrittlement, discoloration	SO_X	Moisture, physical wear, acidic materials introduce in manufacture	Decrease folding endurance, pH change, molecular weight measurement
Photographic materials	Microblemishes, suphiding	SO_X H_2S	Particular matter, moisture	Visual and microscopic examination
Textiles	Reduce tensile strength, soiling	SO_X, NO_X	Particular matter, moisture, light, physical wear, washing	Reduce tensile strength, chemical analysis
Textile dyes	Fading, color change	O_3 & NO_X	Light, high temperature	Reflectance and color value measurement
Leather	Weakening, powder surface	SO_X	Physical wear, residual acids, introduced in manufacture	Loss in tensile strength, chemical analysis, shrinkage
Rubber	Cracking	O_3	Sunlight, physical wear	Loss in elasticity & strength, measurement of crack frequency & depth

There are certain instruments and devices, used in the monitoring of environmental conditions around the collections such as whirling hygrometer, hygrothermograph, climate & environmental meter, data logger with USB and LCD display, non-woven mat of polypropylene fibers called 'Filtrete' which trap the particles by electrostatic attraction and physical trapping, portable photoionization gas chromatography for direct air analysis including detection of toxic gases in the large museum conservation laboratories, air purification of particulate matter used in for small scale air purification of ash, soot, dust, condensation nuclei and photochemical smog, humidity indicator cards, automatic dehumidifier, a moisture sensitive silica material called art-sorb which absorbs and desorbs moisture in order to offset changes in external relative humidity, Bluetooth temperature & humidity data logger, dri-can reusable desiccating canister to dry the air in any air-tight containers, etc. [45–50].

I. *Safety Measures*

In the laboratory, we are always in contact with several organic solvent and reagents. There is a certain hazard (a process to do harm) and risk (an agent will produces injury or disease under specific conditions) when work with these chemicals. On other hand toxicity refers to the capacity of an agent to produce disease or injury and the evaluation of toxicity depends upon the route of exposure and concentration of toxic agent in the body. And extent of any health effects is dependent on duration & frequency of exposure along with concentration of substance. Therefore there is a relationship between hazard, exposure and risk.

Steps to Minimize the Risk or Hazard: Use the personal protective equipments, use of substituent for hazardous chemicals, equipments and process, use of mechanical handling methods, local exhaust ventilation, use of diluted solvents with sufficient volume, enclosure, isolation & segregation of hazardous operation, follow the administrative instructions, environmental & personal

hygiene, regular monitoring of storages, sign & labeling on the chemicals & equipments while on storing and transporting, availability of first aid, regular heath examination, etc. [51–55].

J. Reversible Conservation

The principal goal of a cultural conservator is on first priority to reduce the rate of deterioration of an object. This is to be achieved either by non-interventive or interventive methods. Interventive methods include all those actions taken to directly intervene with the material of the object such as surface cleaning like varnish removal; consolidation of flakes paint for aesthetically, stabilization needs for structural integrity, repair, or even replacement of parts of the original object.

We know that Cleaning is obviously not technically reversible and repeated applications of solvent may cause damage. But during conservation we always try to consider those methods or processes which are being reversible and avoid the over protection treatment using hard adhesives and solvents. Reversibility generally depend upon the following points [56–58]
- Solubility of the components under treatment
- Solubility of the conservation material
- Physical nature of their interface
- Amount of material to be removed

K. Education and Training

Conservation of cultural property and heritage is an interdisciplinary field for conservators belonging to fine arts, sciences & technology including chemistry, biology, material science and closely related disciplines, such as art history, archeology, studio art, anthropology. They also have design, fabrication, artistic, and other special skills necessary for the practical application of that knowledge. The approach of this type of training is differs from education and vocational training carried out in the various school, colleges and universities. Here, the purpose of training is to educate the conservators, curators and even fresher students, for all the desirable steps to minimize the deterioration of the art object through preventive and curative conservation. There are various associations, societies and professional organizations devoted to care of cultural properties and heritages that committed to promoting professional standards, researches, publications, educational & professional trainings, and opportunities throughout the world. Some leading are [websites 10–19]
- National Museum Conservation Laboratory, Janpath, New Delhi, India.
- National Research Laboratory for Conservation of Cultural Property (NRLC), Lucknow, Uttarpradesh, India.

- Indian Association for the Study of Conservation of Cultural Property (IASC), New Delhi, India.
- International Center for the Study of the Preservation and Restoration of Cultural Property (ICCROM), Rome, Italy.
- International Institute for Conservation of Historic and Artistic Work (IIC), London, United Kingdom.
- International Council for Museums Committee for Conservation (ICOM-CC), France.
- American Institute for Conservation (AIC), Washington DC.
- Institute for Conservation (ICON), London.
- Getty Conservation Institute (GIC), Los Angeles, United State.
- Smithsonian Museum Conservation Institute, Maryland, United State.
- Italian Association of Conservation Scientist (IACS), Italy.
- Australian Institute for the Conservation of Cultural Material (AICCM), Canberra, Australia.
- Canadian Association for Conservation of Cultural Property (CAC), Ottawa, Canada.
- Center for Art Technological Studies and Conservation (CATS), Copenhagen, Denmark.
- Swiss Conservation-Restoration Campus (Swiss CRC), Switzerland.

L. Disaster Management

Disaster means a great or sudden misfortune or terrible accident. When the disaster occurs, it is very difficult to safeguard the artifacts, records and human beings in the museums/ archives. Therefore, a disaster management plan is required for an institution to handle the disaster before, while and after its occurrence. Principal causes of disasters are natural and man-made disasters.
- *Natural Disaster*: means earthquakes, fire, rain & wind storms, flood, war, vandalism, attack of biological agents, accidents etc.
- *Man-made Disaster*: means Pollution, discharges (industrial, chemical, broken pipes, leaking roofs, blocked drains), mishandling, misconstruction, acts of wars & terrorism, explosions, fairs, power failures, etc.

Disaster management planning is based on the four pillars i.e. prevention, preparedness, response and recovery, which provides all the information on the standard operating procedure and an emergency plan. It contains a disaster response team including coordinator, conservator, civil engineer, health officer, police officer, security officer, etc. they should have specified duties and meet regularly to review the situation in the institution.

National Museum of Natural History, New Delhi, India is the true example of fire disaster hazard happened in April, 2016. So be prepared for any disaster and take the advantages of education sessions, disaster planning workshops, drills, preparedness & fire-fighting systems and secure our artifacts [59–63].

III. CONCLUSION

Conservation of cultural property and heritages are the vital and gratifying task of a modern society. They are an imperative source of inspiration and reflect the glory of history and culture to future generation. For this purpose, conservators, curators, art historians, and scientists combine their efforts for developing new ideas and research to identifying, examining and conserving the art objects. As a result, The Green Conservation of the artifact is the rising concept devoted to safeguarding the cultural objects, chemist, conservators and the environment by protecting the art and esthetic values, historic and religious values, emotional and traditional values, education and research values, social and associate values etc. of the artifacts. It focuses on intrinsic hazard of the conservation processes by utilizing renewable raw materials, minimum wastes and avoiding or minimum use of toxic and or hazardous solvents & reagents in conserving the art objects.

REFERENCES

[1] E.J.Woodhouse and S.Breyman, Green Chemsirty as Social Movement?, Science, Technology & Human Value, 30, 2005, 199-222, doi:10.1177/0162243904271726.

[2] J.A.Linthorst, An Overview: Origins and Development of Green Chemistry, Foundations of Chemistry, 12, 2005, 55, doi: 10.101007/s10698-009-9079-4.

[3] Jeffrey Conservation, Preventive Conservation, GCI Publications, 1992.

[4] Graham Martin, Preventive Conservation in Practice, Conservation Journal, 1993.

[5] Toby Raphael, Preventive Conservation Recommendations For Organic Obejcts, Conserve O Gram, 1993.

[6] Dianne van der Reyden, Models of Preventive Conservation Strategies in North America, Preventive Conservation in Latin America, 1993.

[7] Elizabeth Pye, Caring for the Past, published by James & James (Science Publishers) Ltd., London, UK, 2001.

[8] Elin Dahlin, Preventive Conservation Strategies for Organic Objects in Museums, Historic Buildings and Archives, 2003.

[9] Libby Finney, Basic Conservation and Environmental Monitoring, AIM, 2006.

[10] Kenneth E,Harris and Susan E.Schur, A brief History of Preservation and Conservation at Library of Congress, Preservation Directorate, 2006, www.loc.gov/presrevation

[11] Simon Knell, Care of Collections, published in Taylor & Francis e-library, 2005, p-93, ISBN 0-203-97471-9 Master e-book ISBN

[12] Chiara Samori, Use of Solvents and Environmental Friendly Materials for Applications in Green Chemistry, 2006.

[13] Chao-Jun Li and Barry M.Trost, Green chemistry for Chemical Synthesis, PNAS, 2008.

[14] V.Dichiarante, D.Ravelli and A.Albini, Green Chemistry: state of the art through an analysis of the literature, Green Chemistry Letters and Reviews, 2009, 105-113.

[15] Alam Phenix, Some Reflections on the use of Organic Solvents in Conservation, AIC NEWS, 2009.

[16] Rajiv Dua and Suman Shrivastava, Green Chemistry and Environmentally Friendly Technologies: A Review, Middle-east Journal of Scientific Research, 2012, 846-855.

[17] May Cassar, Sustainable Heritages: Challenges and Strategies for Twenty –First Century, APT Bulletin: Journal of Preservation Technology, 2009.

[18] International Scientific Workshop, Heritages Science and Sustainable Development for the Preservation of Art and Cultural Assets-on the way to The Green Museum, Rathgen Research Laboratory, Berlin, 2013.

[19] Cultural Heritages conservation Science and Sustainable Development, International Conference, CRCC, Paris, 2013.

[20] The Arts and Environmental Sustainability, 2014, media.ifacca.org/files/Dart34b.pdf

[21] Sustainable Conservation of Cultural Heritages-Workshop, Yale University, 2016, ipch.yale.edu/sustainable conservation of cultural heritages-workshop

[22] Piero Baglioni et.al, Nanotechnologies in the Conservation of Cultural Heritages, Springer, 2015, ISBN978-94-017-9303(ebook)

[23] Michael Berger, As Good as New-Nanotechnology Art Conservation, Nanowerk, 2009, www.nanowerk.com/spotlight

[24] A.M.Waked, Nano Materials Applications for Conservation of Cultural Heritages, WIT press, 118, 2011, 577-588.

[25] Rodorico Giorgi et.al, Nanoparticles for Cultural Heritage Conservation: Calcium and Barium Hydroxide Nanoparticles for Wall Painting Consolidation, Chemistry - A European Journal, 16, 2010, 9374-9382. dx.doi.org/10.1002/chem.201001443

[26] Piero Baglioni et.al, Nanomaterials in Art Conservation, Nature Nanotechnology, 10, 2015, 287-290.

[27] Roland Piquepaille, The Nanoscience of Art Restoration, 2006, www.zdnet.com/article/the-nanoscience-of-art-restoration

[28] Tomas Markevicus et.al, IMAT Project: from Innovative Nanotechnology to Best Practives in Art Conservation, Springer, 2012, 784-792.

[29] Haida Liang et.al, En-face Optical Coherence Tomography-A Novel Application of Non-invasive Imaging to Art Conservation, OSA publishing, 13, 2005, 6133-6144.

[30] Annemie Adriaens et.al, Benefits of non-destructive analytical techniques for conservation, COST Action G8, 2005.

[31] Mauro Bacci, Non-Invasive Instrumentation for Detection and Color Control of Paintings and Art work, Archeometriai Muhely, 2006, 46-50.

[32] Emma Richardson et.al, State of the Art: Non-invasive Interrogation of Textiles in Museum Collections, Microchim Acta, 162, 2008, 303-312.

[33] P.Sarrazin et.al, A Poratable Non-invasive XRD-XRF Instrument for the study of Art Objects, JCPDS-ICDD, 2009, 175-186.

[34] Bruno Brunetti, Advanced Techniques in Art Conservation, A.Chem.Soc. 43, 2010, 693-694.

[35] Crina Anca Sandu, et.al. Ancient 'gilded' art objects from European Cultural Heritages: A review on different scales of characterization, Surface and Interface Analysis, 2011; (wileyonlinelibrary.com) DOI 10.1002/sia.3740

[36] Naomi Luxford et.al, Non-destructive Testing of Silk: Problems and Possibilities, ICOMCC, 2011.

[37] Piotr Targowski and Magdalena Iwanicka, Optical Coherence Tomography: Its role in the Non-Invasive Structural Examination and Conservation of Cultural Heritage Objects- a Review, Applied Physics A, 106, 2012, 265-277.

[38] Siefried Rempel, Zeolite Molecular Traps and Their Use in Preventive Conservation, waac Newsletter, 18, 1996.

[39] Yana Van Dyke, Practical Applications of Protease Enzymes in Paper Conservation, The Book and paper Group Annual-AIC, Portland, Oregon, 23, 2004, 93.

IICD

[40] Evelyn L.Hu et.al, Applications: Catalysis by Nanostructured Materials, NSF, Springer, 2005, 3.

[41] Fabian Fischer et.al, Enzyme Catalysis with Small Ionic Liquid Quantities, J.Ind.Microbiol & Biotechnol, 38, 2011, 477-487.

[42] Maria Filipa Pacheco et.al, Varnish Removal from Paintings using Ionic Liquids, J.Mater,Chem.A, 2013.

[43] Manager Singh et.al, Ancient Indian Painting Recipes and Mural Art Technique at Ajanta, IJCS, 5, 2014, 35-50.

[44] Giovanni Battista Goffredo and Placido Munafo, Preservation of Historical Stone Surfaces by TiO2 Nanocoatings, Coatings, 2015, 222-231.

[45] James Druzik, John Twilley and Elisabeth Cornu, Air Pollution: Monitoring and Filtering, waac Newsletter, 3, 1981, 1.

[46] NPS Museum Handbook, Part I, 1999, 4.43.

[47] Minnesota Historical Society, Environmental Test Kit Manual, 1999.

[48] T Iwasta, C Sano, M Hori and N Oba, Passive Methods for Monitoring Indoor Air Quality in Museum, Proceedings: Indoor Air, 2002.

[49] Cecily M. Grzywacz, Monitoring for Gaseous Pollutants in Museum Environments, The Getty Publications, 2006.

[50] Mauro Bacci, Costanza Cucci and Anna Grazia Mignani, Innovative Sencors for Environmental Monitoring in Museums, published online, PMC US National Library of Medicines, 2008, 1984-2005.

[51] Cheryl Podsiki, Health & Safety: Heavy Metals, Their Salts and Pother Compounds, AIC Wiki, 2010.

[52] Judith J. Bischoff, Health & Safety: A Conservators Guide to Labeling Hazardous Chemicals, AIC Wiki, 2012.

[53] Maria Sullivan, Conservation Notes: Safety First, Art Matters Blog, 2014.

[54] Constance Lai, Construction and Conservator Safety, AIC NEWS, 2014.

[55] Angela Babin, Solvents Used in Arts, Non Toxic Print, 2016.

[56] Barbara Appelbaum, Criteria for Treatment: Reversibility, JAIC online, 26,1987, 65-73.

[57] Ziad al-Saad, Course outline: Preventive Conservation, UNESCO World Heritage, 1, 1999, whc.unesco.org/document

[58] Michael Petzet, Principles of Preservation, ICOMOS Open Archive, EPrints, 2004, 7-29.

[59] Sally Buchanna, Disaster Planning, Preparedness and Recovery for Libraries and Archives, A RAMP Study with Guidelines, Paris, UNESCO, 1988.

[60] N.S.Baer et.al, Assessment and management of Risk to Cultural Property, proceedings of the European Symposium, Bologna, Italy, June, 1989, Guildford, Surrey:Butterworth Heinemann Publishers, 1991, 27-36.

[61] Waller and Robert, A Risk Model for Collection Preservation, ICROM Committee for conservation, London: James & James, 2002, 102-107.

[62] P.Boylon, Care and Preservation of Collections, a practical handbook, Paris: International Council of Museums & UNESCO, 2004, 51-90.

[63] Merritt Elizabeth, Covering Your Assets: Facilities and Risk management in Museums, American Association of museum, Washington DC, 2005, 203.

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Printing of Cotton Fabric using Industrial By-product and Natural Gum

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ABSTRACT

In the present study cotton fabric was printed using industrial byproduct Black cutch obtained in the manufacturing of Kattha as a dye and sodium alginate gum with environmentally safe additive sodium carbonate. Total amount of water required to obtain an optimum printing paste was estimated. A liquid dye solution of 30%, 40% and 50% dye concentration was used and the total amount of water estimated for gum was divided in to three dye:water ratio i.e., 25:75, 50:50 and 75:25. Screen printing method was used to print samples. From K/S of printed samples 75:25 dye:water ratio and 30% dye concentration was selected for further optimization with additive. Four concentrations of sodium carbonate namely 0.5%, 1%, 1.5% and 2% on weight of paste (wop) were used in the printing paste recipes prepared using dye:water ratio of 70:30, 75:25 and 80:20 for optimization. Colour strength value of 15.654 was obtained for the optimized printing paste. Overall very good fastness to washing and perspiration was observed in samples printed with sodium alginate printing paste recipes using sodium carbonate in concentration of 1%–2%.

KEYWORDS: Natural Dye, Black Cutch, Sodium Alginate Gum, Natural Gum, Printing, Cotton

I. INTRODUCTION

Irrespective of advancements in textile printing technologies, styles and printing media for the industry, mostly printing of textile materials using screen and block printing technique has been done in the country by cottage scale industries, clusters and traditional artisans. Presently, in most cases, synthetic dyes are applied using commercially available synthetic binders or natural gums for flatbed screen printing. Even in handicraft sector of India, which is mostly unorganized, printing is done by block printing, resist printing and screen printing using synthetic or synthesized natural dyes. The awareness of harmful effects of various synthetic dyes along with other chemicals introduced in dyeing and printing of textiles has motivated some scientists and dye manufacturers to look back on natural resources and production of materials in a sustainable manner.

Great amount of work has been done by researchers on natural dyes, beginning in the year 1994 until around 2005 wherein the fixation of colours was based on metallic salts. The acknowledgement of harmful impacts of metallic salts has led the academia to focus their researches on the improvement of drawbacks of natural dyes. Roughly starting in 2005 till today, researchers had been utilizing latest technologies, techniques, materials and organic auxiliaries for better dye fixation and colour development which were comparatively less harmful and sustainable. The selection of raw material is another important aspect as it should be capable of commercial utilization and sustainable too. Materials that go waste or that are obtained as a by-product of some industrial process should be given more attention to be utilized as a raw material.

One such source of North and Central India is an industrial byproduct known as Black cutch, obtained in the manufacturing of Kattha possessing dyeing properties. It has been used by tanning industries and exported as cheap quality Kattha to the neighboring countries mainly to Pakistan and Bangladesh. It is also used for dyeing of cotton and silk fabric but its potential as a dye source for printing is still to be realized. The present research was planned with the objective to utilize Black Cutch as dye in different concentrations, optimize printing paste recipe using natural gum with safe additive and test the fastness properties of printed fabric samples.

II. MATERIALS

1. *Fabric*: Bleached, mercerized 100 % cotton fabric (plain weave) manufactured by Bombay Textile Mills, Erode, Periyar, Tamil Nadu was purchased from Pantnagar, U.S. Nagar, Uttarakhand. The properties of selected fabric are given in Table 1.

Sl. No.	Fabric Properties		Values
1.	Fabric count	Number of warp	88
		Number of weft	67
2.	Weight (GSM)		0.97g/100sqcm
3.	Thickness		0.218 mm

2. *Dye*: The byproduct of Katha industry, Black cutch, in the form of 7 square inch brick was procured from Kattha industry, Rampur Road, Haldwani, Uttarakhand.

3. *Thickener*: Sodium alginate gum used in the study was procured from Molychem, Mumbai, India.

4. *Screen and Squeegee*: Flat screen with a printable area of 14 x 3.5 inch prepared by photosensitive emulsion on nylon mesh (mesh number 40/420 microns) fixed over wooden frame was procured from a local printing unit named as Rawat Printers, Nagla, Pantnagar, Uttarakhand. A 6 inch metal frame squeegee was used for printing was purchased from ODC Printers, Rudrapur, US Nagar, Uttarakhand.

5. *Chemicals:* Sodium carbonate (Na_2CO_3) used as an additive and sodium chloride (NaCl) were purchased from Central Drug House (P) Ltd, New Delhi, India. L-histidine monohydrochloride monohydrate ($C_6H_9O_2N_3.HCl.H2O$), disodium hydrogen orthophosphate dihydrate ($Na2HPO4.2H2O$) and disodium hydrogen orthophosphate dodecahydrate ($Na2HPO4.12H2O$) were purchased from Himedia Labs. Pvt. Ltd, Mumbai.

III. METHODS

1. *Preparation of Fabric*: The fabric was washed with 2 g/l soap at 60°C for 30 min (Klaichoi *et al*., 2012) to remove starch and other finishes applied on cotton fabric. The soap used in this study was a natural soap procured from ABC Industries, Bazpur. Then the fabric was thoroughly rinsed in tap water and air dried at room temperature. The fabric was ironed before printing. Wool fabric used in testing of colourfastness was procured from Khadi Gram Udhyog, Pantnagar, Uttarakhand.

2. *Preparation of Dye Solutions*: Dye brick was first broken down in a mortar and pestle in to small pieces. Then a fine powder was prepared in a 1000W grinder (Sujata Mixer Grinder). Three dye concentrations namely 30%, 40% and 50% (Teli *et al*., 2014) were prepared by keeping them in distilled water for one hour at boiling temperature. Each of the extracted dye solution was cooled and filtered through two layers of fine muslin cloth kept over a fine plastic mesh strainer.

3. *Preparation of Printing Paste Recipes*: The concentration of dye and the amount of dye & water to be used in the printing paste for obtaining optimum colour was determined by preparing three dye:water (25:75, 50:50 and 75:25) ratios. To make a paste of sodium alginate, 2 g of gum was weighed in a beaker and 14 ml of distilled water was poured in it all at once and immediately stirred swiftly with a glass rod in continuous circular and forward-backward direction to avoid lump formation. A sodium alginate paste of optimum consistency was obtained. The volume of printing paste was sufficient to print an area of 12.5 sq.cm and 25 cm x 7 cm. As liquid dye solution was used in the present study thus the total amount of water required to make a printing paste was broken down into three dye:water ratios namely 25:75, 50:50 and 75:25. Thus for 14 ml water, the ratios were calculated to be 3.5:10.5 ml, 7:7 ml and 10.5:3.5 ml respectively. The sample printed using 30 % dye concentration with 25:75 ratio was coded as SA3025. Similarly samples printed with 40% and 50% dye concentration were coded for all three dye:water ratio.

4. *Printing of Samples*: Samples were printed using flat screen method with three uniform strokes in forward and backward direction of the screen.

5. *Washing and Steaming*: Dried printed samples were steamed at 120°C+2°C for 20 minutes (Rekaby *et al*., 2009). Then the steamed printed samples were rinsed under tap water and dried under shade. The selection of gum paste was done on the basis of colour strength of printed samples.

6. *Testing of Colour Strength*: The K/S value of the white and printed cotton fabrics was determined by measuring surface reflectance of the samples using a computer-aided Premier Colourscan 5100A dual spectrophotometer, using the following Kubelka Munk equation

$K/S = (1- R\lambda_{max})2= \alpha C_d2R\lambda_{max}$

where K is the coefficient of absorption; S the coefficient of scattering; C_d the concentration of the hue and $R\lambda_{max}$ the surface reflectance value of the sample at a particular wavelength, where maximum absorption occurs for a particular dye/colour component. The software was set on default for taking three readings of each area and three replicates of each sample was measured to give average K/S value of nine readings per sample at 490 nm.

7. *Testing of Colour Fastness*: Colour fastness of the printed samples against washing was determined as per IS: 764–1984 method using a Metrex launder-o-meter. The preparation of alkaline and acidic solutions was done according to the method given in IS: 971–1983 and the test were performed on a

laboratory perspirometer using Unilab Hot Air Oven. On completion of the test the samples were opened such that they were only in contact at the line of stitching at any one side and the samples were dried in oven at a temperature not exceeding 60°C. After drying, samples were assessed in a colour matching cabinet under D65, artificial daylight. The extent of staining and change in colour was observed by grey scale as per ISO-105-AO3.

IV. RESULTS AND DISCUSSION

Fabric samples were printed with sodium alginate printing paste recipes and their colour strength (K/S) was measured. Increase in K/S was observed on increasing the dye:water ratio from 25:75 to 50:50 and 75:25 in printing paste for all three dye concentrations (Fig. 1). For the 25:75 dye:water ratio, lower K/S resulted at higher dye concentrations of 40% and 50%. This may be due to better saturation of dye at 30% concentration than at 40% and 50% concentration. On comparing, individual dye concentrations in their respective dye:water ratios i.e. 30% concentration used in 25:75, 50:50 and 75:25 ratio, a gradual increase in K/S was observed ranging from 1.872 to 4.963 and similarly K/S value of 1.767 increased to 2.764 for 40% dye concentration. Thus, increasing dye concentration as well as amount of dye in terms of dye:water ratio in the printing paste, increased the K/S of printed cotton samples. In a similar study conducted by Teli *et al.* (2014), increase in colour strength of printed samples was reported on increasing the dye concentration in printing paste using dyes extracted from madder, sappanwood and onion peel. The printing paste recipe SA3075 with highest colour strength (K/S) of 4.963 was selected for optimization of dye:water ratio and additive concentration. On the basis of trials, the selected dye:water ratio was fragmented to +5 points and -5 points from the centre point (75:25) of the selected dye:water ratio in printing paste. Thus, the ratios taken for optimization were 70:30, 75:25 and 80:20. Four different concentrations of sodium carbonate on the weight of printing paste (owp) namely 0.5%, 1%, 1.5% and 2% were taken.
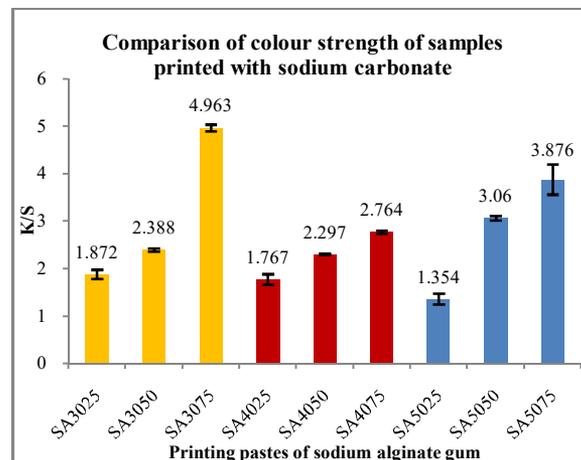
Fig. 1: Colour Strength (K/S) of Cotton Samples for Different Sodium Alginate Printing Paste Recipes

Sample printed with lowest sodium carbonate concentration (0.5%) with 70:30 and 75:25 dye:water ratio exhibited good fastness to washing while rest of the samples showed very good or very good to excellent fastness to washing. Slight staining on wool while no staining on cotton was observed in samples. Most of the printed samples exhibited very good to excellent fastness to alkaline and acidic perspiration. Noticeable to slight staining on cotton was observed in sample number 3, 5, 7, 9, 11 and 12 against alkaline perspiration while slight to negligible staining on cotton and wool was seen against acidic perspiration. It can be said that samples printed with different printing paste recipes of sodium alginate using 1.5% and 2% concentration of sodium carbonate exhibited very good fastness to washing and perspiration. From Table 2, it can be seen that printed sample SA3080-2SC exhibited highest K/S (15.654), excellent washing (5), very good alkaline (4/5) and acidic perspiration (4). A border sample printed from the optimized printing paste recipe of sodium alginate (80:20 dye:water ratio and 2% sodium carbonate concentration) is shown in Fig. 2.

TABLE 2: FASTNESS RATINGS OBTAINED BY SAMPLES PRINTED WITH SODIUM ALGINATE PRINTING PASTE USING SODIUM CARBONATE

Sl. No.	Samples	K/S	Washing Fastness			Alkaline Perspiration			Acidic Perspiration		
			Change in Colour	Staining on Cotton	Staining on Wool	Change in Colour	Staining on Cotton	Staining on Wool	Change in Colour	Staining on Cotton	Staining on Wool
1.	SA3070-0.5SC	2.886	3	5	5	4/5	4	4/5	4/5	4/5	4/5
2.	SA3070-1SC	5.798	4	5	5	4	4/5	4/5	4/5	4/5	5
3.	SA3070-1.5SC	13.61	4	5	4-5	4/5	3/4	4/5	4/5	4/5	4/5
4.	SA3070-2SC	14.205	4-5	5	5	4/5	4	4/5	5	4/5	4/5
5.	SA3075-0.5SC	2.902	3	5	5	4	3/4	4	5	4/5	4/5
6.	SA3075-1SC	10.283	4-5	5	4-5	4/5	4	4/5	5	4/5	4/5
7.	SA3075-1.5SC	14.662	4-5	5	4/5	5	3/4	4	4	4/5	4/5
8.	SA3075-2SC	14.81	4-5	5	5	5	4	4/5	4	4	4
9.	SA3080-0.5SC	2.96	4-5	5	4/5	4/5	4/5	5	4/5	4/5	5
10.	SA3080-1SC	12.69	4-5	5	4/5	4/5	4	4/5	4/5	4/5	4/5
11.	SA3080-1.5SC	15.199	4	5	5	4/5	3/4	4	5	4/5	4/5
12.	SA3080-2SC*	15.654	5	5	5	4/5	3/4	3/4	4	4	4

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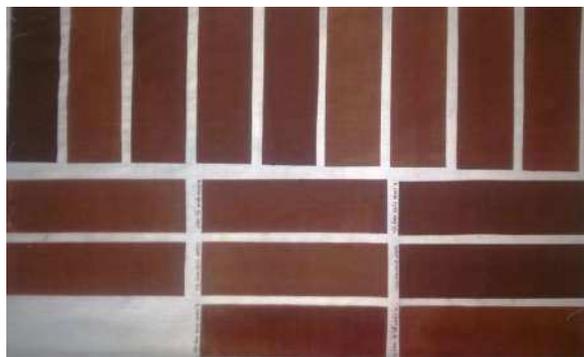
Fig. 2: Printed Samples

Fig. 3: Scanned Image of Sample Printed from Optimized Printing Paste SA3080-2SC

V. CONCLUSION

The objective the present study was to utilize a sustainable resource as dye, fix it on cotton without metallic mordants which were successfully completed.

Dye from an industrial by-product was fixed on the fabric without using metallic mordants and colours with good depth were obtained. The preparation of printing paste of sodium alginate after dividing the amount of dye and water in different ratios helped in quantifying the exact amount of water and dye required for preparing paste of optimum consistency. This may help in estimation of exact amount of raw material required to prepare the printing paste thus preventing wastage and pollution at the same time. The relation and effect of concentration and amount of dye in printing paste was also established. Overall good fastness and colour strength was observed in most of the printed samples. The optimized printing paste recipe of sodium alginate gum posses the potential to be commercially used. Hence, the developed printing paste recipes can be recommended for use in small scale industries.

REFERENCES

[1] Abd–El Thalouth, J. I. (2011). Synthesis and Application of Eco-Friendly Natural-Printing Paste for Textile Coloration. *Journal of American Science*, 7(9):632-640.

[2] Klaichoi, C., Mongkholrattanasit, R., Sarikanon, C., Intajak, P., and Saleeyongpuay, W. (2012). Eco-friendly printing of cotton fabric using natural dye from *Acacia catechu* Willd. In RMUTP International Conference: Textiles and Fashion 2012 July 3-4, 2012, Bangkok Thailand, pp. 3–7.

[3] Rekaby, M., Salem, A. A, and Nassar, S. H. (2009). Eco-friendly printing of natural fabrics using natural dyes from alkanet and rhubarb. *The Journal of the Textile Institute*, 100(*6*): 486–495. *Cited in* Uddin, M. G. 2014. Effects of Different Mordants on Silk Fabric Dyed with onion outer skin extracts. Journal of Textiles, 1–8.

[4] Teli, M. D., Valia, S. P. and Pradhan, C. (2014). Printing of cotton with natural dyes using pre and meta mordanting techniques. *Journal of the Textile Association*, (May-June):23–27. [http://doi.org/10.1007/s13398-014-0173-7.2].

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Reflection on Role of Collaborative and Studio-based Practice Models Centred on Sustaining Crafts through Innovation

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ABSTRACT

The paper aims to reflect on the role of collaborative and studio-based practice models that are centred on sustaining crafts through innovation. The objective is to study the models that have been emerging as a medium to sustain and revive crafts and techniques. The paper focuses on practices that emphasis on innovation at design and skill level. The research initiates an argument i.e., what are the modes to sustain crafts and techniques? How does design innovation contribute to the betterment of craft and skills? Through the study an attempt has been taken to answer such questions. The study is based on a review of the literature and existing models of collaborative and studio-based practice. The paper seeks to suggest that collaborative and studio-based crafts practices are the means of expanding the craft vocabulary.

KEYWORDS: Crafts, Collaborative Practice, Studio-based Practice, Sustainability, Innovation

I. JUSTIFICATION

Traditional craft, now and again, appears to be divorced from innovative practice and the generation of ideas and, thus, inhibit the cognitive and the conceptual development. The study gives an insight on how the models of collaborative and studio-based practices help in sustaining crafts and techniques through innovation.

II. PURPOSE OF THE STUDY

To understand the role of collaboration and studio-based practice model in enhancing the potential of craft and technique associated with it.

III. INTRODUCTION

"According to the United Nations, over the past 30 years, the number of Indian artisans has decreased by 30%, indicating the need to re-invest in artisans to safeguard history, culture and an important source of livelihood."
—***William Bissel, MD, Fabindia***

In the time when designer as well as the patron/ clients are striving to design objects/ spaces which are contemporary in nature, have roots connected to an identity which is not foreign to them, innovation and adaptability are two important aspects that are required of to sustain the craft as well as the craft community.

In India, crafts are one of the major industries of 'the imagination' and of 'traditional knowledge and skill'. India's myriad craft traditions and living craft skills are rare and irreplaceable resources, generally acknowledged as living links to the past and as a means of preserving cultural meaning into the future. However, craftspeople are required to cater new markets and tap the new trends. But at times, they lack knowledge of and access to means of increasing quality and productivity, especially in the areas of skill development, design input (to meet market requirements), and technical innovation (in such areas as standardization, productivity enhancement, environmental concerns and consumer safety).

"With the increased globalization products are becoming more and more commoditized and artisans find their products competing with goods from all over the world. This offer a great threat to craftsmen producers and push these deep-rooted traditional handmade products out, replacing them with mass, factory-made, machine crafts" (Kapur & Mittar, 2014). The personalization, imperfections imparted because of handwork and use of indigenous tools and skills are the factors that differentiate "craft" from a "commodity" is the way we identify the object as part of a larger tradition, through colours, symbols, patterns, or even language. (Panda, A.)

Many craftspeople are confined to the boundaries of region where the craft is practiced, therefore, they are not exposed to the globalized world and are not aware of the trends, thus, limiting themselves to the old age traditional motifs and patterns. The diligent collaboration with the contemporary design fraternity can introduce them to modern perspectives, right from contemporary design to packaging, which in turn helps them to combat and overcome this situation.

"Crafts practitioners are repositories and propagators of India's folk and classical wisdom, creativity, techniques, skills, and mythologies. They belong overwhelmingly to those social categories for which reservation is sought as a tool for empowerment" (Jaitley, 2011). However, the model of collaborative innovation can up bring the status of crafts and at the same time will help the craft community to improvise their position in the contemporary market.

A. Crafts

As per professor 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'." (Kapur & Mittar, 2014). The products and objects made are for personal use and are instrumental in expressing their individuality and their way of life. "Indian context crafts have been for personal use, expressional fulfilment, and economic activity. It evolved out of being a product of use, then was ornamented and given an aesthetic appeal to it." (Dhamija, 1979) Craft is booming as a cultural commodity. (Adamson, 2007). Different adjectival associated with the term craft are defined below:

1) Traditional Craft

The craft that belongs to an age old practice and are mainly product based that varies from place to place in terms of material, skill, stories, and design. A traditional craftsman has learnt the craft skills from his elders in the family and is/ was willing to pass on the same to his future generations. Crafts are usually a community expression and are sold at local *haat* or in exhibitions. E.g. *Dhokra* work-the art of sculpting brass with the ancient technique of lost wax casting.

2) Handicraft

This term refers to the use of skill of hand to make objects of daily use or decorative. Handicraft may or may not have culture associated with it. They are made by craftsmen who possess a certain level of dexterity and want to earn livelihood through it. He may or may not have knowledge of traditional technique. E.g. Metallurgy, Wood turning, Basket making.

3) Contemporary Craft

Something that live/ occurs in the present, it is termed as contemporary. The art council of UK defines this craft as the work that is cutting edge and ensures highest standard of workmanship. Work shall be innovative in its use of materials and aesthetic visions. Contemporary crafts are associated with the work of designers (makers), drawing on original designs and using integrated techniques & designs. Contemporary takes inspiration for designs, or adapt techniques from the traditional or heritage crafts.

4) Craft Skills

Craft skills are defined as "methods of making based on hand processes using hand tools or machines, in which high order skills are required to produce artefacts of high quality. Some of these skills are viewed as being transferable across generations and adaptable to new, contemporary practices." (Woolley, *et al*., 2015)

5) Craft Person

A craftsperson is one who is skilled in a craft technique and though he may produce a number of similar objects, each one, however, expresses the maker's creativity." (Jasleen Dhamija, 2003).

6) Designer

A person who using his creative skills designs an object or a space and preparing drawings prior to it being made is a designer.

It is explicitly explained by S. Balaram, 1998, from an Indian perspective, "Innovative men from all walks of life-the poorest street vendor, the social worker, the engineer, the craftsman and the teacher are designers without being called so. It is well understood that the indigenous sensibility of design was always existent and resulted in flawless designs and compositions."

IV. Collaboration based Design Practice

This model works on the collaboration of knowledge in the form of design aesthetics and skill involved in the practice. Collaboration is a process that "involves designing new products; redesigning existing products, with changes in shape, size, colour, surface manipulation, function and utility; exploring new markets and reviving lapsed markets; applying traditional skills to meet new opportunities and challenges; and the introduction of new materials, new processes, new tools and technologies. It is seen as an interface between traditional and modern ways that matches craft production to the needs of modern living." (Panda, A.). Design innovations can result from amalgamation of traditional craft skills (to create something) and modern technologies (as a tool to develop idea). Designer's creation helps in adapting the traditional

skills to contemporary design. Also, he bridges the gap between the market and the artisan, as today the artisan is geographically apart from his/ her client, to be able to understand his/ her aesthetic and socio-cultural needs. "Designers help in finding the relevance of craft with respect to the artisan, the consumer and to the global market. Designers are thus an interface, between the past and the present, the traditional and the modern, trying to match craft production to the needs of modern times and demands." (Sethi, 2005).

Also, it is important to keep in mind the process in creation of the craft. "There should be focus on the identity of a craft, its social and cultural relevance to its region, and the processes and materials involved, to incorporate the interventions in the right situations." (Panda, A.).

The model helps in bringing awareness among artisans about new techniques and designs, new process for meeting the demand of the variety seeking consumers. Also, during the collaboration process the craftspeople are exposed to new fabrication methods, use of new materials and are made aware of the new products demanded by the market.

A. Approaches to Collaboration

One approach is wherein the continuous exchange of ideas takes place. Designers and craftspeople work together to create 'fusion' products. Both stakeholders work together for certain period of time to revitalize traditional skills within new contexts and come out with a system to produce. Although at times, either craftsperson/ designer or both find it difficult to comprehend the subtle nuances associated with their respective work methodologies, thus, causing inexpedient result. But as quoted by Kathan Kothari (Social designer at Manthan Educational Programme Society) '*Change is slow and it takes time to fit into the new system*'.

Other approach is when the designer gives design and crafts person using his skills develop the products. Here, aesthetic sensibility of designer plays a major role in developing the product. Craftspeople using their traditional skills, materials, and techniques produce new products. Thus, the position of craftsperson is restricted only at skill level. In some of the cases, the credit goes to designer.

However, this also invites for importance given to a balance that needs to be created between designer and his inputs and the input of the artisan, in order to create a marketable product and yet sustain its identity. Artisan's creativity needs to be respected and protected. This helps in preventing the artisan to become equivalent to skilled labor while executing the design expressions. The purpose of design range is to inspire the artisan to undertake their own innovations a step forward and not to direct them into passive replication. The uniqueness of each craft needs to be understood by the design team, otherwise, insensitive

design intervention separates elements of craft and then juxtaposes them in new ways. The design intervention should not end in breaking the link between craft and artisan, i.e. culture. The involvement of contemporary Indian designers with crafts has, in general, been responsible for creating a new awareness and a new desirability, which, in the long run, can be beneficial to the craft fraternity. For example, Craft Canvas-The practice that acts as a link between artisan communities and the urban customer, translating an ages old craft into something contemporary. They have a structured process to transform ideas to a stunning finished product with a very high level of artistry. The projects range from hand-painted wall murals, hand-crafted furniture, soft furnishings, tribal/ folk paintings & accessories etc.

'Anantaya', a contemporary practice in Jaipur, have craftspeople engaged in developing products/ elements from traditional to contemporary orientation. Anantaya is reviving existing local craft traditions and artisan communities by providing design, technology, capital and creative collaboration. It is committed to the development of innovative ideas through understanding the importance of preserving traditional crafts.

V. Studio-based Practice

Studio craft is a term constructed in America and came to India through the Export Inspection Council (EIC). But the nomenclature was done after the 1990's. The studio craft or the contemporary craft of today is a child of the crisis faced by the 20th C globalization. All craft discourses talk about changing nature and what it may be in the future but nobody really can sternly say that this is only craft. (Valegaonkar, 2016).

These are the crafts that are more of a personal expression than a community. They are practiced in urban atmosphere of a studio. Also, they are not passed from one generation to another. The skill can be acquired at any point in life of the practitioner.

In a western perspective, craft is defined as an integral part of day-to-day human experience, expressed with the skilled manipulation of materials (Rosner, 2009). It has to do with materials, mind and senses all together, many a times with the help of technological tools. Where in India crafts have been emphasized as a product of "hand skills" with values and tradition imparted, in western context even computers and other technological tools are involved in the process of craftsmanship with ease.

In Studio practice (Indian context), a learned individual engaged himself in a craft to propose a handmade solution to a design problem. The clients have begun to invest for bespoke designs. Financial freedom and better design sensibilities and the willingness to have something custom made, were few reasons why studio craft began to flourish in the design fraternity.

As Rizwan Ahmed, principal designer of a studio-based practice 'An Integrated Design Studio', mentions that such practices involve an intimate relationship between the maker and his material. The maker must be familiar with material properties, its related aspects and the ways to give it a form. The designer who have acquired the skill over time develop products from the learned skill. Also, design involves both the functional and the elaborated approach. The designers attempt to make the functional object go with the context. It involves an intimate understanding of the object being made, the material of which it is made, and the complete life cycle of the material and process, beginning to end.

In studio-based practice, the lead designer is exposed to the global market and remains updated to change its style, design, and colour. Focus is directed towards design, research and development with an autonomy of technique of each individual to meet contemporary challenges. This practice act as a catalyst for spurring thought and innovation in society. "The process involves shaping materials into objects, meeting functional needs and creative involvement that is manifested not only as an artefact or a commercial object but equally as stimulus to innovation." (Botnick & Raja, 2011). It has aspects related to quality that has both creative and practical dimensions in contemporary design practice and is the fertile ground from which innovative practice springs. Studio-based practice give the power of design in the hands of the maker himself unlike in collaborative process. Although both practice models requires investigation of process and critical enquiry.

However, in-depth knowledge of a craft area which includes high-level skills, knowledge of materials and design and making techniques is the epitome of skilled makers in different types of craft. Close knowledge of materials is derived from an enduring direct contact with specific materials. This knowledge and intimate understanding of materiality can influence the way materials are combined, how they may react under the impact of technology. Here, making is a connecting process because one has integrate craft-related skills, materials and tools with new ideas and new products. However, in studio based model, the practice can happen with or without tool(technology as a medium). Technique is just a means of arriving at a statement.

Skill of designer ————→ Design aesthetics + manipulation of material

For example, an Integrated Design Studio was established in 2006 by Mr. Rizwan Ahmed. The studio is an integration of design, art and technology through which they not only provide design ideas and solutions, but also execute them, to deliver a cutting edge project. They provide services in Art, Design and production of installations, Public art, Trophies, Interiors, and Environmental graphics. When needed, the studio also involves-sculptors, weavers, metal workers, painters and professional from the field of fine art and design.

Ideal studio by Asha Mandapa-'Learning by doing' is the hallmark of the studio approach. The vision is to use art as a marketable skill, to generate income and become independent entrepreneurs.

VI. SYNTHESIS

In the paper "Anyone designing anything?" Philip Pacey argues about "the non-professional designers that have been designing throughout the history of design. The Indian craftsmen can also be considered as non-professional designer. Over emphasisation on design as a "professional activity" has resulted in the underestimation of the value of an artisan, i.e. a non-professional designer in this case."

Craft community requires diligent design interventions that are technological as they can play a pivotal role at solving problems without compromising core of the craft. For instance, Kothari explains how his team introduced and assisted craftspeople to communicate through social media (like Facebook) which has helped craftspeople to build network.

"Design intervention also assist in creating an awareness among artisans of methods, materials, tools, processes and clientele base. In many cases the artisans of a region have lost or rather do not have a documented form of the craft. Traditional crafts are memory based, and only memory is the knowledge bank of their traditional methods and materials. Design intervention can help in documenting the processes and materials involved in a craft, to form a database that can be interpreted by an illiterate artisan, who lacks in the knowledge of traditional methods and processes." (Panda, A.). Thus design interventions can become a means for preservation of cultural resources. And as craft is a direct outcome of culture, preserving the essence of craft is equivalent to preserving the cultural nuances of a region and community.

Present ——link——→ Past

It is important to note, in contemporary times where the skilled artisans are not available to help their future generations to impart knowledge and skills that were traditionally practiced, documentation is necessary.

Nisha Vikram, the creative head at Craft canvas explains about how her team maps and documents the entire process of the craft under consideration, which was then developed into a repository. This works as a directory where from they pick up the elements and brings to world a contemporary product keeping the essence of craft intact.

VII. INFERENCE

To tap the contemporary markets the craft community need to become freshly evolved and seek solutions to resolve the problem of designing for new markets. They need to be educated and shall be exposed to modern

technology and trends. To bridge this gap with collaborative intervention between designer and craftsperson is a good means of expanding the craft vocabulary and tapping the potential of crafts a step ahead. On the other hand, studio based practices help to bring the craft to a cutting edge level and stand in the market. Design interventions also assist in creating an awareness among artisans of methods, materials, tools, processes and clientele base. However, these model of practices constantly improve the quality of crafts and enhance the lives of crafts communities.

TABLE 1: NUANCES ASSOCIATED WITH COLLABORATION AND STUDIO BASED PRACTICE

Parameters	Collaboration Based	Studio-based
Comprehension	Designer need to simplify dwgs. to be understood by craftsperson	Maker uses technology like Rhino (software) to facilitate complex design
System	Strategic design innovation which integrates the socio-cultural, economic, and ecological and aspects	Re-invent traditions and fuse technology
Design aesthetics	Exchange of knowledge and ideas. Designer at times take the lead role	Compose the design in a contemporary manner
Working method	-Using traditional skills and producing new object -Using technology and producing traditional object -Amalgamtion of old and new. -Interdependent process	-Learning by making, using new technology and reviving craftsmanship -Independent of entirely depending on other individual
Experiment + Exploration	Grasping and thus working on the ideas exchanged, is a slow and long process	Contemporary makers with an entrepreneurial spirit can build a brand name for themselves on the basis of skill and a flair for market positioning
Trend	Designer helps craftsperson to know about trending products in market	Updated to the trend

However, as Nisha correctly remarked 'Maslow's theory of self-motivation' that acts as an important key for growth in humans (here craftspeople). Until their physiological needs are satisfied it is difficult for them to look at other aspects as that related to creativity etc.

Kothari also shares the same opinion and points out that ultimately 'it's a matter of money' which helps their family to survive.

Fig. 1: The Craft Madhubani Found its Way on the Living Room Wall in the Sample Apartment. Circular Patterns in Madhubani Paintings Formed the Core of the Idea

Source: http://www.craftcanvas.com

Fig. 2: These Exquisite Trays in the Shape of Lotus Leaves or 'Padma', are Made of Aluminium that has been Hand-hammered by Skilled Thathera Artisans

Source: https://www.artisera.com/ collections /anantaya/products/padma-trays-set-of-3

Fig. 3: Bodhi Tree (Bodhi Smrity Park, Patna), Wall Art in Copper and Stainless Steel, Scale 16 Feet x 12 Feet

Source: An Integrated Design Studio

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Fig. 4: Asha Mandapa at Work on a Glass Sculpture in her Studio
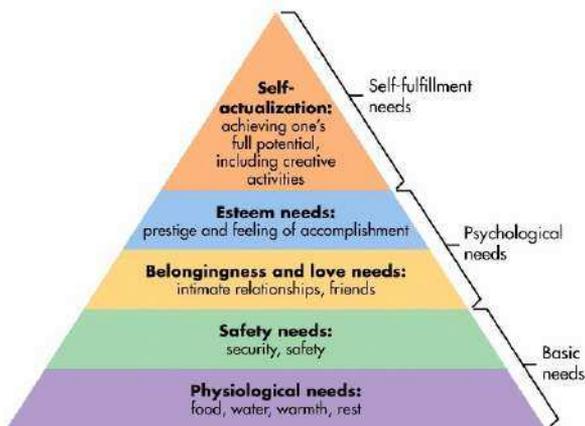
Fig. 5: Maslow's Hierarchy of Needs (Source:
https://www.simplypsychology.org/maslow.jpg)

VIII. CONCLUSION

It is imperative to mention that continuity of any craft is embedded in the process of change. Innovation is a necessity and also an opportunity for exploring new prospects and help in craft revival. Both practice models help in the smooth transition from traditional elements to contemporized elements which lead to sustainability of crafts. These practices mayor may not employ traditional skills explicitly but produce the same product using new technology or at times there is a fusion of traditional as well as new technology. At the same time, they require a conscious, methodical and sustained intervention process. Also, it is necessary to create balance between making the product commercially viable and still retaining its identity. The vision to use artisan made products as a way of life can act as a tool for global connectivity and, thus, sustaining crafts. These practices can be seen as an interface between traditional and modern ways that matches craft production to the needs of modern living.

REFERENCES

[1] Adamson, G. (2007). Thinking Through Craft. *The Journal of Modern Craft*, 93-95.
[2] Balaram, S. Thinking Design, National Institute of Design, Ahmedabad, 1998.
[3] Botnick, K., & Raja, I. (2011). Subtle technology: The Design Innovation of Inidan Artisanship. *Massachusetts Institute of Technology Designissues*, 43-55.
[4] Chattopadhyay, K. India's Craft Tradition, Ministry of Information and Broadcasting, Govt. of India, New Delhi, 1980
[5] Dhamija, J., Living Tradition of Iran's Crafts, Vikas Publishing House Pvt. Ltd., New Delhi,1979
[6] Ghosh, m. (2012). Triggering Innovation and Creativity in Traditional Handicrafts Sectors-An India Perspective. *SMS Varanasi.* Varanasi: SMS.
[7] Kapur, H., & Mittar, S. (2014). Design Intervention & Craft Revival. *Interanational Journal of Scientific and Research Publications*, 1-5.
[8] Liebl, M., & Roy, T. (1999). *Handmade in India: Traditional Craft Skills in a Changing World*. Policy Science Center, Inc.
[9] Pacey, P. "Anyone Designing Anything? Non-Professional Designers and the History of Design". Journal of Design History, 1992.
[10] Panda, A. (n.d.). Design Intervention and its execution in Crafts of India. *Ijsrp*.
[11] Sethi, R.; Duque, C.; Vencatachellum, I. Designers Meet Artisans, A Practical Guide, Craft Revival Trust, New Delhi, 2005
[12] Valegaonkar, S. (2016). *Studio Crafts.* Ahmedabad: CEPT.
[13] Woolley, M., Sabiescu, A., Waelde, C., Cummings, C., Modest, W., Konniger, S., . . . Dijk, D. v. (2015). *The Use of Craft Skills in new contexts.* European Union's Seventh Framework programme.

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Sanjhi the Braj Craft

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ABSTRACT

Sanjhi is the historic craft of stencilling through paper cutting. It originated in Braj that is the surrounding areas of Mathura. These paper stencils were & still are used for making coloured powder art form that is also called as "sanjhi". This art form is used in the temples of braj to meet out the daily rituals. It takes its inspiration from the epics of Radha Krishna a Hindu deity. However in this research paper we are only talking of stencilling craft SANJHI that is almost extinct from the country, it is high time we looked and worked into the restoration of this craft as it only has about 15 artisans working on it to create intricate pattern stencils of small Bindi's to 12 ft floor decoration in temples of Braj. Even though The Indian Habitat center, The Braj foundation, Delhi Craft Council and many such agencies are making numerous efforts to restore the endangered craft, however these efforts do not seem sufficient to create awareness about the craft in the society. It is therefore recommended that the design fraternity should become sensitive towards the sanjhi craft along with the other crafts in order to take necessary action towards the restoration of the dying traditional craft of Braj.

KEYWORDS: Sanjhi, Stencil, Design, Craft, Folk, Temple Craft, Mathura, Vrindavan, Pattern

I. INTRODUCTION

Stencilling is a craft that started almost 37 thousand years back and the evidence are traced in the caves of Netherland. It spread all across the globe using simple patterns of Spain to intricate patterns of Pompeii wall paintings. Chinese were the first to work towards the development of stencilling so as to create replicas of design patterns once created on garments. Eventually, it moved to Europe and other parts of the world through the eastern trade route and became popular as it would assist in the mass production of designs. Stencilling gained its popularity in the 20th century where the art from the same can be seen in public buildings of Renaissance, Victorian and the Art Deco era.

As per the Cambridge dictionary meaning "Stencil is a piece of card, plastic, metal, etc. into which shapes have been cut, used to draw or paint patterns onto a surface." In other words, it is the implementation of Gestalts Theory of "unified whole" using the principals of similarity, closure, continuation, proximity, and alignment, through the play of positive and negative space.

Not much has been found on the stencilling craft in India. However I being from Mathura, a city in Uttar Pradesh, have seen the craft of stencilling called Sanjhi. It is used as a religious craft in the Radha Krishna temples of the surrounding areas.

Sanjhi most commonly is known to be a Hindu non-Aryan goddess. There are various art and crafts that are linked to it and are also known as Sanjhi. There are various tales and myths associated with it. In this research, we will try to discover the Sanjhi craft of stencilling in Mathura.

II. HISTORY OF SANJHI

The folk art 'Sanjhi' is said to have started as creating goddess sanjhi's images on walls and floor. The unmarried girls made sanjhi to pray for a good husband and prosperity, as it is said to be synonymous to goddess Parvati and Laxmi. The Sanskrit meaning of the word Sanjhi is evening or twilight that could refer to the goddess of light and dark. Therefore two mediums were used to create these images.

Sanjhi is also known by various names across the nation, it is Kolam in Kerala, Rangoli in Karnataka, Muggu in Andra Pradesh, Alpana in Bengal and Mandna in Rajasthan. But in Sanjhi paper cut stencils are used while others are made as a freehand drawing on the floor.

This craft was originally used to decorate the Radha and Krishna temple courtyards every day in the evening for fourteen days during Shraddha in remembrance of ancestors. These patterns are made every day and revealed to the public every evening for worship and later removed so that a new one can be made the next day. This may be called the Temple Sanjhi.

III. MOTIFS AND TECHNIQUES OF SANJHI

The sanhji of braj is a craft that requires concentration and depicts the motifs of flowers, leafs, trees, birds, animals, Radha Krishna, Govardhan parvat, Raas leela, Kaliya daman etc. are important motives of Sanjhi. It is done on a platform known as vedi created specifically for the purpose of creating Sanjhi. Large and intricate patterns are made depicting the Krishna legends.

The techniques depict the religious folk tales. There is a blend of sequential patterns used in layers for the final outcome using the stencils. It is a form of fine paper cutting with special custom-made scissors.

This temple tradition of Sanjhi comprises of various forms 1) made of powdered colours 2) sanjhi made of flowers 3) sanjhi made in water.

The techniques of the Sanjhi can be classified as under:

A. Folk Sanjhi

Folk Sanjhi is cerated during pitra paksha by the young unmarried girls of Villages of Uttar Pradesh, Rajasthan, and Madhya Pradesh. The embossed motifs are created in a parallelogram with four gates using cow dung decorated by flowers, colours; stones etc every day and are scraped off next day replaced by new motifs. This process is repeated till the 14th day.

B. Temple Sanjhi

Temple Sanjhi is created and worshiped in the temples of Mathura and Vrindavan. Temple sanjhi is further classified as under:

1. Powder Colour Sanjhi is created on the vedi in the temples of Mathura Vrindavan. This sanjhi has octagon shape the base is drawn with the help of jute dipped in blue followed by the base created using powdered colours on which intricate patterns stencils are placed, powdered colours are applied and stencils are removed leaving the colourful pattern behind known as sanjhi. The motifs used in temple sanjhi are related to Lord Krishna and his Braj. (Fig. 1)

2. Flower Sanjhi is huge in size created on the surface of Yamuna & Bhram kund on special occasions. This sanjhi is created directly by flowers and colours without using stencils. (Fig. 2)

3. Water Sanjhi is created on the surface of water filled in broad utensils after making a base made out of powdered soapstone on which the powdered colours are applied using intricate patterned stencils which are removed leaving back the mesmerizing Jal sanjhi. The motifs are again directly linked with Krishna. (Fig. 3)

Fig. 1: Folk Sanjhi

Fig. 2: Powder Sanjhi
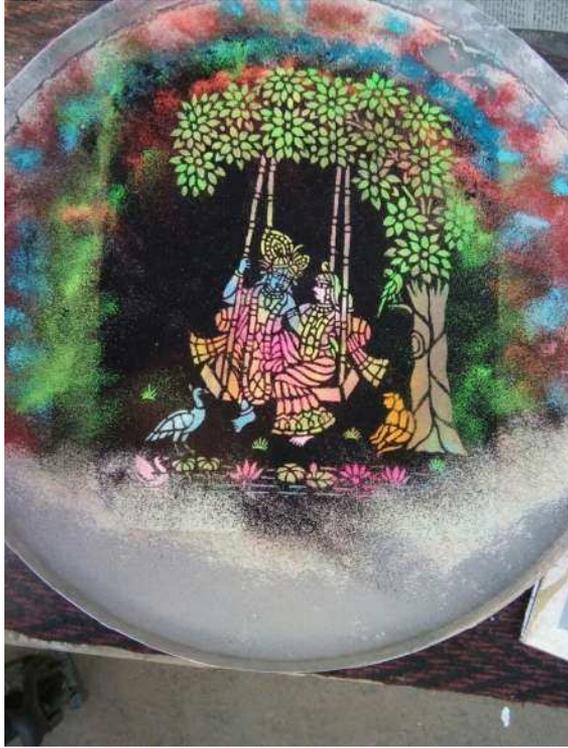

Fig. 3: Flower Sanjhi

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Fig. 4: Water Sanjhi

However the stencil plays a vital role in the making of sanjhi.

IV. ENDANGERED CRAFT SANJHI

Sanjhi is said to be endangered craft, as earlier it was practiced in almost every temple of braj but now only 3–4 temples are following the tradition.

However this braj craft travelled along with the temples of Krishna in India, and attained it recognition in the neighbouring cities and states. But now this craft is in danger due to lack of commercialisation and that the process is time taking. As per the evidences found this craft was practiced by the people in the temples during pitra paksha or shradh a 14 days' time that are said to be inauspicious days according to Hindu mythology. During these days people do not start any new work. The economy of braj is dependent on agriculture & tourism and because of pitra paksha it lacks business then and to keep themselves busy they made Sanjhi in temples all day.

However the practice of not starting any new thing or purchasing any new thing during inauspicious days is still there, but people have found new ways to engage themselves like the economy is no mere dependent on agriculture and tourism only. People have jobs not only in their home towns but also have moved to different cities for the same. Therefore adversely affecting this craft and the essence of Sanjhi is getting diluted.

V. RESTORATION EFFORTS

The Braj Foundation, The Indian Habitat Center, Delhi Craft Council, and many such agencies are working hard for the restoration of the endangered craft. The Braj Foundation organizes a sanjhi art mela every year at Bhram Kund, Vrindavan in which artisans are called to display their work in the exhibition, competitions are also organized. Delhi Craft Council recently celebrated its golden jubilee year in which the council organized a five-day exhibition on sanjhi by the name Sanjhi Revisited taking the architectural theme. The dates for the exhibition were from 8th August to 12th of August 2017. In the year 2015 Council has organized an exhibition named exploring the possibilities of using Sanjhi in contemporary interiors.

VI. CASE STUDY

During the research on sanjhi Mr. Sanjay Soni was interviewed. He said that his family is into this craft for last 250 years and it's their 5th generation working on this. The intricate patterns of the stencils are directly related to the braj bhav and Krishna leela. The art of sanjhi is made by using this craft product to create images using powdered colours on the vedi and worshiped during the pitra paksh in the temples of braj. He also stated that these stencils are also used to decorate backdrops (PICHWAI) of the idols placed in the temple by using wet colours made out of sandal and saffron. Sanjay Soni's family members were the first who introduced stencils of Mehendi and Bindi using techniques of sanjhi on plastic sheet. There is a threat to these artisans as the stencils created by them are being used by common people without people being aware of the artisan's identity.

VII. CONCLUSION AND RECOMMENDATIONS

Stencilling is a craft that started almost 37 thousand years back in the caves of Netherland.

Sanjhi is a religious craft of stencilling classified as folk sanjhi and temple sanjhi. Folk sanjhi was created by cow dung decorated by flowers and leafs and worshipped by the unmarried girls in the rural areas of braj. Temple sanjhi is used as a tradition followed by men where in they create sanjhi on sacred platforms, water etc. using paper stencils, powdered colors and some time flowers. However, this beautiful craft of braj is getting extinct now due to limited usage and time taking process. The Braj Foundation, The Indian Habitat Center, Delhi Craft Council, and many such agencies are working hard for the restoration of the endangered craft. Looking at the limited scope that sanjhi has survived; it's time to bring in the design element to increase the marketability of sanjhi craft. However, the important part is that the essence of this craft

should remain intact while finding ways to take it to a global market. It is therefore recommended that the design fraternity should become sensitive towards the sanjhi craft along with the other crafts in order to take necessary action towards the restoration of the dying traditional craft of Braj. Interior Designers can help in restoring this craft by implementing this in interior products and furniture's. Fashion and Textile Designers can help by implementing its usage in fabrics and garments by using it for surface development by embroideries, appliqué, printing etc. It is therefore recommended to explore the usage of sanjhi in its original form and make people aware of the same in order to raise its demand.

VIII. MOTIFS USED

As mentioned above the motifs sued in Sanjhi are that from the epics of Krishna and Radha. They depict the various episodes of the deities stories. Some of the examples are given below.

Raas Leela: Raas Leela or Maharaas is a spiritual dance performed by lord Krishna with Radha and other Gopi's at the bank of river Yamuna in the night of Sharad Poornima (Full Moon).

Fig. 5: Raas Leela

Kaliya Daman: Kaliya was the name of venomous snake that was living in river Yamuna due to which the water of Yamuna was getting polluted and venomous. To remove the snake from Yamuna, Krishna went in the river to take the ball he was playing with. He then fought with the snake came out of Yamuna standing on its hood.

Fig. 6: Kaalia Daman

Govardhan Parvat: In govardhan leela krishna lifted the mount goverdhan on his little finger in order to save brajwasi's (local people of braj) from the anger of lord Indra. because On krishna's request the brajwasi stopped worshiping lord Indra and started worshiping Goverdhan parwat.

Fig. 7: Govardhan Parvat Sanjhi

REFERENCES

[1] Sunandita Mehrotra, (2015-16) KHEL MEL WORKSHOPS, A Report on Objectives, Achievements and Challenges

[2] RUCHIRA GHOSE, (2004),Cambridge University Press DOI: 10.1017/S0026749X04001349 Printed in the United Kingdom, Sanjhi: 'Rang Sey Roshni' From Colour to Light, Modern Asian Studies 38, 4 (2004) pp. 1003–1020.

[3] Betty Dashew Robins and Robert F. Bussabarger, (1974), Artibus Asiae Publishers, Vol. 36, No. 4 (1974), pp. 295-306, Folk Images of Sanjhi Devī.

[4] Sanjay Soni, Sanjhi Craftsmen.

[5] http://journal.alabamachanin.com/2015/02/the-history-of-stenciling/

IICD

[6] http://graphicdesign.spokanefalls.edu/tutorials/process/gestaltprinciples/gestaltprinc.htm

[7] http://dictionary.cambridge.org/dictionary/english/stencil

[8] http://news.vrindavantoday.org/2017/07/sanjhi-stencil-art-featured-india-habitat-centers-golden-jubilee/

[9] http://www.brajfoundation.org/braj_sanjhi.php

[10] http://isha.sadhguru.org/blog/inside-isha/isha-yoga-center/sanjhi-art/

[11] http://www.thehindu.com/entertainment/art/reinventing-sanjhi-craft/article19415010.ece

[12] http://timesofindia.indiatimes.com/life-style/spotlight/Sanjhi-Unique-paper-art/articleshow/21450121.cms

[13] https://www.behance.net/gallery/19466763/SANJHI-a-paper-craft-of-Mathura

[14] https://youtu.be/X7uT_eXNzho

[15] https://youtu.be/rmAiLvmHepo

[16] http://www.theweek.in/features/lifestyle/Sanjhi-revisited-exhibition-of-unique-paper-art-from-mathura.html

[17] http://mathurasanjhiart.com/?page_id=16

[18] http://ignca.nic.in/sanjhi/introduction.htm

[19] https://i.pinimg.com/736x/fc/27/d7/fc27d717b3aeee0deaf61085a606f057--papercutting-glass-engraving.jpg

[20] http://en.krishnakosh.org/krishna/Maharaas

[21] http://www.iskcondesiretree.com/profiles/blogs/krishna-leela-kaliya-daman

[22] http://krishnabhumi.in/blog/the-story-of-shri-krishna-lifting-govardhan-hill/

[23] http://jalsanjhi.com/

Smart Textile Trends and their Implications in Digitizing Craft Traditions

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ABSTRACT

The world of designed products is undergoing design transformation as a result of embedded electronics. Ordinary devices are being interconnected through a web termed as 'Internet of Things'. While functions, usability and efficiency have resulted in products becoming intelligent to user needs, the world of textiles too has enough potential to be explored if the trends worldwide are to be interpreted. Digitisation in stills products with certain intelligence not seen in previous generation products thereby labelling present generation products as-Smart. This paper, aims to identify innovative developments taking place in the smart textile segment space across the globe. Further, it reviews the available technology that can be embedded into the existing textile crafts of India to preserve and perpetuate the rich legacy of traditional design and aesthetic elements. Implications of the state of the art advancements in textile and wearable technology on design of smart textile crafts have been discussed. Qualitative analysis was carried out from over 60 published literature sources under various segments such as Fashion, Electronics, Experiential Design and Interior design to identify some of the examples of textile design concepts that can influence textile craft trends of the future. This paper highlights the possibilities for digitisation of textiles, how they can augment user lifestyles of the future and contribute to digitisation of traditional crafts of India.

KEYWORDS: Smart Textiles, Traditional Textile Crafts, Social Space, Lifestyle, Trends

I. INTRODUCTION

Textiles have been embedded with colours and motifs since prehistoric times to celebrate, protect or symbolize cultural beliefs (Bhatnagar, 2005). They have been largely inspired form flora, fauna, architectural forms and everyday things (Veenu, Katare C. and Sharma R.B., 2016). Storytelling has also been a part of textile crafts, where deities and other symbolic motifs represent a mythological story or local legends. Both the skills of craft making and the textiles have been passed from one generation to another to perpetuate the traditions. With globalisation, poor economic status of craftsmen and other reasons, the craft practices have been declining gradually. The textile heritage rich and varied in myriad forms needs to be preserved as an integral part of societal heirloom.

Combining wearable technology and fashion designers, contemporary products based on traditional textiles can be designed for context specific applications to bridge the gap between crafts, fashion, technology and user acceptance. With objects around us becoming intelligent and technology becoming a part of the human body, textiles being the second skin and cover for many objects around us, offer great potential for technology to be embedded or seamlessly integrated in them. Authors explore the applicability of smart technology and its potential to enhance the textile craft practices. This paper presents (i) Developments in the sector of smart textiles globally as a brief timeline; (ii) Recent developments in wearable fashion with few examples–their importance, contribution and limitations; and, (iii) Implications of wearable technology and digitisation which can augment the textile craft sector in India.

II. BACKGROUND

Beginning from the ancient civilizations from where needles have been excavated, cotton and silk have been cultivated, the Medieval, Renaissance, Colonial periods, Industrial revolution to the integration of smart technology, textiles have experienced significant changes in the aesthetic, functional and usability aspects over the periods. The last two decades has seen increased research in the sector of smart textiles that brings together multiple disciplines of Textiles, Electronics, Information Technology, Communication, Materials, Biotechnology, Nanotechnology, Microsystems, Manufacturing, Design, Ergonomics, Fashion, to mention a few for making

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functional wearable smart textiles (Smart textile timeline-Fig. 1). Applications of smart textiles have been gainfully researched for medical, military, bio-monitoring, safety, ambient living, assisted living, sports, performance, automobile, entertainment, advertising and other fields.

1955, Edward O. Thorp conceives the first electronic wearable computer

1961, Thorp with Claude Shannon and others use switches in the shoe for input, acoustic output through a tiny ear-plug, and a small hand-made computing unit was worn at a belt

1978, Gore-tex waterproof, windproof and breathable fabric is designed by Gore company

1985, inventor Harry Wainwright created the first fully animated sweatshirt.

Early 1990s, MIT students started researching smart apparel for military use.

During mid 1990s, MIT researchers led by Steve Mann, Thad Starner, and Sandy Pentland begin to develop wearable computers.

1995, Wainwright invents the first machine enabling fiber optics to be machined into fabrics, for mass manufacturing

1997, hired a German machine designer, Herbert Selbach, from Selbach Machinery to produce the world's first CNC machine able to automatically implant fiber optics into any flexible material.

1998, Sabine Seymour launches Moondial, making a practice of merging "silicon and style"
1998, The Georgia Tech Wearable Motherboard (GTWM) is developed

1999, Levis fashion and Philips Electronics collaborate ICD+ jacket project

2000, Whitepaper " E-broidery Design and Fabrication of Textile Based Computing" features popular projects such as embroidered keyboards to fashion tech garments .
2000- Plug and Wear launches, selling conductive materials for knitting and sewing

2003, Georgia Tech Motherboard shirt appears in press

2004, Adidas's smart shoes are launched; Cutecircuit launches first collection

2005, The first ECG bio-physical display jackets employing LED/optic displays were created by Wainwright and David Bychkov using GSR sensors in a watch connected via Bluetooth to the embedded machine washable display in a denim jacket

2006, Cutecircuit Hug T Shirt developed

2007, Leah Buechley develops the Lilypad, a microcontroller made specifically for textiles called Adafruit Flora
2007 - Philips designs Bubelle dress that changes colours based on emotion sensing

2008, Sabine Seymour publishes 'Fashioning Technology'
2008, Mika Satomi and Hannah Perner-Wilson Launch
2008 CuteCircuit designed the M Dress that accepts a standard SIM card and allows to make and receive calls anytime, everywhere, without having to carry a cellular phone.

2009, Viking Smart fire fighting gear developed
2009, Forster Rohner launches the Climate Dress using innovative embroidered techniques
2009 Living wall project leah Buechley at the Massachusetts Institute of Technology's Media Lab

2010, The Networked Jacket; The Biosensor Under wear (Jockey); Motion detecting pants developed

2007, Leah Buechley develops the Lilypad, a microcontroller made specifically for textiles called Adafruit Flora

2011, Ambience - Where art, Design and Technology meet. Boras, Sweden: Swedish School of Textiles.

2012, Drexel launches their Haute Tech Lab exploring smart fabrics and additive manufacturing for textiles.

2013, Machina Launches the Midi Controller Jacket on Kickstarter
2013, MoodWear Collection – energy harvesting and mood changing photonic clothes George K Stylios, Danying Yang. Advances in Science and Technology, Trans Tech Publications, Switzerland
2013, CRISP - Creative Industry Scientific Programme Social Fabric

2014, Dupont presents their stretchable, conductive ink
2014, The MIT Biosuit created
2014, Bebop Sensors launches wearable tech and textile circuits (coincidentally printed using Dupont's conductive ink)

2015, Ralph Lauren and OMSignal team up for the Polotech Shirt
2015, Google's Project Jacquard creates Levi's Commuter Jacket
2015, The Department of Defense put out a RFP for developing smart textiles and innovative fabrics
2015, ZSK embroidery reveals conductive thread and sequin LEDs compatible with their machines

2016, $302 million DoD and M.I.T collaboration and the U.S Commerce Department's first ever smart-fabrics gathering.
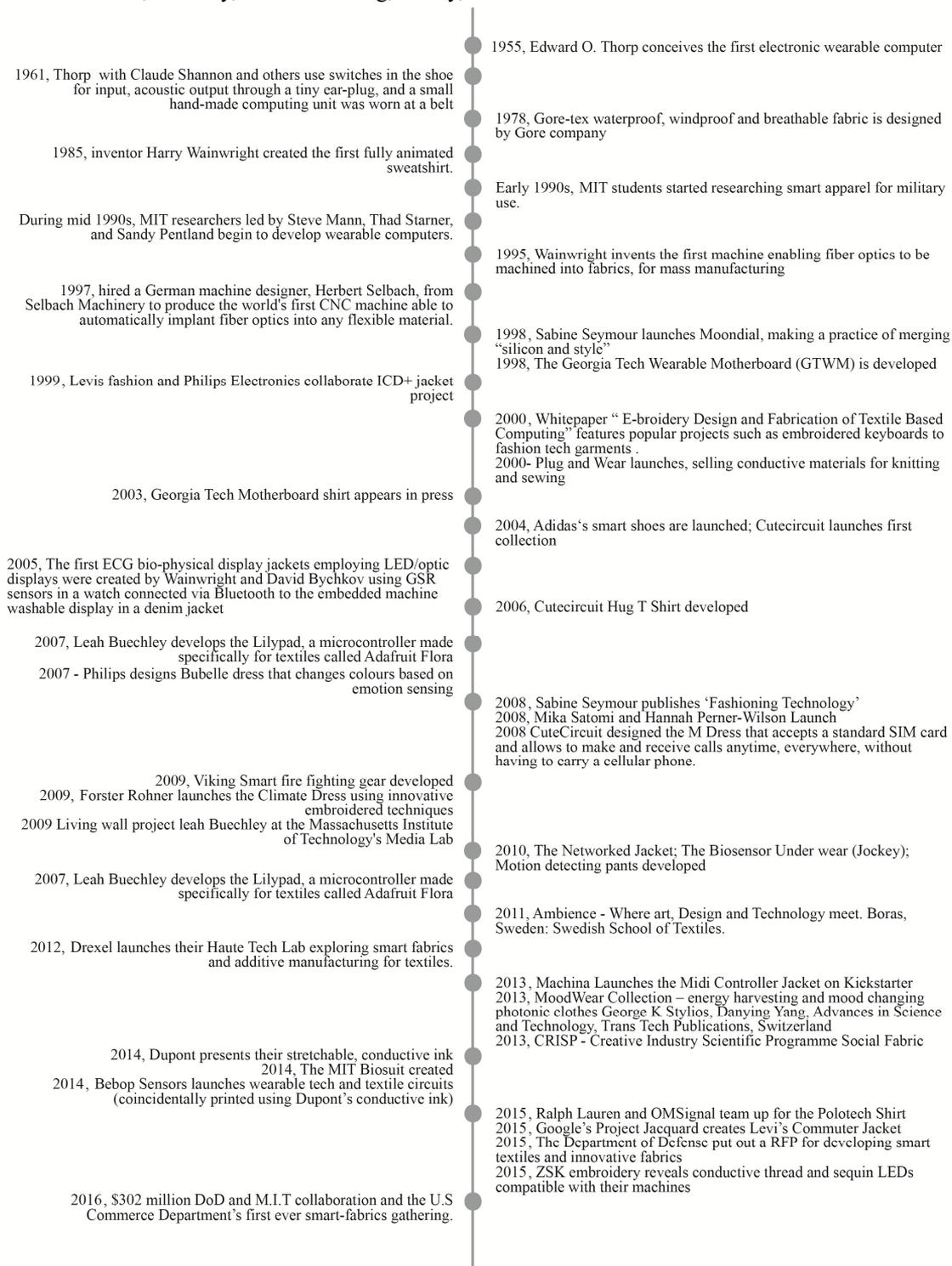
Fig. 1: Brief Timeline of Developments in Smart Textiles

Mili John Tharakan in 'NEOCRAFT-Exploring Smart Textiles' at the conference 'Ambience', 2011, explains that smart textiles are in a stage of transition. When they are made digital, responsive and smart–do they become a new gadget? If they become a gadget, do they satisfy our senses as crafts or as gadgets? The traditional textile craft processes are known for their lengthy process of making. The beauty is about elaborate processes involved that enhance the quality of the product. Once the product is used over time, it embeds memories in it and is passed on to next generation as a memoir of the rich heritage. Certain textiles such as *pabu ji ki phad, mata ni pachedi,* etc have religious value embedded in them. This makes textiles powerful, spiritual and beautiful. The need is to find a balance between the crafts and the tools available as the changes are happening too fast. So the craft of smart textiles needs to incorporate values and memories so that they can become as important as traditional artefacts owned by the users.

Wearable computer, as described by Steve Mann, is a data processing system attached to the body, where input allows functionality of the system to be modified and output can be constantly monitored despite the shift in body position or task (Loomia, 2016). Hertleer and Langerhove (2004) define smart textiles as textiles that sense stimulus/ stimuli from the environment, can react and adapt to the stimulus through electrical, Thermal, Chemical, magnetic or other means. Smart Textiles have been broadly classified as–Passive, Active and Ultra smart. Passive Smart materials (first generation materials) have sensors embedded in them that enables to sense external stimuli. Active Smart materials (second generation materials) comprise of a system of sensor and actuator that enable sensing and reacting to the stimuli. While, ultra-smart materials (third generation materials) can sense, react and adapt to the external stimuli.

The textile industry in India contributes 4% to GDP and 14% to industrial production while the size of India's textile market was 137 billion in 2016 (IBEF 2017). The fashion industry share presently is 68 billion dollars (Fashionunited, 2017). Lakme, Wills Lifestyle and other Fashion weeks have provided opportunities for new designers to showcase their collections and establish brand houses in India and abroad. Several fashion brands like *Fabindia, Rangoli, India Circus, Tvach, Anokhi, Bhu:Sattva, Ethicus, Manyavar* and many others work exclusively to upscale and modernize the traditional textiles to a global level, retaining the essence and supporting the craft communities. These statistics indicate optimistic growth for traditional crafts and textiles against the proposition that technology has led to rapid decline in crafts.

Designers need essential understanding of consumer culture, user needs, usability, manufacturing involved and fashion while embedding interactive technologies in textiles. Immense experimentation has been conducted for health, fitness, bio-monitoring, active sports and military preparedness. However, a certain gap exists for designers to understand the optimum microclimate, aesthetic, technical and cultural needs of the target market to exploit the potential fully. Thus design research for wearables needs to be taken beyond merely studying human biology, electronics, multimedia, fashion, textile technology and marketing (McCann, 2005). Following sections of the paper discuss few smart textile examples and how these developments could have implications on the re-design of existing textile crafts of India.

III. Method for Smart Textile Trend Study

Content curation as part of qualitative analysis was employed for literature study and analysis. Over 60 state of the art examples of smart textiles were studied from 30 websites, 10 books, 20 journal and conference papers. For the purpose of this paper, 10 relevant examples have been discussed with description in section 4 and limitations/ scope for further work in subsection 4.1. Further, the need and implications of merging existing technologies studied with traditional craft practices has been discussed in section 5, along with a map of design implications on smart textile crafts. Inference drawn from this literature study has been applied to existing textile crafts of India to understand the implications of smart technology in redefining and redesigning the rich textile traditions of our country.

IV. Discussion of Few State of the Art Examples from the Field of Innovative Wearable Design

From the many trends studied, we describe a few notable cases of design experimentation in Fashion and Textiles. Philips Bubelle dress (Fig. 2) was developed in 2007 based on emotion sensing. The inner layer comprises of sensors which change the colour of the outer layer of the textile. Philips aimed to create garment that is more *sensitive* than *intelligent* by changing light colour based on changes in body's physiological parameters (temperature, sweat, etc.) due to change in emotional stress, arousal or fear.

Fig. 2: Bubelle Dress

Fig. 3: Galaxy Dress

Galaxy dress (Fig. 3) designed by Cutecircuit comprises of 24000 colour pixels embroidered on a layer of silk to make the world's largest wearable display. The luminous fabric moves with fluidity and lightness like normal fabric and has 4 layers of silk chiffon to diffuse light. iPod batteries power the display for 30 minutes to one hour thus enabling easier movements for the user. The areas without light display is covered are 4000 hand embroidered Swarovski crystals for the dress to look appealing even when the display is off. It has been kept in exhibition for display and has applicability for being worn as an evening gowns, mostly a part of couture fashion.

Fig. 4: Nemo Dress

Nemo dress (Fig. 4) designed by Designer Leon Klaassen Bos has a retro-futuristic haute couture silhouette and comprises of 2000 LED lights controlled by a compact computer. The shape is inspired from an inverted droplet of water, the volume of which gives enough space for the technical components to fit in. The layers move with body movement slightly likes waves in the water. Interestingly, the colour changes according to the colour of the dress of the viewer in front of it. The dress has been designed for playfulness and sensuality also being modern and elegant.

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Fig. 5: Biolace

Biolace (Fig. 5) designed by Carol Collet (Central Saint Martins College, UAL, London) uses synthetic biology for cultivating textiles from plants by reprograming genetic code for a futuristic scenario from 2050 where sustainable manufacturing becomes a necessity for an overpopulated planet. The example figure has a lace growing on strawberry plant, other examples of the project include laces being grown on Basil, Spinach and Tomato which are suitable for several purposes such as–UV protection, Protein C edible lace, Luxury fashion trimmings, culinary herb and anti-viral medicine.
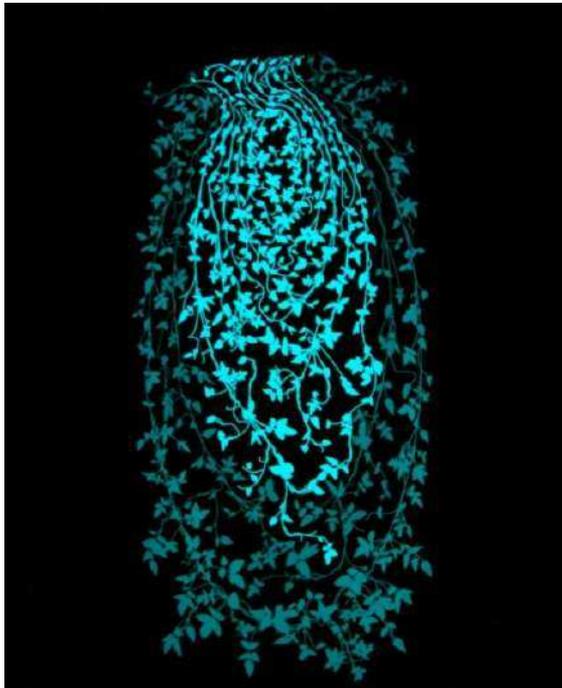

Fig. 6: Digital Dawn

Digital Dawn (Fig. 6) designed and developed by London based studio Loop.pH comprises of biomimetic installation that monitors environmental lighting condition and accordingly lights up the wallpaper. The darker the room, the brighter the wallpaper lights up itself. This is targeted for sufferers of SAD (Seasonal Affective Disorder) syndrome and also for ambient living. Emulation of the natural process of photosynthesis using printed electronic technology aims to explore the impact of changing lighting conditions on the users' sense of well-being.
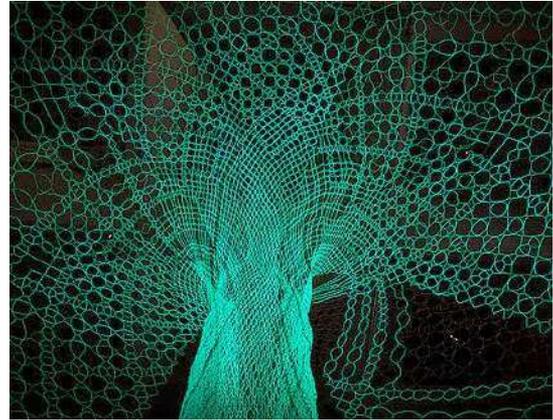

Fig. 7: Sonumbra

Sonumbra (Fig. 7) developed by London based studio Loop.pH is world's first responsive lace architectural work. It comprises of electroluminescent wires creating a canopy which change patterns as people move underneath it. For the Aldeburgh Festival (2007) musical harmonies and rhythms also changed along with light patterns as viewers moved around the installation to become a part of the composition of light, sound and space.

Fig. 8: Living Wall

Living Wall (Fig. 8) designed by a group of MIT researchers led by Leah Buechley is an interactive wallpaper painted with magnetic, resistive and conductive

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paints. The painted surface creates a passive circuitry which along with microcontrollers, light, temperature, colour sensors and nitinol wire attached to flowers, and a wireless module, help the user to light up the wallpaper upon being touched and play pre-programmed music. The project has extended application in ambient information display along with lighting, environmental sensing and controlling appliances.

Researchers from University of Laval under the supervision of Younès Messaddeq have created a handwoven smart fabric comprising of layers of copper, polymers, glass and silver that form a sensor and antenna. It is capable of biomonitoring human body and sending information through wireless networks (Fig. 9). Such fabric could find application for police officers, elderly living alone, patients suffering from chronic diseases, apart from others.

Fig. 9: Handloom Woven Smart Textile

Project Kino (Fig. 10) explores possibilities of futuristic dynamic accessories using miniaturised robots developed by researchers at the MIT Media Lab. Individual elements become a part of shape changing jewellery according to the occasion its being worn to. It has also been applied to climate reactive clothing where robots can help put the hood on or off the jacket according to the user's requirement.

Fig. 10: Kino, MIT

Holographic Fashion show (Fig. 11) was designed to showcase haute couture collection of designer Stefan Eckert in Hamburg, 2011. Alexander McQueen had earlier used a hologram of Kate Moss in 2006. Eckert's show was an innovative installation that showcased pre-filmed footage of models and pre-arranged effects to create hologram on stage instead of runway models synched with music and visual effects to create an optical illusion.

Fig. 11: Holography

A. *Discussion of Limitations and Scope for Further Work in the Examples Above*

Although the above examples in section 4, are unique in terms of concept, design, fabrication and purpose, it is important to analyze them from the users' point of view. The Bubelle, Galaxy and Nemo dresses could be a significant way of self-expression and subtle communication in near future, however the design of the garment, silhouette, comfortability, wear-ability, weight, ease of movement of the garment needs evaluation from ergonomic and usability aspects. Biolace, requires optimum environment and monitoring for growth, it is a time taking process and perishable in nature, thus growing the same would not be realizable on a large scale. Hence, it may remain as a trim or decorative element rather than an entire product itself. Also, the strength, abrasion resistance and wear and tear of the lace needs to be tested before it can be applied to textile products. It also calls for formulation of bio-textile testing procedure and standards.

Digital Dawn is a creative concept for ambient lighting, however, its impact or benefits on SAD syndrome sufferers needs to be scientifically measured. Sonumbra is an extensively designed architectural installation. Similar products could be designed on a smaller scale for applicability in home interiors as curtains or partitions, inspired by the rich traditional motif vocabulary of textiles

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and architecture of India. Living wall designed by researchers from MIT presents itself as a unique combination of Digital Dawn and Sonumbra applied to room interior. While it can play music upon the choice of user, light up upon touch and could be programmed to control appliances, it is important to understand the need for designing such a wallpaper, conduct usability trials to understand whether the product meets user requirements.

Handwoven fabric designed by researchers from University of Laval, primarily measures body's physiological parameters. The research describes in detail the innovation in creation of sensor as threads that can be woven in the fabric while weaving. User study with such a fabric, accuracy of measurements across a day, across different age groups and during different types of tasks being performed by the users, needs to be calibrated.

Project Kino explores innovative accessories and shows its application in drawing a hood on-off the jacket. The size of the robots could be miniaturised, shapes and forms of accessory could be explored with those of traditional jewellery and other accessories of India and further user trial based on need and use cases could provide insights into the working of the dynamic system. The holographic fashion show requires expert handling, time intensive conception and execution, expensive developmental process. It is more suited for couture than ready to wear garments or everyday accessories. Researchers could integrate holography into textiles for functionality added to aesthetics in a context based design approach.

V. DESIGN IMPLICATIONS OF SMART TEXTILES IN CRAFT SECTOR

Developments in smart textiles as discussed above indicate that the future of textile is going to more than just clothing the body, existing functionalities (waterproofing, weatherproofing, fireproofing, etc.) and being a stationary artefact. Textile wearable will be able to *sense, react* and *adapt* according to user needs, and this is why researchers need to identify suitable augmentation of varied textile crafts of India to retain the cultural and traditional essence and yet bring them at par with the technological advancements. Available technology such as sensors (light, temperature, colour, proximity, etc.), LEDs, RFID, NFC tags, electroluminescent wires, photochromic ink, thermo-chromic ink, conductive ink, conductive thread, flexinol wires, Lilypad arduino, etc. provide immense potential to explore and integrate these elements into existing design elements of the textile crafts to augment their functionality and become an active part of Internet of Things.
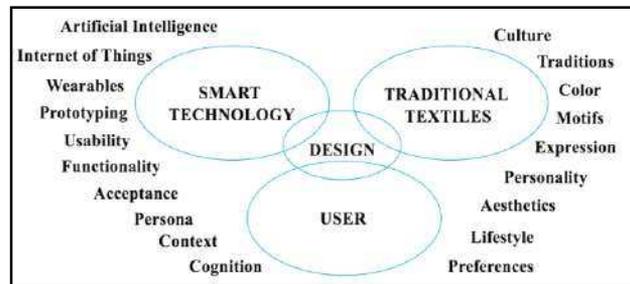

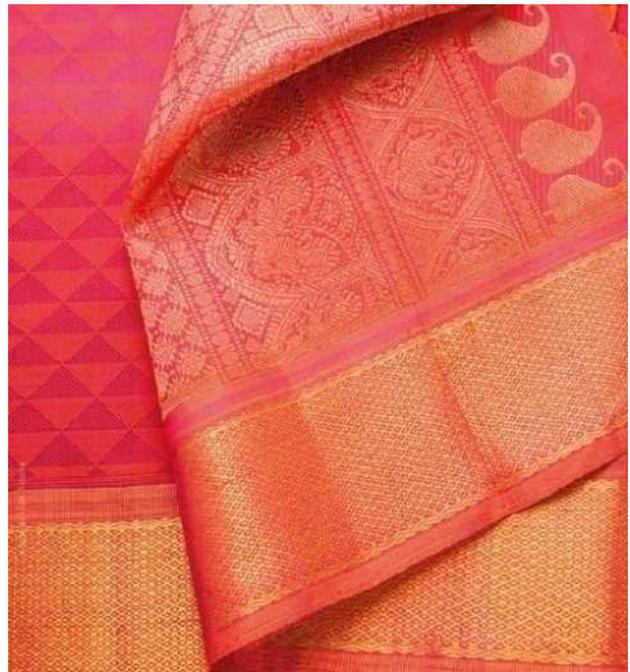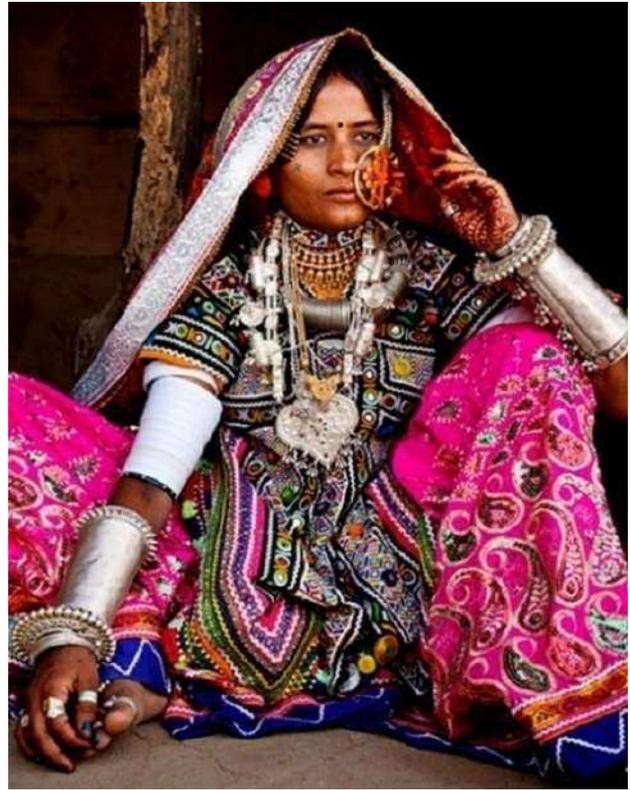Fig. 12: Design Implications for Smart Textile Crafts

It is important to understand here that the method of craft making need not be modified entirely when electronic elements are being inserted. It is selective replacement of traditional embellishments with technological ones for example–mirrors with LED, Lilypad Arduino circuit neatly embroidered in zardozi pattern to complete a circuit, conductive thread used as weft or warp yarn or used for embroidery, etc. This requires considerable understanding of how to work with electronics at a basic level. The role of designer studios and NGOs could become important here, as they can contribute in initial development of small samples with good quality. Also, not all craft practices need to be transformed to become smart, but authors posit that only few textile crafts could be augmented or produced as custom samples for specific user applications. These could be advertised and marketed as unique/ limited collections as part of the brand portfolio.

To cite a concept, holography and digital technology could be employed to ancient storytelling crafts, such as *Pabuji ki phad* (Fig. 13) and others (*Mata ni pachedi*, *Jadopatia* storytelling) to not only design a contemporary version but to also retain the traditional value, essence, skill of crafting and storytelling in a new format that could last for years to come. Similarly, other crafts of hand embroidery (Fig. 14–*Banjara* embroidery) or weaving (Fig. 15–*Kanjeevaram*) could be embedded with electronics for bio-monitoring, emotion sensing to change appearance, tactile or sound effects for protection, to facilitate subtle communication between two known/ unknown individuals within the same space, to wirelessly monitor the positioning of an object/ user, to control the environment or behaviour around the textile or even to act as information repository of that particular craft making in detail. The textiles could be embedded with a NFC tag (Near Field Communication), that can be scanned by an external device (such as a cell phone, etc.) which could direct the user to an online information repository about that particular textile craft, its history, motif vocabulary, craft making, craftsmen, branding and advertising. The need for a woman to know details of a saree worn by other women has always initiated conversations with strangers in

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Indian social space, this could be aided through technology. However, for the information repository, it will be important to verify the data being provided, necessitating a regulatory authority. It is important to design the smart applications for a specific scenario, prototype, test on users and further iterate. It would also be important to give the user complete command of personal information being transmitted with privacy and control.

The authors in this paper, have thus categorised the history of textiles in India into four phases (Fig. 16)–Phase 1–which begins from pre-historic till the Medieval kingdoms, where handwoven and hand-worked fabrics were created. Phase 2–comprises of Mughal patronage to arts and crafts, and the British Rule. Industrialisation that led to establishment of over 400 textile mills in the country was an important development during this phase. However handwoven and hand-worked textiles were still being produced. (The historical data has been obtained from Kax Wilson, History of textiles, 1979). Phase 3-Post Independence government took active role in setting up a Ministry for textiles, several funding schemes, upgradation programmes, etc. to upscale both the handloom and power-loom sector. Several brands (private and public sector) and NGOs also came up during this phase. The authors forecast the future of the textile scenario in India, in the fourth phase where handlooms, handicraft and power-loom would still exist with an addition to manufacturing of smart textiles for context based applications. It is here where designers and craftsmen could merge together crafts with smart technology and push the envelope of textiles beyond clothing and protection to sensing, reacting and adapting with its environment. Through experimentation and scientific studies, this would also bridge the gap between technology, research, textiles and craft sector in academic and industrial domains.

Figs. 13–15: *Pabuji ki Phad*, *Banjara* Woman in Traditional Attire, *Kanjeevaram* Saree

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6000 BCE – 1500 CE	1500 – 1947 CE	1947 CE – Present	2050 – future
Pre-historic, Vedic, Classical, Medieval periods	Early Modern (Mughals), Modern period (British rule)	Independence and Post-Independence	Smart textiles and crafts
Handcrafted	Industrialization Handcrafted	Textile Development and regulation Order 1993	Industrialization Handcrafted Customisation
	First cotton mill, 1818 Cotton Association of India, 1921	Active role of Government, private sector and NGOs	

Fig. 16: Timeline for Textiles in India

VI. Inference

The literature study illustrates how technological advancements have been taking place globally in the sector of textiles and it sets examples for how seamlessly this could be imbibed into selected traditionally crafted textile products to retain the essence and yet enhance user needs when applied to specific applications. Although with advent of industrialisation the craft practices have suffered competition, embedding intelligence may bring them at par with contemporary wearable design. The authors posit that the examples discussed in Section 4 could be explored with traditional designs of India thus reviving the cultural motifs and also imparting a new meaning to the smart textile craft apart from a suitable user specific application. This paper focusses on how merging the western developments and designs into the context of traditional Indian crafts could strengthen the role of traditional crafts in the emerging Internet of Things and also retaining the essence of hierarchical crafts. We infer that the potential for traditional practices in textile crafts to absorb technology and evolve into smart textiles is more on the optimistic side. As described in Fig. 16, keeping pace with how the textile were crafted centuries ago and how designers have been promoting craft products contemporarily, it is now where designers and researchers could integrate technology in textile crafts and design the next generation smart products for the future deeply rooted within the hierarchical crafts traditions of the country.

References

[1] Bhatnagar, P. 2005. Decorative Design History in Indian Textiles and Costumes, Chandigarh, India. Abishek publications, New Delhi

[2] Veenu, Katare c. and Sharma R.B. (2016). Symbolic motifs in traditional Indian textiles and embroideries. International Journal of Research in Economics and Social Sciences. Volume 6, Issue 3, March 2016. ISSN 2249-7382

[3] Lieva Van Langenhove, Carla Hertleer, (2004). Smart clothing: a new life. International Journal of Clothing Science and Technology, Vol. 16 Issue: 1/2, pp. 63-72, https://doi.org/10.1108/09556220410520360.

[4] Sinclair, R., 2014. Textiles and Fashion: Materials, Design and Technology. Elsevier, Cambridge.

[5] Loomia (2016). Tale 2 — A History of Smart Fabric. Retrieved from https://medium.com/@LoomiaCo/tale-2-a-history-of-e-textiles-and-conductive-fabrics-dbe9c4a0cb03, retrieved on August, 2017.

[6] Buechely L, Mellis D, Perner-Wilson H, Lovell E and Kaufman B (2010). Living Wall: Programmable Wallpaper for Interactive Spaces. MM'10 ACM Multimedia Conference, October 25–29, 2010, Firenze, Italy. ACM 978-1-60558-933-6/10/10.

[7] Tharakan M. J. (2011). NEOCRAFT-Exploring Smart Textiles. Paper presented at the proceedings of Ambience'11-Where art, Design and Technology meet. Boras, Sweden: Swedish School of Textiles.

[8] Jane McCann, Richard Hurford and Adam Martin. Smart Clothes & Wearable Technology Research Group School of Art, Media & Design, University of Wales, Proceedings of the 2005 Ninth IEEE International Symposium on Wearable Computers (ISWC'05) 0-7695-2419-2/05. 2005 IEEE.

[9] IBEF (2017). India Brand Equity Foundation. Textile and market growth in India. Retrieved September 2017 from https://www.ibef.org/industry/textiles.aspx

[10] Fashionunited (2017). Retrieved September 2017 from https://fashionunited.in/fashion-industry-statistics-india

[11] Wilson, Kax (1979). History of Textiles. Westview Press, University of Michigan.

[12] Bates C (2007). Dress that changes colour to reflect your mood. Retrieved July 2017 from http://www.dailymail.co.uk/femail/article-502889/The-dress-changes-colour-reflect-mood.html

[13] Cutecircuit (2011). Galaxy dress retrieved June 2015 from http://cutecircuit.com/the-galaxy-dress/

[14] Typepad (2012). Atelier Leon's Smart tech couture. Retrieved July 2013 from http://irenebrination.typepad.com/irenebrination_notes_on_a/2012/11/atelier-leon-nemo-dress.html

[15] Carol Collet (2013). Biolace retrieved February 2014 from http://thisisalive.com/biolace/

[16] Loop.ph (2003). Digital Dawn. Retrieved March 2012 from http://loop.ph/portfolio/digital-dawn/

[17] Loop.ph (2006). Sonumbra. Retrieved March 2012 from http://loop.ph/portfolio/design-elastic-mind/

[18] Leah Buechley (2010). Living Wall. Retrieved July 2013 from http://highlowtech.org/?p=27

[19] The Engineer (2014). A new smart fabric could save lives of injured soldiers. Retrieved October 2016 from http://www.engineering.com/DesignerEdge/DesignerEdgeArticles/ArticleID/9119/A-New-Smart-Fabric-Could-Save-Lives-of-Injured-Soliders-and-First-Responders.aspx

[20] Cindy Kao (2017). Kino, MIT. Retrieved August 2017 from https://www.media.mit.edu/projects/kino-kinetic-wearable/overview/

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South Kensington System and the Art and Design Education in India

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ABSTRACT

How to inculcate crafts and its values within contemporary Art and Design education and vice e versa? Doesn't this question appear to be quite crucial and relevant today? However, as a matter of fact, this question is being asked again and again from South Kensington System (where craft involved aesthetical value) to prevailing Sustainable model (here craft involves ethical value). The article traverses across various histories and geographies in order to map the uneven grounds of Art and Design education in India. This article suggests that there is a disconnection between the Art education and Design education in India and here, the historical perspective may prove to be useful.

KEYWORDS: South Kensington System, Art Education, Design Education

I. ETYMOLOGY

Here, it is quite pertinent to broadly outline the history of the words such as art, craft, technology and design in order to construct a conceptual as well as lexical framework. Also it is English, which is indeed the primary medium of art and design education in India; and therefore, it is important to articulate how these words have evolved as well as shaped our vocabulary–that are the manner(s) in which we see, make and think.

Art essentially belongs to the Indo-European family, where its root may be traced back to 'ar-' meaning 'to join' or 'to put things together'. Putting things together requires some skills, Latin 'ars' therefore meant 'skills'. Its stem 'art-' in the old French 'art' is the source of the English word–art; where the notion of 'skill' is still retained. Its modern association with painting, sculpture, etc. begun only in the mid 17th century (Ayto 2001).

Craft originally meant 'strength' in the old English (*creaft*) as it did in other relative languages such as the German and the Swedish (*kraft*). However, this notion died out by and large by the 16th century and later, in the 17th century, it was mainly associated with the 'ship' and its connotations to the 'skill' and the 'trade'; though it is not very clear how this development took place (Ibid). In Greek, *tekhne* denoted 'skill', 'art', 'craft' and 'trade'. It may have come from the Indo-European *tek*–denoting 'to shape' or 'to make'; which also produced Greek *tekton*–'carpenter' or 'builder' and its adjective *tekhnikos* is the basis of many English words such as 'technique' and 'technology' (Ibid).

Design is derived from the past participle of Latin 'designare' which meant 'to mark out'. Although in English language it is acquired via French where '*designer*' implies 'to point out' or 'to denote'. Here, it has an affinity with the Latin '*designare*', though having been taken over by the word designate; this use of the word has now died out in English. The modern usage of the word suggests more of a metaphorical meaning as represented in French on the one hand by '*dessein*'–'purpose' or 'intension' and on the other hand by '*dessin*'–'pattern' or 'drawing' (Ibid).

In the ancient Indian literature various arts and crafts were denoted by a single word–*śilpa* and the practitioner of these occupations was termed as *śilpin*. Rgveda the most ancient text refers to the *karmāras* (blacksmiths), *taksakas* (carvers) and *rathakaras* (chariot-makers) (Thakur 1996). Later, in the *Brahmavaivarta Purāna,* nine sons of *Viśvakarma* (son of *Brahma*) *are* being listed as follows: *mālākāra* (garland-maker), *karmakāra* (blacksmith), *śaṅkhakāra* (conch-maker), sūtradhāra (architect/ carpenter), *kuvindakā* (weaver), kumbhakāra (potter), kāmsyakāra (metal bell-maker), citrakāra (painter) and suvarnakāra (goldsmith) (Ibid).

The *Mānasāra Śilpaśāstra* refers to five categories of *śilpin*s namely–*sthapati* (the chief architect), *sūtradhāra* (carpenter), *sūtragrāhin* (expert in drawing and drafting), *vardhaki* (specialist in painting and also referred to dexterous in joining wood), and *taksaka* (expert in carving) (Ibid). The *Manu Samhitā*, however, refers to a hierarchal relationship between the *sthapati* (master architect), the *sūtragrāhin* (designer) and the *taksaka* (sculptor); note that "the term *sūtradhāra* is not mentioned here and Stella Kramrisch opines that it was apparently used as a synonym of *sūtragrāhin*" (Ibid, pp. 122–123).

II. HISTORIOGRAPHY

Here, the historiography of the art and design education in general and in India in particular, where the idea of craft is central. In the *Order of Things*, Michel Foucault subjected the discourse of historiography to a kind of Kantian analysis that aimed to uncover the epistemological conditions of the possibilities–'historical a priori'; for each historical era there existed a distinctive epistemological structure–an 'episteme'–which formed a 'priori' ground that governed how thinkers would think, how the statements were made and how the discourse was formed, without directly intruding on the consciousness of its thinkers (Foucault 2012).

Giorgio Agamben (1999) notes that in the mid 17th century, the figure of the '*man of taste*' appeared in European society. In 16th century there was no clear boundary between good or bad taste and therefore the sensibility of the time did not distinguish a work of art or the *point de perfection* from a mechanical doll or *engins d'esbatement* (Agamben 1999, pp. 13–14). Hence, the ability to distinguish good taste from the bad taste emerged as an 'episteme' in the latter half of the 17th century. In the 18th century, it appears that Immanuel Kant (2001) extended precisely the 'episteme' of taste of 17th century to the idea of enlightenment. Alain Badiou (2007), in Lacanian terms, defines 20th century as 'a passion for Real' or the Real of that for which 19th century was the 'imaginary' or of that for which 19th century was the 'symbolic'.

III. 19TH CENTURY

The Royal Academy of Art, established in 1768, by a group of elite artists, in London, promoted and practiced the essentialist idea of art; however, in early 19th century this essentialist idea of art was challenged by the contextualist or the utilitarian idea of art because notwithstanding the skillful British workmanship, after the cessation of war in 1815, industrial competition from France and Germany became a serious concern for the British industry (Krut 1983). In this respect, a 'Select Committee of Arts and their connection with Manufactures' was instituted in 1835 to enquire into the best means of extending a knowledge of the arts and the principles of design. As a result, in 1837, School of Design was established in London by the Board of Trade; where the curriculum was limited to ornamental or decorative arts as opposed to fine arts and the students were trained as per the need of the British industry (Ibid).

However, dissatisfaction with the results of training at London School of Design led to the formation of a 'Select Committee' in 1847 in order to enquire into the affairs of the school. The most devastating attack came from Sir Henry Cole, whose perception of the role of art in industrial society was to bring about significant changes in the art and design education in England and subsequently in its colonies (Ibid). Sir Cole's reform movement was quite based on John Stuart Mill's philosophy of utilitarianism–which stated that "the moral quality of human acts depended solely on their usefulness to the society"–this idea marks the very basis or the 'episteme' as a determining category in Design till date (Burdek 2005, p. 21). Sir Cole published the 'Journal of Design', between 1849 and 1852, where he emphasised on the practical and functional aspect of design to which he felt that the representative and the decorative elements were secondary (Ibid).

On December 1, 1852, Sir Henry Cole, in his lecture: 'On the International Results of the Exhibition of 1851', remarked that in fact, it was M. Buffet who had proposed an International Exhibition after the revolution of 1848; however, the French Chambers of Commerce did not give any encouragement to the proposal of M. Buffet. The same idea was welcomed in England to evaluate its industrial products and to inculcate the spirit of emulation. Sir Cole further said "it was proved by the reports of the Jurors, that certainly the Industry, and perhaps even the Arts of the United Kingdom, took the first place in the race" (Gorman 2003, p. 9). Notwithstanding the success of Crystal Palace and the Great Exhibition (Fig. 1), a furious criticism came from John Ruskin, William Morris and German architect Gottfried Semper. While Ruskin and Morris were hostile to the machines in favor of the traditional crafts, Semper propagated the idea of education of the new kind of craftsman. In line with Semper's views, for Sir Cole, the only lasting solution to the problems of industrialisation was education in which crafts museums play an important role as schools of art, craft and design (Whitford 2006).

Fig. 1: Crystal Palace, by Joseph Paxton in Hyde Park, London 1851 (Image Source: britannica.com)

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Fig. 2: SICI Building on Mount Road, Designed by Henry Irwin, 1893 (Image Source: thehindu.com)

The Board of Trade, supported by the Prince Albert, established the Department of Practical Art in 1852 and Sir Henry Cole was appointed as its first Director. A year later science was added and it was renamed as *Department of Science and Art* (DSA). The mandate of the department was to promote drawing, painting, modeling and design for architecture, manufacturers and decoration especially among the industries. As the Director between 1852 and 1873, Sir Cole directed public Art education in England until its incorporation into the Board of Education in 1900, DSA, at South Kensington, dominated Art education in 'Victorian' England through its method of instruction known as the South Kensington System. This system was even exported to North America, South Africa, South Asia and Japan.

IV. SOUTH ASIA

Rudyard Kipling's novel Kim (1901) opens with a dialogue between two somewhat mystical and metaphorical figures: first, a monk or an 'Indian Craftsman' and second, the curator or his father John Lockwood Kipling. This dialogue or a discourse indeed marks the point of departure of the novel as well as art and design education in South Asia–involving dialectical relationship(s) between the indigenous, vernacular as well as traditional knowledge and modern institutions such as the academy and museum à la South Kensington system. South Kensington system was directly transported to the South Asia in the latter half of 19th century–i.e. in Madras (1850), in Calcutta (1854), in Bombay (1857), in Lahore (1875) and in Jaipur (1884); which laid the foundation of art and design education in South Asia (Dewan 2001).

A number of scholars specialising in the South Asian art have rendered the idea of Art education based on South Kensington System in South Asia as a failure. Perhaps the first amongst them, Anand K. Coomaraswamy (2013) expressed his skeptical views, replying to the lecture by

Cecil Burns published in the Journal of the Society of Arts in June 1909; where Coomaraswamy echo, on one hand, the conservatism of William Morris and his call for the medieval 'beauty' or 'taste' and on the other hand, Ernest Binfield Havell's cultural nationalism. Here, Coomaraswamy seems to have missed the point that by mid 19th century the 'taste' of the elite class and even the underclass had become thoroughly 'Victorian' (Mitter 2001, p. 173). Thus, vigorous campaigns were made, time and again, by Sir Henry Cole, William Morris, George Birdwood and others to save the Indian handicrafts and had compelled the British Raj to address their plight (Ibid).

The South Kensington System was critiqued by the scholars such as Ernest B. Havell mainly for its 'western art education' framework referring to the ideal of naturalistic drawing and the format of classroom teaching. Ernest B. Havell came to head the Art school in Calcutta in 1896, and he was determined to direct the Indian youth towards Indian heritage. However, when Havell introduced the Indian mode of teaching, the students went on strike and the Indian nationalist press accused Havell of depriving Bengalis of 'western' Art education (Ibid).

Even more critical to the idea of 'western education', Krishna Kumar, appropriated South Kensington system with the larger framework of Lord Thomas Macaulay's Minute of Education (Kamran 2015); where the idea was to initiate the native into the new ways of acting and thinking, which according to Kumar was the core agenda of the colonial rule and education in South Asia. This view is being challenged by Tahir Kamran (2015) in line with Mahrukh K. Tarapor and Hussain Ahmad Khan where the analysis of the colonial strategy of 'adjustment and readjustment' provides useful insights in the shortcomings and the failures of South Kensington system in South Asia.

Pertaining to the Bengal in particular Tapati Guha Thakurta and Arindam Dutta have alluded to the adjustment between the 'native' and 'western' in varying degree (Ibid). Kamran (2015) has also pointed towards the similar 'adjustments' in his study of the Mayo college of Arts in Lahore. Partha Mitter and Tapati Guha Thakurta has noted that in spite of their failures in attaining the core objective and in overcoming administrative deadlocks, the colonial art and design schools in India facilitated an exchange between the 'western' notions as well as the local traditions–resulting in a kind of 'hybridity' (Ibid).

Aren't cultures, as such, informed as well as defined by the idea of 'hybridity'? From the 'Indus-valley' to the idea of 'Indian-ness', dialogical and disjunctive structures of cultural production are quite well known–from the *gandhara* sculptures, a *samosa* or a *sari* to the *pahari* painting, the *indo-saracenic* architecture or the *kalighat* painting.

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V. METROPOLE

The Great Exhibition model was celebrated in Europe and in North America in the latter half of the 19th century. World exhibition were organised in Vienna (1873), in Philadelphia (1876) and in Paris (1889) with Gustave Eiffel's tower (Eiffel Tower). Thus, it is quite clear that rather than the regressive return to the medieval apropos to John Ruskin and William Morris, *joie de vivre* apropos to South Kensington System was shared by the *Art Nouveau* in France, the *Jugendstil* in Germany, 'Modern Style' in England, 'Secession Style' in Austria, the *De Stijl* in the Netherlands and so on.

In Europe, the history of South Kensington System "is a prologue to that of the Arts and Crafts movement, the Vienna Secession, the *Werkbunds* and the Bauhaus. Its curricular structure would be replicated, significantly in practice and substantially in spirit, in each of these later movements and institutions" (Dutta 2007, pp. 2–3). Another quite important movement that requires to be included in hereinbefore mentioned list of movements is the *Kunsthandwerk*. Moreover, it is worth mentioning that "one of the purposes of the noted *Werkbund* Exhibition of 1924 and ensuing book of 1925 entitled '*Die Form Ohne Ornament*' (Form Without Ornament) was to please both the industrial design faction and the *Handwerk* faction" (Adamson 2016, p. 127).

Thus, craft was appropriated within the realm of Modernism. But isn't decoration precisely a surplus value and hence, signify excess and exploitation? Here, note that in 'Ornament and Crime' Adolf Loos (1908) argued that the ornamentation on an object point towards the exploitation of the craftsman employed to create it. Another noteworthy exposition was held in 1927 in Stuttgart under the rubric of '*Weissenhof* project'–where Mies van der Rohe, Le Coubusier, Hans Scharoun, Walter Gropius, Max Taut, Jacobus Johannes Pieter Oud, Peter Behrens and so on were invited to put their new idea about Architecture and Design into practice (Burdek 2005). After the Second World War Hochschule für Gestaltung at Ulm was founded as a conscious continuation of the German Applied Art School reform movement (Frampton 2002).

Ulm's connection to Bauhaus was made explicit in Max Bill's public address in 1953 as follows: "The founders of the Ulm School believe art to be the highest expression of human life and their aim is therefore to help in turning life into a work of art. In the words of that memorable challenge thrown down by Henry Van de Velde over 50 years ago, we mean 'to wage war on ugliness', and ugliness can only be combated with what is intrinsically good… 'good' because at once seemly and practical" (Ibid, p. 48).

Max Bill resigned in 1956 and his successor Thomas Maldonado, in September 1958 in his address at the Brussels World Fair, under the title: 'New Developments in Industry and the Training of the Designer', whilst marking Ulm's departure from the Bauhaus, remarked as follows: "The American economic crisis of 1930 gave the day to styling–a new variation of industrial design whose influence has in fact extended up to the present day. The Bauhaus, its followers and its sympathizers, denounced from the start the commercial opportunism of styling, its indifference to artistic and cultural values. But the problem was not an easy one: from time to time the stylists created products which could not but have been approved by the partisans of the Bauhaus" (Ibid, p. 50).

VI. POST–1947

In 1957, a year prior to their visit to India, at Asilomar conference, Charles Eames had spoken about the lack of crafts in the industry as well as the need for a craftsman "to examine the mechanics of production and the result and the relationships in the industry" (Eames in Adamson 2016, p. 576). In the concluding remark, Charles Eames admired Mies van der Rohe's approach to life where the idea was to "take the most perfect brick in the world and lay it in the most perfect bed of mortar in the most perfect relationship to the next brick" (Ibid). Charles and Ray Eames were invited by the Government of India and were asked for their recommendations on a program of training in design that would serve as an aid to the small industries and prevent the rapid deterioration in design and quality of its consumer goods. In 'The India Report', Mr. and Mrs. Eames (2004) appear to be grappled with the same problem or rather the question: How to facilitate a 'marriage' between the handicrafts and the mechanical production? It appears that Mr. & Mrs. Eames attempt to address this question in a vacuum–without any historical reference or context. Their position also appears to be quite different and almost opposite to that of Thomas Maldonado's and in turn, the Ulm School.

Anyhow, in spite of Eames' suggestion to consider 'Indian' design tradition as well as sensibilities apropos to that of the *lota*, academic institutions in India i.e. NIDs, IITs, NIFTs, IICD etc. have borrowed its pedagogical model and its design thinking from the Bauhaus and Ulm (De Parker in Balasubrahmanyan and Kachru 2013). On the one hand, the search for an identity or 'Indian-ness' implies regressive attitudes and dubious inclination towards the past. On the other hand, to put it in Ramanujan's (2013) terms, the 'context-free' impulses apropos to the Bauhaus and Ulm have been 'contextualised' within the 'context-sensitive' modes of 'Indian-ness'–just as the computers and typewriters receive *ayudhapuja*. Ironically NID is built in close

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proximity to the *Sanskar Kendra* or Ahmedabad City Museum (Fig. 4), which was designed by Le Corbusier in 1951. NID's physical building also has an exhibition space. Doesn't it point towards Sir Henry Cole's idea of "learning to see, seeing by comparing" (Burdek 2005, p. 19) and moreover, have an affinity with the South Kensington system?

Fig. 3: The Reconstructed Director's House/ House Gropius, Dessau, 2010 (Image Source: artsy.net)

Fig. 4: Le Corbusier, Sanskar Kendra/ La Musée Ahmedabad, 1951 (Image Source: architexturez.net)

VII. SUSTAINABILITY

Finally, the idea of 'Anthropocene'–our geological age that may have begun around 200 years ago with the significant change in the mode of production–the 'Industrial Capitalism' and its great impact of 'human' activity on the ecosphere–is a limitative idea as it examines cultural production "while presupposing what Foucault referred to 'man' as an 'empirical-transcendental' double" (Colebrook in Parr and Zaretsky 2011, p. 222). Clare Colebrook (2011) has argued that the humanising motif occurred in the early formations of the English studies in the latter half of the 19th century and in the early 20th century, "to develop a moral framework in an increasingly secularised and disenchanted world, and is reiterated– today–in various calls for the humanities to be led by life

and praxis against the mechanisations of globalisation and capitalism" (Ibid, p. 224). Here, South Kensington system and the idea of utilitarianism appear to be quite an important reference. Returning to Foucault and the idea of 'episteme', *a priori* ground, today, has perhaps shifted from the idea of 'taste' to the idea of 'values'. In this precise sense, in the 21st century, "we would require what Nietzsche referred to as a transvaluation of values. Rather than generating values on the basis of instrumental reason or utility–rather, that is, than assuming that the worth of an object or action is gauged by how much it furthers our own purposes–we would criticise means/ ends rationality. We would not assume that all valid means are justified if they serve to maintain humanity in its current mode. We would at the very least, consider values as if from a point of view different from that of 'man'" (Ibid, p. 224).

REFERENCES

[1] Adamson Glenn (Ed.). *The Craft Reader*. London: Bloomsbury, 2016

[2] Agamben, Giorgio. *The Man Without Content*. Stanford University Press, 1999

[3] Ayto, John. *Dictionary of Word Origins*. London: Bloomsbury, 2001

[4] Badiou, Alain. *The Century*. Cambridge: Polity Press, 2007

[5] Balasubrahmanyan, Suchitra and Kachru, Tanishka (Ed.). *Towards Global Histories of Design: Postcolonial Perspectives*. Ahmedabad: NID Press, 2013

[6] Burdek, Bernhard. Design: History, Theory and Practice of Product Design. Basel: Birkhauser, 2005

[7] Coomaraswamy, Anand K. *Art and Swadeshi*. New Delhi: Munshiram Manoharlal, 2013

[8] Dewan, Deepali. Crafting Knowledge and Knowledge of Crafts: Art Education, Colonialism and the Madras School of Arts in 19th Century South Asia. University of Minnesota, 2001

[9] Dharwadker, Vinay (Ed.). *The Collected Essays of A.K. Ramanujan*. New Delhi: Oxford University Press, 2013

[10] Dutta, Arindam. *The Bureaucracy of Beauty*. New York: Routledge, 2007

[11] Eames, Ray and Eames, Charles. *The India Report*. Ahmedabad: NID Press, 2004

[12] Foucault, Michel. *The Order of Things*. India: Routledge, 2012

[13] Frampton, Kenneth. *Labour, Work and Architecture*. London: Phaidon, 2002

[14] Gorman, Carma (Ed.). *The Industrial Design Reader*. New York: Allworth, 2003

[15] Kamran, Tahir. *Lockwood Kipling's Role and the Establishment of the Mayo School of Arts (1875–1898)*, Journal of the Royal Asiatic Society, November 2015

[16] Krut, Rhoda. *South Kensington to South Africa: Art Education in Government Elementary Schools and Schools of Art in South Africa 1800–1910*. M.Ed. diss. University of the Witwatersrand, 1983

[17] Mitter, Partha. *Indian Art*. Oxford: Oxford University Press, 2001

[18] Parr, A. and Zaretsky, M. (Ed.) *New Directions in Sustainable Design*. New York: Routledge, 2011

[19] Thakur, Laxman S. *The Architectural Heritage of Himachal Pradesh*. New Delhi: Munshiram Manoharlal Publishers, 1996

[20] Whitford, Frank. *Bauhaus*. London: Thames & Hudson, 2006

[21] Wood, Allen. (Ed.). *Basic Writings of Kant*. New York: The Modern Library, 2001

Chapter 25

The Impact of Shift in Materials to Practice a Traditional Craft

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ABSTRACT

India is a country rich in hand crafted products with a story behind their existence whether traditional or contemporary. These crafts are the lifeline of artisans practicing it. The kind of materials and the techniques used is what defines a craft to people at large. Most crafts have now been broadly categorized in two segments–luxurious crafts and affordable crafts. This classification is prominently based on the kind of materials used. Change of materials does change the visual impact of the product but not the context. So rather than portraying it as a story for the privileged ones, can it be publicized for the masses and more revenues generated. It needs to be deliberated whether the change of materials in crafting the products still tells a story or demeans it. With the current trend of 'slow fashion' picking up steadily, craftsmen will be benefited if the context is set right.

KEYWORDS: Traditional Crafts, Affordable Crafts, Sustaining Craftsmen, Market Driven Processes

I. INTRODUCTION

Crafts are the visual identities of a region they belong to. It is as much an intellectual process as manual skill. With the combination of creativity and calculative approach, it becomes the most apt representation of one's thinking. Every crafted product has a function and distinct identity associated to it. The story of a crafted product is as unique as the craftsman who makes it. This story is in the form of a narrative which speaks about the craft and/ or the craftsman. Each motif has a plethora of information coded into it. These are based on the social, cultural, geographical, economic and political scenario prevailing at a particular time. It is this uniqueness that differentiates it from one community to another. All of these factors reflect a very strong visual identity developed over the years through continuous observation, interpretation and evolution of craftsmen's experiences. Since times immemorial, crafts have been serving two purposes–commercial and self-expression, simultaneously. Certain everyday products have more commercial value attached to it. Crafts have been instrumental in driving a country's economy. With the advent of Industrial Age, importance of handcrafted products decreased to quite an extent. However, the present-day scenario is changing with consumers accepting more of handcrafted things and eventually increasing their value.

Of the various craft categories like textiles, clay, wood, and metal; textile crafts have been one of the most important material evidences to gather information about any civilization. The cotton fragments unearthed at the sites such as Fustat and Quesir-al-Qadim in Egypt are the earliest-known examples of printed fabric from India (Chishti, 2005).

"The beauty, range, and variety of Indian textile traditions are legion: renowned over the centuries." This statement by the famous craft conservationist–Laila Tyabji, sums up the essence and importance of traditional Indian textile crafts. The various Indian traditional textiles are a combination of techniques like dyeing, printing, weaving, and embroidering. The richness and diversity of India's woven textiles are such that they defy, in any abbreviated attempt, and adequate description or coherent classification. Although no early example survives, these are generally considered, along with the silks of Han China and the linens of Pharaonic Egypt, among the great contributions of ancient cultures to the world's textile heritage (Chishti, 2005). Material and technological intervention and acceptance at various stages has resulted in evolved textiles. It has been observed through studies and personal visits to various craft clusters across India, that this evolution has at times devalued the craft but has by and large benefited the artisans practicing it. It is to be noted that instead of portraying dismal stories of dying crafts and craftsmen, creating more awareness about it is more important. Sympathy can generate more buyers but empathy will sustain them for longer times.

This research paper will talk about the change of approach towards a few crafts and its impact on them. Various case studies gathered as personal experiences and books will discuss how the changes of either materials or techniques or both have still managed to retain the essence of that craft. It is very important for

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people at large to understand and accept that the respect of crafts men should be higher than that of the craft. It will also highlight how the change of society has also affected the craft methods and practices, and the way forward to be taken for them to flourish.

II. BACKGROUND STUDY

A. Mata-Ni-Pachhedi: Printed and Painted Textile

Indian classical literature has ample descriptions of painted fabrics, palm leaf, etc. This was done either for ritualistic purposes or for leisure. There are other important secular uses of pigment painted fabrics apart from ritualistic purpose. However, it has not yet been possible to determine the painting techniques or the materials used due to lack of evidences. Used in the mystical aids in the quest for enlightenment, they depict in an abstract, diagrammatic style, mantras (sacred chants), from tantric works (Chishti, 2005).

The early mastery attained by Indian dyers in coloring yarn and fabric, particularly of cotton, was probably paralleled by a comparable proficiency in patterning this with resist techniques (Chishti, 2005). Every piece is layered with emotions and thoughts of the maker and the user. e.g., Mata-ni-Pachhedi in Ahmedabad, Gujarat practiced by Jayantilal Kanchanlal Chitara of block printers' community is not an ornamental item to be used as a decorative wall hanging. The main purpose for its emergence was that lower caste people were denied entry in the temples and so they devised a newer way to worship their gods. This gained momentum during Pre-British times since the social situations in India were very rigid and had certain stigma attached to down trodden people entering holy shrines. The base is unfinished cotton fabric with the use of two natural dye colors–madder depicting strength of Mother Goddess and black to cast away any evil eyes. This was because of the availability of the materials within certain amount of money. Calico being easily available was the fabric of choice. Madder and black were available abundantly and easily sourced from basic materials. The techniques used for making Mata-ni-Pachhedi are block printing and painting using kalam made of various materials like bamboo sticks and date palm sticks. Again, this was because the block makers too belonged to the same cultural class as block printers and together they made a brilliant piece of art. Though classifying it as art will not justify the context of it since there is a very obvious end use defined.

B. Pichhavai: Pigment Painted Textile

Among India's great contributions to world textiles are the cotton cloths painted with luminous, permanent dyes. The complex technology for coloring the dye-resistant cotton fibre and yarn has been known in the subcontinent for at least three thousand years (Chishti, 2005).

One of the finest examples of religious pigment paintings are the pichhavais of Nathdwara, Rajasthan. These are ritualistic textiles, suspended behind the idol of Lord Krishna in the Havelis–temples established by Vaishnavas following PushtiMarg sect founded by Shri Vallabhacharya in the late fifteenth century. This was the most fascinating aspect of pichhavai that led to a three-week study of the same under the guidance of Shyam Sunder Sharma and Rewa Shankar Sharma.

Any craft has always been for the use of people unless it was commissioned in which case it becomes a piece of art. Crafting a product is usually done using indigenous materials available at that time. It shows the best possible use of basic ingredients to create aesthetically pleasing items of everyday use. This sensibility is, of course, developed over a period of time but has not lost its essence. This started as a decorative hanging displayed behind the idol of Lord Krishna. The purpose of this craft was to make worshippers aware about the importance of a certain day in Hindu calendar. It also depicted life stories of Krishna as a child. This craft narrated stories visually very intricately which otherwise are passed on verbally from generation to generation. The craftsmen have very individualistic expression on a single piece. But with its context to be put up in a temple, the kinds of materials are a lot finer. The fabric is readied to be used as a canvas and use of various minerals is seen to show brilliant colors. Gold foil too is used in painting the jewels of Krishna or as a border of his garments. Here the use of expensive materials was possible because it was usually commissioned by the royals, temple trustees and/ or merchants. This increased the value of it exponentially. These days the same is painted using chemical pigments like acrylic paints. This changed because a Pichhavai is no more for a privileged few but a part of every Vaishnav's prayer place at home. Here too, the context remains same but the craft has become a lot more contemporary since its days of inception.

C. Patola Sari: Resist Dyed Textile

The early mastery attained by Indian dyers in coloring yarn and fabric, particularly of cotton, was probably paralleled by a comparable proficiency in patterning this with resist techniques (Chishti, 2005).

The product could be as varied as an everyday item to an exclusive item to a purely decorative one. Whichever the context be, each of these products reflect a very strong visual semiotics. e.g., the motifs and colors of a Patola from Patan, Gujarat. Medieval Gujarati literature as well as folk-lore from twelfth century onwards contain frequent references to Patola, as do the early trade lists of south-east Asia. But these do not necessarily describe the textile as it is known today. It is only in the mid-seventeenth century literatue accounts-often of European travelers-that begin to provide a precise identification. Associated with prestige

and affluence in India, Patola came to command an even more exalted status in parts of south-east Asia. A famous garba song goes as "Chhelajee re, mare hatu Patan thi patola mongha lavjo", (Oh my dearest, bring me the expensive patola from Patan).

Interacting with the head of Salvi family, the master craftsman, it came to be known that use of a Patola sari is very specific–as a garment given to the bride on her wedding day from her in-law's family to be worn during wedding ceremony. This functionality is addressed along with the finest craftsmanship to augment the outlook of a bride adorning it. The visual annotations are very logical– colors and motifs having both indigenous materials availability and cultural significance. Red symbolizes auspiciousness, green symbolizing fertility, white is for prosperity and yellow for good luck. The motifs are inspired from the things around. A typical Patola sari to be gifted to a bride has 4 motifs of a flower, elephant, dancing girl and parrot or peacock. Flower symbolizes fertility, dancing girl shows happiness, elephant denotes prosperity and parrot or peacock symbolises beauty. These motifs are placed in a square grid which denotes security in a woman's life who owns it. If a Patola sari is for some other occasion, it will have a different visual identity with the changes in colors and motifs. It takes a total of four to fivepeople a time of five to six months to complete a Patola sari. Even then, this craft remains the main earning source for the family of craftsman.

D. Rabari Embroidery: Embroidered Textile

During a 7 day visit to Chandrani village near Bhuj, Gujarat, it was studied that traditional crafts have been contemporarised to portray newer stories and this has resulted in change of context. From being purely labor of love, it has started to have a price tag associated to it. The value of crafts is more based on prices rather than it being based on the context or story. There has been a major shift in these practices with the commercialisation of crafts. The craftsmen have now taken it up to support their families. This has led to many changes in the crafting practices. e.g., the Rabari embroidery of Kutch. Nomadic communities find their grounding through embroidered items in the list of their meagre belongings. They allow creativity to flow through their thoughts and express their identities. These items portray affordable adornment and showcase portable wealth of the owners. Decorating bodies and homes are an essential part of any auspicious celebration and embroidery exactly does that even as exchanging gifts. Most importantly, these products form an inseparable part of dowry.

It was informed by Soniben Bheem that the Rabari community has stopped practicing it in it's purest form due to a socio-cultural reason. The traditional work emphasized quality the most. This was determined by the density of stiches and steady hand. The stitches need to be close in such a way that the base fabric is not at all seen. The spacing between motifs has to be even and the designs and patterns have to be aesthetically pleasing.

The girls and their mothers who practiced this craft to make the wedding trousseau for their own is no longer a compulsion. It was a path breaking decision to stop practicing this craft in totality, taken by the elders of this community. The entire concept of embroidery has changed today since advent of technological innovations. Young Rabari women have become financially independent and are enjoying the exposure they get through their work. Innovation is looked upon with a renewed enthusiasm since traditional embroideries are not a part of trousseau anymore. Fashion is the new tradition. Fashion trends among Rabaris, quite independent of national trends, are vibrant and thriving (Tyabji, 2007).

This resulted in a complete identity change for them but incidentally, and ironically too, the women have not stopped practicing the craft technique for commercial purposes. They still take orders from individual buyers or NGOs to embroider the everyday products to support their families. Here too the context has not changed since these products are majorly used for trousseau by other people. However, the materials have changed completely. It is no more a labor of love item but has a price tag associated to it. Laila Tyabji aptly states that, "The new market is the unknown. The nomadic Rabaris have traditionally lived in an uncertain world. But the parameters of that world were well known. Information-gathering in this context was their skill for survival. This new market is true unknown."

E. Varanasi Brocades: Woven Textile

A tiny mordanted and dyed fragment woven of spun cotton yarn was found attached to a silver jar in an excavation in Mohen-jo-Daro in The Indus Valley. This has been dated to around 1750 BC. More recently, cotton seeds have been unearthed at Mehergarh, another Indus Valley site in strata that are dated to 5000 BC (Chishti, 2005). A three-week study of brocades at Varanasi, and continuous interaction with Srivas Supakar along with Hasin Mohammad in Peelikothi gave deep insights into the craft of brocade weaving. It was studied that, Varanasi had emerged as the most important source for brocaded silks by the early nineteenth century. Gyasar-the ritualistic fabrics of Buddhism since time immemorial had profound presence in the brocades of Varanasi. According to a legend, during the rule of Siddhraj Jaisingh in thirteenth century AD, Patan area of Gujarat was the worst affected in 'the fire of Patan'. Many of the weavers migrated to Varanasi and this resulted in beautiful cultural amalgamation.

The heavy zari kimkhwabs etc. have gained momentum and immense popularity across the globe.

Amongst various applications of these fabrics, important ones are furnishings, trappings, saris, odhanis, kurtas, blouses and many more. The materials used to weave these textiles were cotton, polyester, viscose rayon, silk and various blended yarns. Fabrics woven on handlooms have a distinguished raised feel to them as compared to power-loom fabrics due to the difference in warp tension and weft beating intensity.

According to Mr. Paneerselvam, these days a group of textile engineers is working on jacquard loom mechanism to make weaving easier. The concept behind making of this loom is that production should increase with lesser labor and most important without changing the value of brocades. This will be possible when lifting of the hooks will be mechanized, resulting in faster weaving. Weft insertion will not be mechanized and so the relief effect on fabric will be retained. The product perception is also very distinct for both–handloom fabrics and power loom fabrics. While handloom is put under an exclusive handcrafted product of immense value, power loom fabric is more for masses. A lot of buyers now know about living conditions of weavers in Varanasi and hence prefer buying hand woven fabrics. Therefore, it can be said that both power loom and handloom textiles have earned their place in the market and will not affect the other.

III. Discussion

A. Materials and Techniques Evolution

Taking into consideration all above examples, it is noticed that the crafts have been categorized into two broad categories–luxurious and affordable; based on the kind of clientele it caters to. The purists will not acknowledge this thought of changing materials or combining hand made with machine made materials. Whereas, the common people are interested in a craft product because of its visual appeal and some cultural connect to it. The materials and the techniques used hardly generate any curiosity in them. There are various socio-economic reasons for shift in certain practices of craftsmen. These days crafts are a source of empowerment for artisans. The age-old traditions are replaced with contemporary materials and technology without changing the design identity. These crafted traditions are old but quite novel to urban lifestyle (Tyabji, 2007). Crafts have played a crucial role in socio-economic growth of artisans. This growth catapulted after introduction of them in various new places. Various different cultural influences amalgamated to give rise to new context of crafts–commercial context.

The skills are used for personal reasons rather than creating master pieces as collectibles. The market demand affected individual creativity as well (Tyabji, 2007). The

traditional sensibilities were tweaked accordingly and modernized visual languages were introduced. The kind of work done by the craftsmen reflected their evolved understanding of current market trends. It is heartening to see their ready acceptance of modern ideas. Also, due to increasing demands for hand crafted items, the pressure to deliver more has increased as they could make a living only with a vast output. Quality of products started deteriorating but that hardly mattered since the market was already accepting low quality and low-cost products. One of the main reasons for mediocre crafts to thrive successfully is that almost 70% of the population in India falls in the middle-income group and their spending capacity is lesser. Despite this situation, people are still attached to the culture and traditions. Certain crafts have to be a part of their lifestyle and affording master-pieces is not possible every time. This leads to a generalized approach for crafting designs.

The materials have thus changed their context. The purists would not approve of a synthetic fabric or synthetic dyes or synthetic threads to be used but this hardly is of a concern to a regular buyer. However, the overall bigger context of using indigenous materials has not changed. e.g., initially when cotton was available in ample quantities, it formed a major base of textiles but with advent and influx of polyester fabrics, they are now being used amply. Similar is the case with synthetic dyes/ pigments. The time taken and the efforts that go in making a natural dyed/ printed fabric is much more than any of its synthetic versions. Hence, reduction in overall cost of the textile. This leads in increased production capacity and lower pricing. It works as a win-win situation for the maker and the buyer.

B. Craft, Affordability, and Value Generation

Now here with both the aspects getting fulfilled and the overall context of using readily available materials being maintained; a balance is struck. There is a very little scope for authentic crafts to gain momentum except when owned by someone who can afford it. Since there is very less percentage of the total population in this category, pure crafts getting due respect seems difficult. Less number of users means lesser revenues generated which in turn will employ lesser artisans. If the overall condition of craftsmen has to be improved, this situation needs to be analysed objectively. For the craft traditions to sustain over a long period of time, newer techniques and materials need to be incorporated and accepted by the craft critics at the same level as pure crafts. This will further broaden the base since there will probably be a lesser guilt in buying these products. For certain section of consumers who wants to own a hand-crafted product for the genuine admiration of it but cannot afford, will gain momentum.

This does not mean that quality has to be compromised. Of course, the exact quality will not be achieved by changing the materials. The finesse given by a silk thread can never be matched by any other fibre but using a synthetic fibre will reduce the cost drastically. Let the technique remain hand done so that some essence of the traditional craft is maintained. Certain experiments have been done to use contemporary materials and the results are commendable. Mechanization of charkha in Hegoddu village has definitely helped increase production of handloom cotton fabrics. Since yarn making has speeded, more number of weavers are employed to weave beautiful handloom textiles. Similarly, change of material from cotton ropes to ropes made from plastic waste in making traditional cots have not only reduced the cost but also contributed in saving the environment. For instance, according to the Cotlook A Index, the average price of cotton has ticked higher in 2016 than in the past two years, and continues to increase (McKinsey, 2016).

C. *Craft and Its Evolution In Contemporary Times*

As stated by the renowned textile revivalist and crafts master Late Martand Singh:

My idea of success is if I can sell through thirteen hundred stores all over India, England and America, at least one sari each. A weaver makes maybe two saris a month, twenty-four in a year. So, I calculate, how long can we sustain a number of artisans because I want to be able to produce and sell at least a thousand saris of each design within five years?

In further conversation, he also states that during today's times of fast fashion and the patience levels of makers and consumers going down drastically, the skills of a craftsman may soon become a thing of past. Across all market segments, product categories, and geographies, the industry has been shocked by tremors in the global macroeconomic and geopolitical sphere, large-scale shifts in consumer behaviour, and intensifying business pressures to produce more for less–less time, less money, and less effort (Martand Singh, cited in: Chishti, 2005).

The contemporary work done by these craftsmen has a bigger market share and that is to be appreciated. Sustaining these craftsmen is very important if the tradition has to be kept alive. It implies that continuous inflow of orders has to be maintained. If the craft is made popular, it will definitely increase the demand, as stated by Laila Tyabji in the book 'Threads & Voices':

A new language of block printing with natural dyeing could emerge. We wanted to maintain the traditional process of natural printing and dyeing, unlike many revivalists who have chosen to pay attention to the visual imagery but use bright chemical colors. We also realized that one hand craft may piggyback on another modern process. We could natural dye and hand print on t-shirts and power loom fabric, or use chemical dyes on khadi.

Organic cotton which is handspun, handwoven, and natural dyed is expensive and only saleable in a few high-end boutiques. If we were to access markets which catered to a larger middle class we had to cross-breed hand and modern inputs. For the purists, there will always be a niche market, but we were interested in volume to generate employment. We wanted contemporary images–funny, graphic and classic–which would appeal to the young for their energy and creativity and not merely because they were helping some poor artisan somewhere. Guilt is not sustainable, celebration is.

It is observed that this change of materials is widely accepted by people at large. The advent of material exploration is a welcome change in the obvious traditional craft practices, e.g. the ikat sarees designed by Late Martand Singh had a change of technique. Instead of warps and wefts being tie-dyed, the yarns were printed and then woven together. These fabrics were an instant hit in the market (Martand Singh, cited in: Chishti, 2005). Another example to be shared is again; from the craft cluster projects in India which are organised by Office of D C Handicrafts. In the name of skill development and employment generation, women are taught very basic embroidery techniques using readily available material. Young girls directly work on synthetic fabrics and materials developing their skills on it. This in future, it helps them to take orders from manufacturers and deliver finished goods on time. The garments made from these embroidered fabrics are sold in the market at much lower price as compared to similar stuff using either pure cotton or pure silk base material. Resultant sale is much higher in the mass market and more revenues are generated. With increase in demand for such products, more number of artisans are involved and more earnings means better lifestyle.

D. *Sustainability: A Major Trend in Fashion and Textile Design*

As publishes in The State of Fashion 2017, 'In the Indian market, for example, overseas mid-market players such as H&M, Zara, Uniqlo, and Mango are now facing competition from India's own largest retail groups, which are entering the fast fashion space, aiming to compete not only on price but on product offering and speed to the market.'

In a recent survey conducted by one of the students, Ms Rachita Bihani at MIT Institute of Design–Pune, consumers are aware of certain fashion brands which work for betterment of craftsmen and are interested in buying products that address their social needs. However, when asked about how much percentage extra would they shell out for such products came up to 10% only. Which means that certain changes, if incorporated whether in materials or techniques, will definitely improves sales of hand crafted products.

Fashion trends like Sustainable Fashion and Sustainable Living are being picked up by various national and international brands. Sustainable Fashion as a new trend is picking up pace these days and this should hopefully offer better scope for hand crafted products. Associating certain values to a textile or a garment definitely increases its longevity in consumers' mind. This means a certain hand-crafted product will be bought with some serious thought and a genuine concern to help the maker. And if the overall costing reduces, a larger consumer base will be created. It is to be noted that instead of demeaning a craft due to change in materials or techniques, it should be encouraged unless there is major harm done either to the craftsmen or to the end users.

As fashion executives around the world reported to us in the BoF-McKinsey Global Fashion Survey, 2016 can be summarised in three words: uncertain, changing and challenging. Fashion companies have also been looking inward, implementing changes to their core operations-from shortening the length of the fashion cycle to integrating sustainable innovation into their core product design and manufacturing process-re-evaluating the entire fashion system itself. Value and affordable luxury are likely to be the big winners, both outpacing the industry average at a projected 3.0–4.0 percent and 3.5–4.5 percent respectively. The affordable luxury segment seems likely to continue benefitting from consumers "trading down" from luxury, while signs point to the continued growth of value segment in line with the international expansion of large global players. Finally, if 2016 was a year of opposing forces clashing, the push for sustainability was one common thread across the industry. Sustainability is becoming an important new driver of consumers' purchasing decisions. In emerging markets, for example, more than 65 percent of consumers actively seek out sustainable fashion (McKinsey, 2016).

Fig. 1: Mata-ni-Pachhedi, 1983

Fig. 2: Pichhavai Painting Depicting Gopashtami

Fig. 3: Patola Sari with Mor, Nari, Kunjar Motifs

Fig. 4: Kothalo from Rabari Trousseau

Fig. 5: Contemporary Kothli from Rabari Trousseau

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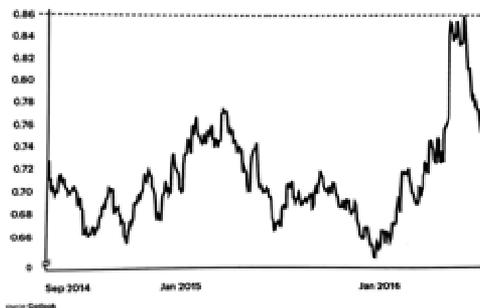Fig. 6: Koniya Motif Banarasi Sari

Fig. 7: Market Data of Average Price (USD/ Pound) of Cotton

IV. CONCLUSION

Preeminent among India's plain or loom-patterned fabrics are, no doubt, its fabled cottons that for at least two thousand years, have been described both by local and foreign writers as being of the sheerest texture and quality. There have been innumerable varieties of textiles described in Akhyan-Munwarbai nu Mameru by the famous medieval poet Premanand. The list includes gajiyani (gajji silk), chhayal (traditional sari), patoli (silk sari), chhint (chintz), naat (cotton sari), pitambar (yellow silk), saalu (brocade sari), darayai (resist printed fabric), mashru, atlus (silk fabric), jarkasi (zardozi embroidery), amber (silk embroidered sari), kesar chhantiya dhola saalu farti jhalake kor jee (saffron dyed/ printed white silk fabric with zari edging). From the various case studies gathered for this research, it is found that evolution of materials and techniques has always helped craftsmen in general. Acceptance of contemporary materials and techniques are being taken up by artisans seriously. Instead of criticizing these adaptations, people have accepted it.

The cost is a major criterion when buying non-branded items and most times it goes lower with use of inexpensive raw materials and technology. This results in continuous demand and supply circle which also benefits the craftsmen and their families. Combination of different techniques in dyeing, printing, weaving and embroidering will definitely result in better output. Blending of materials too will help ease manufacturing and selling of hand crafted products. It has to be further noted that the essence of a particular craft will not be lost unless the craftsman practicing is lost.

Hence, betterment of craftsmen is more important than maintaining purity of crafts only. Let crafts be broadly categorized as Luxury Crafts and Affordable Crafts that will help artisans and consumers alike. Commercial crafts should be given equal weightage as exclusive crafts since both are based on two different ideologies and methodologies but still contributing to the economy. One caters to the consumer demands and the other, to an art collectors' choice. Luxury crafts will always please the purists which is also required for the traditionally authentic crafting practices to remain alive. More and more consumers empathizing with the artisans and understanding the importance of local crafts, are changing their buying styles. Market of local crafts is gaining impetus in the current scenario and will definitely improve the conditions of people practicing them. The onus lies onto us and the craftsmen equally when preserving and commercializing a craft. Exploitation of new materials and techniques should be done in a way that the essence of craft does not get devalued. Core concepts of crafts like storytelling, use of indigenous materials, and representation of a civilization should remain intact but the freedom to explore newer avenues and styles should never be a parameter to judge the authenticity of either a craft or a craftsman. It is therefore a combined effort to keep the crafts alive for the time to come. As Late Martand Singh shares "The future, if at all, is really to get the basic texture of a fabric back in terms of its usage. There are infinite possibilities, whether by machine or by hand."

REFERENCES

[1] Tyabji, L., 2007, Threads & Voices: Behind the Indian Textile Tradition, J. J. Bhabha, Marg Publications, Mumbai.

[2] Singh, M., Chishti, R. & Jain, R., 2005, Tradition and Beyond: Handcrafted Indian Textiles, Roli & Janssen BV, New Delhi. Online Report of https://www. businessoffashion.com/articles/news-analysis/the-state-of-fashion-2017

[3] Online Report of https://www. businessoffashion.com/articles/news-analysis/the-state-of-fashion-2017

[4] http://images.metmuseum.org/CRDImages/as/original/DP156677.jpg

[5] https://www.lostwithpurpose.com/wp-content/uploads/2017/03/DSC_9196.jpg

[6] https://www.rugrabbit.com/sites/default/files/imagecache/big/kutch_arts/51-2016/more_images/dsc03648.jpg

[7] http://www.thebanarassilkemporium.com/images/handloom-silk-saree/Wedding-Silk-Saree.jpg

Chapter 26

The Possibility of Sustainable Development of Sualkuchi (The Biggest Silk Village of Assam) Handloom Sector through Promotion of Rural Tourism

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ABSTRACT

Tourism is one of the biggest contributors to the economy and employment. Assam is famous among tourists for its natural resources and religious significance but the tourists generally visit Assam for a very short duration. Tourists tend to buy local handicraft products as mementos which preserve local crafts in its pure form. Sualkuchi village of Assam is the largest producer of golden Muga-silk products. Now-a-days silk industry of Assam is facing threat from imported cheap silk products from other parts of India. If tourists are encouraged to visit Sualkuchi, there is possibility to make the tourists understand about the delicate, laborious and time consuming process of handloom-woven Assam silk products. This in turn would help to provide the better purchase experience with proper reason of higher price of authentic silk products of Sualkuchi. Weavers also might get admiration for their craftsmanship and due prices for the produced products. The Assam government in its recent tourism policy emphasized on the rural tourism and some initiatives have also been taken in this area. This paper presents the views and expectation of different stakeholders of silk handloom clusters of Sualkuchi village for its sustainable development.

KEYWORDS: Assam Silk, Rural Tourism, Sustainability, Handlooms

I. INTRODUCTION

United Nations general assemblies in 1987 through light on sustainable development it defines "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". It has very vast context as every sector is having its own interpretation of it. In history, there is evidence to show that the Indians have known the art of weaving for more than five thousand years as Egyptian mummies of that period were found wrapped in Indian fine silks and Muslins. Indian handloom sector is now facing many problems such as obsolete technology, haphazard production system, low productivity, inadequate working capital, conventional product range, weak marketing links, overall stagnation of production and sales and above all, competition from power looms and mill sector (Pratap and Naidu 2015). These issues are creating a hindrance for sustainability of handloom sectors. In Assam, handloom weaving has an overwhelming presence in the socio-economic life of the native people since time immemorial. The loom owners of Assam selling their products mainly in local markets in absence of proper marketing channel (Phukan 2012). In spite of its tremendous potential, the handloom industry has not flourished in commercial sphere to the desired extent (Dutta 2015). This sector could take advantages of flourishing Travel and tourism industry. In the present paper, the term 'sustainability' has been used to refer mainly the 'socio-economic' viability of the handloom clusters of the Sualkuch village and the overall psycho-social growth of the weavers residing there.

This is an evident economic activity around the world. It has direct as well as induced impacts (WTTC 2017, Haque 2016). It has a very high contribution to GDP of India as well. In 2016 it contributed Rs. 14,018.50 bn (9.6% of GDP) which is forecasted to rise by 6.7% to Rs. 14,964.30 bn in 2017. This industry in total generated 40,343,000 jobs in 2016, which was 9.3% of total generated employment, and it is forecasted to grow by 1.8 % in 2017 to 41,074,000 becoming 9.2% of total projected new employments. Further by 2027, Travel & Tourism is forecasted to support 49,868,000 jobs (9.6% of total employment), an increase of 2.0% pa over the period. The contribution of domestic tourist

spending recorded 88% as compared to 12% of foreign tourist spending in the travel and tourism GDP (WTTC 2017).

Tour and travel industry investment to earning ratio is also remarkable. Spending one dollar in tourism industry 3.2 dollars could be earned, further 1 million dollars spent in tourism generates twice as many jobs then the same amount spends in finical services, communication, and automotive manufacturing. Travel & Tourism has strong linkages to other industries within national economies generating significant indirect benefits (WTTC 2012).

Assam a prominent state of North–East India is very rich in traditional Art and craft that shows the rich heritage of the cottage industry i.e. sericulture, handloom, bamboo and cane industry, pottery, gold jewelry making etc. (Sharma et. al. 2017) Tourists visiting Assam for wildlife, natural beauty, holy shrines, lush green tea gardens, vibrant and colorful cultural festivals (ESA 2017). Despite huge potential tourism destinations most of the tourists stay in most popular destinations for one or one and half day only (DoT 2010). In 2015–16 total domestic and foreign tourists visited Assam were 5642950 and 26320 respectively as compared to domestic and foreign tourists visit of 3479870 and 16657 before one decade in the year 2006–07. To harness the growth of tourism the Tourism Department with the help of various level of governments and private sector has done a lot of work in infrastructure development and creation of other tourist-centric facilities over the years (Eco Survey Assam 2017). Assam tourism department in its recent policy decided to develop new spots and circuits all around the Assam (Tourism Policy Assam 2008). This initiative is really helping the economy and employment of region directly and indirectly. It has a direct impact on the generation of income and employment, foreign exchange earnings, infrastructure development and exchange of culture among people also (Haque 2016). Its major indirect positive impact is mostly on the local art and craft as tourists give a lot of importance to objects purchased during the trip (Wallendorf and Arnould 1988) It reminds of an experience (Gordon 1986; Littrell 1990; Smith 1979). This purchase by the tourists not only contributes to the market around but also promotes locally available specialty products (Lickorishv and Jenkins 1997) In a research conducted by Yuksel 2007 respondents showed a high willingness to talk to salespeople, spend more time browsing and Exploring the products, and spend more money than originally planned when the climate of the tourist shopping habitats is perceived to be stimulating. Some other research also suggests the souvenir shopping is a very emotional decision on part of tourists, the experience deals with aesthetics where tourist shoppers are able to examine, feel and think about items even if shopping is not a principal reason for their travel (Snepengeret, et al., 2003). Enough research has not been done on sustainable benefits derived by informal traders from the sales of handicrafts to tourists and very little has been focused on the handicraft value chain (Kaplinsky & Morris 2001).

Assam has an age-old tradition of silk cloth weaving. Mention of it is found in epic Ramayana, Mahabharata and Arthshastra were written by great ancient Indian scholar Kautilya. Later in the patronage of Ahom rule silk culture flourished further as sericulture was made obligatory household work. (Bandana Mahan 2012). All the four varieties of natural silk i.e. eri, muga, mulberry and tussar are produced in Assam. (Baruah 2016) The Muga silk of Assam got a geographical indication, as it is available only in Assam. It has extreme durability and its luster increases after every wash. From the health point of view, it attracts ultraviolet rays and protects skin from its harm (Geog. Indi. 2017). With such tremendous qualities, Assam silk product may become a convenient memento. Assam silk products are very popular among the local people but not presented well to the tourists in the capital city based cluster of shops (Sharma et al., 2017). Silk products are prepared throughout the Assam but Sualkuchi is a village also known as 'Manchester of Assam' as almost every household is involved in silk producing activity is the largest silk producing village of Assam. It is Guwahati Sub-division of Kamrup district situated on the North bank of the mighty Brahmaputra about 30 km from Guwahati the capital city of Assam on the latitude of 26°10'0"N and the longitude of 91°34'0" E (Agarwal et al., 2015). Sualkuchi has about 17,000 Silk working looms and more than 25,000 people are directly or indirectly employed in the silk industry. Sualkuchi produces more than 31.00 lakhs linear meters of silk fabrics out of the total production of about 42,19,055 linear meters of silk fabrics in Assam (Agarwal et al., 2015). It has good possibilities of becoming a popular rural tourist destination as components of heritage are the main attractions of both domestic and international tourists since they satisfy the curiosity and relaxation to a learning experience and appreciation of local cultures (Bak 2007). Such act will provide an opportunity for tourist to appreciate and buy authentic silk products by paying its due price and will create extra income to the families of employed weavers in this industry as they remain poor, despite working 10–12 hours a day, and the benefits derived from handicraft sales are not reflected in their livelihoods (Richard 2007).

Enough research has not been done on sustainable benefits derived by informal traders from the sales of handicrafts to tourists (Kaplinsky & Morris 2001). This research explores aspirations of the stakeholders which is very important in the process of development of rural tourist destination to incorporate their ideas and possibilities about the destination. Proper focus on the product quality and satisfaction like silk has lead to the concept of customers delight (Saikia and Nath 2015). Destinations should have uniqueness in identity along with supporting amenities (such as restaurants, pubs and entertainment facilities in close proximity, good pedestrian access and parking facilities and multi-functionality of the

environment) guarantees that the place feels 'alive' (Jansen-Verbeke 1998) exterior shopping environment is particularly important and it must be considered acceptable and pleasing before the interior of the shops is ever experienced (Yuksel 2007).

This paper is an attempt to understand the views of various stakeholders for the possibility of promoting sustainable development of Sualkuchi (the biggest silk village of Assam) silk industry via rural tourism. Further effort has been made to get familiarity with the work happening with possibilities in the area of rural tourism at Suwalkuchi and to collect views of various stakeholders.

II. METHODOLOGY

To understand the state of tourism at Suwalkuchi both primary and secondary data were considered. For primary data collection, open-ended interviews were conducted involving various stakeholders. Collected data were analysed on the qualitative basis to highlight common/ distinguished issues. Moreover, several field visits were carried out to understand the ground level scenario. Photography and videography were used for thorough documentation. To get the information from secondary sources various relevant government/ private agencies reports and research papers by various researchers in the similar research directions were consulted.

III. OBSERVATIONS AND DISCUSSION

A. Demography of the Respondents

As stated earlier, various stakeholders were contacted for understanding their views. Five number of entrepreneurs were contacted in different hamlets of the area. They were in the silk product business for more than 15 years. Ten weavers were contacted on their workplace. Three number of government officials were contacted to understand the governments' role in the area. Satras mostly established by Jagat guru Sri Sri Sankardeva plays a crucial role in Assamese society. Satras are usually governed by Satradhikaries. Sualkuchi has a more than then 300-year-old prominent Satra named sri sri Hati Satra. Satradhikari of this satra was contacted and interviewed in this regard. Various other stakeholders like a priest of the prominent temple, service sector persons, local residence etc. were contacted.

B. Views on Tourists

As per the stakeholder's Assamese society traditionally is a very good host. They love to have tourists in their village. They always want to show this great art of silk weaving to the tourist. They believe if more tourist visits the silk village it will be good for them as tourists can feel the expertise and pain of silk making. With this, they may get the due price for their product.

C. The Environment of the Village

As per the stakeholders, almost every household in the village accommodates a working loom. The rhythmic sound made by the looms and the flying shuttles is an integral part of their life. Many traditional songs are also sung by the weavers associated with this unique sound. They worship Muga silk thread.

D. Views on Silk Products

Everyone feels proud on the specialty silk products created in the area. They are also happy to get the geographical indication for the Muga silk of the Assam which is produced largely in the area. Special mention on quality was, this silk can be hand-washed and its luster increases after every wash. Medically it absorbs ultraviolet rays to a great extent making the fabric very useful to protect the skin from ill effect of such rays.

E. Views on Cottage Silk Handloom Sector

As per the stakeholder's silk handloom sector is a prominent cottage industry of the area (Fig. 1). It is an integral part of their daily life. It runs almost throughout the year except for some sacred days.

Fig. 1: Female and Male Worker Working on Loom

F. Views on Silk Products Variety

As per the stakeholders the most prominent dresses made here are Mekhela chader and saree for females and Muga silk Kurta for males. In contemporary time some other products like silk shirts, short kurtas, churidar are also available nowadays (Fig. 2).

Fig. 2: Use of Different Colours and Motifs in Various Silk Products

G. Views on Silk Products Design Motifs

Traditionally Phool buta (flower), Japi (traditional headgear), Gach (tree-like), Joon biri (Assemees neck piece), wild animal (the single-horned rhino) etc. are common motifs used here. Some silk cottage industries also experimenting with some fusion designs (Fig. 3) related to different tribes of the region.
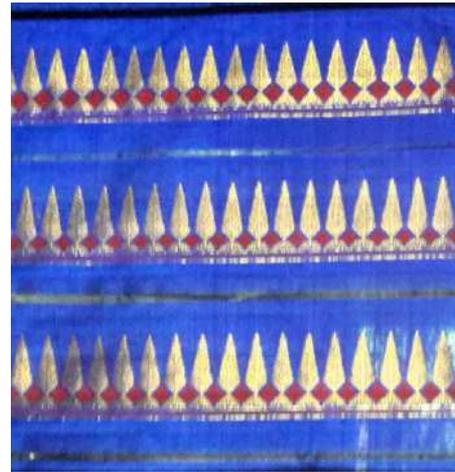
Fig. 3: Contemporary Design of Motifs Based on Traditional Design Elements

H. Views on Silk Products Competition

Some of the stakeholders feel a threat from the silk products made in other parts of India with cheap and artificial raw material using Assam motifs.

I. Views on Tourist's Infrastructure

Stakeholders appreciated different organization effort for initiation of the work for the development of tourist facilities in the area. As most of the tourists are coming for very short time in the area so they are unable to explore the full area and product variety. Due to such scarcity of time, they are guided the transport people to selected They suggested for elongated stay facilities so that tourist could pass more time in the area which will contribute to the economy of the region and tourist will also expose to different available varieties of the same product. The key infrastructure development suggested by the stakeholders is as follows.

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1) Accommodation

Although some accommodation is created under indigenous tourism project of Sualkuchi in the outskirt of the city stakeholders suggested for more such stay places to attract tourist in large number.

2) Children Park

Stakeholders pointed out that many of the domestic tourists are traveling with children and their destination decisions are driven by choices children. Children park with all latest amenities will attract tourist to the area.

3) Parking

Stakeholders suggested to create some parking around the marketplace so that tourist could move hassle-free in the area. They also suggested for e-Rikshas from the parking area for an eco-friendly ride to the village.

4) Tourist Calendar

Stakeholders suggested for development of tourist calendar with details of local special days so that tourist can plan their journey accordingly.

5) Cuisine

Stakeholders pointed out the need for more restaurants with both popular as well as local cuisines where food is prepared in hygienic conditions. Some of the entrepreneurs proposed for a kitchen run by weavers at the silk workshops where tourist can enjoy local cuisine made with local flavour.

Community development by the active participation and involvement in the decision making of the entire community from planning to action leads to the self-reliance of the community. (Thomson, 1961) further direct involvement of the community members is constructive for all the members of the community (Selvam, 2004). Researcher Voth (1975) researched when different local groups put efforts for their own development with monetary assistant from outside the development process speeds up. Bottom-up and participatory approaches considering various stakeholders is very useful in planning, developing, improving and management of entire development idea. In present research opinion of the stakeholders have collected regarding present bottlenecks of the tourism in Sualkuchi. It has been noticed that various factors responsible for fewer numbers of tourists' turn up in Sualkuchi include poor transportation from Guwahati to Sualkuchi, lack of basic amenities for the tourists at Sualkuchi, less awareness of the tourists about this place, improper guidance to tourists, lack of safety and security etc. Resolving these issues along with

popularizing this place as a tourist destination would attract more tourists. All these initiatives would directly contribute to income generation of the local people, their socioeconomic development, motivating their young generations towards weaving activities, getting the justified price for the silk product and development of interpersonal relations. The present explorative research is a contribution to the sustainable development of handloom sector of Sualkuchi as it presents views of the stakeholders whose aspirations are associated with such developmental activities. This study is an initial exploratory study collecting views of stakeholders of the Sualkuchi with the further possibility of research for identifying the other points of tourist interest and creating awareness about them among the tourist visiting Assam.

IV. CONCLUSION

Data gathered from interviews of the various stakeholders of Sualkuchi handloom clusters were found very useful and gave scope to the stakeholders to talk and elaborate freely about the current situation of handloom-clusters from the tourist point of view. They have shown a lot of aspirations about the development of Sualkuchi as a rural tourism spot. Interactions were further used to understand the intricate process of silk product production and lifestyle of local people. Primary data from interviews of the stakeholders as well as the secondary data suggest that promotion of rural tourism on the broader scale in Sualkuchi village would be very beneficial towards sustainable development of silk handloom clusters in the area.

REFERENCES

[1] Aggarwal, A. Sharma, A. Tripathi, A. Wadhawan, E. Chongtham, H. Gupta, K. Agarwal, M. Chaturvedi, N. Wangkhem, R. Bhardwaj, 2015, DU Journal of Undergraduate Research and Innovation Static or Dynamic-The Analysis of Handloom Industry of Assam

[2] Bak, S., 2007. Domestic and International Cultural Tourism in the Context of Intangible Heritage, in: Safeguarding Intangible Heritage and Sustainable Cultural Tourism: Opportu-nities and Challenges (23-27): Report of UNESCO-EIIHCAP Regional Meeting(11-13 Dec.), Hué, Viet Nam; Published by the UNESCO Principal Regional Office for Asia and the Pacific, Bangkok, Thailand.

[3] Baruah S., 2016, Assam Silk Market: Problems and Probable Solutions, International Journal of Innovative Research in Science, Engineering and Technology (An ISO 3297: 2007 Certified Organization) Vol. 5, Issue 7

[4] Department of Tourism, 2010, Government of India, http://tourism.nic.in/CMSPagePicture /file /marketresearch/ studyreport sonevaluationofplanschemes/01Report Vol-II.pdf

[5] Economic Survey, 2017, Government of Assam, India

[6] Geographical Indication Journal, 2014, GOI, http://www.ipindia.nic.in/writereaddata/Portal/ IPOJournal/1_71_1/gi-journal-65.pdf

[7]   Geographical Indications, 2017, (GI) Registered Products as on, http://handicrafts. nic.in/ cmsUpload/20170506115215GI %20BOOK%20FINAL-ilovepdf-compressed.pdf

[8]   Gordon, Beverly, 1986, The Souvenir: Messenger of the Extraordinary. Journal of Popular Culture 20:135-146.

[9]   Haque A, Patnaik A. K. & Ali MA, Contribution of Tourism Sector to Omans GDP, International Journal of Economics, Commerce and Management, vol 6, issue 7

[10]   Jansen-Verbeke, M., 2000, Leisure shopping: A magic concept for the tourism industry? In: Ryan, C., Page, S. (Eds.), Tourism Management-Towards the New Millennium. Elsevier Science Ltd, Oxford, pp. 203–210

[11]   Kaplinsky, R., & Morris, M. 2001. A Handbook for Value Chain. Sussex: University of Sussex Institute of Development Studies

[12]   Littrell, Mary A., 1990, Symbolic Significance of Textile Crafts for Tourists. Annals of Tourism Research 17, 228-245

[13]   Lickorishv L.J. and Jenkins C. L., 1997, An Introduction to Tourism

[14]   Mahan B, 2012, Silk Industry among the Tai-Ahom of Assam, India as an Attraction of Tourist International Journal of Scientific and Research Publications, Volume 2, Issue 12

[15]   Richard, N., 2007. Handicrafts and Employment Generation for the Poorest Youth and Women. France: UNESCO

[16]   Saikia D and Nath C.K., 2015, Consumer Behaviour And Satisfaction Regarding Natural Silk Products In Dibrugarh District

[17]   Selvam,S., 2004, Empowerment and Social development: issues in community participation, Kanishka Publishers and Distributors, New Delhi, pp13

[18]   Sharma H, Karmakar S and Chakrabarti D, 2017, Exploring the Purchase Experience of Assam Silk as a Memento Among the Tourists to Strengthen the Bond Between Visitors and Native People

[19]   Smith, Valene, 1979, Women: The Taste-Makers in Tourism. Annals of Tourism Research 18:9-60

[20]   Snepenger D. J., Murphy, Leann, O'Connell, Ryan and Gregg, Eric 2003 Tourist and Residents use of a shopping space. Annals of Tourism Research, 30(3), 567-580

[21]   The Comparative Economic Impact of Travel & Tourism, 2012, World Travel and Tourism Council

[22]   Tourism Policy Assam, 2008, Government of Assam

[23]   Travel and Tourism Economic Impact India, 2017, World Travel and Tourism Council,

[24]   Wallendorf M. and Arnould E. J. 1988 My Favorite things: A cross-culture inquiry into object attachment, possessiveness and social linkage. Journal of Consumer Research, 14(4): 531-547

[25]   Warren, R., 1978, The Community in America, 3rd ed. Rand McNally, Chicago, Illinois

[26]   Thomson, George F., 1961, Community Development in Ireland, Mnintir na Tire, Rural Publications, Trippery, pp. 3

[27]   Yuksel, A., 2007. Tourist shopping habitat: Effects on emotions, shopping value and behaviours. Tourism Management 27 (1), 58–69

[28]   Voth, D., 1975, Problems in Evaluating Community Development Journal of the Community Development Society 6 (1), 147-162

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The Revival of Dying Legacy: Tikuli Art

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ABSTRACT

As we all know India is a country of great cultural heritage and India's cultural diversity provides plenty of remarkable art and craft product which are the essence of the Indian culture and tradition which constitutes a significant segment but slowly and gradually our past rich heritage are languishing by efflux of time in which tikuli craft may be regarded as one of them. Tikuli is more than 800 years old and a rare and unique piece of hand painting which was a blooming art form of past has paled into languishing craft of today. The orientation of the present paper entitled "The Revival of Dying Legacy–Tikuli Art" is an honest and humble effort for revival of dying legacy by promoting and commercialization of this art form (which in present era would be visualized to as an orphan child) that might be helpful in spurring new shoots of revival by adopting new ideas and modern techniques so as to revitalized this languishing craft by developing new commercially viable products to create livelihood.

KEYWORDS: Handicraft, Tikuli Art, Revival, Commercialization

I. INTRODUCTION

"To write about Indian handicrafts is almost like writing about the country itself. So vast, complex and colourful, and yet with a simplicity and charm, difficult to attain under comparable conditions"–Upadhyay, M.N., Handicrafts of India.

As we all know India is famous for its rich cultural heritage and its handicraft industry, which is renowned for its prosperous history of several centuries as a prime exporter of hand crafted goods which had a huge demand in the global market such as wooden ware, metal ware, textile weaving & printing, marble & stone crafts, leather works, jewellery etc. the Handicraft industry is one of the biggest employers in rural India which provides plethora of incredible art and craft products even then the blatant question needs to be answered as to–"Why in the contemporary global prospective the various handicrafts are languishing?

In the various research and surveys conducted it has been found that few basic consolidated reasons which are– firstly The skill of making handicraft had been passed from one generation to another in the same family only. Secondly the artisans still depend on indigenous conventional manual modes of production, traditional skills and techniques instead of advanced technology to make a living based on handmade products. Thirdly it is an unorganized, decentralized, labour intensive cottage industry. Lack of finance, defective marketing, non-availability of raw materials and competition from mechanized goods whether imported or locally made.

A. Essential Elements of Languishing Crafts

A craft which fulfils the three basic constraint defined below would be defined as a languishing craft

- The total numbers of craft practitioners are less than 25.
- Crafts persons have replaced craft activity with another activity because the craft practice is unviable, if reduction in time spent on the particular craft is more than 50 percent in the past 3 years.
- Next generation in the family is not learning the craft and there is no recruitment of new persons outside the family. Percentage of new recruitment is less than 40 percent.

India is the land of arts and crafts. Almost every region has its own traditional form of art that includes drawings, paintings, embroideries, carvings, saris and more. Sadly, some of these art forms are on the verge of extinction. Tikuli is among one of them.

B. Historic Background of the Tikuli Art

Tikuli is a rare and unique piece of hand painting, more than 800 years old and has its origin in Patna, an ancient town of eastern India now in the state of Bihar. Tikuli is

derived from the word "Tikuli" or "Bindi"-the dot like embellishment with glass base and gold foil leaves in variety of designs adorning the forehead (space between eyebrows) of all married Indian women, this is considered as a mark that the women is married and committed for life.

During the Mughal rule the tikuli art took completely a new dimension and became means of social distinction and a symbol of royalty and status. The cost of tikuli depends upon their detailed design which was commercially flourishing during Mughal period particularly in the region of Bihar. Traders from far flung areas of India came to this region for their specialized tikuli made of gold and silver foils. The craft, however, with the advent of machine made bindis this craft of "Tikuli" or "Bindi" was deeply impacted which resulted in vanishing of the handmade craft in corridors of industrialization.

C. Comparative Study of Old Tikuli Art with its Newer Version in Form of Tikuli Painting

The old form of tikuli art involved of both men and women and the raw materials used in making tikuli art were natural and quite expensive, rich, royal and elegant which signified flamboyance, the making of these products was time taking and needed special skills which were rare and unique in its motifs and themes these products were small integrate designs were very fragile and delicate.

The old form of tikuli art in contemporary period has transformed itself in form of tikuli painting which is women's centric were in the artisans have converted themselves into painters. While making these paintings synthetic and enamel paint are used as a raw material which were quite cheap however more rough and tough that is to say heat proof and water proof. These life style products are equivalent to lifestyle accessories are quite cheap and are more than 10 times larger in size. These products are made through combination of machine and handmade, although the intricate and detailed designs, needs painting skills which may be recognized as an art piece more than a craft, however it has no cultural and social significance. The themes and the motifs of these paintings are borrowed from Madhubani paintings.

D. Visual Identity of the New Lifestyle Product of Tikuli Painting

The craft is unique in many ways:
- Shapes, colour, composition
- Surface finish of enamel paint
- Folk
- Hand painted
- White and black outline de- tail

- Vector fills of colours
- Black/ dark brown base
- Stylization of real objects
- Realistic themes
- Flat drawings/ lack of perspective in objects
- Detailing known as 'Sa-jaawat'.

E. Revival of Tikuli Art

"According to the United Nations, over the past 30 years, the number of Indian artisans has decreased by 30%, indicating the need to re-invest in artisans to safeguard history, culture and an important source of livelihood." William Bissel, MD, Fabindia with the decline of Mughal rule tikuli art suffered serious blow and the related artisans were rendered jobless with the advent of machine made bindis which were cost effective Thus by the year 1900, the Tikuli art was on the verge of extinction, however in the year 1954, radical steps were taken to revive this art form by Chitracharya Padmashree Upendra Maharathi, painter, artist and designer, who provided a new lease of life to this dying legacy by introducing colourful hardboard paintings which was inspired from Japanese method which has completely transformed by laying new foundation for this art which has seen a series of transformation in becoming "Indianised" that is to say Stories of Mahabharata, Ramayana and Krishna were adopted as a motif in these paintings. Further paintings also derive certain elements out of Madhubani paintings which have found their roots from Bihar. Upendra Maharathi Shilp Anusansdhan Sansthan was established in 1956, with an object of promoting the art and craft of tikuli. Since, 1974 the un- deterred efforts and undying spirit of painter and craftsman Ashok K. Biswas and his wife, entrepreneur Smt. Shibani Biswas was has not only helped the craft survive but could be well recognized as a true phoenix of Indian art forms indeed when the master piece of this art form where gifted as a souvenir to the winning players in the Asian games organized in the year 1984 by our then prime minister Smt. Indira Gandhi.

1) Role of Upendra Maharathi Shilp Anusansdhan Sansthan

The institutes has been established with a motive to preserve, research and promote various form of Bihari handicraft by supporting craft production taking adequate steps to strengthen craft marketing initiative. The institute has established craft resource bank for preservation and revival of tikuli craft. Further the institute, for promotion of the craft creates a network collaboration with other like institutes and other government agencies, thereby attempts to outreach for government aid in connection with their traditional art and craft for the welfare of the artisans, it also performs such other acts including execution of

projects and programmes as Training and Assessment. It also manages and supervises training centres. It also helps setting-up of training centres at field level. The institute takes all efforts to safeguard the languishing craft of the state of Bihar. In order to publicized and create awareness the Upend Maharathi Shilp Anusandhan Sansthan has established a museum in its own premises showcasing awesome and permanent collection of Bihar art and craft so that public at large can see huge collection of handicraft in this museum particularly in respect to the tikuli art and many more, hence the Museum is unique in the sense that apart from showcasing some of the most fascinating collections of traditional craft items it also provides an opportunity to craftsmen to visit here and participate in creativity workshops, with an idea to encourage rural artisans to showcase their talent product and culture, the rural artist of Bihar living in remote villages lacks permanent market for their products thus leading a life in misery where as the middle men who exploit them by taking main chunk of the profit (money) earned through sale of the products. Upendra Maharathi Shilp Anusandhan Sansthan runs training program of six months duration throughout the year in 10 various forms of art and craft. Students get trained under the guidance of skilled craftsmen. They also learn entrepreneurial skills, promotional activities connected with their traditional arts and crafts. The institute also conducts training programs for the artisans so as to make them aware and skilled with new designs, tools, technology, techniques, raw material, etc. The institute also provides library which has unique collection of rare and diverse resources that support research activities. This library is also opened to public at large, beside this they also provides hostel facilities to the students coming from outsides.

2) Government Role and Interventions in Promoting of Tikuli Art Cluster

The National Institute of Design is an autonomous institute under the ministry of Commerce and Industry Government of India, which has been established in the year 1961. NID act as a nodal agency for design clinic schemes DCS which provides opportunities to large sector of MSME as well as Indian design fraternity.The tikuli cluster of Digha, Patna is supported by east zone office of DCS, Calcutta in association with Upendra Maharathi Shilp Anusandhan Sansthan. The tikuli cluster are classified as micro enterprise due to their investment in tool, plant and machinery do not exceed 25 lakhs Rupees. The Cluster units comprises of 1–2 craftswomen/ per unit. They are micro scale and comprise of activities typical of an unorganized sector with non-registered with UMSAS or any other government body.

- Gender equality ratio amongst the cluster is females: male: 25:1

- Literacy rate is an average of 90% in males and 50% in females
- Employment of the women group is Married: housewife 90%
- Single : service/ job 50% house-hold work 50%

In the cluster the designers were appointed by the government agencies to train the cluster members by learning the creative problem solving techniques/ design process to explore opportunities and develop breakthrough solutions. Through interactive discussions and workshop activities, remedial solutions are generated. The workshop could be for 1–5 days depending upon the need of the clusters and the number of units.

F. Raw Material used in Tikuli Art

- *Wood:* Medium density and high density fibre boards (MDF/ HDF) Coasters and wall paintings are usually made on coated medium density and high density fibre boards.
- *Enamel Paint:* Enamel paint is used to pre- pare base coat and main ornamentation process. Asian paints enamel paint is used.
- *Thinner/ Astringent:* It is used to dilute the enamel paint to achieve the right consistency for painting and also to clean excess paint and the used Brushes
- *Brushes and Colour Palette:* 0, 00, 000 round Brushes are used for painting whereas flat Brushes up to number 30 is used for preparing the base coat. Plastic small colour palettes are used to mix colors.
- *Tracing Paper:* It is used for tracing the design during replication.
- *Cleaning Cloth:* Cotton fabric (preferably knitted) is required to clean Brushes and excess paint.

Apart from these raw materials as mentioned above few of the raw materials are procured locally through the artisans themselves according to their day to day requirement.

G. The Tikuli Craft: Process

The creation of tikuli art is a tedious process that requires a great deal of patience. Originally, it involved melting glass, blowing it into a thin sheet and making and adding traced pattern in natural colors and afterwards embellishing it with gold foil and jewels. The gold foil was etched to form traced patterns and later, natural colours and gold thwart and gems were added for enhancing the etched designs. Nowadays, this painting is done on the glazed surface of hardboard plates. The process of making these paintings is a very tedious and time-consuming. From cutting the hard board in different sizes to painting sharp black lines in one stroke for smoothness and fineness, Artists employ hardboards as their surface to

draw on, and cut it into ornate shapes. These are coated with four or five layers of enamel. After each coat is applied, the surface is rubbed with sandpaper to give a glossy, polished effect, the process involves 15 stages. The brushes which were used are made of squirrel or stable hair. These paintings are available in different sizes and shapes which are both heat and water proof. These are used for interior decorations like wall hangings and utility items like table mats and coasters.

H. Motifs of Tikuli Art

The motifs which is used in tikuli art has been borrowed from the well known Madhubani paintings which was flourished in the region of Bihar and Jharkhand and no recognition is needed therefore the motifs were taken for the revival of this tikuli art. The motifs are the mirror images of rich social religious culture of the eastern region of India which includes Indian wedding, festival of Bihar (Chatt Puja, Deepawali, Holi) stories of Ramayana Mahabharat and Krishna Leela.

I. Product Range

Existing tikuli products includes life style product in the form of Mobile holder, Tray Coaster with coaster stand 3" X 3", Round Coaster 3" x 3", Square Coaster 4"x 4", Round Coaster 4" x 4", Square Coaster Wall Hanging/ Table mat 4.5 x 4.5 Sq. To 24''x 12'' Rectangle.

J. Storage of Raw Material and Product Range

The raw materials which are utilized in tikuli art after procuring them are stored in a proper way taking all precautionary measures to prevent their disintegration which would result in reducing the quality of the finished product and ultimately would suffer loss. Hence the products are stored in cool and dry place which is properly ventilated.

K. Waste Management in the process of Tikuli Art

In the process of tikuli craft every effort is made by the artisans to minimize the generation of waste products in spite of this whatever waste product is produced while making the handicrafts product is basically in following form of-Wood Dust which is mixed with Fevicol® to create putty which is used to mend crevices, holes, cracks and gaps in wood and joinery.
- Wood Shaving which are used after converting into putty in factories.
- Wood Cut outs are sold to the factories to be converted into wood dust and also to mend gaps.
- Design Tracing which are used in tikuli process after using several times become d-shaped and these torn used tracings are sold to be recycled.

- Enamel Paint in the process of painting no cut out waste is generated however enamel paint is generated when it dries in palette

Hence it is evident that while making the tikuli handicraft product very little waste is generated and whatever waste residue is left are disposed off in eco-friendly manner.

L. Market Size

Market shares International and National market both Exports has more than 50% share in the market size of Tikuli. E-Retailing and International exhibitions are the major source of marketing. National exhibitions and display through government emporiums play a significant role in national and local sales. Some unique wall paintings are also sold through curators and art collectors.

M. Factors Affecting the Craft and Its Productivity

1) Geographical and Climatic Factors
The craft involves use of enamel paint which requires dry air at room temperature or mild sunlight to dry. It needs a dust free atmosphere for a finished look. Due to use of (Polyurethane) based paints, the workspace need to be well ventilated. The Brushes need to be kept in a dry and cool place for longevity. Hence, spring and summer are the ideal seasons for the craft whereas monsoon is completely unfavorable. Winter is ideal but the number of working hours in daylight reduces considerably which in turn affects productivity.

2) Social and Cultural Factors
Tikuli had been practiced by men originally, but since it's reformation by Padma Vibhushan Shree Upendra Maharathi as a form of enamel painting it has been a woman's affair, which usually involves housewives and college girls with, the idea is to earn pocket money which would be helpful in their social upliftment and eradication of gender inequality prevailing in the society. Although, Tikuli as products don't hold any cultural significance, but the themes that are painted revolve around Indian wedding, festivals of Bihar (Chatth Puja, Deepavali and Holi) and Krishna Lela, which definitely propagates the culture and history of Bihar to the world.

3) Economic Factors
The craftsmen involved in making tikuli art basically belong to economically weaker section of the society; hence the craft is practiced at home to reduce the cost of investment in form of workspace and tools which are purchased at very nominal rate. Lack of ample work-space results in inefficiency and compromised quality of work and also leads to low productivity due to lack of appropriate provision which are costly.

4) Political Factors

Political factors affect the craft directly or indirectly through the policies which are adopted and implemented by the government and its agencies from time to time for the promotions of craft and its craftsmen.

N. SWOT Analysis: Tikuli Art

1) Strength

The craft products of tikuli art are heat and waterproof hence they have high longevity these product are colorful made in various shapes and sizes yet they are light weighted. Since the skilled craftsmen have acquired knowledge in this field of art therefore in creation of these creative products have become less time consuming.

2) Weakness

In making of these products only single base chemical colour is used. These colour are non organic and non biodegradable which are influenced by Madhubani in terms of composition and themes out of which 50% process is out sourced which results in limiting the colour scheme and patterns which reduces the product range. Further limited base material also reduces the product range. The craftsmen with changing times have not been able to cope up with demand which has resulted into making of product which has lost their utilitarian value. Thus the product range in the existing market is limited to low price range buyers that is to say that the luxury segment products range is untapped which needs to be emphasized.

3) Opportunity

To remove the aforesaid weakness monumental efforts were made through researchers and studies conducted at various level taking help of latest technologies and machines for improvisation of this craft by reconnecting to the original style of work leading to production of new high end luxury products which have demand in the market by adopting new colour schemes which provides a wide range of colour and new design patterns and adopting new base materials for the art form.

4) Threats

In making of this Tikuli art craft product the chemical paint which is used is toxic which is a hurdle for boosting its exports as compared to other forms of Indian art. Further the high cost of production resulting in increase of price range has resulted in the loss of the market.

O. Why does it Need to be Revived?

The finest craftsmanship makes tikuli a well recognized product for export. Tikuli art showcases the diversity and intricacy of Indian art and culture. The themes used myths from the life of Krishna and Rama, as well as Indian wedding scenes and the festivals of Bihar, which showcase of the Indian tradition and heritage. Thus, it is necessary to preserve and revive this art form from the archives of India's cultural past. Upendra Maharathi Shilp Anusandhan Sansthan which was established in 1956 and Bihar Mahila Udyog Sangh which was established by Ashok K Biswas and his wife Sibani Biswas these two agencies apart from other are icon which have played a vital role for the revival of this languishing tikuli art.

II. OBJECTIVE

The objective of this paper is to restore and protect the traditional art-Tikuli with the solitary aim of uplifting the socio-economic standard of the craftsmen from the existing poverty level; to analyze Strength, Weaknesses, Opportunities and Threats/ Challenges faced or to be faced by tikuli handicraft artisans and thus the role of designer is of pivotal in developing sustainably the arts and the crafts of the community by providing infrastructure in form of new ideas and modern techniques so as to skill them in producing handicrafts which are more commercially viable which are readily available to the consumer eliminating the middlemen for attaining economic betterment.

A. Methodology/ Approach

In order to achieve the above aforesaid objectives the methodology/ approach adopted is based upon a variety of sources and studies, namely: a review of secondary sources; papers written by experts. This review and collection of secondary data served as a guideline for this paper, on basis of these exploration motifs were selected out of which stylized designs were created by the process of design intervention from hardboards into fabric which would lead to renaissance of tikuli art which is a languishing form of art.

B. Design Intervention

From the SWOT analysis conducted by me the base material which was traditionally used in form of hardboard made of woods, I have tried to introduce fabric in its place which can be easily procured without harming bio diversity further in place of chemical base paints which was highly toxic non organic and biodegradable I would suggest to introduce and use fabric colour in its place which are less harmful and are readily available in the market and the craftsmen are also secured from the health hazards faced by them while using chemical paints, the motifs have been borrowed from the original art form of tikuli which have been painted on men's demanded accessories (such as tie & ascots) thus this style of art form which was earlier women centric has shifted to life style high end products and now it's high time to focused it on new line product which is totally untapped.

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III. FINDINGS

In my opinion by adopting the aforesaid suggestion the objective of this study and research conducted by me would be of some help in preserving and reviving of these art forms from the archives of India's cultural past.

A. Designer Role to Act as a Facilitator

Designer should act as a connecting link between the market and craftsman in other words a designer not only helps in providing direct linkage to the global market as they are far away from the consumer enabling the artisans to understand the aesthetic and socio-cultural needs of the commercial market. A designer in facilitation of this languishing tikuli art bears is a symbiotic relationship with the craftsman. A designer by his/ her sheer imagination and innovative ideas is capable of blending modern contemporary techniques with traditional craftsman's skill to create new commercially viable products by series of research and observation.

Remarks of the research scholars quoted below:

- "Through craft the designer connects with the natural world and the collective past. Traditional craft skills are adapted to contemporary design" Sanjeev Kumar and Nandini Dutta-2011
- "Designers are thus an interface, between the past and the present, the traditional and the modern, trying to match craft production to the needs of modern times and demands. Sethi, 2005
- "Perhaps it is now time to do so. "With adequate social opportunities, individuals can effectively shape their own destiny and help each other." Poonam Bir Kasturi-2005
- "One of the most valuable functions of a good designer today is to ask the right questions and of those concerned so that they become freshly involved and seek a solution themselves." (Charles and Ray Eames-"India Report)

Fig. 1: Tikuli Painting in the form of Wall Hangings

Fig. 2: Last Remains of the Original Tikuli, in the form of Bindi

Fig. 3: New Form of Tikuli Painting

Fig. 4: Older Form of Tikuli Art

Fig. 5: Chitracharya Padmashree Upendra Maharathi

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Fig. 6: Mr. Ashok. K. Biswas
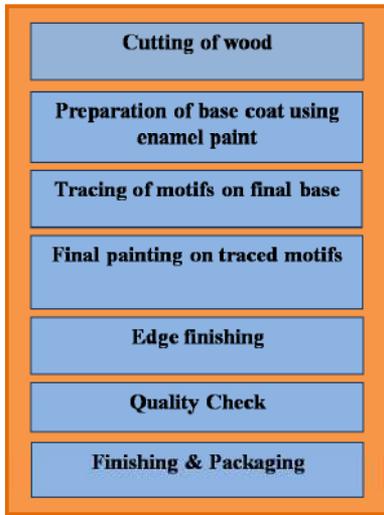

Fig. 10: Painting Showcasing Chatt Puja

Fig. 7: The Process of Tikuli Art

Fig. 11 (a): Wall Hangings

Fig. 8: Painting Showcasing Royal Marriage

Fig. 11 (b): Round Coaster with Stand

Fig. 9: Painting Showcasing RaasLeela

Fig. 11 (c): Round Coaster

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Fig. 12: Workshops, Exhibitions and Various Cultural Programs for the Promotion of Tikuli art Form

Fig. 13: Women Practicing Tikuli Art

Fig. 14: Tikuli Art done by Bihar Mahila Udyog Sangh

Fig. 15: Stylized Design of Tikuli Art on Men's Tie

IV. SUGGESTIONS & CONCLUSION

"A country remains poor in wealth, both mentally and intellectually, if it does not develop its handicraft and its industries"

—Mahatma Gandhi

This is my humble effort towards creating awareness about the dying legacy-tikuli art which was quite prominent in past centuries and to spread the message of rich cultural heritage among the public at large which had occupied special place owing to its beauty dignity forms style and aesthetic however with the passage of time the Indian society and the economy has undergone enormous change as a result of which this form of art was forced to be categorized as a languishing craft. After conducting the thorough studies and research and to attain the objects of revival/ transformation of the languishing craft certain vital aspects which has not been amply redressed are suggested in the following manner firstly it was found that still the craft was been practiced by individual artisans and the object of organizing them into group of clusters that is self sustain community based entrepreneur has not been achieved till now which is extremely necessary, secondly efforts in providing workspace with basic amenities like furniture, good lighting and ergonomically seating thirdly the government organization should come forward to work hand in hand with artisans to promote their craft through various training program conducted so as they may adopt the modern idea and techniques fourthly the government should also play a role by providing the craftsman with the good quality of raw material fifthly design development workshop must be conducted wherein direct interaction between designer and craftsmen is necessary to provide a wider range of commercially viable products and further designer must emphasis craftsman to developed a finished products last but not the least now it is time to put along with the fashion industries for the commercialization of their product.

This paper is intended to revitalize the dying legacy with the required transformation as perceived by me

during the study conducted with the hope that this art may see a new dawn.

I liked to end this paper with this quotes of a well known reformer Albert Einstein "Creativity is contagious, pass it on"

REFERENCES

[1]   Das, Subhamoy. "Bindi: The Great Indian Forehead Art". Retrieved 2009-02-16.
[2]   Suicidal tendency growing among youth in Patna The Times of India. Retrieved Aug 29, 2013
[3]   www.Telegraphindia.com
[4]   www.jharkhandbihar.com
[5]   www.shodhganga.inflibnet.ac.in/ bitstream/10603/21254/5/chapter%201.pdf
[6]   www.patnabeats.com/all-you-need-to-know-about-tikuli-a-vanishing-craft-from-bihar/
[7]   www.biharmahilaudyogsangh.com/ memdirectory/sonaart.htm
[8]   https://tikulicious.wordpress.com/.../tikuli-yes-it-is-my-real-name-and-also-a-vanishin.
[9]   https://en.wikipedia.org/wiki/tikuli_art
[10] www.indianetzone.com ›art & culture › indian crafts › crafts of indian states
[11] www.craftcouncilofindia.org
[12] https://www.thebetterindia.com/93754/tikuli-art-revival-bihar-women-artisans-empowerment/
[13] http://www.biharmahilaudyogsangh.com/ashok-vishwas/
[14] http://nazariya.in/tikuli-art-bihar/
[15] https://artsspectrum.weebly.com/tikuli-arts.html
[16] https://www.slideshare.net/0612mukesh/tikuli-art-bihar
[17] https://www.telegraphindia.com/1120907/jsp/bihar/story_15945288 .jsp

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Chapter 28

The Endeavour of Survival through Craft Renovation: A Case Study on Design and Technical Development of Hand Woven Textile Crafts in Shantiniketan, West Bengal

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ABSTRACT

Each functional object has both intrinsic and extrinsic value. In most traditions, craft objects are created not only to fulfil some specific function but also for the enrichment of aesthetic sensibility. On the other hand, it conveys efficiency of technical skills, innovation of creative thoughts as well as cultural identity. When the issue of survival of a tradition comes into art and craft practice, the challenges are many. It has often been seen in many craft traditions that due to the repetitive and frequent use of the same kinds of designs for years, patrons and customers lose interest. This also has implications in terms of perception of the aesthetic qualities of the craft object. This study tries to examine the problems that the artisans face in such contexts of survival and proposes how to overcome them by bringing minor changes to craft practice. In order to illustrate this, a case study of the artisan village of Kamarpara, Shantiniketan, in West Bengal is used, where most of the women prepare textile crafts in handloom for their livelihood. Findings suggest that by implementing re-design and minor technical developments in colour choice, weaving, cutting, variety in product design and improving product material quality, positive and sustainable change can be effectively introduced. The study has implication to regenerate new aesthetic motivation in artisans also. Future implications include exploration of the constructs of purity and hybridity in craft tradition with changing times.

KEYWORDS: Aesthetics, Craft, Design, Handloom, Textile

I. INTRODUCTION

"There really is no such thing as art-there are only artists." Gombrich, E.H. 1994, *The Story of Art*. Each craft contains everyday life experiences, aesthetic sensibility, creative thoughts, as well as cultural identity. The uses of material, technique, colour, design form make a craft distinctive. If there is lack of any of these components, a craft could face problems of popularity and acceptance. Therefore, it is noticed that a certain craft is popular in a specific area for a limited time period, but over time it faces several challenges of sustainability. How to make a craft tradition sustainable or to get global popularity has become a significant research problem.

According to Venkatesan (2009) the word 'craft' has its origin in Britain in 18th century. The politics of work, the decorative arts and the vernacular are the three sets of concerns that were identified by Greenhalgh (1997) in the context of craft. They are of paramount importance for the evolution of art and craft. The words 'artisan' and 'craftsperson' are often used interchangeably. "Some refer to 'handicrafts', or to 'cottage industries', or 'household industries', or 'traditional industries'" (Liebl & Roy 2003). Craft is often used to refer to only those materials having some sort of artistic quality. Some "include any occupation that involves manual labour" (Liebl & Roy 2003). A simple definition was given by the office of the Development Commissioner of handicraft, India in 1989 as "Items made by hand, often with the use of simple tools, and generally artistic and/ or traditional in nature. They include objects of utility and objects of decoration" (Ministry of Textiles, Office of the Development Commissioner, Handicrafts 1989 report). Maureen Liebl and Tirthankar Roy (2003) refined it "to mean that handicrafts are products produced with: (i) manual labour with minimal or no input from machines; (ii) a substantial level of skill or expertise; (iii) a significant element of tradition; and (iv) history of survival in significant scale."

Only a few of the traditional craft producers are existing in the developed countries of the present world (Liebl & Roy 2003). In India the situation is different. The artisans still retain the traditional skills and techniques; they are still depended upon the handicraft for their livelihood. It is not easy to portray their practice and life. This is a matter of concern for a number of Government and private institutes. From the very beginning handicraft has always been a matter of great interest for common people. Along with the tribal folk, the aboriginal artisans have been engaged with this profession for a long time to earn their livelihood. They do it during their slant period. Because their main profession is agriculture. There is uniqueness in the creativity and depth in the originality of the Indian handicraft. Its unmatchable colour offers a high place in the arena. The field offers a major contribution for employment and revenue generation in the country.

In Indian context, today there are certain challenges. The traditional artists are leaving their profession and gathering in the city. They are trying to search for new jobs, and new professions. Their number is not small, especially in case of textile weaving. There are mainly two reasons: the increasing use of power loom and the low demand in the market of the textile crafts which are woven in hand. Power loom has the capacity to produce huge amount of textile within a small period of time. It is very essential to develop new design and upgrade the technology. This will improve the quality of the craft to make it acceptable to the buyers. "Each craft is highly complicated involving numerous processes and strategies. Local crafts have their traditional ways of production, their own designs, colours, shapes and character" (Swayambhar Nari 2012 report). The traditional items are becoming less attractive in the face of rapid change for the repetitive use of the design. Renovation has become indispensable.

A. Motivation of the Study

Thus, any plan for the growth of the handicraft must focus on the design of craft and the development of the technology. This has been unerringly understood by the Office of the Development Commissioner (handicrafts): "Development of the new Designs, product diversification, and improved technological process are considered as continuous exercise to meet the present day needs of handicrafts consumers both local & abroad" (Swayambhar Nari 2012 report). Their worldwide acceptability is marked through the high export trend of the products. The craft producers are scattered throughout the country. Effective and sustainable attempt should be made to modernize the technique and the design in consideration of the cultural divergence, size of the nation and variety of crafts. Therefore, the requirement of a study was felt in order to explore and address different issues regarding design and technical development of the crafts in India. We selected the hand woven textile craft tradition at Kamarpara, Shantiniketan, West Bengal.

The numbers of SC, ST, OBC and General category of the artisans of Kamarpara, Illambazar block in Birbhum district are more or less the same. They reside in their own houses. They have also their own land. A few of them are also attached to other professions. The textile weaving is often done by the women. They take time for this work from their household activities. Some of the conventional products are table runner, wall hanging, table mat, etc. A few families earn their livelihood from this profession of weaving. But they get very low profit. And there is also the problem of middle men who earn from them. This is a frustrating experience for the artisans. Local market is the only place where they can sell their products which are required to be taken to the outside world.

The achievement of the long practiced craft tradition of India and its rejuvenation includes the remarkable contribution of the Bengal craft. Earlier, Bengal weavers contributed many traditional textile forms such as Baluchari, Santipuri, Jamdani, Nakshi Katha, etc. In this way Bengal had always been involved in the practice of textile weaving, embroidery and appliqué. In this study, our focus is on hand woven textile craft which is practiced at a small village of West Bengal. In Kamarpara village, previously women were used to with hand embroidery and a few were familiar with plain handloom weaving. Gradually they got introduced with loin loom (locally known as Manipuri handloom) through a few textile weaving workshops, conducted by Swayambhar Nari, an NGO. And, for long time, these migrated weaving technique had become a new tradition at the village. Mostly women and young girls weave with this back strap loom technique. There were several problems and limitations with this newly adopted hand woven craft tradition. This study tells of how Kamarpara village artisans adopted the loin loom and were able to produce hand woven textile crafts. Also, this study discusses in detail of the design and technical development of the newly implemented weaving tradition at Kamarpara.

II. REVIEW OF LITERATURE

A tradition from one state, introduced in another, is nothing new. In old days, this was often because of migration of one community to another place. Today, it is often Government driven. A number of works have been conducted in order to explore the effect of introduction of new design, technique, materials etc. as an intervention to combat different kind of problems that a particular traditional craft has to face now a days in order to survive. Kapur & Mittar (2014) brilliantly show "how interesting ideas and new intervention models can be developed for

several purposes, whether for revitalizing a languishing craft or for developing new products to create livelihoods". Modernity is often described as the traditional other of craft. But still, even lace makers have introduced the new techniques of modernity into their product and skill in order to retain their identity (Makovicky 2009). Madhubani craft is also often threatened by external factors. Anaisha Shrujal Patel (2016) conducted a study on this where the approach is made on the basis of practice. The author was staying with a Madhubani artisan for three months and there was a training session. She developed new design and product after her stay. She recommends action research which will be collaborative and at the same time creative to evolve the Madhubani craft without violating its original heritage. Sometimes modern techniques are mixed with the indigenous know how (traditional design, style, craft) in the area of weaving and sericulture. The effect is very positive. Less expensive good quality product can be produced through this to cope with the modern market (Chakravorty *et al.* 2010). The hand woven textile of Manipur is very famous. Attempt has also been made in order to preserve this before it is totally vanished (Pandya & Thoudam 2010).Thus we see that hardly any study has been made to attempt preservation of the handloom textile of Eastern part of India, especially in Bengal by imposing methodology of design and technical development on a community where traditional craft practice is about to cease.

III. DATA AND METHODOLOGY

Case Study: The authors made a practice based approach. The first author, empanelled as a designer by the Ministry of Textiles, Govt. of India, trained thirty women artisans of Kamarpara, for fifteen days in a training session organized by the NGO, Swayambhar Nari. The data were collected during this period through various observations, interviews, photographs, and recordings with the artisans. The queries were regarding their professions, traditions, rituals, history of their place, their expectations from the community, different problems related to daily life and their interests. They were asked in detail about their textile crafts-what kind of textile craft do they produce, what for those crafts are used, where from they bring their basic material to weave etc. After completion of the materials what do they do? Are they trained by any designer or by any organisation? Is their textile craft tradition practiced by the following generations? How many people are involved with the craft profession there? What is their gender? Are they happy with their present profession or not? What is their intention to involve with the profession? What is their present economic position? What other profession do they have? Questions were also asked about their demographic details.

A. Observations

The artisans of the Kamarpara village were habituated with the traditional hand loom and were not properly able to generate new motifs. Their economy was declining for this kind of traditional practice. They have been introduced with loin loom (traditional hand loom of Manipur in India) through a fifteen days 'hand woven textile crafts workshop' by the NGO Swayambhar Nari.

The loin loom costs very less in comparison to other handlooms and it is easily movable. In case of this loom, "the weaver (it is mostly used by female) sits on the floor, legs stretched and feet propped against a block of stone or wood. The back strap creates resistance which enables the weaver to tighten and loosen the yarn as required. It's a slow and tedious way of weaving and one cannot weave long at one go" (Dhar 2015). But the woven cloth looks very unique. The reason behind the initiative of introducing this loom at Kamarpara is to make the villagers self-dependent with less effort and low price to produce hand woven textile crafts. Some women of Manipur are still trying to survive on the loin loom weaving.

Loin loom limitations: Slow production is its major flaw in India. The textile is narrow. It is unable to create wide fabric.

Solution: More than one length are stitched collectively in order to make products like bags, tops, cushion covers, skirts etc. We can use it as winter wear for its tight weave.

B. Intervention Strategies

a. The artisans have been given new concepts to develop design. For instance, what are the common flora and fauna found at their area and how to develop design from those living objects? If they are unable to find any such form, they are asked to make geometric design or any traditional motifs from their culture. They have been told to simplify the design motifs reducing unnecessary ornamentation so that they can reproduce the design easily through weaving. They have been told how to choose colours (positive colours, warm and cool colours etc.). To make the design reproducible, first of all they made sketches, and then filled up with multiple colours.

b. They have been told about the concept of the product. After the development of a prototype, necessary guidance was given about how to implement the concept with new techniques by using different colourful threads as well as how to blend colours materials while on weaving and raising any pattern or motif for enhancing its intricacy and beauty to arrive into a marketable product.

c. They have been introduced weaving textiles on Jamdani techniques to raise different motif and pattern. It involves the supplementary weft technique along with the standard weft technique. Each of the supplementary weft motifs is then added manually by interlacing the weft threads with fine bamboo sticks using individual spools. This process results in exciting patterns.

d. Along with the development of prototypes they were provided with the knowledge of the present market and test of the current buyers.

e. The finished products were carefully stitched, washed, folded and packaged to make ready for the market.

C. Discussion

After introducing the Jamdani technique in the loin loom, different patterns and motifs came out. Artisans can easily weave any motif with various coloured and blended threads. After the use of multiple colours in warp and in weft, different check patterned cloth came out. And they have learnt to use multi-thickness thread in the same fabric to bring out different texture. Apart from the technical aspects, they gradually came to know that with the same kind of weaving they can produce a number of crafts such as different types of bag, table runner, table mat, hanging bag and even wall hanging. On the other hand, earlier they used to produce small width fabric. They overcame with innovative ideas such as joining two or multiple woven clothes together to make larger fabric, for instance table cloth, door and window curtain, bed cover etc.

The Ministry of Textiles, Government of India funded a number of NGOs to conduct design and technical development workshops at different villages to rejuvenate various dying traditions and to make craftsmen more efficient to survive through their own creative activities. In the village Kamarpara-Shantiniketan, the artisans have been producing innovative woven textile crafts since last five years after learning the Jamdani technique to develop exciting motif designs easily on textile surface. The artisans sell their woven textile crafts at the local markets and in national markets through the intervention of new design and technique. From economic perspective, the artisans have made a decent enrichment through their craft practice.

IV. CONCLUSION

This study attempts to figure out the problems faced by the traditional hand woven textile craft artisans and tries to observe the result of the intervention of a new technique, Jamdani in the loin loom. In order to do this a case study was conducted at the Eastern part of India through a practice based approach. Results suggest that artisans, with the introduction of Jamdani technique, effectively learned how to develop new motifs and new pattern of design. At the outer world there was craft innovation and in the inner world the artisans were enriched with a newly grown up aesthetic sensibility. Findings have implication to rejuvenate and preserve the traditional textile craft.

Every craft has its own socio-cultural context. When the craft goes beyond the periphery of a certain culture, the context gets changed in terms of aesthetic interpretation. This indicates a significant future direction of re-exploration where the queries will be how and to what extent, through such implementation, the purity of the artisans' traditional identity is getting affected.

Images of the Design and Technical Development Workshop Held at Kamarpara, Shantiniketan, West Bengal

Fig. 1: Artisans are at Work with their Traditional Weaving Techniques

Fig. 2: Artisans are Learning to Weave in the Loin Loom

Fig. 3: Artisans are Weaving in the Loin Loom

Fig. 4: Finally they are Able to Develop New Geometric Motifs in the Loin Loom

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Fig. 5: Products Made by the Artisans

Fig. 6: An Exhibition of their Products at Kamarpara Village

Photography: Pinaki Gayen and Totan Das.

REFERENCES

[1] Chakravorty, R., Dutta, P., & Ghose, J., 2010, Sericulture and traditional craft of silk weaving in Assam, *Indian Journal of Traditional Knowledge*, 9(2), pp.378-385.

[2] Dhar, S., 2015, 'Ancient loin loom of northeast is going world wide', *The Times of India,* 1 November, viewed 13 September 2017, Retrieved from

[3] https://timesofindia.indiatimes.com/life-style/fashion/buzz/Ancient-loin-loom-of-northeast-is-going-world-wide/articleshow/49616208.cms

[4] Gombrich, E.H., 1994, The story of art, Prentice-Hall, Englewood Cliffs, N.J.

[5] Greenhalgh, P. 1997, 'The history of craft', in *The culture of craft*, P. Dormer, University Press, Manchester, pp.20-52.

[6] Kapur, H., & Mittar, S., 2014, Design Intervention & Craft Revival, *International Journal of Scientific and Research Publications*, 4(10), pp.1-5.

[7] Liebl M. & Roy T., 2003, Handmade in India: Preliminary Analysis of Crafts Producers and Crafts Production, *Economic and Political Weekly,* 38(51/52), pp. 5366-5376.

[8] Makovicky, N., 2009, "Traditional—with Contemporary Form": Craft and Discourses of Modernity in Slovakia Today, *The Journal of Modern Craft*, 2(1), 43-58.

[9] Ministry of Textiles, Office of the Development Commissioner (Handicrafts) 1989, *Report on the Task Force on Handicrafts for the VIII Five Year Plan*, New Delhi.

[10] Pandya, A., & Thoudam, J., 2010, Handloom weaving, the traditional craft of Manipur, *Indian Journal of Traditional Knowledge*, 9 (4), pp.651-655.

[11] Patel, A.S., 2016,' Declining crafts: looking through a different perspective', in D. Higgins and V. Dhupa (eds.), *In This Place: Cumulus Association Biannual International Conference: conference proceedings, School of Art & Design,* Nottingham Trent University, Nottingham, 27 April -1 May, pp.292-297.

[12] Swayambhar Nari, 2012, *Documentation Report on Design & Technical Development Workshop in Artistic Textiles Craf,* Kolkata.

[13] Venkatesan, S., 2009, Rethinking Agency: Persons and Things in the Heterotopia of 'Traditional Indian Craft', *The Journal of the Royal Anthropological Institute,* 15(1), pp.78-95.

Threads of Knowledge: Knowledge Exchange in Indian Craft Communities

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ABSTRACT

This paper explores the Indian crafts industry-examining the craft communities from a social constructionist perspective with the aim to document and analyse the knowledge exchange within and beyond these communities, thus illustrating the peripheral factors and issues which affect the knowledge transfer. In order to understand the knowledge exchange in the craft communities it has been important to understand the community structures, the outlook and the perception of crafts by the craftspeople themselves. In the Indian context, illiteracy among the craftspeople has always remained the primary challenge in the amelioration of the craft communities and their crafts. Also, the migration of the craftspeople from their crafts reflects the growing impoverishment of artisans and unsustainability of their craft. Mapping the invisible knowledge exchange networks of the craft communities reveals the top-down structure of the crafts industry; which incidentally, is also largely the result of the widespread illiteracy. Replacing the top-down structure with a bottom-up one will provide a more proactive role for the craft communities, thereby also the impetus for the much needed change in their social status. To keep the knowledge wheel turning, the study finds an insistent need to encourage interaction and collaboration among the craft communities and various interest groups employing different means and media to do the same. This understanding of the ecosystem that craftspeople are part of proposes the need for a paradigm shift in the outlook and perception of crafts, particularly in the context of the new knowledge-based economy, where information, creativity, and innovation play a major role.

KEYWORDS: Craft Knowledge, Knowledge Exchange, Communities of Practice

I.   INTRODUCTION

It was one of those routine three-wheeler rickshaw commuter rides in Mumbai, only this time the driver happened to be from a family that practiced a traditional craft. A discussion revealed that he and his brothers had come to the big city looking for work as there was no longer enough money in his family's ancestral skills, and he was now earning more driving the rickshaw than he did practicing his family craft. This interaction with the driver actually served as the trigger for this research to delve into 'why and how' such migration is affecting the current state of crafts in our society.

The objective of this study is therefore to gain an understanding of the ways in which knowledge has been transferred in craft communities in India, through mapping of the structure of craft communities and external bodies between which knowledge exchange takes place, and forthwith identify and understand some underlying problem areas. The focus areas for this research are three different craft communities in the Kutch region of Gujarat, all in and around the city of Bhuj and additionally, a study of the two craft development organisations (CDOs), Garvi Gurjari chain of stores managed by the GSHHDC and the Kala Raksha Trust.

The study examines the current state of the craft sector in India, exploring the various factors influencing the sector and how they impact artisans and craft workers; and further relates these to the individual craft communities studied.

A.   The Interpretive Community of Crafts

Man has always modified tools provided by nature or has made new tools to suit his needs. The ability to work stone and make tools was probably the first craft skill. The order in which they developed and man acquired new craft skills is related to the way in which man himself evolved from hunter to settler, from villager to townsman. (Lucie-Smith 1981:22)

Marx framed craftsmanship in the broadest possible terms as "form-giving activity," emphasising that self and social relations develop through the making of physical things, enabling the all-around development of the individual (in Sennett, 2009). Sennett adds that craftsmanship is "an enduring, basic human impulse, the desire to do a job well for its own sake. The craftsman explores these dimensions of skill, commitment and judgement by focusing on the intimate connection between hand and head" (Sennett 2009:9).

Donkin (2001) believes that craft occupies a middle ground between art and mechanised manufacture, though the boundaries between them are permeable. To her, craft is not just about making things–it is about cultural identity; therefore she acknowledges the structure, values, history and identity of the communities in which crafts are practiced. It is the function of the end product that creates the difference between art and manufacturing. However, over a long term, crafts may achieve an artistic status later in their life. Donkin describes three characteristics of crafts: crafts resulting from a certain type of making; objects created by hand through the skilled use of tools; and essentially functional objects (Donkin, 2001). Additionally, Risatti observes that 'while purpose and function instigate the making of craft objects, form, material, and technique are the elements necessary to bring them into being as physical, tangible things' (Risatti, 2007:80). Moreover, these physical elements have a universality that affects the way they come together to form the craft object.

Sennett says that, "all craftsmanship is founded on skill developed to a high degree" (Sennett 2009:20). He defines skill as a 'trained practice.' Donkin (2001) elaborates this mastering of a craft as a slow and gradual process which involves mastering of a tradition which has to be in place before individual creativity comes into play. The acquisition of skills is a starting point; an understanding of the process is required to translate thoughts into objects. This is where tacit knowledge comes in. Gomm, *et al.,* (2000) define tacit knowledge as "all that is remembered somehow, minus that which is remembered in the form of words, symbols and other rhetorical forms" (Gomm *et al.*, 2000:52). They add that tacit knowledge includes a multitude of unexpressible associations, giving rise to new meanings, new ideas and new applications of the old. Sennett uses the term 'embedding' to refer to tacit knowledge in crafts. He defines embedding as a process essential to all skills–the conversion of all information and practices into tacit knowledge.

B. *Crafts in the Indian Context*

The largest democracy in the world, India also boasts multiple cultural origins. Indian crafts which have evolved amidst this diversity are mostly community-based, tradition-driven, and purchased for cultural or utilitarian reasons by a largely domestic market. It is a part of everyday life.

Jaitly (2007) points out that the word 'handicrafts' came to describe ornamental, decorative objects that may be utilitarian, but actually served the upper echelons of Indian society, whereas common potters, weavers and others who made non-artistic crafts were categorised as mere village industry. Jaitly argues that crafts make the 'wheels of the economy' turn, thus meriting serious attention instead of condescending patronage, over-romanticised projection, or apologetic 'discount' support (Jaitly, 2005).

Ranjan and Ranjan (2005) map out the craft sectors in every state of India, providing a comprehensive picture of the variety and diversity of the Indian crafts sector. Behind agriculture the crafts sector is one of the largest employer in India. With such massive numbers, Indian crafts are facing their most critical test of survival, due to "changes in the national infrastructure leading to huge displacements of population and loss of traditional occupations and unrelenting urbanization development" (Ranjan and Ranjan, 2005:18). Moreover, industrial production has steadily replaced traditional handmade production, which has meant the loss of traditional markets for artisans and craftspeople, who struggle to compete against the economic and production efficiencies of volume manufacturing, advanced technology, and mechanization (Wood, 2011). Liebl and Roy (2000) provide a good summary of the factors affecting the Indian crafts industry. In their view, the unique, the individual, and the culturally-resonant will acquire ever more appeal in a world that is becoming increasingly mechanised, homogenised, and exposed to the ubiquitous scrutiny enabled by the Internet. Though their motivation is to maintain and improve the lives of talented artists living in poverty, they recognise that it is neither possible nor desirable to preserve every single piece of the past. Except in a museum setting, they point out, no traditional craft skill can live on unless it has a viable market. Also, as Tyabji (2007) says, craft is a profession that neither gives adequate economic returns nor social status. While craft traditions are a unique mechanism for rural artisans entering the economic mainstream for the first time, they also carry the stigma of inferiority and backwardness; craftspeople are seen as picturesque exhibits of our past, rather than dynamic entrepreneurs of our present and future. All this has led to increased migration of craftspeople from crafts. Skilled workers in remote locations are faced with a hand-to-mouth existence, and have no choice but to leave their traditional work. Bhatt (2007) argues that crafts can counter this techno-aesthetic dominance, for they inherently represent material and environment. Liebl and Roy (2000) provide a good summary of the factors affecting the Indian crafts industry. Though their motivation is to maintain and improve the lives of talented artists living in poverty, they recognise that it is neither possible nor desirable to preserve every single piece of the past. Except in a museum setting, they point out, no traditional craft skill can live on unless it has a viable market.

C. *Research Questions*

In light of the topics discussed in the preceding overview of the Indian crafts sector, there seems a need to better understand what hindered the crafts persons desire to remain in the crafts sector, and how such craft communities are structured-the factors that affect the evolution of the crafts industry at the global, national, regional and community levels. This leads to the research question:

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What is the structure of knowledge exchange networks in the craft communities of India and how are they formed?

A supporting question that followed was:

How are crafts perceived in India, and what are the forces affecting craft networks and the mechanisms of knowledge exchange?

D. Theoretical Framework and Methodology

"Our experience of the world arises from multiple, socially constructed realities." (Gibbs 2010:7) This research is grounded in a social constructionist framework, and utilises an interpretivist approach to data analysis.

A 'cross-sectional study' was undertaken in the Kutch region of Gujarat. This involved studying multiple case studies to explore relationships within each setting, and across settings (Baxter 2008). Three separate craft communities and two crafts development organizations were studied, which differed in social structure despite being part of the same physical region (in and around the city of Bhuj). This enabled both horizontal (comparison) and vertical (in depth) analysis of how the communities are structured, and how that structure affects the knowledge exchange networks in each. The studies employed ethnographic methods, including interviews and non-participant observation, to understand and document the perceptions, feelings, ideas and thoughts of the participants. A different framework of interview prompts and questions was adopted for crafts people and representatives of CDOs. The interviews reveal the cultural, historical and theoretical contexts of the world of which the interviewees are part of and their representations of the world around them.

An interpretivist approach was adopted for analysing the qualitative data collected through the interviews and the observation notes. The analysis of the three case studies of crafts people leads directly into a mapping of the knowledge exchange networks in each community including the relationships between each player, and the influential factors, and this was followed by a cross-case analysis looking for patterns, themes and relationships (Patton, 2002). The theory of 'communities of practice' proposed by Wenger (2007) is then used as an additional interpretative lens to analyse the data which introduces learning as a process of social participation. After an interpretive account of the interviews and field observations, the networks are generated using network theory. Drawing from 'graph theory' in network analysis, as explained by Streeter and Gillespie (1992), the networks are presented as sociograms, which display the relations among network members in a two-dimensional space. The relationships and links are then taken into consideration to develop a more holistic picture of the knowledge exchange

that takes place in craft communities generally. These are then analysed holistically, to understand in totality the whole system of the Indian crafts industry.

E. The Study

The Kutch region of Gujarat is essentially a desert, but the people living there makeup for its physical barrenness by nourishing it with vibrant traditions and colourful crafts. The focus area of the research was the city of Bhuj, the district headquarters, and it's surrounding villages and towns.

The study started with a visit to the Gujarat State Handloom and Handicrafts Development Corporation Limited (GSHHDC)-the chain of stores that are managed by the GSHHDC, called Garvi Gurjari. Established in 1973 as a government undertaking, its objectives are identification, revival and development of handicrafts and handlooms of Gujarat. They have various schemes for training and design development which cover thousands of artisans, helping them make products for a demanding market, and at the same time sustaining their livelihood. A visit to their warehouse and a regional unit, at Rapar (between Bhuj and Ahmedabad), helped understand their distribution system and the measures they take tosupport so many crafts.In this system, the maker-to-market chain is a long one, with a lot of channels and intermediaries, all centrally managed.

1) Case Study 1.Re-Tying Past and the Future

The first case study was an artisan of the Khatri community in Bhuj known for their Bandhani craft. In the Khatri community, females are taught the craft of Bandhani since childhood, regardless of whether they intend to continue practicing the craft or not. But the men in Jabbar's family had left dyeing for almost four generations to pursue jobs like making fireworks for the royal family of Kutch. With a degree in commerce and still in his early 30s, Jabbar Khatri chose to revive his family tradition over other attractive professions he would have had access to.

Jabbar learnt the craft while he was still studying, as a means to earn some extra pocket money, and thus gradually gained expertise both in the tying and dyeing processes. From 1992 to 2001, Jabbar and his brother catered only to the local market, working mostly on cotton with thicker (and cheaper) dot patterns. After graduating in 1998, he attended a workshop on natural dyes organised by the National Institute of Design (NID). Jabbar's father used to work as a part-time tourist guide, and thus would bring groups of foreigners and visitors to their workshop. These have enabled him to experiment, learn about the market and make contacts. Both Jabbar and his brother have numerous awards, including the UNESCO Seal of Excellence in 2006 and 2007. His company 'Sidr Craft'

has exhibited at the Victoria and Albert Museum, and various exhibitions in Paris, USA and Malaysia. In 2008, he also won a title in a competition organised by the World Craft Council, Asia Pacific Region. His open-minded approach and his intricate and contemporary designs–using fine dots and natural dyes–have created a special niche for his company, which generates income for more than 250 women and men from around 20 neighbouring villages for dyeing the fabrics. The designs are decided in collaboration with clients.

Analysis: In the analysis sociogram as in Fig. 1, the artisan is placed in the centre of the network. The knowledge transfer to the artisan was non-generational, i.e. although the knowledge was passed on from one generation to the next on the female side of the family; there had been a break in the practice on the male side. Therefore, Jabbar represented a rejuvenation of the craft practice, by passing on the knowledge skipping over a couple of generations to the current one. The passing on of knowledge to the females in the family looks likely to continue. The families employ workers from the community, and their role in the production process is gender-based. The role of the craft development organisations, design institutions and designers has been crucial in providing access to the new technologies, materials, markets, and design innovations. The factors outside the community circle have been important contributors to the structuring of the community as it is today.

2) Case Study 2: The Ajrakh Masters

Dr. Ismail Mohammad Khatri from Ajrakhpur, is a well-known craftsman and a national award winner. He also holds a doctorate degree given to him by De Montfort University in the UK, for his expertise. The Khatris, Ismail bhai and his two brothers are the ninth generation of the family practising Ajrakh printing. They experimented with chemical dyes, but Ismail bhai's father, realising the hazardous effects on both people and environment, reverted back to using natural dyes, and thus played a role in reviving the traditional process of printing.

Ismail is also a Craft mark member, which facilitates his business. Apart from the sons and nephews who work with him, he employs a few other helping hands. His craft derives its body and soul from nature; craftsmen work in unison with their environment where all the elements of nature–the river, mud, trees, sun and even the animals–play a part in the making.

Analysis: As in Fig. 2, since Dr Ismail Khatri and his family are important players in the way the community works, they have been placed at the centre of the network, with the various bodies they interact with linked around them. The two current generations are placed in the centre, showing how basic craft skills are transferred between father and son; there is a continuous exchange of knowledge that takes place between them. Both learn from and teach each other, and share their knowledge either verbally or through demonstrations. Their craft knowledge is now tacit, having been exposed to the family profession from childhood. Their community shares the knowledge of block printing with them, and this exchange too happens both ways. The family employs a few printers, dyers and weavers to help them with the production process who are either part of the community or from outside. As they are hired for their expertise, they are skilled professionals; they might also be taught specific skills as required by the employers. The role of craft development organisations, designers and researchers in this network is essentially to assist this family and community, and make them economically sustainable. These external players become the means through which the craft community gets access to new technologies and new markets. The interventions also take the form of design innovations that involve an understanding of the new markets.

3) Case Study 3: Threads of Weaving

Long ago, the Vankars migrated from Rajasthan and brought their tradition of weaving with them to Gujarat. A barter system with the Rabari community would provide the Vankars with sheep hair and the Vankars would spin wool, dye it in brilliant shades using natural dyes and weave shawls and blankets out of it. The Vankars would keep some of the products and barter the rest to the Rabari community for more sheep hair. The Rabaris, also skilled embroiderers, would then embellish the shawls. The Vankars' market base has increased, to include not only the domestic Indian market but the international market as well. In addition to wool, the Vankars have started using cashmilon (acrylic yarn) and merino wool. But the embroidery on the wool is still done by the experts of the Rabari community. The Vankar family won a national award in the 1970s and today plays pivotal role in preserving the tradition of weaving. This in turn brought in more awards and more recognition. Their participation in national craft markets such as Dilli Haat and the Surajkund Mela enables them to propagate their work and also keep an eye on market trends which inform their designs.

Today this family works together, employing more than 50 weavers who work from their homes, producing products with the provided raw materials, according to the given design direction. Realising how quickly the craft is declining (due to power-looms), they now also focus on training a new generation of weavers, to ensure that the handloom is seen as an economically viable profession for the unemployed. They admit that their students are mostly young boys who either don't have interest in studies or whose family needs financial support. But the Vankars take full responsibility of the people they train, ensuring they get enough product orders.

Analysis: In this community, as in Fig. 3, the artisans play a slightly different role-inside the family, knowledge transfer is generational. But they also train willing learners, from both inside and outside the community. Access to new materials and technologies is through the craft development organizations, and access to new markets and design directions is through the exhibitions and shows they participate in, which gives them a platform to showcase their work and get feedback from consumers. Government recognition has played a big role in increasing awareness of their craft and the community. Equally important is the role of the power-looms and the availability of new materials through newer technologies.

The study ended with a visit to the Kala Raksha Trust and a subsequent interview with Ms. Judy Frater, the co-founder. The non-profit trust, established as a registered society in 1993. Their initiative is simple: they preserve art by documenting old traditions in a local museum that houses an extensive collection of heirloom textiles. This collection, created by the artisans, while preserving traditional crafts, also acts as a resource to inspire artisans. Kala Raksha's ideology of preserving art embodies a simple but revolutionary concept of encouraging the creative capacity of the artisans by involving them in presenting their own cultures. Frater emphasises that every crafted piece is a work of art and the makers are the artists who infuse their works with their individual personalities, which elicits an emotional reaction. She believes in 'educating' artisans, not 'training' them, as they are already adept at what they do. Even the trust's own activities are artisan-driven based on their belief of empowering the artisans, rather than making them dependent. Kala Raksha attempts to get artisans a decent wage, and to embrace their creativity and to choose this profession as the best, and not the last resort.

II. ANALYSIS AND DISCUSSION

An analysis of the craft networks generated three broad relational themes with overlapping components which affect knowledge transfer with each theme leading to the next.

A. Ancestral Heritage

"Crafts and crafts knowledge are living links to the past and a means of preserving cultural meaning into the future"–Liebl and Roy (2000:2).

As seen in the case studies Indian handicrafts are passed down a long line of inheritance through the transfer of tacit knowledge as part of ancestral heritage. The current generation of craftspeople are practising the craft today because it has 'been in the family.' Artisans are exposed to the craft and craft knowledge since childhood. They 'see and learn' first, and later 'learn by making'. The

more they make, the more they learn, and the more they internalise the process of making. In India, most crafts are regional and caste-based. This could be seen in the case studies: The Khatris and Vankars have strong and long associations with the crafts they practice, and in each case the craft has become synonymous with the community it is practiced in. But there is also an amount of heterogeneity in each, as these communities employ workers from outside who may not be of the same caste and religion; this does not affect the association between communities with the craft. The major limiting factors can be listed as the 'gender roles' and the 'social status'. In each case study, women are associated with the part of the craft done in the home–tying fabric for Bandhani dyeing, spinning yarns for weaving. This distinction is linked to both societal and religious beliefs that women are to remain in the house while men are the bread-winners. The link of crafts to caste, sends most crafts communities at the lower end of the social scale. This acts as a de-motivator for the younger generation.

B. Recognition and Awareness

In each of the case studies, the craftspeople had won awards and were living examples of how recognition of the craft created awareness, making it more attractive to the outside world, and more importantly, for the younger generation of craftspeople to remain in the craft and understand that the profession is worthwhile. Recognition and appreciation build confidence, and once craftspeople have confidence in what they are doing, they will be less likely to shift to being casual labourers.

There has been a degree of interest in the welfare of the crafts and craft communities, by craft development organizations, designers, and the government. The government tries to intervene and assist but the approach mostly lacks the real need of the craftspeople. For example, the government collaborates with various fashion and design schools for training and cluster development programmes these simply make the artisans dependent upon these schemes and institutions by focusing on 'training' rather than 'enhancing knowledge.' To cater to new markets, crafts need constant innovation to adapt traditional skills to new products for changing markets. "In craft, it is usually called design intervention, and it indicates a separation between concept and execution. In the process, the concept retains its value, while the execution becomes labour" (Frater, 2011). Expertise has its own class system: the designer dominates the craftsperson, and has thus emerged as a critical intermediary whose function, ideally, is to bridge the communication gap between the rural artisan and the urban client. However, the designers produced by design schools today lack the craft exposure and cultural moorings that craftspeople get

from childhood. Probably then it is best to leave the innovating to the craftspeople themselves, who know the craft best; external design interventions may or may not work as designs that are a product of design interventions tend to have niche markets, which will not enable the craft industry to grow.

According to Kumar (2006), the diverse nature of the artisan sector results in contradicting and working at cross-purposes. Some actors focus on the product, while some stress on sociological or anthropological aspects of the product and the practice, and others focus on markets. There is a need, however, for a comprehensive approach. The current trend is that innovations are coming from within craft communities-they are the people who carry the seeds of the particular identity as they know best how it should be translated, transformed and what shape should be given to it. But artisans recognise that innovation driven by commercialization is different, and many are concerned that the essential identity of their art is endangered. A key question is how much a craft needs to change to be accepted in the new market before it loses its cultural identity.

The media–TV, social networks, websites, newspapers and magazines–play a large role in creating awareness and recognition of crafts, particularly opening new markets. It follows as a corollary that to ensure commercial success, craftspeople should to a certain extent understand and exploit media.

C. Sustainability

Chatterjee (2006) points out, that crafts suffer from the charity syndrome: "This is what we make. Please buy it," and not the confidence of "This is what we know you need. Buy it!" This is because, in India, as Liebl and Roy (2007) point out, skills and the knowledge systems remain largely informal, poorly protected, inadequately documented, socially and culturally disadvantaged, and imperfectly adaptive. Though handicrafts constitute a significant segment of the decentralised sector of its economy and employ millions of artisans, most rural industries have a limited capacity to generate even subsistence income, and a vast majority suffers from poverty, lack of access to social services, illiteracy, exploitation by middlemen, and extremely low social status (Liebl and Roy, 2007).

Jaitly (2007) points out that in the past 100 years, wherever industrial goods have competed with local crafts, the latter have died out and craftspeople turned to other occupations. Many crafts people want to remain in their profession, but access to funds and loans, raw materials, and development initiatives are limited because, despite being highly skilled, craftspeople are poorly educated or illiterate

and come from caste groups of low status. This opens the door for middlemen to exploit the sector, in the form of loans with high interest rates, or by simply limiting their direct access to markets, thus increasing crafts people's dependency on them. Initiatives using new technologies to connect artisan with client need to be explored, taking into account the low education level of the craftspeople and their limited access to and understanding of the technologies. Industrialization has exposed crafts to exploitation of a different kind. The growth of Chinese manufacturers in particular has taken up a huge share of the market for handmade products. Initiatives to certify the authenticity of crafts are therefore being undertaken by, for example, trademarking them. Craft mark, for example, is an initiative by the All India Artisans and Craft workers Welfare Association (AIACA), certifying authentic, handmade Indian products. Liebl and Roy (2007) go further, insisting on development and implementation of appropriate intellectual property legislation.
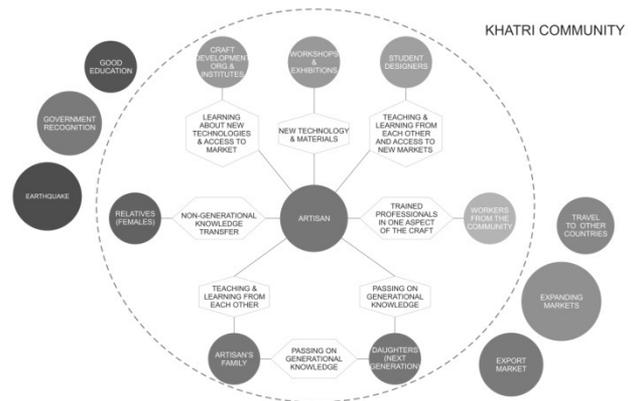

Fig. 1: The Knowledge Exchange Network for the Bandhani Community in Bhuj
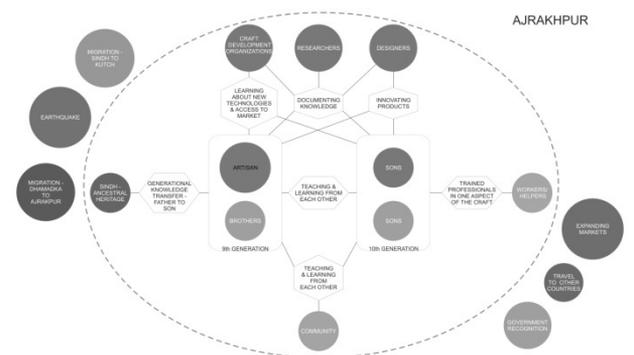

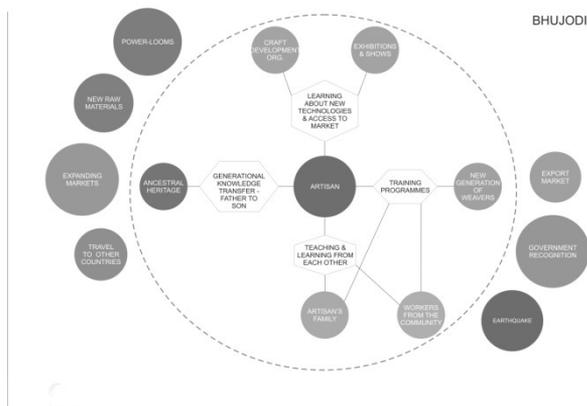Fig. 2: The Knowledge Exchange Network for the Block Printers from Ajrakpur

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Fig. 3: The Knowledge Exchange Network for the Weavers of Bhujodi

III. THE WAY FORWARD

A. Artisan Forum

The idea of an artisan forum stems from the lack of interactions between craft communities. Knowledge is guarded, and with little or no sharing with people of similar interests, will eventually die out. Although craftsmen have fairly logical reasons for not sharing their knowledge–craft being their sole source of income being the primary one–the fact is that we are all living in a global economy, and need to change with the times.

Every community comes up with its own ways of fulfilling needs. As a result, today we have different crafts in different regions, serving similar purposes. It therefore, follows that craftsmen of different regions can likely find something of mutual interest, and sharing of knowledge will lead to the emergence of new ideas. This idea draws from Wenger's (2007) concept of communities of practice–bringing together groups that share similar interests to join forces and facilitate each other's needs.

One such initiative has, in fact, been tested in Kutch, as part of the Disaster Management and Emergency Relief Operations after the January, 2001 earthquake. One of the initiatives of CARE India and the Federation of Indian Chambers of Commerce and Industry (FICCI) in collaboration with NIFT Delhi, was to get the potters in Anjar (Kutch) to meet the potters in Uttam Nagar (Delhi). The Anjar potters who were using open pits for firing were introduced to the newer, more efficient and lower-cost technology of kilns that had helped the Uttam Nagar potters tremendously. Institutions like NIFT and IICD could take this forward as part of their craft studies programme and hold workshops that help bring together craft communities of different regions. This initiative is an excellent example of how communities sharing similar interests can help each other. But it is also an example of selective inclusion: this initiative helped only one community which was selected based on specifics defined by the organisations. Thus there is need for a platform where communities can interact with each other without involvement of any middlemen; they don't need the interpretive and selective lens of organisations to interact with each other.

This is where digital technology might play a role. Today, mobile-enabled information services deliver a wide range of information to farmers and fishermen in India (Mittal, *et al.,* 2009). This approach could be applied to the crafts sector. Penetration and access to mobiles is not the challenge; the challenge is capacity building and enabling small scale producers to use the information they access effectively. This proposal also calls for breaking away from top-down approaches, and planning with and for the artisans. Such a forum could help artisans raise their voice and create a bottom-up structure in which planning starts from the artisan's home and workplace.

REFERENCES

[1] Baxter, P., & Jack, S., (2008). Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers. Qualitative Report. 13, 544-559. Available at: < http://nsuworks.nova.edu/cgi/viewcontent.cgi?article=1573&context=tqr> [Accessed 25 September 2017].

[2] Bhatt, J., (2007). Philosophy and Practice of Crafts and Design. Seminar Magazine.

[3] Chatterjee, A., (2006). The Indian Craft, Sunrise or Sunset in the Global Market. Craft Revival Trust [online] Available at: <http://www.craftrevival.org/voiceDetails.asp?Code=106> [Accessed 22 June 2017].

[4] Craft Revival Trust (New Delhi, India), Artesanías De Colombia S.A., & UNESCO., (2005).

[5] Designers meet artisans: a practical guide. New Delhi, Craft Revival Trust.

[6] Donkin, L. (2001). Crafts and conservation synthesis report for ICCROM. [pdf] Available at: <http://www.iccrom.org/ifrcdn/pdf/ICCROM_02_CraftsandConservation_en.pdf> [Accessed 3 August 2017].

[7] Frater, J., (2011). Three Initiatives for the Artisan Designer. Craft Revival Trust. [online] Available at: <http://www.craftrevival.org/voiceDetails.asp?Code=243>[Accessed 3 August 2017].

[8] Export Promotion Council for Handicrafts, (n.d.). Background note on definition ofhandicrafts. Export Promotion Council for Handicrafts, Circular. Government of India. Availableat: <https://www.epch.in/policies/Definition.pdf> [Accessed 12 September 2017].

[9] FICCI, NIFT CARE, (n.d.). Craft Initiatives in Kutch: Rehabilitation-a Replicable model. CraftRevival Trust. [online] Available at: <http://www.craftrevival.org/voiceDetails.asp?Code=118>[Accessed 25 September 2017].

[10] Finger, J. M. (2004). Poor People's Knowledge Promoting Intellectual Property in DevelopingCountries. Washington, World Bank. Available at: <http://www.griequity.com/resources/industryandissues/Intellectual Property/PoorPeoplesKnowledge.pdf> [Accessed 3 September2017].

IICD

[11] Garvi Gurjari (2017) About Us. Gujarat State Handicrafts Development Corporation Limited

[12] [online] Available at: <http://www.gurjari.co.in/?str3=null&ValueParam=aboutus.htm> [Accessed 10 August 2017].

[13] Gibbs, G., (2008). Analysing qualitative data. London, SAGE Publications Ltd.

[14] Gomm, R., Hammersley, M., & Foster, P., (2000). Case study method: key issues, key texts. London, SAGE.

[15] Government of India. (1999). The Geographical Indications of Goods (Registration And

[16] Protection) Act, 1999. The Gazette of India (61). Delhi: Government of India. Available at:

[17] <http://www.ipindia.nic.in/writereaddata/images/pdf/geographical-indications-registration.pdf> [Accessed 9 September 2017]

[18] Hammersley, M., & Atkinson, P., (2007). Ethnography: principles in practice. London, Routledge.

[19] Heskett, J., (2005). Design: a very short introduction. Oxford, Oxford University Press.

[20] Ideas in the Making, & Johnson, P., (1998). Ideas in the making: practice in theory. London,

[21] Crafts Council.

[22] Jaitly, J., (2005). Crafts as Industry. Craft Revival Trust [online] Available at: <http://www.india-seminar.com/2005/553/553%20jaya%20jaitly.htm>

[23] Jaitly, J., (2007). Employment in the Craft Sector. One India, One People. [online] Available at: <http://www.craftrevival.org/voiceDetails.asp?Code=176>

[24] Kala Raksha, (2017). Kala Raksha: Preservation of Traditional Arts. [online] Available at:

[25] <http://www.kala-raksha.org > [Accessed 24 June 2017].

[26] Kumar, K., (2007). Crafts at school. Seminar Magazine.

[27] Liebl, M. and Roy, T., (2000). Handmade in India: Preliminary Analysis of Crafts Producers and Crafts Production in India; Issues, Initiatives, Interventions. [online] Policy Sciences Center, Inc. World Bank. Available at: < http://www.aiacaonline.org/sites/default/files/handmade-in-india.pdf >[Accessed 3 August 2017].

[28] Lucie-Smith, E., (1981). The story of craft: the craftsman's role in society. Oxford, Phaidon.

[29] Patton, M. Q., & Patton, M. Q., (2002). Qualitative research and evaluation methods. Thousand Oaks, Calif, Sage Publications.

[30] Ranjan, M. P., & Ranjan, A., (2007). Handmade in India. New Delhi, Council of Handicraft Development Corporations.

[31] Robson, C., (2002). Real world research: a resource for social scientists and practitioner researchers. Oxford, UK, Blackwell Publishers.

[32] Sennett, R., (2009). The craftsman. London, Penguin.

[33] Streeter, C. L. & Gillespie, D. F., (1992). Social Network Analysis. Journal of Social Service Research 16, 1/2, 201-222.

[34] Tyabji, L., (2007). The Problem. Seminar Magazine.

[35] Wood, S., (2011). Sustaining crafts and livelihoods: Handmade in India.[online] Available at: < http://press-files.anu.edu.au/downloads/press/p211931/pdf/ch07-Sustaining-crafts-and-livelihoods.pdf>[Accessed 3 August 2017]

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Toda Embroidery: Needlecraft of Nilgiris

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ABSTRACT

The Todas are pastoral people who live in the highlands of the Nilgirimountains of Tamil Nadu, India. Toda women perform an exquisite form of embroidery and it holds a cultural importance for their community. In the current study an effort has been made to document the status of the Toda embroidery. It was conducted in Ootacamund region of Nilgiris district of Tamil Nadu. The study traces the history of the craft through literature survey, visits to the exhibitions and interviews with senior citizens. Profile of the artisans, history of the craft, techniques, tools, designs and their source of inspiration was documented in detail. The findings revealed the interesting facts about art and skill of Toda embroidery that has been a tradition in the community. "Poothkuli" is the traditional shawl of Todas, worn by both men and women at all important social occasions.

KEYWORDS: Tribal, Toda, Pugur/ Pukhoor, Poothkuli

I. INTRODUCTION

India being a multifaceted cultural land, it is inevitable that each region should develop a unique style of its own adding an array and richness to that craft i.e, Embroidery. Embroidery is practiced by both men and women throughout the sub-continent and is used for decorating clothing as well for creating wall hangings, rugs and accessories etc. But while the items embroidered may be similar, the people of each region produce unique patterns remarkably dissimilar in appearance (*Gostelow*, 1977). Various elements in ancient civilizations of India are believed to be of the tribal origin. Clothing is one such major component contributed by the tribal people. The nation is well known by the unequaled traditional costumes worn by different communities and tribes. The Toda are a prominent tribe of the Nilgiris (Blue Mountains), which forms a part of the western ghats in western Tamil Nadu, Karnataka and Kerala states of South India. The history and origin of the Toda is not clear. They believe that they were created along with their buffaloes by their goddess *Thekershi*. Some people believe that the Todas are originally Mediterranean people who were either Greeks or Cretan and who happened to come to India at a very early stage and settled down in the Nilgris. Research has shown a number of Common Greek words used by the Todas. The general opinion is that from their dress and other factors some relationship exists with the Greeks (Doshi, 1997). They live in their barrel shaped huts. A collection of these form a small settlement called *Mund*. Toda settlements are found on pastoral lands (*Chabbra*,

1999). A typical Toda village comprises of few huts, a dairy building and at least one buffalo pen (*Dhamija*, 2004). Their costume consists of a very long piece of thick white cloth which is woven with black and red stripes at the end filled by highly decorative embroidery (*Chattopadhyay*, 1977). Both men and women wear the same dress. The cloth is generally produced for their own use. Today the tribal embroideries are amidst of an identity crisis as their art of tradition are threatened because the beliefs and values that inhibited and sustained them are crumbling. The study "TODA EMBROIDERY-Needlecraft of Nilgiris" is an attempt to conserve and preserve this exquisite traditional embroidery with the focus on craft documentation.

Thus, the present study has been planned with the following objectives:

1. To trace the origin and socio-cultural significance associated with the embroidery.
2. To study the past and present status of the embroidery in terms of technique, material used, color, designs and motifs.
3. To catalogue the craft and its motifs.

II. METHODOLOGY

The aim of the present study was to distinguish the original characteristics of craft and the changes that had taken place to document the craft in its traditional form. The following methodology was used to achieve the objectives of the study.

A. Area of Study

According to the review of literature, the Toda families are scattered in three taluks of Nilgiris district i.e, Ootacamund, Conoor and Kotagiri. There are about 60 settlements. According to the 1994 report from the Tribal Research centre, the Todas have occupied 54 settlements in Ootacamund consisting of 219 households, 5 settlements in Kotagiri consisting of 23 households and one settlement in Coonoor consisting of 7 households. Being a pastoral tribe they live in isolated places of 3–6 km between one settlement and the other. The study was limited to settlement residing in and around Ootacamund town of Nilgiris district. Thus, the settlements residing here were selected that included Pndumandu, Manjakalmund, Malavadimund, Koda Nadu, Tharnadmandu, Yrla Nadu, Karumulimund, Kagodimandu, Pagala Mandu, BathaKoduMund, Muthunadumund and Todanadmund.

B. Sample Selection

The sample for the study was selected through Purposive snowball sampling technique. A sample size of 32 was selected from the Ootacamund region. The sample size solely included Toda women who have been practicing this embroidery for at least 8–10 years. To maintain a homogeneity in sample selection all women were taken from the age range of 25–75 years. The senior age group was taken to gain an intuitiveness into the history and origin of the tribe and their art forms through their experience and knowledge. The sample size also comprised of knowledgeable people like elders of the family, tourist guide, craft promoters and efforts were made to get more comprehensive, significant and accurate knowledge about this embroidery and the reviving tribe.

C. Data Collection

The initial archival material on traditions of Toda embroidery, technique, raw material, color, design and motifs was collected through literary material, museum material and field study. The information was sourced from museums, books, NGOs and people associated with the craft. The sources of information were: i. National Institute of Fashion Technology (NIFT) library, New Delhi. ii. Pearl Academy of Fashion liabrary, New Delhi. iii. The National Museum, New Delhi. iv. Aadim Jati Sanghralaya, New Delhi. v. Lalit Kala Academy, New Delhi. vi. Indira Gandhi National Centre for Arts, New Delhi. vii. Sanskriti Museum, Gurugram (Haryana). viii. Tribal Museum and Research Center, Muthorai Palada (Ooty) and personal collection of various people engaged in the craft.

D. Motif Catalogue

Toda embroidery designs have a very distinctive vocabulary. All the designs are broadly given the names and are referred by the same name by the whole community. There was a need felt to compile the existing designs of this embroidery for the use by artisans and designers. A design catalogue was prepared comprising of 72 motifs.

E. Data Analysis

A detailed content analysis was considered the most effective tool for understanding of responses. The data was analyzed qualitatively with the help of the information collected and it was supplemented with photographs and samples.

III. RESULTS AND DISCUSSION

The study traces the origin of the craft, profile of Toda craft community, history of the craft, techniques, tools, designs and their source of inspiration was documented in detail.

A. Profile of Toda Craft Community

The Christian missionaries converted many Todas to Christianity and established a Toda Christian community. The women converted to Christianity in more numbers than men, and they are well educated due to missionaries. The Toda Christian women started doing beautiful cloth embroidery and their shawls are one of the famous handicrafts of India. Later, the orthodox Toda women also started doing this embroidery craft within their houses during their leisure time. According to the information received, almost all of the workers have developed the skill of embroidery through practice and some also inherited this craft from elders. Young Toda girls also show keen interest in embroidery done by their elders and learn the endemic craft tradition by participation in due course.

B. Origin and Socio-Cultural Significance

Toda embroidery is a hereditary craft and the origin of this embroidery is not clearly known but is believed to have been there since last 2–3 centuries and may have come from western countries. This art is practiced in Ootacamund (Ooty), Kotagiri and Coonoor region of Nilgiri district. This craft is being practiced in every household of the Toda community as it is an integral part of their lives. Traditionally, Toda embroidered shawls were worn by both men and women at all important social occasions like marriages and funeral etc. A newly embroidered shawl is preferred for wedding and designs and motifs on these are

all related to prosperity and fertility. A new Poothkuli is also used as shroud on funerals and is known as "Pekhadaar Poothkuli" (*Chabbra*, 2015).

C. Raw Materials

Traditionally, the embroidery was done with a wooden needle and 'Kaag' (thread). Presently, a metal needle has replaced the wooden one. The embroidery is done on off white coarsely woven cotton fabric with thick red and black woolen threads as shown in Fig. 1. The thickness of the thread ensures that the pattern is finished with an embossed look. Todas do not weave their own cloth. Traditionally, the hand woven white base cloth and the threads were supplied by Chettiars (merchant community) and the Badagas who brought the material from plains. The Todas have accepted to changes in the textile industry and have started using materials produced by power looms and two ply woolen thread for the embroidery. Till today, fabric and thread is brought up from the plains of Tamil Nadu and Karnataka in the Ootacamund bazaar.

D. Technique of Embroidery

The basic Toda embroidery technique involves counting the threads of the off-white, coarsely woven base cloth. Darning stitch is solely used in this embroidery, it is executed from the back side of the cloth. A Toda women embroider short distances with needle and then turn around the fabric and again the needle embroiders back. At each turn a loop is left, which forms a thick line and rich texture is created as a border shown in Fig. 2. The embroidery follows warp and weft thread of the coarsely woven base cloth and the design emerges by the counting of threads. Therefore, the designs evolving are geometrical and appear very similar to woven patterns. Another interesting aspect of this embroidery which distinguishes it from other modern embroideries is that it is reversible and one can use both sides. The Reverse side is equally beautiful with no signs of hanging loose threads and knots.

E. Colors Used

This embroidery is done with specific colors. The preferred color of the base fabric is off-white and sometimes white. The primary colors of woolen threads are red and black and ocassionally blue. Traditional Toda embroidery does not permit any other color except red and black. These colors are symbolic of their cultural beliefs. The white color base indicates purity and innocence, red color depicts adolescence and youth and black is a symbol of maturity as shown in Fig. 3. Earlier blue color was always incorporated in the designs but later they completely shifted to red and black, may be to increase the commercial viability of the garment or due to some unknown reasons. Todas themselves do not ever mentioned of blue color and its importance in their community, but insist that red and black are the colors which best represents them.

F. Motifs and Designs

The designs are geometric in arrangement and the inspiration is derived from nature, daily activities, mythological stories and flora and fauna of Nilgiris. The patterns reflect the creativity of the Toda women who conjure up a pattern in their mind and then transfer it to a piece of cloth. Symbolic communication has been one of the important criteria for this embroidery. The designs essentially invokes or arouses an association that conveys a particular meaning. The meaning expressed through symbols may range from small matter of fact, everyday details to concept of cosmic importance such as gods and spirit world. The designs incorporated are inspired from nature like peacock feathers, buffalo horns, rabbit ears, wild flowers, the sun, the moon and the stars which play an important part in determining the time for the elaborate rituals of the Toda. The majority of these designs are inspired by nature and sometimes the unique manner of building traditional Toda temples and houses also act as a great source of inspiration. The following are some of the motifs employed in embroidery:

a. *Ehpothill (zh) ykhmpukhoor:* This pattern is used at the edge of the shawls. It is inspired by the rabbits which they often see while sitting in grassy slopes and then they perform the embroidery. It is also known as Rabbit ears. It is very unique and it keeps the edge with good finishing shown in plate I,1.

b. *Ocvettpukhoor:* This type of pattern is usually embroidered on the edges of a garment. It is inspired by the cane braiding work employed in the architecture of Toda temples. This edge work prevents the edge of the piece of cloth from fraying as shown in plate I,2.

c. *Modherypukhoor:* It is inspired by and named the 'mat' plant which grows in marshy areas as shown in plate I,3.

d. *Twehhdrpukhoor:* The word twedhhr mean 'the pattern in pairs'. It is the most ancient surviving Toda embroidery pattern. According to one of the respondents, this motif is inspired by certain hills, slopes, peaks and valleys of the Toda homeland. This pattern is also mentioned in their folk songs as shown in plate I,4.

e. *H pukhoor:* This is known as the 'H' pattern and is very similar to the letter H which shows that the craft has a lot of western influence to it as shown in plate I,5.

G. *Poothkuli: The Traditional Shawl of Toda*

The Poothkuli is not an ordinary shawl. It has social and religious significance in Toda community. The material is woven in single width and is normally in white color. The Poothkuli may be worn in several different ways. The simple everyday style is to have it draped around one's back with the plain side facing to the skin, and the folded end on the left side of the body. The decorated end is brought to the front over the right shoulder, then over the left shoulder once again. The ends of the shawl, with its broad red and black bands and rich embroidery, falls in front and is strikingly visible. Men allow the lower border to fall just below their knees, whereas women allow it to reach just above the ankles. Consequently, a man's dhoti (lower garment) is often partially visible under his cloak, but that is not so in the case of women. An alternative way is similar to the style described just above, except that in the later the right shoulder is left exposed as shown in Fig. 4 and 5.

H. *Motif Catalogue*

A motif catalogue was prepared comprising 72 designs for giving a competitive edge to Toda embroidered products. The design vocabulary of Toda embroidery was observed carefully and a system of classification of designs were developed. Motifs were categorized as flora, fauna, architectural and miscellaneous according to the complexity of the design in each category. There are 72 motifs including the most recent ones, which are catalogued.

I. *Present Status of the Craft*

In the last few decades the craft has seen a drastic decline in its requirement and usage. The craft has been under tremendous pressure for its survival and existence. The Toda women who were still doing embroidery were either working with the support of a Self Help Group or they were working independently. The essence of the Toda embroidery till date remains in terms of colors and design character. Due to the simplicity and austerity of Toda embroidery, many organizations realized it potential and are trying to create household products for urban consumers for which they are paid piece wise. Various government and non-government organizations are attempting towards welfare of the artisans of Toda community as many need to be motivated to take this serious livelihood source. In 2013, due to the efforts of Toda Nalavaazhvu Sangham, Key Stone Foundation and Poompuhar (Tamil Nadu Handicrafts Development Corporation), this craft received Geographical Indication (GI) Status, which not only ensures uniform pricing for the

end products but also insulates the art from being duplicated in other regions. Inspite of its promising commercial prospects, only a few Toda women are practicing this embroidery at present, and this brilliant tradition is showing signs of extinction in near future.

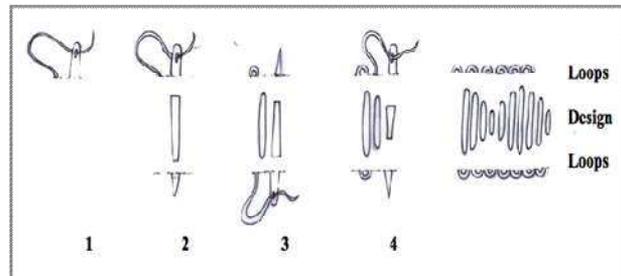Fig. 1: Metal Needle with Red and Black Woolen Threads

Fig. 2: The Stitch Goes Step by Step and Creates a Loop on Both Sides of the Design on the Front Side

Fig. 3: Colors used in the Embroidery
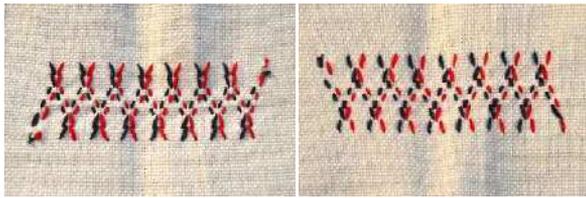

Fig. 4: Draping Style of Poothkuli for Men

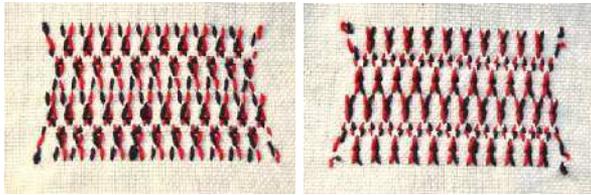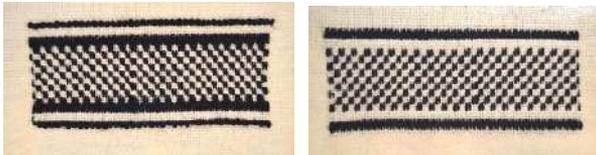Fig. 5: Draping Style of Poothkuli for Women

MOTIFS
FRONT   BACK
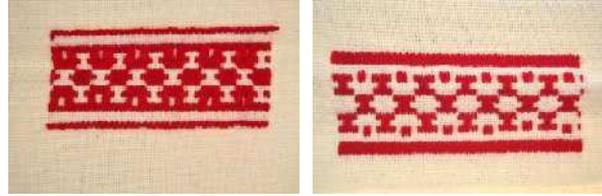

1. Ehpothill(zh)ykhm Pukhoor

2. Ocvett Pukhoor

3. Modhery Pukhoor

4. Twehhdr Pukhoor

5. H Pukhoor

IV. CONCLUSION

"Toda Embroidery-Needlecraft of Nilgiris" is the documentation of the art of embroidery which is an expression of beauty and aesthetics which a Toda tribal women artist portrays with a needle and thread. In this study an effort has been made to document the craft in detail in terms of its origin, socio-cultural significance, raw material, technique, colors, motifs and designs to appreciate and understand the craft and the proficient artisans who are skillfully making effort to preserve this rich heritage. The detailed understanding of the techniques demonstrates how the combination of hard work and creativity can result in creating such appealing and vibrant products. There exists a curiosity among artisans to know the demands of urban communities and on the other side urban community is too keen to know about craft and artisans. The Toda embroidery has potential to evolve into a means to earn a livelihood.

REFERENCES

[1] Chhabra, T. (2015). *The Toda Landscape: Explorations in Cultural Ecology*. New Delhi: Orient Blackswan Private Limited.

[2] Chabbra, T.(1999). *Effects of Development of the Todas: The Downtown Chronicle.* The Magazine of the Nilgiris, Volume 4.

[3] Chattopadhyay, K. (1977). *Indian Embroidery*. Michigan : Wiley Eastern.

[4] Dhamija. J. (2004). *Asian Embroidery.* Chennai: Craft Council of India, GF Temple Trees.

[5] Gostelow, M.(1977). Embroidery: Traditional Designs, Techniques and Patterns from all over the world. London: Marshall Cavendish Edition.

IICD

Chapter 31

Use of Natural Mordants in Natural Dyeing using *Rumex nepalensis*

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ABSTRACT

Dyeing is not only a medium of colouring articles but also reflects diverse Indian culture. In this study, roots of a plant i.e. *Rumex nepalensis* which is abundantly available in hilly regions of Uttarakhand was used for dye extraction and various natural mordants were explored. Due to the tannin content present in harada, bahera, tea, amla and pomegranate rind were used for premordanting and their relative effectiveness in enhancing colour strength and fastness properties was assessed. As natural mordents impart their own colour, colour change in terms of colour coordinates L*, a*, b* was obtained. Since no chemicals are used at any stage of dyeing, this study can be useful for small scale dyers who have no access to effluent treatment facility and generated wastewater can be safely discharged into the environment. Moreover it will provide employment to local people engaged in sustainable procurement of raw material and processing.

KEYWORDS: *Rumex Nepalensis*, Natural Mordants, Natural Dyeing, Proteinic Fabric

I. INTRODUCTION

Natural dyeing represents age old heritage of India. Natural dyes give rich colours full of aroma, light shades bringing soothing effect to human eyes. Apart from textile industry, natural dyes are popularly used in food and cosmetic industry providing users health benefits. Dumitrescu *et al.*, 2004 emphasizes the necessity of using natural dyes due to the loss of body immunity because of pollution, emergence of various diseases like skin cancer, an approach for reducing pollution in dyeing industry and acceptance of ecofriendly products.

In an attempt to produce green textiles, some interested practitioners are using natural dyes for exclusive dyeing of handicrafts at small scale. Economic advantage of natural dyeing includes creating employment avenues in rural area which also helps in promoting rural entrepreneurship (Bhuyan *et al.*, 2016). Various NGOs like *Avani* in Kumau region, *Appropriate Technology India* in Garhwal region of Uttrakhand are using natural dyes to dye handloom products and sell these products at both domestic and international markets. Such efforts not only encourage the people to go for green products but also help in sustainable development of the area by taking care of social, economic and ecological aspects simultaneously.

In this study the plant material used was *Rumex nepalensis* which commonly grows at higher altitudes between 900–4000 meter both on moist as well as dry slopes, under shades, and even in plains. It regenerates from tap roots and establishes quickly as seedlings (Parker, 1999). *Rumex nepalensis* contain mainly anthraquinones, naphthalene derivatives and tannins (Mei *et al.*, 2009).

Fig. 1

Most of natural dyes produce varied range of colours when they are combined with mordents. These mordents not only increase the colour pallet for the buyer but also improve the fastness of dyed products to an appreciable extent. The type of mordents plays a major role in determining the colour strength of a particular natural dye (Katy, 1997). Several researches have been reported regarding the use of mordents for improving colour

strength, colour stability and developing different shades (Bhattacharya and Shah, 2006, Wanyama *et al.*, 2010, Kongkachulchay *et al.*, 2002).

Hence this study was planned to assess the effect of different natural mordents on the dyeing property of rumex nepalensis roots.

II. MATERIALS AND METHODOLOGY

In this study natural proteinic fabrics i.e. silk and wool were selected and degummed and scoured respectively using non ionic detergent at 50ºC for 1 hour. *Rumex nepalensis* roots were collected from Pithoragarh district of Uttarakhand. The roots were cleaned properly, cut into small pieces, dried and powdered. The powered dye material was extracted in distilled water at 90–95ºC for 1 hour. The extracted dye liquor was further used as such for dyeing. Five natural mordents i.e. harada, bahera, tea, amla and pomegranate rind were taken on the basis of considerable amount of tannin present. One gram of each mordant powder per 100 ml water was extracted at 80ºC for 30 minutes. Premordanting of fabrics was carried out at 80ºC for 30 minutes. The premordanted fabrics were dyed at 90ºC for 60 minutes. The dyed samples were further assessed in terms of colour strength, colour coordinates and washing fastness.

III. RESULTS

Different types of mordents have varied effect on the colour measurement of fabric when dyed with rumex nepalensis. Table 1 exhibits the colour strength and colour coordinates of silk fabric, premordanted with five natural mordents using 1gm/ gm of fabric and subsequently dyed with *rumex nepalensis* dye. It is evident from Table 1 that highest colour strength was observed using amla (11.57) followed by tea (10.79), harad (10.68), pomegranate (10.33) and bahera (9.43).

TABLE 1: COLOUR COORDINATES, COLOUR STRENGTH AND WASHING FASTNESS OF SILK FABRIC DYED WITH *RUMEX NEPALENSIS*

Natural Mordants	L*	a*	b*	Colour Strength (K/S)	Washing Fastness	
					Colour Change	Colour Staining
Without mordant	76.91	14.769	76.672	9.27	3	3
Pomegranate	74.55	29.03	78.61	10.33	4	4
Tea	71.55	17.63	69.02	10.79	3–4	3–4
Harad	71.86	19.43	72.24	10.68	4	4–5
Bahera	75.30	15.48	71.29	9.43	3–4	4
Amla	67.26	18.81	66.73	11.57	4–5	4–5

In all pre-mordanted and naturally dyed silk fabrics L* values decreased resulting in deepening of shades as compared to only naturally dyed samples. The mordant dissociates into positive and negative ions in the aqueous solution of dye. The positively charged ions migrate towards the negatively charged fibre surface. As a result

dye ions can easily attach with fibre surface and hence improve its dyeability (Haque *et al.*, 2013).

Low L* value (67.26) was observed in case of amla which indicates darkness of shade, whereas maximum L value (75.30) was obtained in bahera mordanted samples indicating lighter shade. Highest a* value was exhibited by pomegranate which indicates redness followed by harad, amla, tea and bahera. Degree of yellowness is presented by b* value which is obtained maximum in pomegranate followed by harad, bahera, tea and amla. Washing fastness of all mordanted samples improved from those of unmordanted sample. Highest fastness rating was achieved in case of amla followed by harad, pomegranate, tea and bahera.

Table 2 shows the colouring properties of different mordanted samples in wool fabric dyed with rumex nepalensis. Amla mordanted fabric showed lowest value for L (56.30) which indicates the amla mordanted sample was found darkest among all mordanted samples. Bahera mordanted fabric was lighter in hue as indicated by highest L value i.e. 63.89. Considering darkness mordants were observed in the trend of amla> pomegranate> tea>harad and bahera. Highest redness was exhibited by tea (24.78) whereas lowest degree of redness by amla (17.11) mordanted fabric. Lowest value of b was observed when amla was used and highest value was observed in case of bahera mordanted fabric, which shows bahera increases yellow colourant in the dyed fabric and amla reduces yellowness of dyed sample making it darker.

TABLE 2: COLOUR COORDINATES, COLOUR STRENGTH AND WASHING FASTNESS OF WOOL FABRIC DYED WITH *RUMEX NEPALENSIS*

Natural Mordants	L*	a*	b*	Colour Strength (K/S)	Washing Fastnes	
					Colour Change	Colour Staining
Dyed without mordant	65.05	17.89	70.70	14.63	3	2-3
Pomegranate	59.83	22.946	68.716	16.90	3-4	4
Tea	59.91	24.78	64.29	16.67	3-4	3-4
Harad	62.46	18.43	66.79	18.16	4	4
Bahera	63.89	19.23	69.31	15.84	3-4	4
Amla	56.30	17.11	58.49	17.37	4-5	4-5

Colour strength of mordanted sample are in order of amla (18.498), pomegranate (16.897), harad (15.15), tea (14.67), bahera (14.544) from highest to lowest K/S. Washing fastness was improved in all mordanted samples.

IV. CONCLUSION

It can be concluded from the study that natural mordants can be effectively used to improve the colour strength and to obtain various shades with better washing fastness. Each mordant has its own advantage like amla can be used if darker shade is required, tea increases the redness in the sample and harda and pomegranate for better colour strength and fastness properties. Depending

upon the availability and cost of a particular mordant, these can be used to substitute hazardous metallic mordants like chromium and copper. Promoting the use of natural mordants which are available as waste like pomegranate peel, will help in reducing the effluent disposal problem which is a major challenge in case of using hazardous metallic mordants. Utilizing natural mordants makes the natural dyeing process truly ecofriendly if no chemical auxiliary are used.

REFERENCES

[1] Bhattacharya, S.R and Shah, A.K. 2006. Metal ion effect on dyeing wool fabric with Catechin. *Colouration Technology*, 116 (1), 10–20.

[2] Bhuyan, S. & Gogoi, N. J. 2013. A natural colourant–Value addition of Eri silk yarns with *Datura stramonium*. *Acad. Indus. Res*. 1(9): 530-532.

[3] Deveoglu O, Torgan E, Karadag R (2012) High-performance liquid chromatography of somenatural dyes: analysis of plant extracts and dyed textiles. Color Technol 128:133 138

[4] Haque, M. A., Khan, G M., Razzauue, S. M. A., Hatun, K., Chakraborty, A. K. and Alam, M. S., 2013. Extraction of rubiadin dye from Swietenia mahogoni and its dyeing characterstics onto silk fabric using metallic mordants. *Indian Journal of Fibre and Textile research*, 38: 280-284.

[5] Katy, H. (1997). Cultivation and Extraction of Natural Dyes for Industrial Use in Textile Production. Bio Mat Net, Inter AIR 2 – CTT94–0981

[6] Kongkachulchay, P.,Shitangkoon A. and Chinwongamorn, N. 2002. Studies on dyeing of silk yarn with lac dye; Effects of mordants and dyeing conditions. *Science Asia*, 28, 161–166.

[7] Mei, R., Liang,H., Wang,J., Zeng,L., Lu,Q., Cheng,Y., 2009. New seco-anthraquinone glucosides from Rumex nepalensis. PlantaMed.75,1162–1164

[8] Parker, C. Weeds of Bhutan. Thimphu, Bhutan, United Kingdom: Royal Government of Bhutan, National Plant Protection Center; 1992

[9] Wanyama, P.A.G., Kiremire, B.T., Ogwok, P. and Murumu, J.S. 2010. The Effect of Different Mordants on Strength and Stability of Colour Produced from Selected Dye-Yielding Plants in Uganda. *International Archive of Applied Sciences and Technology*, 1(2):81-9

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