

# **CRITICAL ANALYSIS OF SAHARANPUR WOODCRAFT: PRACTICE STATUS AND NEW DESIGN POSSIBILITIES**

**Ph.D. THESIS**

*by*

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APRIL, 2019**

# **CRITICAL ANALYSIS OF SAHARANPUR WOODCRAFT: PRACTICE STATUS AND NEW DESIGN POSSIBILITIES**

**A THESIS**

*Submitted in partial fulfilment of the  
requirements for the award of the degree*

*of*

**DOCTOR OF PHILOSOPHY**

*in*

**HUMANITIES & SOCIAL SCIENCES**

*by*

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APRIL, 2019**



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## CANDIDATE'S DECLARATION

I hereby certify that the work which is being presented in the thesis entitled “**CRITICAL ANALYSIS OF SAHARANPUR WOODCRAFT: PRACTICE STATUS AND NEW DESIGN POSSIBILITIES**” in partial fulfilment of requirements for the award of the Degree of Doctor of Philosophy and submitted to the Department of Humanities and Social Sciences of the Indian Institute of Technology Roorkee, Roorkee is an authentic record of my own work carried out during a period from July, 2013 to April, 2019 under the supervision of Dr. Ila Gupta, Professor, Department of Architecture & Planning, Indian Institute of Technology Roorkee, Roorkee.

The matter presented in this thesis has not been submitted by me for the award of any other degree of this or any other Institute.

(AAYUSHI VERMA)

This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

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Supervisor

The Ph.D. Viva-Voce of Aayushi Verma, Research Scholar, has been held on  
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Signature of Supervisor  
Dated:

Head of the Department

## ABSTRACT

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Wood carving has undoubtedly possessed a prominent place amongst the greatest art forms ever since antiquity. This beautiful tradition of India dates back to the times of Indus Valley civilization. Having started in Indus Valley civilization, the tradition of wood carving later on extended in many places in India like Tamil Nadu, Kashmir, Orissa, Gujarat, Uttar Pradesh, Karnataka, Bihar, Rajasthan and Kerala. All these centers have revealed their own exclusive styles and culture through the art of wood carving.

In the same context, Uttar Pradesh, a state in northern India, consisting of 18 divisions and 75 districts, exhibits itself as an epitome of art and craft. Saharanpur (SRE) is one of the commercial districts of Uttar Pradesh. For centuries, this place has been known across the globe for its craft work. Wood is a preliminary material here which is available in abundance and is extensively used for making various products of daily needs like wall products, table top products, room partitions and furniture. This craft is about 400 years old and the description of Saharanpur's economy is incomplete without mentioning the contribution and past glory of the wooden handicraft industry. As a common prevalence in the wood carving industry, only conventional manual tools have always been used from ages, however, with the course of time, progression has emerged in the form of sophisticated automatic machines that use electrical energy. Although, the SRE woodcraft is famous internationally, it is highly important for the artisans to amalgamate the traditional wood carving of SRE with the innovative designs of the contemporary age. In order to be compatible with the contemporary fashion needs, the artisans are using a variety of woods nowadays, and for the purpose of promoting the woodcraft of SRE, several exhibitions are being held nationally and internationally since 1902-03. These avenues support the artisans to have dealings with the media and customers.

Woodcraft is deeply entwined with the identity of SRE and its people. It reveals the inherent aesthetics of the artisans and their relationship with the natural environment. Production of wood carving is developed on a commercial scale which is carried out by the artisans of SRE from generation to generation. Using a combination of cutting, carving, inlaying, sanding and polishing, the craftsmen in SRE create amazing products the artisans in SRE are highly skilled and experienced experts whose knowledge includes the skill of applying multiple types of finishes to wood, designing different elements and understanding their symbolic significance. They have the skill of imparting perfection to their handwork. Creative expertise and talent are

found in abundance here which must certainly be encouraged by raising their level of confidence. However, this inherited occupation and skill that have developed over years is being dispirited nowadays. Artisans are highly skilled and they are in masses. The majority of artisans focus on quantity of work, rather than the quality of products, because generally they are paid according to no. of pieces. The prime motto of them is to earn more money. Especially, of late the focus of the artisans has turned towards material gains or earning of more money, where such feelings like devotion and motivation for work have vanished in the contemporary world. Thus, they do not put their heart in the quality work. Another reason is the lack of proper knowledge shift. Woodcraft manufacturing skills and techniques are generally passed from one generation to the next generation. New generation does not have patience to work under the supervision of *ustaad* for long time and to imbibe all the skills. Their *ustaad* also have a fear that if they impart the knowledge to their *shagird* they might start their own business and steal their customers. For that reason, there is a dire need for bringing far-reaching changes in woodcraft for its revival and modernization.

The investigation entitled “Critical Analysis of Saharanpur Woodcraft: Practice Status and New Design Possibilities” was carried out mainly in Saharanpur district in Uttar Pradesh region through purposive random sampling technique. Data was collected through random sampling technique from the region where woodcraft making was carried out in the district. An interview schedule was formulated for the purpose of collecting data of 138 artisans from the district. During the process, another important step was documentation with regard to the woodcraft products that were available in the market. In order to gain more information about this craft first hand, the artisans’ *karkhanas* (workplaces) were visited by the researcher and she met various artisans there. Another procedure to understand the current scenario of SRE woodcraft market was to study a number of stores and galleries. Emerging knowledge, demands, tastes and lifestyles are the major components in the development of a craft which force us to delve for something new in materials, designs and technology for improving the market culture. Apart from that, secondary sources like books, internet, magazines, encyclopedia etc. were also consulted and information was gathered regarding raw material, tools and equipment, design, size and the production process.

The aim of the research was to create new prototype samples which would depict the identity of woodcraft. In the market of SRE, majority of products are available for single usage, while several of them are bulky in weight and not very user friendly. Thus, keeping into account this market trend the researcher has designed multi-functional, flexible, light weight and semi

carved products. Ten woodcraft samples were developed while maintaining the essence of the art of SRE, by filtering out representative elements, to rediscover its beautiful form in a modern as well as traditional way. The prototype samples were evaluated by the respondents on the basis of quality of raw material, craftsmanship, wood finishes, design, functional clarity, costing and overall appearance.



## ACKNOWLEDGEMENTS

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My PhD thesis would not have been possible without the inspiration, guidance, encouragement, help and generous support of numerous individuals and organizations. They all deserve to be acknowledged for their contribution.

I wish to express my profound sense of gratitude and heartfelt appreciation to my guide and mentor, Dr. Ila Gupta, Professor & former Head of the Department of Architecture & Planning, Joint Faculty of the Department of Humanities and Social Sciences, Indian Institute of Technology, Roorkee, for her valuable guidance and critical appraisal of my work. I am deeply indebted for her tremendous support and constant encouragement during the course of this study. Her generosity in sharing her knowledge and experience has been truly inspiring.

I would like to thank Prof. Nagendra Kumar, Professor & Head, Department of Humanities & Social Sciences. I feel extremely fortunate to receive valuable suggestions from members of the research committee Prof. S.P. Singh (Chairperson), Department of Humanities & Social Sciences, Prof. M. Parida (member), Professor, Department of Civil Engineering, Prof. Rashmi Gaur (member), Professor, Department of Humanities & Social Sciences, all from IIT, Roorkee.

Heartfelt gratitude is due to Mr. Santosh Kumar Jha, Senior Faculty at Footwear Design & Development Institute, Noida for his unflinching support, guidance and feedback during the study. He is a professional designer, having post graduated from Indian Institute of Craft and Design.

I wish to acknowledge the help of Ms. Shravika Jain, Ms. Anupama Chautala and Mr. Devanand Bagga, Lifestyle Accessories Designers, all from National Institute of Fashion Technology, for clarifying many key concepts.

Special thanks to Sheikh Mohd. Iqbal, member of EPCH, Gen. Secretary of Handicrafts Welfare Society and former president of the Wood Carving Manufacturing Association who introduced me to the socio-cultural environment of the Saharanpur region. The valuable information that he shared with me, helped me to network with the right people and places for this study. I would like to thank the Export Promotional Council for Handicrafts (EPCH) and Development Commissioner Handicrafts (DCH), for their help and cooperation.

I would like to express my deep appreciation to all the artisans who took time out to patiently answer my queries and allowed me to document their work. Amongst them, I am deeply indebted to Shilp Guru awardee Mr. Fayyaz Ahmad for his invaluable inputs, guidance and artistic contributions. I am also thankful to the other artisans who I interacted with and whose names are mentioned in the thesis, for their thoughtful assistance. I also express my profound sense of gratitude to all the manufacturers. I wish to acknowledge the help of Mr. Mohd. Arshad, exporter and supplier of wooden handicraft and a private collector for permitting me to see and documenting some wooden handicraft products from his vast collection. This study would not have been completed without them.

I have received tremendous support from friends, colleagues and family during the process and completion of this study. I would like to acknowledge their contribution and extend my heartfelt gratitude to them.

Firstly, I would like to extend my gratitude and appreciation to Dr. Manu Chaudhary and Mr. Abhishek Bharti, for their timely support, encouragement and overwhelming concern for my work. They have always taken great interest in my work and their critical appraisal has helped in shaping my thesis. I appreciate and acknowledge the help of Mr. Excellent Hansda in the sketching part of the thesis. I am truly grateful to him. I express heartfelt gratitude to my friends, Ms. Mani Nandini Sharma, Dr. Richa Katiyar, Ms. Aparna Verma, Ms. Swati Sharma, Ms. Amandeep Kaur, Ms. Elham Fatima, Ms. Sudipa Maity, Mr. Narender Kumawat and Mr. Juned Ahmad, for their timely help and constant encouragement.

Sincere gratitude is due to my parents Mr. Praveen Kumar Verma & Mrs. Shashi Verma who have always been there for me, with their unconditional love and support. I personally want to dedicate my research to my mother who always encourages me to explore something new. Her belief in my capabilities has been the anchor for this research. Without her support and unflinching conviction, this would not have been possible. Many thanks to my siblings for their love, moral support and encouragement. Special thanks to my sister Mrs. Shikha Verma who has supported and boosted me up whenever I felt tensed.

Aayushi Verma

Date: 09/08/2019

Place: IIT Roorkee



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## GLOSSARY

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Aari	Hand saw
Adhatie	Commissioning agent
Alamkara	Ornament
Anguri Kaam	Fine carving
Baiguni	Potassium permanganate
Barsola	Adze
Bharai	Inlay work
Botta Factory	Place where wood is processed
Cheed	Pine
Chhadiyo Ka Mela	Regional fair
Chhatta	<i>Chhatta</i> is covered with a wooden over bridge that links two <i>havelis</i>
Chilai	Removing the layer
Chinar	Tree of purpose
Chirai/Katai	Cutting the timber into pieces based on the design specifications and measurement.
Farma	Stencil
Fita	Inch tape
Fulki	Chisel
Guniya	Right angle
Hathkhas	Gauges
Hathodi	Hammer
Haveli	A huge Mansion
Jambur	Nail-puller
Jamun	Black plum
Kalpavriksha	Tree of life
Kamal Ka Butta	Lotus flower
Karigar	Artisan
Karkhana	Factory/workshop
Karkhanadaar	Manufacturer
Keel	Metal nails
Khaka	Stencil
Kharidari	Procurement
Kikar	Acacia
Lohaar	Blacksmiths
Maan	40 kgs
Mela Gughal	Regional fair
Mirch Ki Bel	Pepper vine
Nahni	Circular edge chisels set
Naksi	'V' shaped gouge

Naquash	Artist-carver
Naquashi	Drawing
Parakaar	Compass
Pinjara	Lattice work
Purdah	A religious practice which has been adopted by the Muslim women for self-protection in public sphere
Randha	Plane
Randhai	Planing
Rehal	Holy book stand
Saugon	Teak
Shagird	Apprentice
Sheesham	Indian rosewood
Sheeshamgad	City of sheesham
Takai	Tucking the wood. It is done by hitting the hammer on the head of the tool.
Tarkashi	Wire inlay work
Thaapi	Mallet
Ustaad	Master craftsman
Yoni	The vulva

## LIST OF ABBREVIATIONS

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ACA	Ammonia Cal Copper Arsenate
ACZA	Ammonium Copper Zinc Arsenate
CCA	Chromate Copper Arsenate
CFC	Common Facility Centre
CFT	Cubic Feet
DCH	Development Commissioner Handicrafts
DIC	District Industry Center
EMC	Equilibrium Moisture Content
EPCH	Export Promotion Council For Handicrafts
FRI	Forest Research Institute
GI	Geographical Indication
GOI	Government Of India
GST	Goods And Services Tax
IHGF	Indian Handicrafts And Gifts Fair
MDF	Medium Density Fiberboard
NCDPD	National Centre For Design And Product Development
PF	Pentachlorophenol
QTS	Quick Transit Service
NGO	Non Government Organization
SHG	Self Help Group
SRE	Saharanpur
SSI	Small Scale Industries
SMEs	Small Medium Enterprises
<i>UNESCO</i>	<i>United Nations Educational, Scientific and Cultural Organization</i>
WCC	<i>World Crafts Council</i>
WFS	Wooden Folding Screen

## CHAPTER 1

### INTRODUCTION

---

#### 1.1 INTRODUCTION

Craft is viewed to be an indispensable aspect of the fulfillment of the creative urges of human beings, more so as it gives a significantly symbolic view of the traditional and cultural heritage of a nation. Regarding this perspective, our colorful country India is considered a land full of versatile and traditional handicraft processes. Therefore, therein dwells a vast plethora of themes, styles and ornamentation in all the states of India, replete in inspiration for the generations to come. Diverse Indian handicrafts have transmitted the heritage of delighting the world with the original value of their regions. For a really long span of about four to five thousand years, this prosperous tradition has flourished faultlessly and has continued till today (Jaitly, 2001; Dua, 2014; Khurana, 2015). The very word ‘handicrafts’ is an assemblage of the following two words: hand and craft. Here, the word hand stands for the use of hand or making use of simple tools in the making of any item while craft stands for a distinctive rendition representing a culture, the local origin of traditions/ethics/customs and also the society, economy and heritage of a country. That means handicraft is a unique expression that applies art to any item and is passed down from one generation to the next. Thus, it can be classified based on the material where a large amount of the population is engaged in the production of some specific craft. Such crafts include embroidery, lace work, stone carving, leather goods, wood carving etc. To promote the handicrafts and traditional craftsmanship, the World Crafts Council (WCC) affiliated to UNESCO (United Nations Educational, Scientific and Cultural Organization) has been taking initiatives and has started celebrating “World Handicraft Day” on 10<sup>th</sup> June every year. From this treasure of handicrafts, we are mainly highlighting the woodcraft in the present study. Thus, the discussion throws light on the historical record of ancient wood carving which was traced as having been existent since antiquity.

##### 1.1.1 HISTORICAL RECORDS OF ANCIENT WOOD CARVING

Carving in wood has undoubtedly occupied its own worth amongst the greatest arts since antiquity. Basically, the study of the history of wood work represents the advancement and maturation of mankind. However, various intervals prevail in garnering sufficient historical

evidences for a systematic study of wood work due to the decomposable nature of wood conjunction along with its exposure to natural and artificial destructive forces.

The fact is undeniable that the ancient savage tribes and races would get their weapons and some wooden domestic artifacts embellished with carving. Wood carving found its inception in the aboriginal form and as the sub sequential civilizations progressed, it flowered into a highly skillful art. ‘Sheikh-el-Beled’ (Fig1.1) (a name given by the Arabs), a dexterously carved “human figure” is regarded as one of the earliest evidences of skilled wood carving (Perrot et al., 1883; Hasluck, 1911; Maspero, 2009; Baikie, 2018). This statuette carved during the ancient Egyptian Empire (2980-2475 BC) (Tangerman, 2012) and done in sycamore, stands on a base of a similar material that was used in most of the works of Egyptian origination (Tarbell, 1926). However, it is not the only evidence of Egyptian artistry as other specimens of wood carving pertaining to Egyptian times also do exist. For instance, there are some panels from the tomb of Hosi, (Fig. 1.2) of about 4ft. in height, with figures of men and hieroglyphics, carved in low relief in the quaint style distinctive to Egyptian bas-reliefs (Perrot et al., 1883; Hasluck, 1911).



Figure 1.1 Statue of Ka-aper, known as Sheikh el-Beled  
Source: Egyptian National Museum, Cairo, Egypt, Retrieved from  
<http://www.globalegyptianmuseum.org/detail.aspx?id=14910>

Figure 1.2 Wooden panels from the Tomb of Hosi at Sakkāra  
Source: Retrieved from

[https://commons.wikimedia.org/wiki/File:Three\\_Panels\\_of\\_Wood\\_by\\_Boston\\_Public\\_Library.jpg](https://commons.wikimedia.org/wiki/File:Three_Panels_of_Wood_by_Boston_Public_Library.jpg)

The Egyptians, during that time, (about 6000 years ago) appear to have employed wood carving to a considerable extent as ornamentation only. Thakkar (2014) writes that this accomplished art form is found to have been applied to utility articles e.g. furniture, boxes and toiletry articles and even on the most unusual articles such as wooden coffins which are considered to be the

superb specimens of this craft. A plethora of ornamental motifs was used during that time which comprised the lotus, papyrus, palm, the winged globe, winged beetle, egg, serpent, rosette, human figures and various animals.

Other prominent arts such as the Chaldean and Assyrian arts often resemble that of the Egyptians, but offer less innovation in terms of wood carving (Jones, 1865). Nevertheless, many patterns appear familiar in the ornamentation of nearly all the periods from the ancient times to the present, especially in Greek and Roman periods (Thakkar, 2004). Later on, in the Renaissance of the fifteenth century, the very same forms appear to have originated from Assyrian art and were highly used in it. Some of these are: palmate, guilloche pattern, lilies and the fir cone used singularly or as appearing in the cone and flower pattern.

Moving ahead with the time, Greek art (800 BC to 140 BC) was not less significant than others and offers many references to support the elaborate utilization of wood for ornamental purposes. One such reference is given by Pausanias, a Greek topographical writer (about 150 AD) in his principal work ‘A Description of Greece’, in which he recounts that the art of carving in wood was of considerable importance.



Figure 1.3 Side view of chest of Kypselos (or Cypselus)

Source: Illustration from 'General study of Greek architecture and sculpture', pub. Firmin-Didot, Paris, 1814 (colour litho), French School, (19th century), Retrieved from <https://www.art.com/products/p14180464-sa-i2951102/chest-of-cypselus-general-study-of-greek-c-1814.htm>



Figure 1.4 Front view of chest of Kypselos (or Cypselus)

Source: Illustration from 'General study of Greek architecture and sculpture', pub. Firmin-Didot, Paris, 1814 (colour litho), French School, (19th century), Retrieved from <http://www.paintingsoncanvas.net/print-0-4050662/chest-cypselus-general-study-greek-c1814-other/>



Thus, from his account, it appears that the earlier popular specimens of wood carving were wooden images of God. The chest of Cypselus appears as the most acclaimed example of wood carving of this period (655-625 BC) which has been carved out of cedar, one of the most treacherous materials for carving, and is carved and decorated with figures and bas-reliefs (Hasluck, 1911). The above mentioned figures 1.3 and 1.4 display mythical episodes by using ivory, wood and gold relief on the cedar wood chest.

Pliny mentions the use of wood for architectural purposes during Roman times (100 BC to 337 AD) but little is mentioned with regard to wood carving. However, sufficient evidence bears testimony and demonstrates that it was significantly prevalent during those times. According to Thakkar (2004), war vessels and galleys were built with an abundant use of wood and different animal designs and subjects from Greek mythology were used to decorate these. One can perceive repeated use of certain features in Greek and Roman ornamentation including the anthemion, (taken from the traditional bud and lotus motif of Egypt, Assyria and India) the scroll, the rosette (a relic of the conventional Assyrian rosette), the acanthus and typically, birds, cupids, reptiles and the griffin (Hasluck, 1911).

Interestingly, during the dying years of the Western Roman Empire, a highly distinguished kind of art and architecture namely 'Byzantine art and architecture' was developed under the aegis of Constantine, right there in the Eastern Roman regime (300 AD to 1453 AD and later). This art had emerged as an incorporation of Eurasian and Persian beliefs along with the Roman features, having the impact of the new religion, Christianity. In this way, the authentic and artful ideals of Greek and Roman ornamentation became the breeding ground of the highly emblematic decoration of Byzantines. Different ornamental motifs constituted Byzantine carving that had been derived from the previous art forms along with the different symbols of Christianity; consequently the Bible formed the major source of its themes (Thakkar, 2004).

An influence that was highly lasting and very substantial, was the Byzantine influence on the art of wood carving and its traces were visible in the very early works of Celtic carving (150-1400 A.D) and Scandinavian carving (550-1450 A.D.) comprising of motifs that were both intricate and intertwined. It is as a result of the Byzantine influence that intertwined birds and animals forms began to be made use of in wood carving. The historical times saw the usage of wood in the architecture of churches and houses displaying significantly appealing wood carving; the reason for such usage is the suitability of wood to Scandinavian wood carving, with respect to both the designs and their treatment. During those early times, the leaf motif was not so elaborately developed in design. The two motifs that find a significant place in

major depiction in Scandinavian wood carving are the serpent and dragon, having been introduced by the Norsemen and the Danes (Hasluck, 1911).

The fundamental fact that in design, beautiful detail does not always result in a beautiful composition was acknowledged by the Gothic craftsmen and so they graded the individual part as lesser to the general effect. The 13th century saw great achievements not only in the show of skill in both design and treatment, but also presented highly pious and religious sentiments. The work of these craftsmen is no mere carving rather it is an ode to the majestic power of God. We find no other evidences of such exquisitely conceived or more beautifully cut carving in any other time period. Thus, the early Gothic style is a superb specimen of fine finish, and therefore, it seems to be more suited to stone treatment than to wood. However, the warm and captivating treatment of each and every detail can only be a result of deeply religious faith and devotion which, at times, is not so visible in the later works.

By the end of the 14th century, somewhat more formal forms had quite significantly replaced the natural foliage treatment in the work of these carvers. During this time, nature was displayed elaborately in the foliage forms, although still in a conventional style. The vine was constantly made use of by the carvers although the oak and the maple no longer remained an inspiration for the designer. Though a very large amount of 15<sup>th</sup> century work is available for our scrutiny yet it is more preferred to make the briefest reference only to some of the more beautiful specimens that show the greatness of this period.

With the advent of the 16th century, the great Renaissance began to knock at the doors of history and the winds of change resulted in the exclusion of Gothic design. However, this process was not abrupt and the transitional work of the in between period has great significance for the history of art. The European Continent was the hub of artistic activity during the 16th century and hence, the best work is undoubtedly found here. Consequently, innumerable specimens of ornamentation are found not only in the houses but also in furniture in France, Germany and the Netherlands. The construction of houses was done chiefly in wood and this tradition was carried out wherever timber was found in abundance. The architectural decoration mainly consisted of Pilasters as these took the place of pinnacles; moreover vases or dolphins along with the acanthus leaf overcast the dominance of the older forms of design (Hasluck, 1911). There was ample scope for the carver to decorate the house fronts of wood. Throughout the 16th and 17th centuries, there remained prevalent in England, the familiar styles known as Elizabethan and Jacobean.

England saw the rise of the great school of Grinling Gibbons. The one form of carving that his name is usually connected with is a very powerful form of ornamentation that had been copied straight from nature even though he had been the creator of several appealingly beautiful moldings of the traditional style (Hampton Court Palace, Chatsworth, etc.). It was his practice to carve marvelous portions of drapery and foliage with fruit and dead birds etc. in even one foot thick lime. Technically, these specimens with their wonderful skill are unsurpassable; hence, the depiction of each grape shows undercutting, quite separately visible are the finer stalks and birds' legs standing out clearly that may consequently soon succumb to the energy of the housemaid's broom.

The reigns of Louis XIV and XV became witness to a peculiar style of furniture making that was, in a way hardly legitimate and understandable. During this period, the various parts of furniture such as the legs, the rails of tables and chairs, the frames of cabinets, of looking-glasses etc. were designed at first in order to carry cherubs' heads and rococo (i.e. rock and shell ornament) rather than having been made for the purpose of construction and strength. Thus, the decoration part that should have been secondary became the primary concern and utility or convenience was not given any preference. There was an array of such erroneous designs that was used in state carriages as well, along with bedsteads and other furniture. Still, the wall paneling of the wealthy patrons' mansions and at times, and the paneling of furniture were ornamented with rococo design in its minimally unofficial form.

Thus, the historical records of wood carving are extensive and found worldwide and it is difficult to explain all the historical development and historical significance of wood carving associated with different civilizations within the ambit of this dissertation. Also, the researcher renders some important insights with regards to the evidence of Indian wood carving which has a long history and a glorious past.

### **1.1.2 ANTIQUITY OF THE ART OF WOOD CARVING IN INDIA**

India has a long history of retaining the tradition of wood carving. The journey of the discovery of woodwork in India began with the archaeological excavations wherein various sites of the Indus valley unfolded the fresh information and thus brought its publicity to the fore. Khan (1967) writes that the historians have come to an agreement that the Harappans had utilized wood in various aspects of their architecture. For example, the roof of their buildings in the cities was flat and made of wood, reed and mud-plaster (Fig.1.5). In the capacity of inhabitants, they also used the timbers to construct the upper stories of their buildings where the

roofs were constructed of stout beams and had covering with planking, finished with a top dressing of beaten earth.

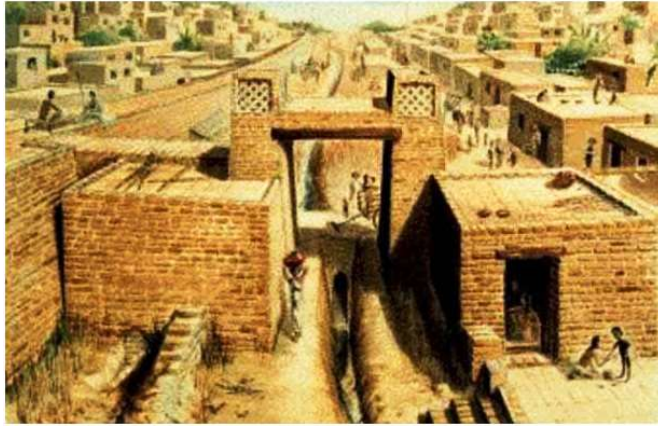


Figure 1.5 A gateway at Harappa: Indus Valley Civilization  
Source: Taken from 'The glory that was Harappa', Retrieved from <http://www.crystalinks.com/induscivilization.html>

Hence, this can be concluded that the antiquity of the earliest 'evidence' of Indian wood carving goes well beyond the earliest specimen of the rest of the world. Because in the 35 cent. BC, Indians had a comprehensive knowledge of the art of woodcarving while the earliest material specimen from Egypt came to the fore after a long interval of 1000 years or so (Gupta, 2012). Ultimately, this can be comprehended that the art of wood carving in India was at its zenith during the reign of Chandragupta Maurya from the end of 4<sup>th</sup> century BC to approximately 1<sup>st</sup> century BC (Fig.1.6).



Figure 1.6 Mother and child from Patna, Bihar  
Between late 3rd and early 2nd cent BC, 20 cm in height  
Source: Taken from 'Wood Carvings of Eastern India', p. 20

This fact has been established on the basis of numerous studies conducted by various researchers that are substantiated with archeological findings. Certain Indian classical texts

such as the *Vedas*, *Shastras*, *Puranas*, as well as various epics and legends explicitly mention the use of wood in architecture, interiors, structures and ornamentation. Apart from these references, these texts also give several accounts of the guilds of craftsmen practicing this highly laborious and demanding material.

Thus, the Mauryan structure and various literary evidences confirm the uncontested antiquity of wood as a standard material for architecture and other decorative arts in ancient India. The adaptation in stone is more than amply proven by the study of earlier Buddhist cave temples (*chaitya*) and their ancillary buildings and monasteries (*viharas*). Other spectacular examples portraying this strenuous yet malleable material are the rock cut temples of Karli, Ajanta, Nasik, Bhaja, Kondana, Kanheri, Mahabalipuram and some aspects of Buddhist shrines of Bharhut and Sanchi (1<sup>st</sup> century BC). These places show the wooden origin in certain construction details and ornamentations of architectural elements such as dovetailing and bolting together of the parts of the pillars, the carved roof with rafters, the verandahs with their beams, the richly carved panels, pilasters and window screens (Thakkar, 2004; Gupta, 2012). The following figures 1.7 and 1.8 refer to the structural nature of the Karli *Chaitya* and the Sanchi *stupa* mentioned above where the prevailing technique of wooden construction is evident.

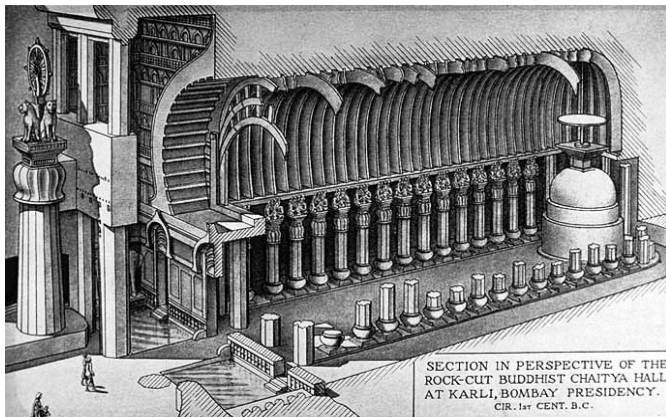


Figure 1.7 Karli *Chaitya*: ground plan of the cave, engraved by Cooper after a plan by Outhett, published in 'George Viscount Valencia's Voyages and Travels' 1811

Source: Retrieved from

[http://www.columbia.edu/itc/mealac/pritchett/00routesdata/0001\\_0099/karle/caveplan/caveplan.html](http://www.columbia.edu/itc/mealac/pritchett/00routesdata/0001_0099/karle/caveplan/caveplan.html)

Figure 1.8 Eastern gateway of the Sanchi *stupa*. Taken by Deen Dayal in 1882

Source: British Library. Retrieved from

<http://www.bl.uk/onlinegallery/onlineex/apac/photocoll/e/019pho0000002s4u00003000.html>

The Buddhist bas-reliefs at Bharhut, Bagh and Sanchi also depict wooden prototypes of that time. These early specimens not only carry a well evolving tradition of a demanding skill but also bear witness to the rich Indian legacy (Parashar, & Bandyopadhyay, 2017). A similar

feature is also found in the Hindu and Jaina architecture of the subsequent periods where the system of their beams, columns, struts and balconies in stone temples reveal the ancestry to the wooden prototypes. Thakkar (2004) has observed in his study that the Ladkhan temple of Aihole (7<sup>th</sup> century AD) is an antecedent to the subsequent demonstration of a highly evolved skill, manifested in the later specimens of architecture. This temple also displays the influence of wooden details on the doorways clearly indicating the timber joinery with projecting lintel copied in stone, column design and roof form imitating the thatch and timber roofs.

The above mentioned evidences have not only produced fascinating data about wooden structures and their craftsmanship but have also portrayed an accomplishment of a lofty standard that was achieved in wooden buildings and their ornamentation.

### **1.1.3 SUBJECT MATTER OF WOOD CARVING IN INDIA**

Indian ornamentation comprises a comprehensive array of symbolic ornamental motifs ranging from fauna to flora, to the depiction of mythological and legendary accounts and even daily life incidents which are carried out in either realistic or customary manner. It is the inherent traditionalism that directs the stylistic coherence of architectural forms and decorative motifs of Indian ornamentation, thereby, also proving to be its very essential characteristic. Traditionally, not only stone but also terracotta has been the recipient of the legacy of wood work ornamentation; hence carrying forward of such a tradition in turn proved to be fruitful for the medieval and contemporary wood carvers who acquired their inspiration from such rich sources (Guha, & Bandyopadhyay, 2016).

Unfortunately, the long ago destruction of early wood work proved as a hindrance in the spot study of such an intricate form of art. Another obstacle today is the ever growing scarcity of timber, due to which several regions of the country have reported near extinction of the wood work tradition. Consequently, the tradition of wood carving extended in many places in India like Madras, Kashmir, Orissa, Bengal, Gujarat, Uttar Pradesh, Mysore, Bihar, Rajasthan and Kerala. All these centers have revealed their own exclusive style and culture through wood carving. In this connection, the researcher is focusing on the Saharanpur woodcraft industry of Uttar Pradesh.

## **1.2 INTRODUCTION TO SAHARANPUR (SRE)**

Uttar Pradesh is a state in northern India that is divided into 18 divisions and 75 districts and displays excellent examples of art and craft. Situated in the Indo-Gangatic plains under the shadow of Shivalik foothills, Saharanpur, a commercial district of Uttar Pradesh reveals a

strong cultural past with aesthetic expression (Hāṇḍā, & Jain, 2000). Under the patronage of different monarchs, it developed a unique style of wood carving craft primarily done on shisham wood borrowing elements from the Mughal art and architecture, a characteristic of Indo-Islamic and Persian style (Verma, & Gupta, 2016). The origin of SRE woodcraft can be traced from the late 19<sup>th</sup> century which also finds place in the textual records of “*Saharanpur Sandharbh*” (local book of SRE). The wooden handicrafts are classified in five categories, i.e. Building crafts (door, window, jharokas etc.), furniture, accessories, wall pieces and toys. In the present scenario, it is being appreciated in the international market, especially in Europe, the U.S. and the Middle East (Banerjee, & Dasgupta, 2009). The artisans are continuously exploring new ideas, doing experimentation and producing contemporary products which depend on the substantial demand of the users.

### **1.2.1 LOCATION AND GEOGRAPHICAL AREA**

Saharanpur (सहारनपुर, سہارنپور) is one of the largest urban centers, lying in the state of Uttar Pradesh. The location of SRE is given as *29.96 deg N, 77.55 deg E*. It is 140 km from Chandigarh (South-South East) and 170 km from Delhi (North- North East) with an average elevation of 269 meters. According to a census conducted in 2011, SRE has a population of 34, 64,228 of which male population is 18, 35,740 and female population is 16, 28,488.

Currently, the average literacy rate of SRE is 72.03 and total literate population is 21, 31,213. Total area under SRE district is 3690 square km. As about 70% of its land is used for agricultural purposes, SRE is mainly known as an agricultural district. Many agriculture based industries, sugar and paper industries, cigarette industry, wood carving industry and cottage industries are situated in SRE. Before moving further, the researcher serves the discussion of the historical background of SRE which shows the settlements in this area.

### **1.2.2 BRIEF HISTORY OF SAHARANPUR**

The high yielding *Doab* region houses SRE, the area of research, between two rivers in its lap. Though it has been a forested land until the medieval times yet traces of human habitation have been found in this area dating from 2000 BC. Mention is found of Saharanpur, even in the Post-Vedic and medieval literature, being identified according to the legends as Ushinagar. Moreover, the areas surrounding it have been home to several ancient as well as medieval Indian conquerors including the Nandas, Mauryas, Shungas, Yaudheyas, Kushanas, Guptas, Yashodharmans, Vardhanas, Maukharis, Khatiks, Notiyals, Chandelas, Muktapidas, Ayuddhas, Gurjara-Pratiharas and Palas (Government of Uttar Pradesh, 1981).



It was Shamsu'd-Din Iltutmish (1211–36), the third and greatest ruler of the Slave Dynasty, under whose rule the area of the present day SRE was included in the Delhi Sultanate. Moving down the timeline, the controversial Tughlaq ruler Muhammad bin Tughluq, the Sultan of Delhi (1325–51), launched an offensive in his bid to annihilate the rebellion of the Shivalik kings in the northern *Doab* in 1340 (Government of Uttar Pradesh, 1981). He was so influenced by the spiritual connotations of the sage that after having visited him, he commanded the region to be named after the Sufi Saint, Shah Harun Chishti and to call it 'Shah-Harunpur', then onwards. Later, it came to be known as SRE (Dutt, 1986; Yadav, & Mahara, 2016). The famous Sufi saint 'Shah Harun Chisti' of 13<sup>th</sup> century gave SRE its name (Pal, 1999; GO1, 2011). The tomb of Shah Harun Chishti is situated at Peer Mohalla near Dina Nath Bazar and preserved in the memory of the eminent Sufi saint. The tomb is still venerated in the town where many pilgrims of all faiths like Hindus, Sikhs, Jains and Muslims visit this *Dargah* regularly (Figs.1.9 and 1.10). It is surprising that people of different belief systems visit this place to offer prayers and seek blessings. Moreover, the two Hindu temples (Shiva and Radha Krishna temples) and a mosque are situated near the *Dargah* which are the symbols of religious harmony without any religious bias.



Figure 1.9 Front view of *Dargah* Shah Harun Chishti at Peer Mohalla near Dina Nath Bazar

Figure 1.10 Inside view of *Dargah* Shah Harun Chishti

Akbar, the ablest and the most benevolent ruler of the Mughal dynasty, made SRE an administrative unit and a part of the Delhi province. Raja Shah Ranbir Singh was designated as the *Jagirdar* of the land by the emperor (GOI, 2011). A member of the Aggrawal Jain community, he was the caretaker of the Mughal treasury and was also the acknowledged founder of SRE (Sharma, 1986). Apart from other interesting aspects, the following figure 1.11 throws light on Akbar's coinage mint at SRE. Two copper coins (*Dams*) were found during the excavation of SRE which had been made during the time of Akbar at SRE. Apart from that, the coins of Aurangzeb and Shah Alam had also been minted at SRE.





Figure 1.11 Two copper coins minted during the time of Akbar at Saharanpur  
 Source: 'World of Coins', Retrieved from <http://www.worldofcoins.eu/forum/index.php?topic=28104.0>

The contribution of Raja Shah Ranbir Singh also includes the building of a large Jain temple in Muhallah/Toli Chaundhariyan. This temple is known nowadays as the 'Digamber-Jain Panchayati Mandir'. One can find the relics of the fort of Shah Ranbir Singh in Chaudharian Muhallah even now. The famed researcher of “*Mirat-i-Alam*”, a person known by the name of Sheikh Muhammad Bakka, was accorded with the responsibility of the *Sirkar* of SRE under the rule of Aurangzeb (1658-1707 AD) (Government of Uttar Pradesh, 1981). Furthermore, during the reign of the Mughals, Muhammad Bakka was not only a renowned governor of SRE, but also an architect of several *havelis* and mosques. He further contributed by getting dug many wells in Saharanpur (Government of Uttar Pradesh, 1981). Unfortunately for SRE, the decline of the Mughal reign in Shah Alam’s period brought bad times for it. Then, the Rohelas made it the center of their attacks under Gulam Quadir. The Rohelas ruled over SRE from CE 1754 to 1789. Afterwards, the Marathas became its rulers. The British became its sovereigns in 1803 after the Second Anglo-Maratha War in which the Maratha Empire was defeated by the imperialist British East India Company. Later, the British invaded SRE, having marched into it from the east and thus it became the next victim of the expansion policy of the British (Dutt, 1986). Thus, the size of SRE district under the British became very vast, i.e. almost to its maximum size.

### 1.2.3 CULTURE OF SAHARANPUR

SRE offers highly spirited and extensive cultural ethos which is further enhanced by the distinctive flavors of a colorful life that is a blend of both rural and urban practices. As a result, SRE is an attractive place for a discerning tourist. Still not having been so influenced by the “developing city vibes” unlike other developing cities of India, it possesses an old world charm. At the center of its attraction lies its own traditional art form known as *Ragni*, which is a

distinctive method of telling stories in poetry format. According to the historical accounts, the Hindu women of yesteryears SRE opted to kill themselves in order to save their honor from the Muslim invaders rather than to lose their prestige when their Hindu rulers were defeated by the cruel invaders (DIC, 2009). The British first took control over the city from 1804 to 1857 under the banner of the East India Company and then ruled it directly under the aegis of the subsequent British rulers till the time of India's Independence. The British culture has left its influence over the city, as is seen especially in the churches in the city. The botanical garden, known nowadays as Horticultural Experiment and Training Centre, is another landmark of SRE that boasts of being a vital part of its rich culture, from as long back as 1750. It was named originally as *Farahat-Baksh* and was used for leisure walks (Malik, 2015). Under the British rule, this place began to be used for leisurely purposes and also as the collective center of several varieties of medicinal and decorative plants (Baber, 2016).

The major festivals celebrated in SRE district are Holi, Diwali, Dussehra, Janmashtami, Maha Shivratri, Muharram, Nirjala Ekadashi, Ramlila etc. Apart from that, there are several places of attraction in and around SRE like Dargah Abdul Qudoos, Shakumbhari Devi, Darul Uloom, Bala Sundari and Nawaz Naugaja Peer. Naugaja Peer is a very prominent holy place in SRE where people from all religions offer prayers. Furthermore, the two Hindu temples (Shiva and Sankat Mochan Hanuman temples) and a Gurudwara are situated near the *mazar*. It is said that this *mazar* is of a peer whose height was 9 yards.

Apart from other interesting aspects, the cuisine of SRE has also been influenced by the various dynasties that ruled it at different times (DIC, 2009). Majority of the population in Saharanpur is vegetarian. Their preferred food items include milk products, vegetables and fruits which are consumed abundantly by them. Nonetheless, Mughlai flavors also do not lag behind here, as is evident from a vast array of mutton and paneer fare, spicy kebabs and dum biryani. According to Gambhir (n.d), other interesting and regular sights in this charming city are: lanes cluttered with electric wired poles, pleasant sounds of the *namaaz* being recited out loudly in the mosques, highly skilled *halwais* engaged in their business of making sweets by the roadside (Fig.1.12), people enjoying their share of *hookah* and even the peddle rickshaw pullers. Moreover, there is the 'Lakkad bazaar' (wood market) where the artisans are seen creating magically aesthetical wood items using their dexterous fingers while running their daily business (Fig.1.13).



Figure 1.12 *Halwai* making sweets by the roadside.



Figure 1.13 Wood market, popularly known as 'Lakkad Bazaar'.

#### 1.2.4 SAHARANPUR WOODEN HANDICRAFT: A BRIEF TRAVEL THROUGH TIME

As aforementioned about its strategic location in the upper temperate zone of Ganga-Jamuna *Doab*, SRE was invaded and ruled by rulers such as the Mauryas, Guptas, Delhi Sultanate, Lodhis, Mughals, Maratthas and British. Each of them influenced SRE in a unique way and gave a unique culture to it. Therefore, the culture here is versatile and consistent due to these settlers.

It cannot be refused that India has always been indebted to the great Mughals in the field of art, architecture and handicraft. Many of them contributed much and had shown their personal interest in constructing beautiful monuments, exotic gardens and handicrafts which have become a source of inspiration for the artisans, architects, designers and subsequent generations (Khan, 2016). During the Mughal period, SRE came into prominence under the Mughal dynasty and developed with the rapid pace of time. It has become the administrative hub and a summer resort. The height of development has reached its zenith. The resulting SRE of today was a small village before the time of Akbar who had first introduced SRE (Jain, 2000; Jain, 2011). As aforementioned, during the period of Akbar (1542–1605), Raja Shah Ranbir Singh was appointed to a great position in SRE. It was a time when SRE was a city with surrounding walls, having four gates namely the Sarai Gate, Mali Gate, Buria Gate and Lakhi Gate. Having been appointed as a governor of SRE *Sirkar*, Raja Shah Ranbir Singh made a great endeavor to make SRE a peaceful trading hub. Consequently, he decided to encourage the Jain merchants to settle and establish their business in the town (Hāṇḍā and Jain 2000). Seeing a pleasant atmosphere to pursue mercantile activities and great efforts of Raja Shah Ranbir Singh, they were attracted to settle here. Therefore, the Jain families were settled in SRE and constructed their *havelis*, private temples and *chhattas* (the extension of *chhat*/roof). A covered wooden

over bridge connects two *havelis* of the same owner showing imperial influence that became a major attribute of SRE (Fig.1.14). The contribution of Jain craftsmanship to improve the standard of workmanship in India has been impressive (Kumar et al., 2017).



Figure 1.14 Earlier sketches of *Chhatta* Jambudas, Saharanpur  
 Source: Taken from “Jain Wall Painting in Doab Region” p.23.  
 Figure 1.15 Wooden carved door frame

From pre-historic time to till date, man had been and is still experimenting with different tools and materials in his bid to make life easier and more comfortable to function well in his environment (Bhatnagar, 2013; Adu-Agyem et al., 2014). A very noteworthy chapter compiled in the history of SRE is wood carving. Depending on the local availability and climatic conditions, artistic woodwork began in this area as an architectural and temple/palace craft and flourished alongside the wood carving cottage industry.

This art work is exhibited through some exclusive pictures related to traditions, rituals, art and craft. This art form was lavishly adopted for surface decoration as well as to fill the architectural surface in the interior and exterior of *havelis*. The application of wood carving in architecture can be seen through doors, door frames, windows, railings, brackets and *chhattas* in an appreciated manner. The above shown figure 1.15 displays the door frame of a *haveli* situated in *Chhatta* Jambudas which was ornamented with floral motifs.

Regarding initiation of wood carving, Handa & Jain (2000) were the first to have noticed and have recorded the presence of wood carving in SRE after the independence of India but the exact origin of this technique remains a mystery to date. They also served many arguments regarding this craft in their research like some of the wood-carvers had moved directly from Iran to SRE and settled in the town and the surrounding villages where shisham wood has been

amply available in the *Doab* and Tun forests. They did not stay in Kashmir because they were not comfortable in handling walnut wood. It may, thus, be argued that the art of wood carving might have developed at the same time in Kashmir and SRE and as a result of the same inspiration. It may be for that reason that one finds distinct similarities in technique, style and treatment of the products manufactured at both these places (Khan, 2016). For Instance, the profuse use of grapevine (called *anguri*) and chinar leaf motifs and minimal use of zoomorphic devices in carving is found at both the places.

On the other hand, they again said that the contribution from the outsiders was recorded as a crucial period in the history of SRE. Hāṇḍā, & Jain, (2000) have also mentioned in their extensive work “*Wood handicraft: a study of its origin and development in Saharanpur*”, that wood carving was introduced in Kashmir by Persian craftsmen who had to leave their home in Persia and settle in Kashmir due to lack of shisham wood at their native place. As a result, in 1817 when the Mughal rule came to an end in Kashmir, some craftsmen’s families had shifted to Multan, SRE and other places where an established livelihood from woodcraft business could be earned. Due to political turbulence and unfavorable market conditions, some of the enterprising families of the wood carvers had to shift from Multan to some other prospective destination. SRE, by that time, had earned a reputation as a congenial place for the craftsmen to pursue their respective skills under the patronage of Jain nobility. Similarly, Chamber (2015) has also referred to the statement of Hāṇḍā, & Jain in his research which was related to the origin of wood carving in SRE. For instance, the origin of SRE woodcraft was discovered by some craft-people (wood carvers), belonging to different places or Kashmir who had turned towards this town (Chambers, 2015). Consequently, the origin of wood carving in SRE has not yet been traced. Wood carving has been mentioned in the famous book “*Wood handicraft: a study of its origin and development in Saharanpur*” by Hāṇḍā, & Jain. Its roots, present form and popularity are traced to and connected with the Mughal period. According to Garg (2000), woodcraft industry of SRE was started at the time of Akbar. Due to the lack of availability of good quality timber, transport facility and skilled labor, this industry ultimately vanished from the city. Later the art of woodcarving started again in the city that had been brought down from Kashmir. Garg (2000) also stated that the first industry was started in 1838.

#### **1.2.4.1 FROM 1857 TO 1900**

Having conducted a rich discussion with Mr. Abdul Rehman (first national award winner in SRE), Mr. Fayyaz Ahmad (Shilp Guru) and Sheikh Mohd. Iqbal, member of EPCH, Gen. Secretary of Handicrafts Welfare Society and former President of the SRE Wood Carving

Manufacturing Association, we came to a conclusion that from 1857 till 1900, several commercial products were manufactured here including the comb, carved door, door frame, folding octagonal table (known as *athmaas* table in local term), jewelry box, *rehal*, folding screen etc. Sharma (1986) mentioned in his work “*Saharanpur Sandarbh*” and Hāṇḍā, & Jain (2000) have also written in their extensive work “*Wood handicraft: a study of its origin and development in Saharanpur*” that the wooden handicraft industry of today was begun as a business on a small scale in 1857 by a person Mohammad Atta Hussain who was a carpenter from Multan which is now in Pakistan. It is supposed that one of his relatives was a *subedar* of Wajid Ali Shah, the Nawab of Audh (A.D 1847-56). Yadav & Mahara (2016) stated that he brought along his family and business from Multan to SRE. Initially, his capital investment was Rs. five when he began to create magic in his wood carving on a commercial basis. There are many fictitious stories about the origin of wood carving in Saharanpur that were passed down from generation to generation by word of mouth. However, no evidence was found prior to the existence of Mohammad Atta Hussain that could give enough information about the origin of wood carving in SRE. Since there is not enough evidence available, Mohammad Atta Hussain, a migrant from Multan who belonged to the Sheikh family of Kashmir, was considered as a precursor of wood carving in SRE who, in 1857, laid the foundations of wood carving in this city. It was in around 2000 that a research came into the public domain which serves the logical reasoning for the origin and development of wood carving in SRE. Nevertheless, all the facts regarding Atta Hussain were found out from his successors, namely a person Sheikh Mohammad Imam Mohammad Ikram and his family. As per the information, it is said that he was a very talented wood carver and also an avid believer of the fact that there is no age for learning and one grows as much as one learns. Therefore, he frequently used to visit Kashmir to learn new aspects of craft and technology that helped him to be updated in his field. For several years, he trained as an apprentice under the guidance of the established and experienced wood carvers of Kashmir.

Taking into perspective the rising demand for wooden products, Atta Hussain established the first organized production unit of wood carving at SRE in A.D. 1882. The story began from a trivial article, a wooden comb made of shisham wood, which was embellished with “*Mirch ki bel*” (pepper vine) and thus the manufacturing of a small article gradually developed into the wood carving industry. At that time, shisham was the only preferred wood and wood carving was the only medium of ornamentation used by the artisans. It was a very crucial time when wooden products were noticed by the British army officers who were stationed at that time at SRE. They took some wooden products along with them to earn appreciation from the art



connoisseurs of England. Consequently, the wooden products of SRE developed a path for themselves and also established the self identity for India in European countries. Alongside it, Indian foreign trade also increased expeditiously with the opening of the Suez Canal for navigation in A.D. 1889.

In Handa & Jain's account (2000), we find mention of an exceptional happening related to wood carving that had taken place in 1885 AD. It was a major feat of Atta Hussain who had displayed the outcome of his hard work: his wooden carved product, in the Khairabad Agricultural Show and was rewarded with a prestigious award. The following figure 1.16 bears testimony to this Indian artisan's exceptional talent. Such appreciation in the event proved fruitful for him to expand his business. Atta Hussein ultimately realized that the demand for woodcraft articles was increasing steadily, so he took pains to train more than fifteen apprentices in various skills for different operations of wood carving. The interesting fact is that out of these apprentices, twelve were uneducated and raw hands. When they had completed their training in wood carving, three of those trained craftsmen ventured out of Atta Hussain's workshop in 1890 A.D. and installed their own production units in SRE.

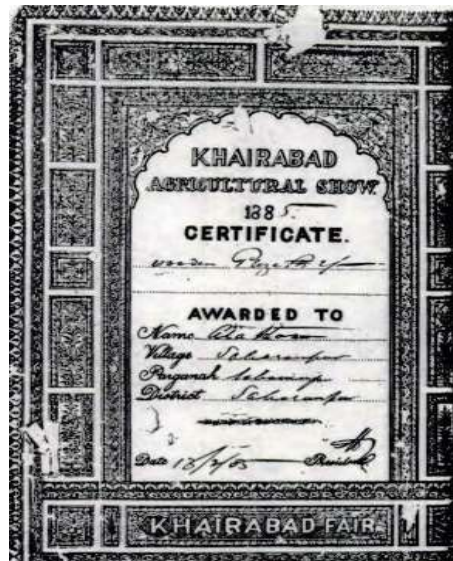


Figure 1.16 Certificate awarded to Atta Hussain (English version)

Source: Taken from "Wood Handicraft: a study of its origin and development in Saharanpur" p.53.

Circumstances proved even more fruitful, so much so that gradually, there came a steady increase in the demand for woodcraft, both nationally and internationally and it was becoming difficult for Atta Hussain to fulfill such demand. Alongside, several other craftsmen belonging to the Sheikh Community also established their own production units. These were mostly the immigrants from Multan who had taken adequate training in wood carving. During those times,

there was another highly competent wood carver named Ali Hussain who was also known for his exceptional skill. Even today, his legacy has been kept safeguarded at the famous Imambara of SRE in the form of his first work i.e. a wooden *roza* in shisham wood. Till 1890, the scale at which those manufacturing units kept functioning was really small. The change came later on in the form of seven of those small scale units combining together and forming one larger workshop. It was a climatic time period because an industry of the woodcraft of SRE was forming gradually at that time.

#### **1.2.4.2 FROM 1900 TO 1965**

Additionally in these decades, promotional activities were started with enthusiasm. Consequently, in 1902-03, several exhibitions were held all over India for the promotion and enhancement of SRE woodcraft and for providing a platform to interact with the media and customers. It was around that time that SRE had acquired fame as the center of the art of carved wood work within the country as well as outside it. Such an observation has been made by Watt and Brown in the *Indian Art at Delhi (being the official catalog of the Delhi Exhibition, p. 111)* in 1904. However, in their account, we also find a certain regret for the change in the traditional craft which according to them “has although survived yet its place has been occupied by the practice of producing common and unrefined items such as brackets, folding octagonal tables etc., in red tun and mulberry woods which are cut by the machine fret-saw. What is more regrettable is that such low standard items are exported to Europe and America in thousands and are agreed to as the representatives of Indian wood-carving. As a result, the sheesham wood carving has almost met its end.” The wooden goods displayed in the Delhi Art Exhibition were worked upon by many artisans together so that they could complete the order within a given timeframe.

The following figure 1.17 is a proof in this regard. According to the book, against the eastern wall of the main Gallery of the Exhibition (Delhi exhibition), there was found a marvelous example of a door (Plate No. 23) which was manufactured at Saharanpur by Surja Mistri. He had prepared it for the Lucknow Museum but it had been sent on loan by the Institution to Delhi (Fig. 1.18).



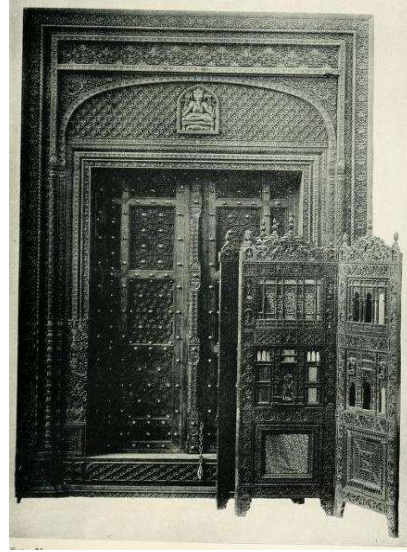


Figure 1.17 Saharanpur Mistris Carving a door for the Delhi Art Exhibition.

Source: Taken from 'A monograph on wood carving in the united provinces of Agra and Oudh'. p 59.

Figure 1.18 A carved wooden door made by Surja Mistri for Lucknow Museum

Source: Taken from Indian Art at Delhi 1903: being the official catalogue of the Delhi Exhibition 1902-1903. P. 111.

Meanwhile, wooden handicraft of SRE had to pass through many phases of innovation. For Instance, a modern innovation known as inlaid work was introduced in SRE through European influence. According to Sharma (1986) and Handa & Jain (2000), Inlay work was started in SRE between the decades of 1950-1960 but the information is divergent from its original detail. Maffey (1903) had already noticed it a long time ago as is mentioned in his study. The following figure 1.19 throws light on the early evidence of brass inlay in SRE.



Figure 1.19 Tun carving and brass inlay, Saharanpur

Source: Taken from 'A monograph on wood carving in the united provinces of Agra and Oudh'. p 53

According to Maffey (1903, pp. 28-29) “Inlay work was one of the chief Muhammadan arts which was introduced into India through the great Mughals. A new form of inlay was recently introduced in Saharanpur through the influence of a European resident. This consists of floral designs of brass, copper and German silver worked out on plain sheesham. It is occasionally applied to picture frames and caskets but is best adapted to large lily-patterns inlaid on plain panels. The best specimens of this kind of work are to be found above the altar in Saharanpur church”. The following figure 1.20 was taken from St. Thomas Church where wood carving and inlay work may be seen. According to father Deniel Masih, this church was built in 1809.



Figure 1.20 Altar of St. Thomas Church at Saharanpur

Inlay is a technique that is commonly used in the decoration of craft where different kinds of materials like ivory, silver, brass and even colored plastic are inserted into the wooden surface. At that time, ivory was used in inlay work on household items like flower pots, multipurpose boxes, trays and table tops. Later on, due to the changing taste of the users and a growing tendency of modernization, ivory work was replaced with camel bone powder, marble dust and multi colored plastic work. Some manufacturers started manufacturing furniture items like sofa set, bed, dining table, breakfast table etc. This period is also considered as the golden period for this cluster because major household items, furniture and decorative products were produced during this period and also because the consumers started using these products as items of home décor.

Along with this, in about 1924, a gold medal was awarded to Messrs Sheikh Mohammad Imam Mohammad Ikram to appreciate their expertise in carved wooden furniture. The event was the Industrial Exhibition at Baroda which was coordinated by the Indian Industries and Trade Developing Syndicate Limited, Karachi (Fig. 1.21). At the time when the book ‘Wood Handicraft: a study of its origin and development in Saharanpur’ was being written, the

successors of Sheikh Mohammad Imam Mohammad Ikram were very much involved in the trade on a large scale. Gradually and unfortunately, after the death of Sheikh Mohammad Imam Mohammad Ikram, his progeny could not continue this family craft tradition on a large scale. Therefore, the great reputation and name of Sheikh Mohammad Imam Mohammad Ikram's family vanished away with time.

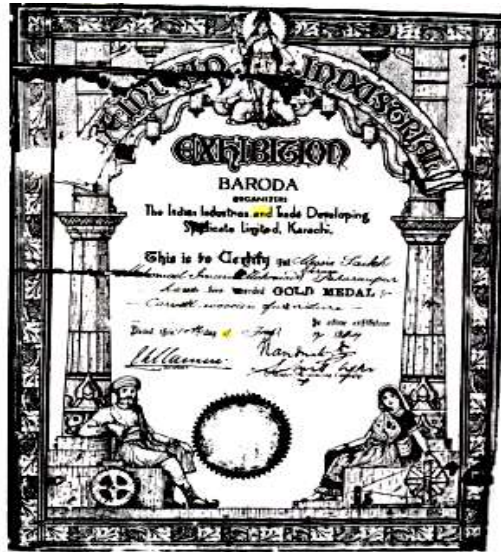


Figure 1.21 Certificate awarded to Sheikh Mohammad Imam Mohammad Ikram  
Source: Taken from 'Wood Handicraft: a study of its origin and development in Saharanpur' p.58.

### 1.2.4.3 FROM 1965 TO 1980

In 1965, the tendency to innovate became the foundation for another craft i.e. brass overlaid crafting of wood. This craft involved the pasting of embossed brass cut pieces on the surface of the wood items, in the shapes desired. For the woodcraft industry, this innovation proved to be very beneficial. During 1975-1980, there came a trend of using geometrical patterns in different colors of wood. This particular style of wood carving involved first, the cutting of many colored wood pieces into geometric designs and then pasting those pieces into, again, in a geometric pattern. This technique can be called as wooden mosaic. Presently, this artwork is getting a lot of attention and admiration from the public as well as the customers. Along with this, SRE came under a phase of transformation and improved in terms of infrastructure by the great efforts of Late Mr. Abdul Mazid, who was the father of Mohd. Iqbal of Sheikh Abdul Majid & Bros., who is a member of EPCH and the former president of the Wood Carving Manufacturing Association. Handa (1999) stated that Iqbal's father had started his career as an artisan in 1932 and made great efforts to get a wood seasoning plant installed in SRE in 1975. He also urged the UP government to start a quality marking scheme for the industry. It was the

first wood seasoning plant in SRE. During the interview schedule, Mohammad Iqbal stated that the idea of the seasoning plant had come to his father's mind because he had got married to Mrs. Ishrat Jahan, a resident of Allahabad. In Allahabad, a carpentry school and wood seasoning plant is situated which had inspired him a lot. Before the installation of the wood seasoning plant in SRE, the manufacturers of SRE were availing the facility of wood seasoning from the Forest Research Institute (FRI) Dehradun where they usually had to pay Rs 1.25 per Cft. (cubic feet).

#### **1.2.4.4 FROM 1980 TO 1990**

The decade of 1980s brought changes in the material and introduced a substitute for sheesham wood. For instance, mango, teak, pine, sal and many others durable and cheap woods were extensively used by the artisans of this period and these varieties of wood are also being used by the artisans in the present time. These woods are economically affordable for all the social classes as compared to sheesham wood and by using them the artisans were trying to maintain the reputation of SRE in the national and international market.

In 1985, the tireless work and dedication of the artisans gave birth to a new technique in the production known as antique work which is specially made of mango wood with burning effects (Hāṇḍā, & Jain, 2000). This is a specialized technique involving the use of mango wood which is given burning effects where the upper layer of the wood is exposed to the burner flames and then it is given rubbing and polishing treatment in order to give it the final look. With the course of time and the increasing demand of production, the artisans brought several changes to fulfill the requirement of the market. As is mentioned in '*Saharanpur Sandarbh*', that in 1986, about 165 wood carving handicraft units were present in SRE, out of which only 36 units were exporting their goods.

#### **1.2.4.5 FROM 1990 TO 2010**

In the 90's, there came another change in the wood carving industry when, in order to bring about newness, the artisans began to use many other materials like wrought iron, ceramic and glass, along with wood so as to provide a new dimension to the already established traditionally carved products. Along with this, another material called MDF (medium density fibre) came into the market with huge challenges which gave immense possibilities in the competitive market of SRE because MDF is very easy and soft for *chhilai* (chiseling) work. Nonetheless, a significant transformation was adopted in the market of wedding or event decoration products. A new product line of wooden products was publicized in this area such as

planters, wall brackets, wall panel etc. Continuous changes in material and technique opened the doors to explore the new market and captured the attention of the buyers. This period is also considered as the healthy period for the SRE woodcraft industry which gave a boost to the commercialization of wooden products through mass media. In the year 2002, a “Technological Up gradation Center” (National Center for Photo and Picture Framing Technology) was opened in SRE under Export Promotion Council for Handicrafts (EPCH). The foundation of this center was laid by Ms. Mayawati, the honorable Chief Minister of Uttar Pradesh on 3 November, 2002. Despite the goodwill of SRE woodcraft industry, the traders were facing major challenges in local marketing due to the lack of infrastructure. Therefore, they started adopting new channels for marketing e.g. e-commerce, internet marketing, social media etc. The terminology of the motif has changed with time and a new vocabulary of narratives has been introduced as per the consumers’ taste.

#### **1.2.4.6 FROM 2010 TILL DATE**

Presently, the SRE woodcraft industry has got recognition and its name is mentioned in the world map because of its popularity and demand by the importers in large quantity. Despite being promoted by EPCH, National Centre for Design & Product Development (NCDPD) and Development Commissioner Handicraft (DCH), the SRE wooden handicraft industry is less progressive as compared to other wooden handicraft clusters. Furthermore, the year 2017 was very crucial in terms of taxes because Goods and Services Tax (GST) was applied to wooden goods in which tax rate on many items is 12%, but on some items, it is as high as 28% (Mehta, 2017). Also, few articles like cane furniture, Chinese products and duplicate works are available in the market at low prices. Due to which, SRE wooden handicraft is losing its identity. Furthermore, the chronological timeline of wooden handicraft of SRE provides more information about the craft. For this purpose, the following figure 1.22 has been designed to throw light on the details in a more progressive manner. Additionally, it also explains how an ordinary man from a different place had started his business in SRE and got recognition in his respective field.



## CHRONOLOGICAL TIMELINE OF WOODEN HANDICRAFT OF SAHARANPUR

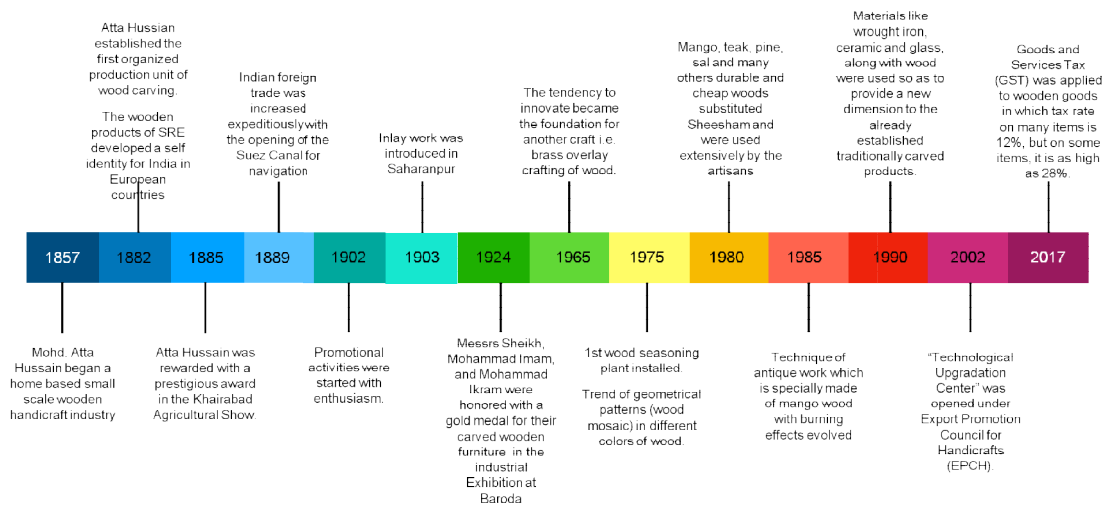


Figure 1.22 Woodcraft of Saharanpur on Timeline

### 1.2.5 GEOGRAPHICAL INDICATION: A STEP TOWARDS INTERNATIONAL BRANDING

Yadav *et al*, (2018) stated that Geographical Indication (GI) is tendered to those products that have originated at a particular geographical area and also have those attributes or prestige that are owed to the place of origination. SRE got the GI certificate for woodcraft on March 31, 2014 under application no. 184 (Please refer appendix 4). Now those manufacturers who would produce the woodcraft outside SRE or even anywhere in its periphery will have to face legal action by the government of Uttar Pradesh. This will result in the promotion of original woodcraft as GI certification will pave the way for the production of authentic articles because now the community that produces these articles will be able to manufacture and market them exclusively (Sharma, 2015).

### 1.2.6 REWARD AND RECOGNITION

Gradually, SRE woodcraft has received attention from the government of India. A number of awards and schemes were announced by the Government of India (GOI) for the uplifting and welfare of the artisans' community of SRE. The artisans have been awarded with a Shilp Guru award, ten National awards and thirteen State awards, according to their expertise. Unfortunately, the already existing literature does not provide sufficient background about the winners of national and Shilp Guru award.

Moreover, there are no proper official documents available online on the website of DCH which may provide a systematic understanding of the total number of awardees in this region. Several reports on “Saharanpur Woodcraft” define that only seven national awardees exist in the region of Saharanpur (Geographical Indication Journal No. 54, 2013; A Compendium of Indian Handicrafts & Handlooms Covered under Geographical Indications (GI), 2017). While, the present study reflects that ten national awardees exist in the region of Saharanpur while a Shilp Guru (prestigious award in the area of handicraft) award winner Mr. Fayyaz Ahmad also belongs to this area. The Shilp Guru award was offered to Mr. Fayyaz Ahmad in the year 2011. But the aforementioned report reflects incomplete information related to a number of national awards as well as the Shilp Guru award. The summarized report on the national awardees with their respective information is described in Tables (1.1 and 1.2).

Table No. 1.1 Details of Shilp Guru award winner in Saharanpur

Details of Shilp Guru Awardee in Saharanpur					
S. No.	Awardee Image	Name	Award	Address	Year
1.		Fayyaz Ahmad	Shilp Guru	Hakkamsa Colony, Near Mohammad Masjid, Saharanpur	2011

Table No. 1.2 Details of ten national award winners in Saharanpur

<b>Details of National Award Winners in Saharanpur, UP, 247001</b>				
S.No	Awardee Image	Name	Address	Year
1.		Abdul Rehmaan Siddiqui	9/331, Mufti Street, Near Mazahir Uloom, Saharanpur	1992
2.		Dilshad Ahmed S/o Haji Mohd Ishaq	Gali No. 2, Sabri Ka Bagh Indra Chowk Left Side, Saharanpur	1997
3.		Bashir Ahmad	Chungi Ali Ahangran, Saharanpur	2002
4.		Mohd. Usman Ahmed S/o Mohd. Dilshad	Sabri Ka Bagh, Indra Chowk, Leftside, Gali No. 2, Saharanpur	2006
5.		Rihan Ahmed S/o Mohd. Dilshad	Left side Gali No. 2 Indra Chowk, Mansoor Colony, Saharanpur	2006
6.		Fayyaz Ahmad S/o Late Sarif Ahmad	Hakkamsa Colony, Near Mohammad Masjid, Saharanpur	2007
7.		Waheed Ahmed S/o Late Sarif Ahmad	12/389, Jatav Nagar, Near Panchayati Bhawan, Saharanpur	2007
8.		Mohd. Imran S/o Abdul Gany	Vill: Unali Post Office and district Saharanpur	2007
9.		Jaheer Ahmed S/o Niyaz Ali	Siraj Colony, Saharanpur	2007
10.		Javed Ahmed S/o Haji Ishaq	R/o Sabri ka Bagh, Indira Chowk, Near Transformer, Saharanpur	2010



### **1.3 RESEARCH PROBLEM**

In the age of globalization and facing fierce competition with Chinese products, local handicraft products such as the wooden handicrafts of SRE are undergoing a radical change and also facing enormous pressure to revive and modernize. Gradually, the SRE wooden handicraft industry which has a long historical past, has almost reached on the verge of vanishing due to globalization and many other reasons. In SRE, a number of design workshops and employment generation projects have been facilitated by the government and NGOs to promote the impact of wooden handicrafts. But the output of these integrated design and technical workshops has not appeared in the market till date. For instance, a design workshop was held in SRE from 2/12/2015 to 2/4/2016 and about 10-15 prototypes were developed during the workshop but these prototypes are unavailable in the market. Moreover, new innovative designs, emerging ideas and trends have not been adapted yet and the artisans are also unaware of the market as well as the consumer's demand. Even such conspicuous ignorance is also found among the artisans' community. When we collected the information regarding the origin of the design from the artisans, nobody knew about the source where they had got it from, but the artisans knew how to make or emulate the product. Moreover, some of the best designers of esteemed institutes were appointed for the design integrated projects by EPCH and NCDPD for making innovative products to meet the market demands. Fortunately, some new ranges of products were introduced by the professional designers in IHGF, biannually (Spring & Autumn fair) which were organized by EPCH, but they were unable to revitalize the old fashioned motifs/designs. Herein, the basic problems encountered in operating this industry are mentioned. They are:

1. Scattered data related to history of woodcraft
2. No documentation available on motifs/designs of SRE woodcraft
3. Unorganized sector
4. Unawareness about rules, regulations, new technology, trends etc.
5. Lack of innovations

### **1.4 RESEARCH QUESTIONS**

In the present investigation, various literature and studies have been conducted which raised the following questions:

- What are the creative aspects of Saharanpur woodcraft with regard to their origin and style?

- What are the inspirational sources of the motif?
- What are the reasons behind the changing trends of motifs, styles and materials?
- Is there any requirement to improve the tool kit of wood carving?
- Can new innovations in design change the market?

## **1.5 OBJECTIVES OF THE STUDY**

The fascinating world of handicrafts, especially the wooden handicraft of SRE has lured the researchers, designers, anthropologists and subject experts to explore and investigate new ideas which can be easily implemented into the market. Hence, this study highlights the various historical impressions and describes the networks and processes involved in the production of wood carving items to develop some prototype samples. From various literature surveys, the following objectives have been led in the present study:

- To examine the historical influences on Saharanpur woodcraft industry as well as various other factors responsible that have influenced the industry.
- To study the factors responsible for motifs and designs along with their rejection in the prevailing market.
- To document the production process of woodcraft along with that of raw materials, tools and techniques and problems related to work in Saharanpur.
- To design and develop new prototype samples of woodcraft for its enhancement while using traditional as well as contemporary motifs.

## **1.6 RESEARCH METHODOLOGY**

In Uttar Pradesh, there are various districts where woodwork is prepared by thousands of crafts people that can be classified by different techniques. For Instance, wood carving, Brass/Metal Inlay, Tarkashi, carved wooden blocks, wooden painted lacquer toys etc.

The SRE district of Uttar Pradesh was selected as a study area which has evolved its unique identity in craft cluster as well as craftsmanship through design, quality and skilled artisans (Fig.1.23). In SRE district, wood carving and brass/metal inlay products are being produced since a long time.

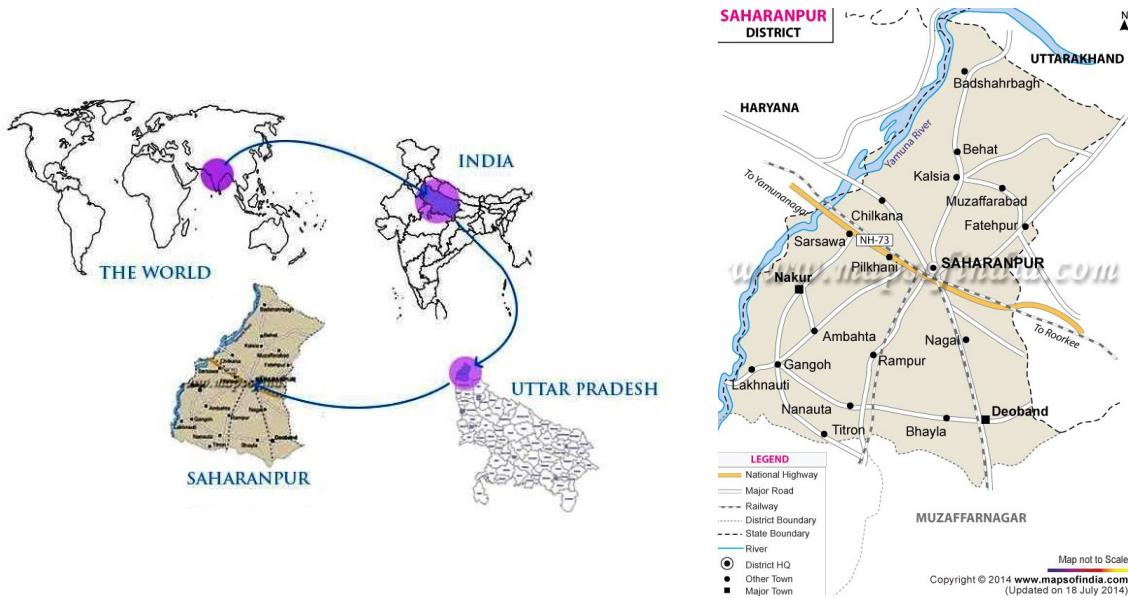


Figure 1.23 Geographic identification of Saharanpur woodcraft cluster on the world map  
 Source: Maps of India, www.mapsofindia.com; reorganized by the researcher

However, with modern technology and a dramatic shift in consumer choice, traditional products and motifs are not able to cope up with increasing pressure and are facing strong challenges in the contemporary market. Thus, the study was conducted in SRE city to collect the information about the changing trends with respect to the motif, material and technique and to understand the networks and processes involved in the production of wood carving items. Based on the findings of the pilot visit, an interview schedule was designed for three categories of respondents: artisans, manufacturers and buyers. This is because in order to understand the current trends in the wood carving industry, the study required the collection of information and understanding of perspectives of these three categories.

### 1.6.1 SELECTION CRITERIA OF RESPONDENTS

To understand the networks and processes involved in the production of wood carving items, field work was conducted. During the field work interviews were conducted with manufacturers of the wood carving units and the artisans involved in this craft activity. The purpose of this section was to understand the various levels at which wood was exchanged and the journey of wood from the stage of timber to a finished product was tracked and to understand the socio-demographic characteristics of artisans and their problems related to their work. The selection of the artisans for the study was purely random, which was preceded with purposive selection of the area of the study. The interview schedule for the artisans was

designed keeping into account that the artisans working in the manufacturing units would be interviewed, but this could not be followed in all the cases because manufacturers were hesitant in letting me hold any discussion with the artisans in the pretext of loosing time. As a result, total 138 artisans were interviewed. Artisans of woodcraft were scattered in and around SRE within a radius of about 15 -20 Km. Mainly, the urban areas of SRE house the wood carving units and a substantial number of such working sites were found at Mandi Samiti Road, Industrial area of Delhi Road, Ali Ki Chungi, Mehandi Sarai, Azad Colony, Nadeem Colony, Chilkana Road, Gotesah, Khatakheri, Sabri Ka Bagh, Kamela Colony, Ganpat Sarai etc. About 15-20 Km area of SRE town covered most of these industries within its range. Samples of the artisans were selected in 11 areas of SRE city. The name of these 11 areas were Khatakheri, Nadeem Colony, Azad Colony, Mandi Samiti Road, Sabri ka Bag, Kamela Colony, Mehandi Sarai, Gotesah Road, Manak Mau, Halalpur and Ambala Road. The questionnaire contained close ended and open ended questions. Furthermore, questions enclosed qualitative and quantitative information of the respondent. The information synchronized with the objective of the study. The data entry of questionnaires and overall analysis of the socio-demographic variables and preference of prototypes samples drawn from the questions were done by using SPSS and Microsoft Excel.

Whereas, the selection of manufactures for interview was done in accordance with the manufacturers' list, provided by DCH office. Total 15 manufacturers were interviewed and contacted to understand the entire process beginning from the raw material collection to making the final product. The researcher also had a rich discussion with resource persons including Mohd. Asif in the regional office of National Centre for Photo & Picture Framing Technology, EPCH, Mr. Pulkit Jain (Assistant Director) in regional office of the DCH at SRE, Sheikh Mohd. Iqbal, Mr. Fayyaz Ahmad and Mr. Abdul Rehman. The discussions with the resource persons focused on the present scenario of woodcraft industry including export, domestic supply, latest trends and current problems of the artisans in manufacturing and infrastructure. With the help of discussions, the researcher came to the conclusion that the area of Saharanpur woodcraft had been undergoing changes and witnessed commercialization with time, but in a rather less progressive manner which needs more advancement according to the changing trends.

There was no sampling method used for selecting the respondents from the category of buyers/visitors at Delhi Haat on 28.08.2018. Their interviews were based mainly on their availability.

The study also makes extensive use of secondary sources of data. Data on the origin and development, tools, technique and material of SRE woodcraft had been collected from the census, gazetteer, geographical indication journal, books, journals, newspapers, documentaries, magazines etc. Several libraries like the Mahatma Gandhi Central Library, IIT Roorkee, libraries of Jawaharlal Nehru University, Delhi University, Kurukshetra University, I.G.N.C.A. Delhi, National Handicraft and Handloom Museum, Delhi, Munna Lal Girls Degree College, Saharanpur and J. V. Jain College, Saharanpur had been visited to collect the relevant literature.

### **1.6.2 FIELD OBSERVATION**

It was a difficult task to build a rapport with the respondents. Moreover, it took a lot of time as well. The major pillars on which the woodcraft industry sustains itself are: timber, artisans and manufactures. In the timber market, many illegal activities are said to take place. As a result, the manufacturers were unwilling to be a part of the study. Since a large number of manufacturers are engaged in the same industry, there is cut throat competition in the market. In the earlier stage of the study, many of the manufacturers had the notion that I had been sent by their rivals in business to plagiarize their designs. It was probably the major misconception due to which they were reluctant to take part in the study. However, when they had seen me interviewing other people in the market, they became certain about my objectives. Still, they withheld significant details from me about their proceedings, transactions, manufacturing, sale or export which resulted in many information gaps in the study.

### **1.7 NEED AND SCOPE OF THE STUDY**

A large number of researchers have done research in the past on the topic of Saharanpur woodcraft industry such as on child labor, supply chain and labor conditions, market scenario and folk art. But there is less literature available on the changing trends and product range in the SRE woodcraft industry. Hence, this has motivated the researcher to explore and conduct the research in this specific area. The present investigation “Critical Analysis of Saharanpur Woodcraft: Practical Status and New Design Possibilities” may serve as a future reference material for the students of product designing and sociologists. Along with this, it may also be beneficial for entrepreneurs improving the merchandize. The current study may contribute to increase the production and income of the entrepreneurs in the future. This study may also enhance the employment and improve the current status of the artisans. Thus, the current investigation has been planned to create prototypes which represent the identity of the SRE woodcraft.

## 1.8 AN OUTLINE OF THE THESIS

The study is comprehensively organized broadly and described into seven chapters. The work performed in this study, briefly outlined, as follows:

**Chapter 1** deals with the defining of crafts and the historical viewpoint regarding the wood carving craft. Apart from this, this chapter identifies the research area with historical background, culture and the rise and development of the SRE wood carving craft on the timeline. This chapter further describes the problem formulation, research gaps, objectives, significance, scope of research and methodology.

**Chapter 2** presents a brief assessment of previous theoretical as well as empirical works already done on various aspects of the study. This chapter explains the theories and frameworks focusing on the craft sector with special focus on the SRE woodcraft. The main contents of this chapter deal with the review of literature that is associated with various aspects of the SRE woodcraft by doing a review of significant research in this field.

**Chapter 3** aims at explaining the types of motifs along with their inspiration and provides rich details regarding ornaments (motifs, design and patterns) produced in SRE woodcraft. Additionally, it also explains the representation and organization of the motifs. Apart from that, the chapter gives insight on discarded motifs with responsible factors for the same.

**Chapter 4** discusses the materials with specifications, tools and techniques of woodcraft of SRE. This chapter gives an insight on various aspects, from raw material to product making. The detailed description is also mentioned to explain the step by step procedure followed to make the product. Moreover, the chapter also describes the existing product ranges in various categories in the market and also classification of the manufacturers.

**Chapter 5** describes socio-demographic characteristics of the artisans and their problems related to their work. Apart from this, the study explains the SWOT analysis of SRE woodcraft industry which denotes the internal and external facts and current scenario of woodcraft industry in the competitive market.

**Chapter 6** explores and brings new prototype samples which depict the identity of woodcraft through its visual appearance using traditional and contemporary techniques. For that purpose, ten designs for woodcraft samples were developed by maintaining the essence of the art of SRE and rediscover its beautiful form in a contemporary as well as traditional way.

**Chapter 7** highlights the main conclusion and significant contribution of the thesis. This chapter concludes with a critical analysis of the research gaps which were unanswered and includes suggested recommendations and the scope for further research in the future.

### **1.8.1 Organization of Thesis**

- Chapter 1: Introduction
- Chapter 2: Review of Literature
- Chapter 3: A Comprehensive Study on the Existing Motifs in Saharanpur Woodcraft
- Chapter 4: Existing Manufacturing Process Chain of Woodcraft Industry at Saharanpur
- Chapter 5: Socio-Demographic Characteristics of the Artisans and their Problems Related to their Work
- Chapter 6: Design Development and its Execution in Saharanpur Woodcraft
- Chapter 7: Conclusion

## CHAPTER 2

### REVIEW OF LITERATURE

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#### **2.1 INTRODUCTION**

A review of literature is a systematic explicit and reproducible method for identifying and interpreting the existing body of recorded work produced by the researchers, scholars and practitioners (Fink, 2013). The major objective of an in-depth literature review is to aid in understanding the direction of the research that has already taken place in the particular field of interest and in systematizing the ongoing plan of work. The researcher made a survey of review of literature related to SRE woodcraft during the advancement of the research through an assessment of the related research that had already been conducted in this field. The present study, while dealing with SRE woodcraft, also analyzes Indian handicrafts in their historical setting. Therefore, considerable importance has been given to review selective literatures while depicting the historical development of Indian crafts as well as SRE handicrafts, the craftsmen and their state of affairs, in the present modern and globalised world. This chapter also relies on the inclusion of researchers from worldwide who directly or indirectly bear a context to the present study. This review of literature has been divided and analyzed under the following categories:

#### **2.2 Introduction of Handicrafts**

#### **2.3 Historical Records of Saharanpur Woodcraft Industry**

#### **2.4 Material, Tools and Technique**

#### **2.5 Related Studies**

#### **2.6 Existing Gaps in Literature and the Present Concern**

#### **2.2 INTRODUCTION OF HANDICRAFT**

There are many rich texts displaying copious wealth of knowledge of handicraft, its classification and usage. For instance, craft represents a skill, usually implemented in affiliations of the decorative arts, or in an associated artistic pursuit. Further classifications of craft include two different categories: functional craft and decorative craft. Here, the researcher



is serving the discussion on both functional as well as decorative craft. Before the discussion, there is a basic requirement to explain the fundamental nuances of craft.

**Mehta (1960)** has observed that Indian handicrafts have their foundation since antiquity where handicrafts have been given their historical linkages to different places in India, having been originated in different time periods. A variety of artifacts such as the metal sculptures of India, furniture and ornamental woodcrafts, wood carvings, stone carvings, ivory, bone and pottery, clay figures, folk toys, etc., show clear indications about their origin, their specific nature and the excellence and worth they carry for Indian culture and civilization.

**Abraham (1964)** also describes about different crafts of the country. Both these authors render a historical interpretation of Indian handicrafts in a lucid and comprehensible manner along with a display of photographs of different and distinct crafts which have made their books attractive, engaging and functional. However, these books present no mention about the concerned artisans and their social life.

Another definition states that crafts were developed out of necessity to fulfill everyday needs of people (**Dhamija, 1971**). The products and objects were made for personal use and were contributory in expressing their individuality and also their way of life. They strived to give a new meaning to their own life, to their self-expression and to the rituals they performed and also provided a basis to develop an aesthetic sensibility in their psyche through the very act of creation. In the Indian context, crafts have been developed, both for personal use and as a fulfillment of the expressions and even as economic activity. It evolved out of being a product of use; further it was ornamented and also given an aesthetic allure. The royal personages were always on the lookout for such possessions that could identify with their high stature in life and could exhibit their affluence as well; so they chose such items from within their territory which were made by the craftsmen and artisans and thus the concept of patronage evolved. Thereafter, the royals would commission their favorite artisans and craftsmen to produce artifacts and products for them after having provided the artisans a personalized brief for the product to be made. In this way, crafts have been an economic activity since a long time.

**Chattopadhyaya (1976)** proffers an analysis of the major craft goods of the whole of India. Without projecting any major facts on the artisans and crafts-persons as Abraham and Mehta have done in their books, Chattopadhyaya provides descriptions about specific crafts such as woven textiles, hand-painted fabrics, embroidery, carpet and floor-coverings, leather works,

ivory, basketry, mats, bamboo and cane works, toys and dolls, folk paintings, jewelry, pottery, etc.

Apart from them, **Pal (1978)**, discussed the volume with significant definitions and historical backgrounds of prominent crafts such as pottery, terracotta, stone carving, wood carving, ivory carving, textiles, jewelry, etc., providing an array of meaningful details like Chattopadhyaya, Abraham and Mehta have done. The origin of almost all of these crafts is really ancient, the history of which can be traced back to the first and second millennium B.C. and during Harappan civilization too. In the following chapters, he also describes the socio economic status of the artisans in a well defined and historical manner; such a description has not been given so much of prominence by other authors. Apart from the history and location, several other details such as social and occupational stratification, an account of raw materials, traditional tools and production techniques of the yore have also been described in the book. Towards the end, the author has provided the readers with proper and relevant details of crafts and crafts persons as well as the institutions directly associated with the development of the crafts such as the State Industries Department, Handicrafts and Handloom Export Corporations of India Ltd. etc. The conclusion of the book involves necessary suggestions for the further development of the traditional crafts. He narrates clearly in his study that the major purpose of the authors is to make the readers appreciate the nuances of different crafts of the country and the glory of Indian culture. Abraham has begun his account with the description of the origin of crafts by recounting how early men having so much of leisure had thrived on developing a keen desire of making pictorials of the beguiling nature and other things around them which with gradual evolution took the form of what we now call 'Crafts'. Furthermore, the author has analyzed the advancement and decline of the handicrafts in the Indian society and has also described its role in the country's economy and also its instrumentality in unifying Indian culture and glorifying its rich civilization.

**Saraf (1982)** wrote that handicrafts reflect the fine cultural taste of India and are a mirror of its rich cultural heritage. The scope of his study was very wide as he explained about the vast variety of the different types of crafts of India. Furthermore, he described how craft persons inherit, learn and imbibe these skills from their elders as well as professionals, ultimately earning their livelihood from them as the previous generations had done. He made his study even more worthwhile by discussing the opulent art and crafts which are lesser known to the common man or are sadly, almost extinct. He poignantly makes it a case of value generating skill by mentioning that the beauty of handicrafts lies in the fact that their creation is done by

hands, so they help in generating employment and thus contribute to the nation's economy and thus become an important part of the social web too.

According to **The Handicraft Advisory Board (1984)**, "Handicrafts are occupations that involve making usable or decorative products by hand. It reflects the artistic value or indigenous culture which is made by using simple tools or implements or only hands for decoration or for use in household or for day to day usage."

If we assume crafts to be "artisanal products", then according to the definition adopted by **UNESCO**<sup>1</sup>, artisanal products are the ones that are produced by the artisans, created entirely by either hand, tools or even mechanical means, till the direct manual input of the artisans remains the most significant and value adding component of the final product. These products exhibit a rather unique feature which may have, at the same time, several interesting and varied aspects, as the uniqueness of this feature lies in it being utilitarian, aesthetic, artistic, creative, culturally attached, socially symbolic and significant, all at the same time. This definition states 'manual input' as the most significant and value adding component and thus provides a further solid confirmation of the importance of the artisan and his skills, as such skills need to remain original and without any manipulation.

While defining the term handicraft, the **Report of Development Commissioner Handicraft Board (2001)** refers to the handmade articles which are produced by the craftsmen with or without the tools, or through simple instruments or implements operated and directed by the craftsmen, mainly by hand. When the discussion is about handmade products; within the category of handmade goods, such goods as handicraft products often have an additional and discerning feature that establishes its additionally intrinsic value such as the traditional or artistic aspect, deriving the form from the geographical region or country of production, the act of production by the craftsmen, the work culture being based generally on a cottage industry basis etc. The biggest contributory factor of the cottage industry is that the small scale and cottage sector helps solve social and economic problems of the artisans by providing employment to millions of artisans that include a large number of women and people belonging to weaker sections of the society who become the real resource of income generation which in turn is responsible for the regular and productive creativity.

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<sup>1</sup> Definition adopted by UNESCO/ ITC International Symposium on Crafts and International Markets (Manila, Philippines, October 1997)

Other authors have described the importance of this sector by focusing on the cultural aspect of Indian handicrafts, so **Ranjan & Ranjan (2009)** highlighted in their study that the “Indian way of life celebrates products made with the help of simple, indigenous tools by craftspeople from a strong fabric of tradition, aesthetics and artistry”. The range of Indian handicrafts is as rich, elaborate, appealing and varied as the country's cultural diversity. In order to make their study more authentic, the authors, in their book explored diverse avenues of Indian handicrafts e.g. the influence of historical, social and cultural aspects on crafts, the processes of designing and creating a craftwork, the selling of these products in traditional and new markets, production of various kinds of products and usage of various tools etc. A study of great precision and excellence, this voluminous work based on extensive and rigorous fieldwork and research not only identifies but also reports about the innumerable types of handicrafts practiced in India like the woodwork of Kashmir and Saharanpur, Bidri of Karnataka, blue pottery of Jaipur, bamboo craft of Assam, bell metal of Orissa, brass work of Moradabad etc. Thus, it emphasizes on the very artistic roots of the highly skilled Indian artisans.

### **2.3 HISTORICAL RECORDS OF SAHARANPUR WOODCRAFT INDUSTRY**

Saharanpur woodcraft finds a mention in the ‘Indian Art at Delhi’ (1903) written by **Watt**, which is a Catalogue and Guide to the Indian Art Exhibition held at Delhi to coincide with the Delhi Darbar of 1902-03. The book describes that the chief centers for manufacturing of wood work are (in alphabetical sequence) Aligarh, Azamgarh, Bareilly, Bijnor (Nagina), Budaun, Bulandshahar, Farukhabad, Ghazipur, Lucknow, Mainpuri, Muttra, Saharanpur etc. All these centers represent various techniques of wood work like carved, painted or inlaid work. The most preferable material of that time for making wooden furniture was sheesham, sal, ebony, neem and white-wood (dudhi). There was a time when Saharanpur used to enjoy a high stature as a reputed place in the manufacturing of woodcraft. Gradually, Saharanpur woodcraft was losing its charm in the competitive market. As a result, financial competition, modern wholesale business and other factors such as having stake in the production of vulgar and commonplace items was diminishing the value of Saharanpur woodcraft. It is a matter of great misfortune that this latest practice of wholesale production of wood carved items has very nearly destroyed the beautiful sheesham wood carving of Saharanpur as well as of one or two other neighboring towns.

**Sharma (1986)** puts a stress on analyzing the historical, geographical and pre-historic background of Saharanpur. He also described the various art forms such as the wall paintings, woodcraft and industrial development of Saharanpur in his study which included a chapter

entitled “Woodcraft of Saharanpur” written by Dr. Kulbushan Sahani. This chapter described that there were three categories into which woodcraft could be divided; the first such category is known as utility woodcraft, the second category is known as decorative woodcraft and the third one as child utility woodcraft (wooden toys). He also described the various patterns, materials and techniques of woodcraft and discussed the problems of the carvers who are doing such a difficult job. The carvers suffer from many diseases due to the constant work of carving such as the problems relating to eye, lung and stomach.

The only authentic local history book, *Saharanpur Sandarbh*, gives the description that the wood carving industry was established in Saharanpur in the year 1857 by Mohammad Atta Hussain, a carpenter from Multan. According to this book, it can be confirmed that by the beginning of the twentieth century, the wood carving industry had found firm roots and been completely established in Saharanpur. Furthermore, the book gives the information about the immense popularity of the wood carving handicraft of Saharanpur district in our own and in foreign countries too. When this book was being written in September 1986, there were about 165 wood carving handicraft units, out of which 36 units were exporting their goods to other countries. *Saharanpur Sandharbh* mentions the presence of Saharanpur Woodcraft goods in the exhibition in 1902-03. It also mentions that the woodcraft industry was established in Saharanpur in the year 1857. At present, the current existence of 790 woodcraft SSIs is enough to establish that the Saharanpur Woodcraft industry is over a century old. Despite it being an industry of repute and also the fact that it is an industry that is so old, it has been facing several difficulties.

**Aran (1991)**, explained the industrial problems of Saharanpur in his study. To begin with, the first major problem is the location of these industries in an unplanned manner. Then, the shortage of accommodation for workers is another problem to be faced. But the worst is the blatant disregard for the labor laws as most of the laborers employed in the wood carving industry are aged below 14 years. Other areas that he analyzed are the large-scale and small-scale industries that have been running since 1987.

The various spheres that **Handa & Jain (2000)** analyzed are the history of Saharanpur, socio-demographic descriptive profiles and the rise and progression of wood carving industry. Their analysis also consisted in brief, the profit and loss outcomes of the woodcraft industry and the materials, tools and techniques that are commonly used in the woodcarving industry. Their description also included the role that the small and large production units play in bringing benefits to the Indian economy. However, their description did not include the specific motifs

that are mostly used in the woodcraft and also did not discuss the wage discrimination against the women workers in this male dominated industry (as women workers are paid lesser wages than their male counterparts). There are seven chapters into which all the aspects of Saharanpur woodcraft industry are spread. These chapters deal with (1) Introduction (2) Socio-Demographic Profile (3) Rise and development of woodcraft (4) Wood handicraft during British period (5) Critical phase (6) Post-independence Renaissance (7) Tools and technique.

According to the book, the production of goods that began in the Saharanpur wood carving industry actually started from a trivial item of a simple carving technique such as the art work of a comb but gradually the repertoire of the carved goods developed into a portfolio of the carved wooden goods of all possible sizes and kinds. Generally, the motifs in Saharanpur woodcrafts have been inspired from nature and in this instance, natural flora is used extensively. The most common design used in these items is 'grapes and leaves'. Other natural elements used for decoration in wood carving are humans, animals and other natural scenes that also get reflected in the Saharanpur woodcraft. There are other sources of inspiration too, such as the monuments built during the Sultanate and Mughal ages and the motifs of leaves, trees, fruit, ornamental and geometrical designs taken from the various artifacts. These are also found engraved or carved on wood in Saharanpur.

As is commonly prevalent, even in the woodcraft industry, only hand tools were used for a long time but as time passed, progression came in the form of sophisticated automatic machines running on electric energy getting introduced and now these are used mostly by the exporters. As time passed, the fashion of engraved woodwork came into trend. Then the time came when the engraved designs with ivory filled in work came into prevalence. This kind of work further spread to different kinds of filling materials like silver, brass and even colorful plastic. As more and more innovation came into this art form, it gave birth to brass overlaid crafting on wood. In this type of craft, brass cut pieces were pasted on the wooden goods after having given desired shapes to them.

**Tyagi, (2008)**, in his study, gave extensive information on the handicrafts of India and the specific character of the handicraft of each state which also shows the various folk traditions and cultural activities of India. In his study, we also find an analysis of the Mughal penchant of arts and crafts and the room partitions of Saharanpur woodcraft which have been influenced directly from the Mughal era. However, his study is not adequate as he did not elaborate on giving sufficient information about Saharanpur woodcraft.

**Jain (2011)**, gave a detailed explanation of the art, architecture and craft of Saharanpur which had been acquired by the artisans from Mughal architecture and Pahari School of paintings. This kind of influence is reflected in the Jain temples and Jain *havelis* at Saharanpur and its adjoining areas. Additionally, this book also discusses about the wood carving done on the door frames and *jharokas*. This book also offers an overview on the *havelis'* architecture in Saharanpur giving elaborate details about it.

**Gulati *at el.* (2012)**, in his study, discussed that the motifs of Saharanpur woodcraft can be preserved by using CAD tool that can assist the craftsmen in making 2D designs. This study also extends a combination of conventional making procedures and CAD technology that leads to a new methodology for producing Saharanpur woodcrafts. In order to present conventional appearance in woodcrafts, Saharanpur floral patterns have been used as a vital reserve to register ornamental effects. He further mentioned that this tool can be used to create many more motifs and patterns along with the contemporary design styles showing plenty of variety.

**Gulati & Katyal (2012)**, in his study, offered a portrayal plan that uses CAD as a design tool for creating two dimensional ornamental patterns. This is a graded scheme and is showcased as a tree with nodes relating to various shapes of pattern. This work shows ornamental patterns as a set of shapes generated at three graded levels which are tagged as: Primitive, Motif, and Compound-motif. This CAD model aids the designers/artists to operate a set of basic shapes (primitive, motif and compound-motif) through conversion norms and to organize them into some concrete arrangement for creating an ornamental pattern.

According to the report of **Geographical Indication Journal No. 54 (2013)**, nowadays the scenario has changed enough to show an impressive number of small scale industries in this field in Saharanpur. At present, there are 790 woodcarving small scale industries (SSIs) in the Saharanpur district. Even the amount of revenue generated by these industries is by no means less impressive for their scale. These SSI units are generating the annual revenue of Rs. 382 crores and exports of Rs 308 crores. The Saharanpur woodcraft goods have always enjoyed immense popularity among the customers from the western countries as is evident from the fact that countries such as the USA, France, Spain, Italy, Belgium, Holland, the UAE and Saudi Arabia are the major buyers of these goods, so these are mainly exported to the above mentioned countries. Due to these statistics, the importance of this industry has even increased more as the woodcraft industry of Saharanpur is providing direct employment to 4810 artisans and indirectly to 3200 workers and artisans. Essentially, there are other studies too that reveal the prominence of the presence of this industry in this area. One such example is a report

namely the ‘Diagnostic Study Report of Woodcarving Cluster Saharanpur’ developed by the Woodcraft Design & Development Society, Saharanpur which says that there are approximately 52 small and approximately 7000 micro units of Wood Carving in Saharanpur which provide employment to 90,000 people and generate turnover of 1000 crore of which 250 crore comes from the domestic consumption and the rest from the exports.

**Kumar, (2014)**, discussed about the position of child labor in the wood carving industry at Saharanpur. He also explained the government policies and child welfare programs implemented in Saharanpur. He throws light on the artisans’ families and their working conditions and their impact on the economy of Saharanpur with negative and positive impacts.

**Chambers (2015)**, explained about ‘informality’ in Saharanpur woodcraft industry through conditions of employment, networks, links, niches, spaces of manufacturing and trading. He analyzed the complications of a supply chain occupied by obscure actors and the links and networks within which craft workers create their products. He even explored the impact of Islam and studied the interrelations of religion and friendship in this region.

## **2.4 MATERIALS, TOOLS AND TECHNIQUE**

**Hasluck (1911); Wheeler & Baas (1998)**, the authors start this study with the explanation of the basics that include: necessary tools and appliances, kinds of wood to be used, directions for the actual cutting of wood etc. Also given are the descriptions of the various methods of practical carving including the incised, pierced and chip carving, carving in the round, Gothic carving, styles of carved ornaments etc.

**Hoadley (2000); Porter (2012)**, More than 200 types of timber from around the world are explained with details in this book. Explanation is given about the world’s most important natural reserves of each species and dependable data on their working properties, seasoning essentials, particular uses and safety norms. Also shown are some inspirational examples of complete works. A further list of 200 species is also given in brief with particularities and their uses. The applications of wood given in this book include cabinetmaking, joinery, carpentry, turning, carving and a number of more specific applications. There is also found the coverage of the most widely used species and several of those which are less familiar and deserve to be known better. Along with the richly descriptive text, the book also serves valuable information on the flaws of woods and possible dangers to health. Adding a new facet to this book are particularly commissioned drawings of living trees, including details of their leaves, fruits and flowers which make us experience an enhanced appreciation of the raw material of woodwork.



**Kaul (2012)** discussed that natural resources are utilized to a great extent and so are the major sources of raw materials, for the production of crafts. The major aim of this study is to fill the missing contacts between the natural resources and crafts through researching the wood carving industry of SRE in Uttar Pradesh. It discusses the factors which affect the practice of wood carving e.g. how the crisis in natural resources, forest in this case, affects the practice of wood carving. There is the suggestion given in the study that the crisis may not necessarily be the crisis in terms of scarcity of natural resources, rather it can be the inaccessibility of the material in demand that acts as a major limitation or constraint as far as the craft production is concerned. Ultimately, the study comes out with specific outcomes. So, the findings of the study indicate that natural resource shifts in SRE implies various conclusions such as the unavailability, lack of affordability and inaccessibility of raw material. The repercussions of such a shift get blatantly explicit through various impacts such as the scarcity of timber produced in the state owned and managed forests, shift in usage of the raw material (from sheesham to mango), an increasing dependence on the commission agents due to the resources having been exhausted from the nearby sources and migration of the artisans and small manufacturers in search of alternative livelihood options because due to lessening incomes, they are forced to migrate unwillingly by circumstances. Some problems become stumbling blocks for the manufacturers specifically, as the effects are seen in the form of their inability to meet the requirements of the buyers and an expensive production cycle due to the procurement of the raw material from a farther area. The inception of natural resource shift is traced back to the unavailing forest related plans and policies of the UP state forest department as well as legal and policy changes at the national level. The study offers some policy suggestions in the end, in order to bring about a reduction in the drastic effects of these shifts.

## **2.5 RELATED STUDIES**

**Kown (1979)** in his research described the changes in design, in terms of symbolism, in the specific areas of (1) kinds of motifs (2) combinations of motifs (3) layout of motifs (4) arrangement of motifs and (5) visual significance of motifs. The study majorly revealed that during the 1875-1975 period, types and combinations of motifs used in Korean silk fabrics changed from symbolic to non symbolic in nature. Korean silk designs are dominated by naturalistic and stylized layouts of motifs. The organization of motifs is dominated by motif oriented pattern as emphasis is given on the emblematic nature of individual motifs, while the number of pattern oriented arrangements has expanded in the recent years. The outcome also shows that the idea of design has transformed from symbolic to ornamental type. For

examining the progression of design, an organized and preferred method is the division of design into different categories in order to study the changes.

**Thakkar (2004)** gave a detailed explanation of the unique stylistic expression of Gujarat's architecture which reveals a rare combination of Islamic and Hindu motifs. The research began with a historical overview of wood carving and craftsmanship of ancient India along with historical aspects of wood carving of Gujarat. The research is divided into five parts which deal with historical accounts, tools, technique, ornamentation, symbols and transformation. All sections are well explained and create an interest for the reader.

## **2.6 EXISTING GAPS IN LITERATURE AND THE PRESENT CONCERN**

As far as the ever transforming present scenario is concerned, one factor remains stable within the discourse of modernization and it shows that the craft sector has received the attention of the entrepreneurs and also offers immense possibilities of innovation. The sea of knowledge is getting wider day by day; newer discoveries are emerging. In the context of such changes, needs and tastes, lifestyles are also undergoing a transformation which in turn is the major component that encourages us to delve into something new in material, designs and technology for the development and improvement of the market culture. Looking back at the time, we find that in this regard, before the decade of the sixties, the artisans were practicing their age old techniques of production and would produce only the traditional patterns for their artifacts. As the imperial rulers lost their prominence after the independence of India, the SRE woodcraft came under the process of improvement, which was indeed the requirement of time, in order to save it from the danger of becoming monotonous. The major aims of the artisans were to satisfy their customers as per their requirements according to the changing taste. Therefore, the artisans and customers have been forthcoming in absorbing new concepts and opportunities and are still in the process of applying those in the woodcraft of SRE, thus incorporating a new body within an old soul. Although many studies have been conducted on the woodcraft of SRE in India but nothing has been suggested for its enhancement and improvement in the domestic and international market. Apart from that, Handa and Jain (2000) have also accepted the fact that very few studies relating to the origin of the motif in woodcraft have been found in the public domain despite its regional, cultural and economic importance. Due to the lack of proper documentation, existing study explains a few old patterns and contemporary patterns only which were provided by the manufacturers and artisans from their personal collection. Apart from that, the government of India has not yet taken the initiative for the development of e-repositories which can provide access to large audiences and future generation. So it's essential

to evaluate and compile it in textual record which may reveal the continuity and gaps of historical and present motifs for better understanding. The earlier studies have their own limitations as those are mostly limited to documentations, descriptions and classifications of SRE woodcraft. It is a requirement that more such studies should be carried out for deeper understanding and knowledge of SRE woodcraft with even more elaborate details.

## CHAPTER 3

# A COMPREHENSIVE STUDY ON THE EXISTING MOTIFS IN SAHARANPUR WOODCRAFT

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### 3.1 INTRODUCTION

This chapter aims at explaining the ornamentation and discussion on the existing motifs and patterns of SRE woodcraft along with their sources of inspiration. This is one of the pivotal sections of this research as it provides comprehensive information regarding the ornaments (motifs, designs, patterns and symbols) produced during the process of wood carving. Design elements speak the untold tales and also describe its identity as to where it's come from. In this context, SRE woodcraft is known for its recognizable and significant motifs which demonstrate their objectives through symbolic depiction with intrinsic meaning. In woodcraft, one can find a huge collection of patterns that is inspired from different sources. In addition to this, most of the excellent motifs which were produced during a particular period of time for the national and international market have disappeared with time.

### 3.2 ORNAMENTATION

Before moving further, there is a need to understand the ornamentation (motif and pattern). The term “Ornamentation or ornament” has originated from the Sanskrit word *alamkara* or *alankara* which means “act of decorating”. It is an art with its own history, used to make more effective and embellish the inherent beauty of an object and person which generates a harmonious and delightful impression in the mind of the spectator. Trilling (2001) has expressed that ornament is not only a method of creation but it is also a method of observing. There are four different skills in observing anything ornamentally. It is also a method to identify an ornament when it is observed, to identify the motifs and patterns, to comprehend the connection of ornament to functional appearance and to identify ornamental varieties. The socio-religious norms as well as the aspirations of the established Jain families to enhance the appearances of their homes and personal possessions steered the development of the ‘SRE ornamentation’ as is seen in the paintings and wood carvings. Two main aspects influenced the positioning of wall paintings and carvings on the buildings for domestic use. There was the requirement to showcase the arts in the first instance. The parts of the *havelis* that would

present the socio-economic status of the owner in the society e.g. the façade and the courtyard were always adorned to either a great deal or to somewhat slighter level according to the status of the family. Secondly, there was the symbolic area of the embellishment that was to be dealt with.

### **3.2.1 MOTIFS**

Thakkar (2004) and Sheikh (2015) discussed in their study that in ornamentation, motifs are isolated devices which are sometimes symmetrical or asymmetrical, simple or complex in nature. Motifs are considered as an art form and also the most basic unit which is used in a repetitive manner to create certain patterns. In this regard, the woodcraft of SRE is extremely rich with countless motifs that are closely associated with nature and cultural, religious and socio-economic factors prevailing in the society.

### **3.2.2 PATTERN**

“Pattern is born when one reproduces the intuitively perceived essence” (Yanagi, & Yanagi, 1989, p. 114). Thakkar (2004) has viewed that a single device may be complete in itself but it can still not be called a pattern; instead when an artisan works according to a decisive plan, then multiplication of even a single device forms a pattern. Our psychology makes us create geometrical forms in recurring patterns. History has shown the evidence of the usage of different patterns being applied to diverse fields such as textile, furniture, architecture, handicrafts and even several items of daily usage. The division of two-dimensional space intends a single major aim and that is to attract and soothe the eye of the beholder.

## **3.3 ORGANIZATION OF MOTIF AND PATTERN**



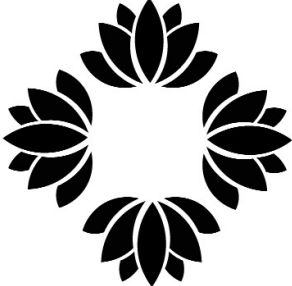


As aforementioned, pattern can be both symmetrical and asymmetrical. Here, two types of organization of motif were adopted by the artisans of SRE.

### **3.3.1 SYMMETRIC ARRANGEMENT**

Out of the two types of the organizations adopted, the first type of organization involves the usage of systematic intervals (symmetry) and the placement of the motifs is mainly done in a geometric layout. Gulati, & Katyal, (2012) opined that taken formally, this aptitude equals to observing the patterns in terms of the relation of Primitive-Motifs/Compound-motifs’ understanding and their norms of inter-personal transfiguration. The fundamental aim of the presented representation scheme is to show the symmetry amongst the patterns that are

perceived as a symmetric order of homogenous or diverse forms in planar map. Symmetry is related with modifications such as translation, rotation, reflection, glide reflection etc. (Table. 3.1). These elements determine the positions of shapes in relation to patterns on a two-dimensional surface. This representation scheme illustrates a set of basic motifs and how these can be arranged into some particular system for creating a pattern.

Table No. 3.1 Transformation Rules of symmetry

	<b>MOTIF</b>	Necessary element for making pattern
<b>PATTERN</b>	<b>MOTION</b>	
	Translation	Rigid motion with repetition along a Line
	Rotation	Rigid motion with repetition around a Point
	Mirror Reflection	Rigid motion with repetition across a Line
	Glide reflection (translation & mirror reflection)	Rigid motion with reflected repetition along a line

### 3.3.1.1 HIERARCHICAL SCHEME FOR GENERATING PATTERN BY USING MOTIF IN SYMMETRIC MANNER

The motifs, being interrelated in a logical manner, present an irresistible charm to the viewer in SRE woodcraft ornamentation. In order to create the patterns, motifs are composed after being multiplied and arranged in systematic continuity and the method of transformation is used between them for this purpose.

Hence, in woodcraft, graded scheme is majorly used in order to create two-dimensional ornamental patterns. Particularly, Saharanpur floral patterns are considered as a collection of diverse forms and these are created at three graded levels that are named as: Primitive (petal and circle), Motif (flower) and compound motif having transformations between them (Fig. 3.1). Repetition of the shapes which are placed at systematic or steady gaps, are the factors on which the ornamental patterns are based (Mathur, & Gulati, 2016). Care has been taken not to overlap or separate the shapes at inconvenient gaps in order to maintain the pattern. The position of the shapes is defined by the transformations, giving due attention to pattern in a two dimensional plane. Various kinds of motifs can be defined as: primitive is the atomic geometric object which is needed for creating the next category of the shape i.e. motif created from two-dimensional bodies such as line, circle, polygon, arc, curve, etc. It is a planar map in its form which has a set of points and its coordinates are defined in terms of parameter (Gulati, *at el.*, 2012). Motif, which is the next in the rung, in terms of shapes, is considered as a formalization of primitives. The major purpose of designing compound motifs is to align the motifs along a defined or specified path (Gulati, & Katyal, 2012). In compound motifs, the aesthetic sense of the pattern is acquired from its geometrical symmetry.

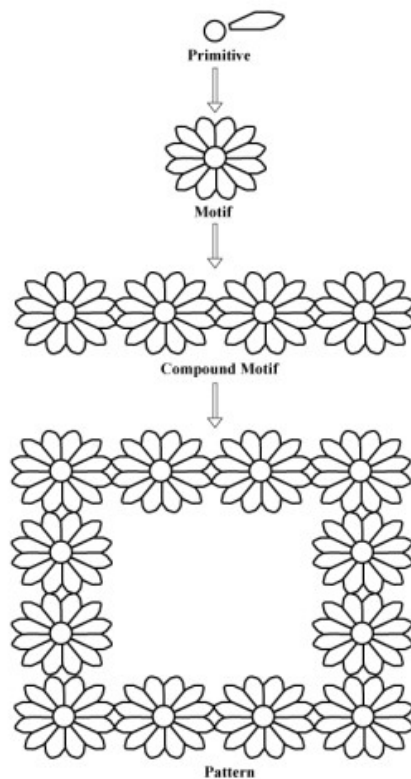


Figure 3.1 Hierarchical levels to produce a pattern by using motif  
Source: Taken from Gulati, & Katyal, 2012

### 3.3.2 IRREGULAR ARRANGEMENT

There is no geometric or orderly system in the repetition of motifs in the second type of organization of motifs. Rather there is an irregular arrangement of the motifs. The positioning of the motifs is in an irregular or random pattern and this kind of placement is having unevenness in between the intervals. Other features are the lack of clarity in the motifs or units of design and also the non existence of the principles of geometry. The motifs are either naturalistic or stylized or even abstract and often create an irregular pattern arrangement (Kwon, 1979). There is no clear defining of the unit of the design in the allover pattern arrangement. The spreading of the motifs or the units of design over the surface of the wood has evenness in its density (Fig.3.2). The norms of representation scheme are visible in all ornamental patterns of woodcraft in this way. We can observe from the smallest to the largest product that a large majority of woodcraft patterns were constituted in a symmetric order. The major purpose of using the allover patterns by the artisans was only to fill the space as well as to embellish the craft.

The highly competent artisans of SRE have been trained and skilled traditionally and their forefathers or *ustaads* have generally taught them the nuances of this craft. This gets more interesting as they were hardly educated and hardly ever trained formally in design theory or learned the principles of organization. Nevertheless, their work of creating patterns and producing woodcraft is based on their natural sensibility and understanding of forms and also on their skill, know-how and practice which they had attained by having worked alongside their fathers/forefathers/*ustaads*.

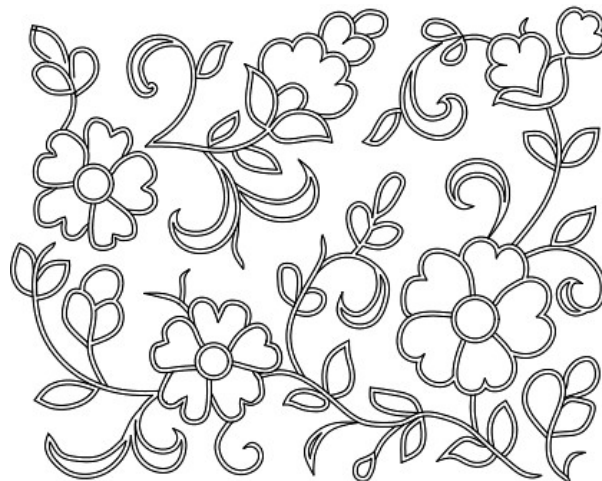


Figure 3.2 Allover Pattern



### **3.4 HISTORICAL ACCOUNTS OF ORNAMENTATION ON WOODCRAFT**

The history of ornamentation on woodcraft is not definite and different people have different assumptions and beliefs regarding this subject. Thus, this section comprises the discussion by the researcher on the decorative styles of woodcraft. For this purpose, a discussion has been done on the architectural practices and ornamentation of the old *havelis* of this city. As a city, SRE has displayed an elaborate and impressively long history of versatile artistic inventiveness. Unfortunately, this area has been the victim of cruel atrocities inflicted by iconoclast invaders who caused ruthless destruction and devastation here. As a result, in today's time, there is hardly any existing and erect monument of the era that belongs to the time prior to the Mughals. All the designs and motifs which were created in the architectural parts of the old houses and *havelis* of the people of this region are holding equal significance. Decorative designs and motifs form maximum amount of the archaeological material found in the ornamental architecture of the old *havelis* in the city.

Various mentions have been found in many literary sources which go on to prove that an ancient tradition of art activity including the art of wood work existed in this particular area. So as to interpret how the course of the art of wood work developed in SRE, it would be helpful if the earliest surviving monuments in the city are studied briefly.

#### **3.4.1 A BRIEF STUDY ON THE SURVIVING MONUMENTS OF SAHARANPUR**

There is verified information regarding the history of art-activity of SRE and the *Doab* region since the Mughal era; a time when the city of SRE had established properly as a town and craftsmen from the surrounding regions would descend there for trade. Moreover, as the construction activity began to thrive in the city, many traditional craftsmen who had been engaged and also experienced in all kinds of different trades began to throng the town. These were as versatile in their trade as they come and included the brick and stone masons, stone carvers, painters, wood carvers etc. Several of them had been practicing their trade/craft locally as it was their hereditary profession and these were the craft persons who belonged to the peripheral villages. There were several other artisans who had earlier been residing in the imperial and provincial capitals and who also became interested in continuing their craft and earning their livelihood in secure little towns, away from the problematic atmosphere of the capital city of Delhi and even more unsettled and unstable working conditions in the provincial capital cities/centers. Those craftsmen discovered that SRE could prove to be one such safe and peaceful haven for them. Ultimately, many such artisans preferred SRE as a residential and

business place for themselves and chose to settle here and continue their trade. Thus, it was the synthesis of the traditional Hindu and the emigrant Muslim wood workers and carvers whose skills and techniques became the foundation of a hybrid form of art i.e. wood-work and wood carving.

Apart from these craftsmen, the Hindu and Muslim painters of the provincial centers established and pioneered a distinct school of wall painting at Saharanpur. These paintings display an impressive blend of the Indian figurative elements and Persian floral and faunal decoration and therefore, these were used to embellish and enhance the interiors and exteriors of the large mansions of the wealthy people and nobles of the city.

The existing *havelis*, temples and *chhattas* in the city are significant examples of the above mentioned ornamentation. Mainly, the wealth trading community, especially the Jains who had settled in the city from different places, constructed their temples, *havelis* and *chhattas* in the city as they had abundant wealth. These temples, *havelis* and *chhattas* have become the best surviving example for their craftsmanship in the city. In historical accounts, Jain architecture is always known for its excellent workmanship (Kumar et al., 2017). These were the people who had come and settled in the city from different places. Fortunately for us, some of those *havelis* and *chhattas* can still be found in the city, though sadly, in time-worn and weather-beaten condition. The paintings showing great deal of profusion and artistry have been done not only on the inner walls but we can see their profusion on the outer and exposed surfaces as well.

There are evidences of the unparalleled skill of the carvers of both wood and stone in the form of the carved and sculptural stone-work and the delicate carvings on the structural wood-work; as seen especially on the door frames and panels. These impressive carvings are such strikingly and aesthetically pleasing relics of the artistic creativity of the medieval past in the city that they almost take the viewer back to the early medieval era. The following figures 3.3 and 3.4 showcase such artistry and have been taken from the *haveli* of Atma Ram who was a Hindu businessman. Persian influence is found in the decorative, floral and geometric devices through diverse art forms, from the carvings to the wall paintings.

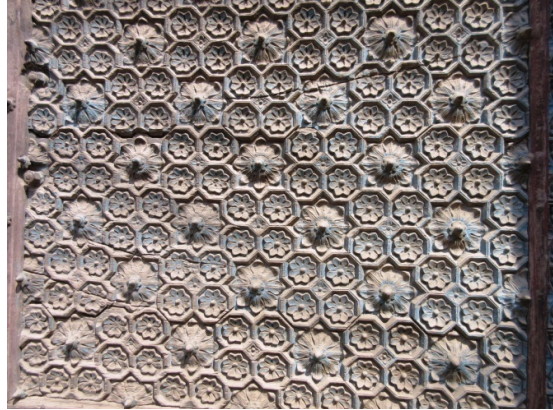


Figure 3.3 Mural Painting on the *Haveli* of Atma Ram in Dina Nath Bazar

Figure 3.4 Wood carving on the *Haveli* of Atma Ram in Dina Nath Bazar

Now the discussion is about the term '*haveli*', the definition of which is not clearly and readily available. However, a few researchers have tried studying and explaining it in their works. Prasad (1987) has viewed that the word is originated from '*haowala*' which means partition and private space in old Arabic. According to Jain (2004, 20-21), the relation goes back to the term *hawaleh*, that means 'all around' or 'round about' and also the Persian word '*haveli*' having the same meaning. Apart from that, evidently in the Mughal period this term was used to describe a piece of land just as the English term 'estate' does (Tillotson, 1998; Kalhor, 2015). Although this term was used initially for describing land as estate, yet later on the term had another usage as it was also used for the dwelling on it. With regard to history, a *haveli* was the visible depiction and also a social status/symbol of the owner's stature which manifested the reputation of the owner in the society. *Haveli*, had thus become, the very symbol of the financial standing of the owner.

Now the focus of the discussion is on the Indo Islamic architecture and town planning and both have visible examples in the city. The *haveli* of Atma Ram Jhabrewala can be considered to serve this purpose. This *haveli* is a grand structure, having protruding balconies and heavily decorated frontage, evolved with multi-angular cusp like and pointed arches, profusely decorative inner entryway etc. This thus, is a superlative yet neglected example of the Indo-Islamic architecture. The wealthy Jain community of Saharanpur had provided this form of architecture the necessary guardianship under whose guidance it prospered so well. The city of SRE has cusped arches as a predominant feature of its architecture. Having been introduced by the Mughals, these have remained widespread ever since. Generally, all the entrance doors were set in a cusped arch only. This prevalence can be seen even in the newer buildings that

tried to retain this feature inside. The following figures 3.5 and 3.6 showcase the above discussed characteristics.



Figure 3.5 An ornate *Haveli* in *Chhatta Jambudas*

Figure 3.6 An ornate *Haveli* of *Atma Ram* in *Dina Nath Bazar*

The heritage of these *havelis* is as old as approximately 150-300 years and so these became a significant aspect of the city's everyday life. Doubtlessly, the skill and expertise of the Muslim wood carvers during the period of Mohammedan rule was put to use in order to decorate the temples and *havelis*. Some decorative elements e.g. the cypress tree, the arabesque, fruits basket and even the vessel were recognizable and conventional enough to be seen on every Hindu building in SRE which have most likely been reproduced later. Moreover, these elements have been used even in pure Mosques.

Besides these, several wealthy families also erected temples for their personal interest in the form of uncoupled portion of their *havelis* with the purpose of performing their religious pursuits in the privacy of their family area, undisturbed and without attracting observance of the non-Jain fraternity (Jain, 2011). There had been a lot of consideration for the privacy of the ladies of the house. That is why, at places the *havelis* were joined by *chhattas*, so that the ladies of the household could move from one *haveli* to the other across the road while remaining unnoticed by all those people moving about in the street below. Interestingly, in SRE, a few *chhattas* can still be found which are even today located in the older part of SRE. The most notable of these are the *Chhatta Jambudas*, *Chhatta Barumal* and *Chhatta Hulasrai*. Sadly, as time passed, *Chhatta Jambudas* became a victim of the change as it has already lost its originality and in turn, its creativity and as there had been no interest towards conserving the original structure earlier, it has been reconstructed (Fig.3.7). However, '*Chhatta Barumal*', the other *Chhatta* in the city, is still conserved in its original condition (Fig.3.8).





Figure 3.7 A general view of *Chhatta Jambudas*

Figure 3.8 A general view of *Chhatta Barumal*

All these *chhattas* were majestic structures; multi-storied and having structures up to even four storeys. Some of these showcased the rich legacy of the earlier times in the form of profuse wall paintings, woodcarvings and intricate lattice works. If one wants, a stunning view of the city is visible from the top of these beautifully ornamented structures.

The next theme of the discussion are the wooden gateways of some of the earliest *havelis* of the city in which can be found precise indications of the pre-Islamic and essentially indigenous devices and motifs which had been once so prevalent in the ornamental features of the temples of Gurjara-Partihara period. These are no elementary structures rather these doors consist of multiple outer frames. There are other elements too, over the utilitarian lintel and the jambs including the sequence of registers and panels. Due to such complexity, almost one third of the elevation height may be covered by the whole structure. Generally, all entry ways of the earlier period structures in Saharanpur are devoid of any roundness or three dimensionality, are flat and do not contain any overlapping or protruding portion. Nevertheless, these structures are very impressive for their delicate designs, deep, sunken and sharp carving and even daring treatment. Even more remarkable is the calico-printing blocks-like appearance of the embossed parts of these carvings. During the earlier period, arches were not built in the carved areas of the wooden parts in the *havelis*. However, the later period sometimes shows the *havelis* having cusped arches in the brick work which was done over the wooden structure of the door. The doors of the later period show great level of advancement as these depict, not only the arches in the carved area but also the geometrical patterns, suggestive of *pinjara* (lattice) work that may be found in there. One such instance is shown in the following figure 3.9 which displays the elaborate details of the door frame of a *haveli* situated in *Chhatta Jambudas* which was embellished with geometric patterns.

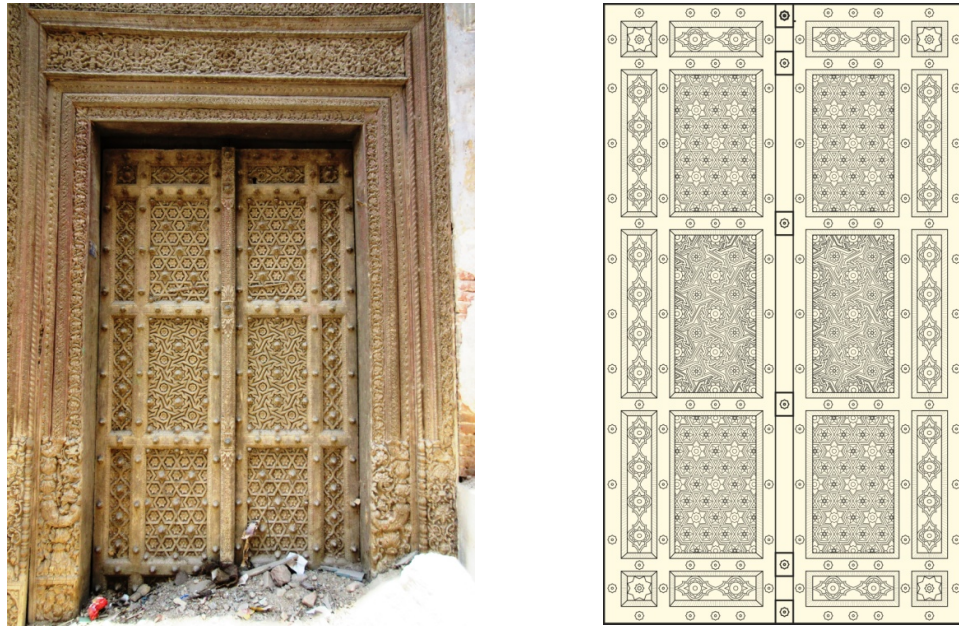


Figure 3.9 Wooden door of the old *haveli* in *Chhatta Jambudas* with layout and details

In addition, the figure also explains the hierarchy level, representation and reproduction of the pattern. It has already been mentioned that the blending of the Mughal grandeur and refinement had caused the architecture and ornamentation of SRE *havelis* to become a deep influence and source of inspiration for the artisans to come. To prove this view, there is the instance of the geometric patterns of six-pointed stars that in turn developed the symmetrical pattern that again created harmony in the pattern. Such geometrical designs become the generators of spiritual, lyrical and rhythmic milieu and spellbind the viewers with a vast array of delightful patterns.

Originally known as the *pinjara* in Persia where it had evolved initially, the lattice work is carried out by using the fretsaw perforation technique. It is quite probable that the settler craftsmen might have begun to embrace that device in Kashmir and Saharanpur almost at the same time. Even today, artistic screens are produced mostly by using this device as it is still one of the most popular devices for manufacturing artistic screens at Saharanpur. Nevertheless, considering the usage of *pinjara*, it becomes imperative to understand the deep Persian link of this architectural characteristic with the woodcarvers of Saharanpur. This beautifying architectural device was a bequest from the Iranian artistic tradition and in turn, had been recurrent with the royal Mughal architects and craftsmen in India.

Besides this, the door frame of a *haveli* in *Chhatta Jambudas* is one of the prominent existing instances of the classical treatment in the carving work. It is probable that it is one of the earliest *havelis* of Saharanpur city. An interesting fact to note is the depiction of the Hindu

deities including Muralidhara-Krishna with Radha, Shiva-Parvati, Durga, Ganesha and Hanuman etc. over the door-panels of this particular and many other contemporary *havelis*. These elements are found in the main portion along with the mystic *Yantra* diagrams on the corners. The *ashtadala* lotus motif is inset in these *Yantras* and such depiction is intended to suggest these *Yantras* to be the symbols of portrayal of some deity. The following figure 3.10 showcases the carved figure of lord Ganesha above the wooden entrance door. Figure 3.11 shows the border details.



Figure 3.10 Old door frame, Saharanpur

Source: Taken from 'A monograph on wood carving in the united provinces of Agra and Oudh'. p.55.

Figure 3.11 Details of *Situn*, *Baithak*, and *Sada*, Old Door, Saharanpur

Source: Taken from 'A monograph on wood carving in the united provinces of Agra and Oudh'. p. 57.

It was discussed in the first chapter that in SRE, architectural carving was the first form of woodwork that later on evolved into a household industry. The *havelis* had inspired the artisans in their work of ornamentation. Therefore, the adoption of these patterns to all kinds; be it the smallest or biggest was prevalent among the artisans. Because of these reasons, these motifs have emerged as the entities having their own identity and place in the society due to a highly matured visual imagery as well as visual communication language and provide aesthetic pleasure and satisfaction through their visual appearance. There is a large variety of ornamental features here that not only provide the viewer with the glimpses of Indian art but also with the enigmatic features of Islamic art. These *havelis* reveal a vast vocabulary of design elements on an architectural plane which increase aesthetical impression and also create lyrical and rhythmic harmony in the society.

Traditionally, carving as a custom, is passed on from one generation to the next (Othman, & Majid, 2017). As it happens, one can see a big change in the patterns of the old *havelis* and as a result, changes have emerged in the ornamentation of the *havelis* with every passing generation. It is noticeable that reshaping, variation, alteration and habituation are the significant parts of this tradition/heritage which points towards a resulting transformation. As time passes, the carvers adapt, modify and transform these patterns for continuous use. This is visible in the household articles. Another important point to be emphasized is the ‘marriage of the two cultures’ which falls in the socio-cultural category. Taking this view in regard, the Islamic and Mughal architecture, with their paramount supremacy in terms of structural surface, turn out to be points of attraction and also the source of inspiration for the carvers, especially in pure geometrical forms (Khan, 2016). Moreover, these *havelis* are symbolic of the Hindu-Muslim harmony, brotherhood and friendliness. The reason is that most of these *havelis* are owned by Hindu families who embellished and painted the structural parts of these *havelis* with the union of Hindu and Islamic features. There is an abundance of such geometrical and floral motifs in Mughal art and architecture. On the other hand, figurative and auspicious patterns are mostly found as the main characteristics of Hindu art and architecture. Consequently, geometry as a major segment is prevalent in the structural parts of both Hindu and Muslim buildings. It will be safe to assert that geometrical as well as floral ornamentation would be the handiwork of the Muslim *ustaads* (master craftsmen) whereas figurative as well as auspicious motifs would be created by Hindu carvers and painters (Jain, 2011). Clearly, these surviving *havelis* and Jain temples best exemplify this view. In terms of artistry, Jain temples are the wealthiest temples on the planet which remind us of the numerous renowned Indian dynasties (Kumar et al., 2017). For this reason, it can be said that by executing these geometrical patterns, the artisans have developed a solid pathway of harmony, brotherhood and unity between the Hindu and Muslim religion.

### **3.4.2 MOTIFS OF SAHARANPUR WOODCRAFT**

Conventional woodcarving exhibits the motifs carved in two or three dimensions as a part of the decoration, which are then organized to make the ornamental design or pattern (Yahya, 1995). Being very essential elements of an object, designs/patterns are used to represent the recognition of the object and also to make it appealing. Art is uninteresting and dreary without the enjoyable visions of design (Verma, & Gupta, 2015). More than this, the symbolic value of artifacts also results in the essence of attraction in art.



### 3.4.3 CLASSIFICATION OF MOTIFS

Focusing on the subject matter of SRE woodcraft, we get a vast vocabulary of existing motifs that represent the life around them. According to Bhatnagar (2004), the image vocabulary of the artisans and practical usage of certain artifacts have proved to be important in its contribution in the growth of artistic designs. Initially, to a large extent, woodcraft patterns were inspired by the architecture, murals and paintings of the royal eras. Later, the patterns were inspired by the environment and society. The development of the patterns reached such a high degree of complexity and sophistication that they became the hallmark of SRE woodcraft. In the present scenario, it is being appreciated in the international market, especially in Europe, the US and the Middle East (Banerjee, & Dasgupta, 2009). These countries generally prefer the designs which include antique looks, carved edges, softer silhouettes, traditional patterns, luxurious designs etc. According to Dua (2014), the demand from foreign shores added a new dimension; as a result, unfamiliar forms and images from distant cultures added in the existing motif vocabulary of India. Similarly, the art and craft of SRE could not escape from such an influence. As a result, unfamiliar forms were also introduced in the woodcraft. The gothic architecture style and western elements are examples in this context which were adopted in SRE after the British had landed in India. Such examples include gothic arches (sharp pointed arches) and other lesser known shapes that were begun to be used in the design vocabulary of SRE woodcraft. Such foreign motifs are visible on buildings, churches and furniture and in handicrafts of that time. Designs used in SRE woodcraft happen to show a special treatment given to the wood for beautification and also to free those from monotony. There are four categories of motifs in SRE woodcraft viz. A) Flora and Vegetative motifs B) Fauna motifs C) Geometrical motifs D) Miscellaneous motifs (Fig. 3.12).

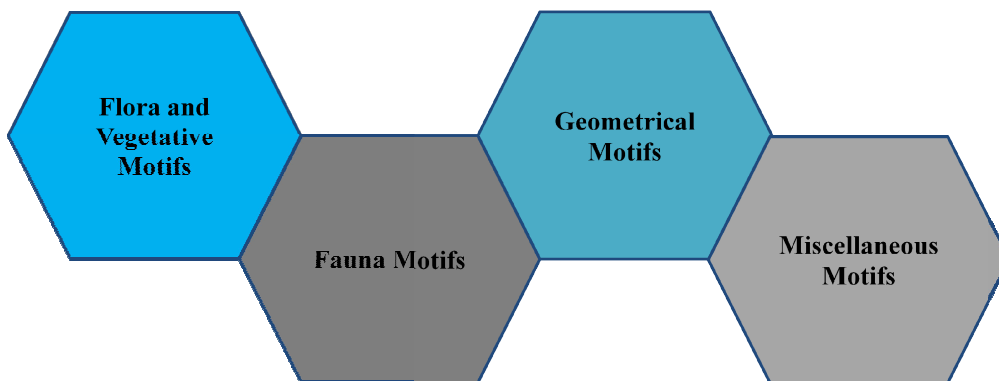


Figure 3.12 Classification of motifs in woodcraft of Saharanpur

**(A) FLORA AND VEGETATIVE MOTIFS**

Nature and the environment have always been an inspiration source and subjects of interest for individuals since ancient times (Saxena, 2016; Othman, & Majid, 2017). From that time, flora and vegetation have been a crucial part of ornamentation which was used in architectural ornamentation and decoration of public places and objects. These types of ornamentation are considered suitable for repetitive patterns and also for filling space of an object. Shaffee, & Said viewed (2013) in their observation regarding flora motif, “A flower is often portrayed as a central element in the carvings” which is extended and supported by foliage, twigs, tendrils, flower buds and fruits. In this regard, SRE woodcraft has a vast approach towards its flora motif (sunflower, lotus, lily, tulip, marigold, rose etc.) (figs. 3.13 and 3.14). Naturalistic flowers have been depicted on woodcraft which remind us of the great Mughal era because the Mughal monarchs were fond of gardening and plantation. Their great affection towards it may be seen in the form of Mughal gardens, their costumes, architecture, accessories and handicrafts.

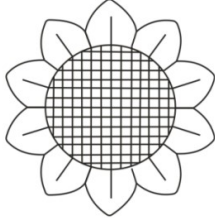

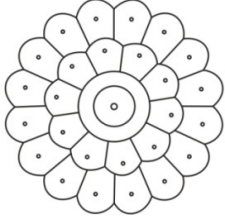
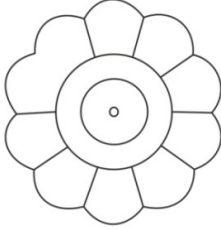

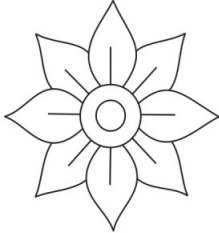
		
<b>Sunflower</b>	<b>Rose</b>	<b>Marigold</b>
		
<b>Zinnia</b>	<b>Lotus</b>	<b>Narcissus</b>

Figure 3.13 Different types of flowers used in the woodcraft of Saharanpur



Figure 3.14 Decorative flowers used in the woodcraft of Saharanpur

A variety of leaves of diverse plants and trees e.g. vine, *chinar* and acanthus, depicted in an assortment showing stems and tendrils, are among the foliage motifs used in the SRE woodcraft (Figs.3.15 and 3.16). It appears that the style has been reshaped, remodeled and reformed under regional and cultural supremacy. When inspected closely, some interesting features such as the artificial foliage with serrated edges are also noticeable. Several times, these leaves are depicted around the flowers in a particular way.

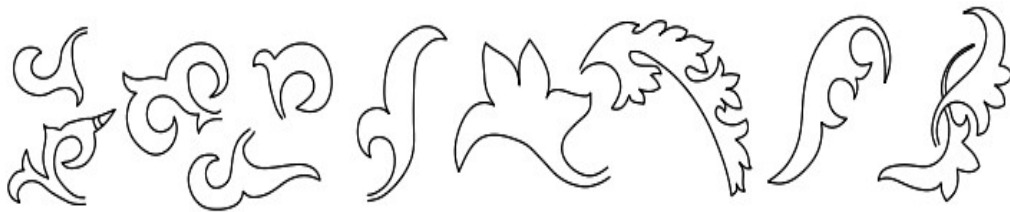


Figure 3.15 Different types of foliage used in wood carving craft of Saharanpur



Figure 3.16 Different types of leaves and foliage used in the woodcraft of Saharanpur

Grape with leaves was a very preferred and prominent subject matter of the artisans that can still be seen even today in the huge collection of the motifs. According to Mr. Fayyaz Ahmad, grape motif is the main motif which has been observed from the past decades. At that time, it was created with fine carving which was called ‘*anguri kaam*’ in the respective local language. But at the present time, nobody is interested to do the fine carving work because fine wood carving is a painstaking process that takes time, energy and a lot of passion and inclination to create a great ornament. Furthermore, today’s generation has no passion to do this traditional craft and it is only a business according to them. Thus, they don’t want to waste much time to do fine carving. Dua (2014) has observed “To sustain any craft and maintain a standard in quality and its ornamentation style, it should be improved with their old charm whereas the changes should not lose its inherent beauty”. Apart from that, the grape motif has a symbolic value and importance. For instance, it is the symbol of intoxication because grapes are used in making wine. It may be said that the grapevine motif in SRE woodcraft might have been used under the influence of King Jahangir, who was so fond of drinking liquor that he would feel intoxicated just by looking at this fruit (Verma, & Gupta, 2016). The powerful approach of ornamentation can be caught through the attractive appearance of these motifs. Along with this, many other fruits like leechi, pineapple, grape, coconut, fruit basket etc. may easily be found in the existing motif vocabulary (Fig.3.17).



Figure 3.17 Different types of fruits shapes used in woodcraft of Saharanpur

Apart from that there are various plant motifs which are being used to embellish the craft products (Fig 3.18). The ideologies of those plant motifs are to depict nature in all ways. Plants have medicinal, aesthetical and also nutritional values.





Figure 3.18 Different types of trees used as a motif in wooden products

### (B) FAUNA MOTIFS

These kinds of motifs are drawn by taking inspiration from the prominent attributes of Hindu mythology. The deities' vehicle or *vahana* has been conceptualized to represent the symbolic significance of the deities and has been created as the religious offering of their sublime submission. For instance, the vehicle of an Indian God *Kartikaye* has been depicted in the form of peacock in many temples of South India and the vehicle of Goddess *Sarsavati* (the goddess of wit and intelligence) has been created in the form of a swan or *Hansa* for the ritualistic purposes. Being prominent motifs in art and craft, the peacock, elephant and swan motifs are widely used in practice which beautify the object and make it more impressive. In the present market of Saharanpur, we can extensively find the peacock, elephant and swan motifs as a design on wooden artifacts to enhance their beauty. The following figure 3.19 represents a swan shaped tea coaster holder.



Figure 3.19 Swan shaped tea coaster

Talking about the imagination of the artisans, we find both realistic and mythological approaches towards the motifs. For instance, a respondent from SRE told that animals and birds are not a new subject matter in designing and these types of designs have been very popular for centuries in the Hindu mythology and were implemented on textiles, ceramic, furniture, art and architecture. Thus, he was familiar with these types of motifs and had been emulating these on wood from many decades with various changes like change in position, shape, texture and material. In Saharanpur, any such motif can be seen on different sized goods, from the smallest to the largest size and from single to compound motif. For example, peacock motif may be seen on a tea coaster (from the smallest) or on furniture goods (to the largest goods) (Fig. 3.20). Same thing applies to other motifs which can be seen either in single form or with curling buds/plants/flowers/geometrical forms.



Figure 3.20 Peacock motif used for different goods

Apart from that, the other important motif is elephant. The elephant is not merely treated as only an animal; knowingly and unknowingly it has been considered and applied as a design element. The elephant as a design element was not solely accepted by Hinduism, Buddhism and Jainism only but had been borrowed by the great Mughals too. Despite knowing about the existence of zoomorphic motifs in mythology, these were adopted in the Mughal art in a highly impressive manner. Therefore, the beautiful motif was absorbed to decorate the woodcraft (Fig.3.21). Many other animal motifs of religion based antiquity have been used for promoting the value of traditional rituals, for instance, camel, horse, lion, fish etc.



Figure 3.21 Elephant motif used for different goods like *Jharokha* and Jewelry Box

### (C) GEOMETRICAL MOTIFS

Geometry is a combination of mathematics and science, recognized as a powerful organizational tool to describe the visual study of shapes, sizes, patterns and positions. Since ages, geometry has been used for aesthetical, functional and engineering purposes which create a layout of the overall composition (Dua, 2006). In art, geometry is the essential equipment which constructs the basic form of design. Geometry, over the passage of time, has evolved during different eras owing to the aesthetic sensibility of different monarchs. Refinement in geometrical patterns was seen under the patronage of different Islamic rulers. One of the major influences was that of the Mughals because these emperors belonged to the Islamic belief system which reflects in their artistic ornamentation. The *pinjara* or lattice work was entirely based on geometrical shapes such as circles, lines etc. It can only be found in ancient Islamic architecture. Concerning this, woodcraft has also made use of this kind of lattice detail in a broad manner. All the basic units of the pattern start with geometry, reasoning and calculation (Dua, 2006). Before being used in woodcraft, geometric patterns were utilized to decorate and to beautify the old *havelis* of Saharanpur. These *havelis* are having approximately 150-300 years old heritage and so, became the inspiration source for the artisans. Geometric patterns of these *havelis* are beautifully organized along with being thoroughly and technically justified which lay emphasis on lyrical and aesthetical abstraction of forms and create a melodious atmosphere (Fig. 3.22).





Figure 3.22 Geometric Motifs used for old *havelis* of Saharanpur

Moving toward woodcraft, a number of shapes were identified and observed by the researcher to make the patterns (Fig.3.23). These were the prominent shapes which were discovered during the field observation. Few patterns were also found obtained from the artisans from their private collection. Between 1975 and 1980, geometrical patterns were introduced in the motif vocabulary of woodcraft which are still in prominence today (Hāṇḍā, & Jain, 2000). Most of the patterns may be seen in a symmetrical pattern (Fig. 3.24).

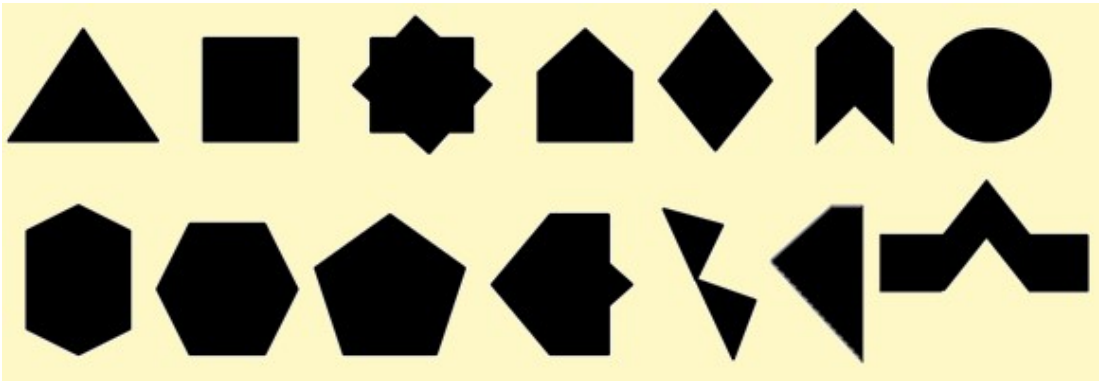


Figure 3.23 Different shapes used for making geometric patterns





Figure 3.24 Different types of geometric patterns used in woodcraft

#### **(D) MISCELLANEOUS MOTIFS**

Saharanpur woodcraft also contains a number of miscellaneous motifs which may be seen in auspicious works and some other motifs. Vegetative, faunal and geometrical motifs are the primary subject matters which have been absorbed for ornamentation by the artisans from the past decades till today while auspicious and other motifs are being used on minimalistic levels. Religious symbols of Hinduism, Islam, Sikhism and Christianity were also adopted for creating showpieces and other religious purposes. For instance, *Swastika*, Lotus, *Chakra*, *Kalasha* and Sun are defined in this category for creating a beautiful sense of good omen and blessing of the gods with their sacred aura for human beings. *Swastika* is an auspicious Hindu symbol which represents a fourfold aspect of creation. *Swastika*, the graphic symbol, is found in almost every ancient and primitive cult all over the world. The sacred religious blessings have an essential role for the happy and prosperous life and personification for the whole mankind in all the deeds. Sun is considered a solar deity in Hinduism which gives energy to the universe. The classical style of auspicious motifs in the stone/wood carving work may be seen in the earliest *havelis*, temples and mosques of Saharanpur. Along with this, the human figure was also added in the vocabulary of motifs which was inspired from the Mysore wood carving craft. The impression of Mysore wood carving craft may easily be found in 3D statues and wooden door panels (Fig.3.25).



Figure 3.25 Human figures on wooden door and in 3D statue

### 3.5 DESIGN INSPIRATION

Motifs generally describe the connection of people with the environment, customs, religion and history. There is nothing visual that may not prove to be a source of creativity for a design, be it the smallest or the largest. It was found in this area that the majority of artisans, especially local designers who make drawings and stencils of designs are extremely proficient in imbibing from nature, royal monuments and environment and also in making patterns that appear extremely spontaneous and appropriate to the end user. Although there is practicality in the usage of sources of inspiration, almost entirely, yet it is probable to recognize various types of sources of inspiration that can perform certain specific roles. This section describes the most common sources and their role in the order of principal designing activities. It was easily observable during the market survey that similar designs are mostly available with the shopkeepers as the motifs are mostly common. Moreover, if any new designs appear in the market, then those are readily copied by one and all quite soon. Once new designs are displayed in exhibitions or shop windows, those mostly get replicated. In the present scenario, magazines, visiting exhibitions, catalogs and the designers' work are the other sources of inspiration for new designs for the artisans. The majority of the artisans of Saharanpur told that they usually copy designs from the magazines, designers' work and other sources. Nowadays the market scenario has changed. If handicraft is to sustain in the market then it will have to be made according to customer's choice. For that reason, majority of designs are being made on the demand of buyers/manufacturers. The artisans have no right to make designs according to their choice. They can only suggest small modification in designs and can contribute in designing no more

than that. These artisans are making tools and are getting orders based on their specialized skill as some are good in decorative designs. They are given the orders according to their expertise.

### 3.5.1 NATURE

“Nature is a phenomenon of physical world which may be named as ‘Life’ itself. We, humans have always been significantly captivated by nature; examples can be observed throughout history” (Saxena, 2016). From the prehistoric to modern time, man has always taken motivation from nature. Innumerable forms may appear in art if nature is explored as it provides us with such a widespread wealth of innovative experiences. As a result, monuments, textile and household products were inspired from countless forms of nature and the artisans applied these forms with skilful manner for centuries.

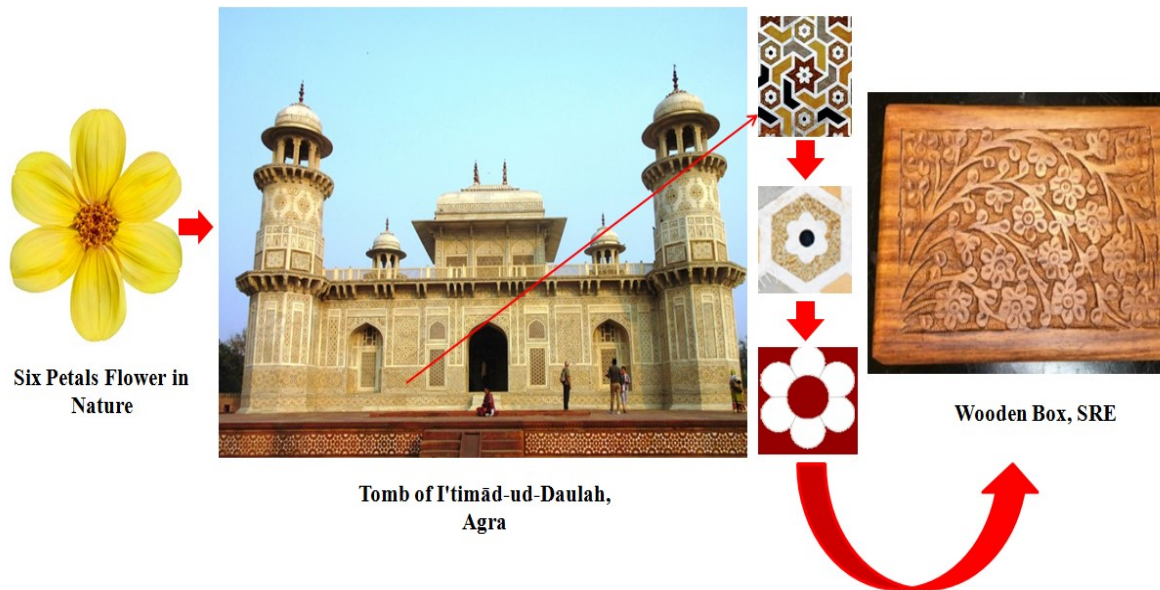


Figure 3.26 Inspiration from nature

Concerning this, the artisans of SRE are inspired to a great extent from nature. They try to give life to dead flowers and trees through their creativity. As a result, many naturalistic forms were welcomed to embellish the woodcraft with a realistic approach such as flowers, birds and animals. The following figure 3.26 shows clearly how naturalistic forms began to be used on the monuments and were further transferred into the woodcraft of SRE.

### 3.5.2 ROYAL INFLUENCE

Sharma (2010) has observed that with the arrival of the great Mughals in India, the blossoming of new subject matters of ornamentation and architectural style was observed in the Indian history. Numerous scholars and designers were inspired to a great extent from the edifices of

the great Mughals and it was a novel subject matter for them to delve into some new facts. Thus, the Mughal flair may be noticed in India through costumes, jewelry, cuisine, art, crafts, architecture and ornamentation too which is being continued with unbreakable tradition. Moving towards the theme of SRE, from Akbar to Aurangzeb, the district was under the great influence of the Mughals which was carried forward in future. It was mentioned in the first chapter how the settlers influenced and inspired SRE in a unique way that may be seen in the town planning, architecture and ornamental style of the city. For instance, the use of geometric patterns for decoration purposes started after the advent of Islam in Arabia (Wilson, 1988; Othman, & Majid, 2017). Due to the prohibition of using living things in Islamic art, geometrical and floral patterns have been created and developed by the artists with Islamic philosophy and they are lavishly implemented as a major design element in painting and architecture (Ezbarami, 2016). Talking about the Mughals, we find the new theme of discussion in the reign of Jahangir. He was fond of a luxurious life that was reflected during his tenure. For instance, the depiction of wine vessel, wine cups and fruits were the new subject in Jahangir's era which were introduced in architecture and decorative arts due to his love of drinking. Jahangir was the lover of art and craft with an insight for excellence. Prior readings cite that Jahangir was a habitual drinker who usually consumed double-distilled liquor in a quantity of 20 cups daily except on Thursday night and Friday evening (Sangar, 1998). In history, Jahangir is mentioned as a drinker who never conciliated his drinking habits despite his bad health and doctor's serious advice against such reckless consumption. He only minimized the intake of liquor from 20 to six cups (Verma, & Gupta, 2016). Despite the restricting ban on liquor imposed by the Islamic law, alcoholic beverages were widely practiced by the Mughal court culture and consumed by all Mughal monarchs from Babur to Aurangzeb. The Mughal era is considered as the age of glamour in which wine became a source of joy, fascination, pleasure, power and lavishness and proved as luxurious by the ruling class. "It can be seen in the Mughal miniature paintings, court poetry and architecture in which wine has been depicted as a mode of expression of the divine world" (Fuglerud, & Wainwright, 2015).

In this concern, the pictorial representation of wine vessel and wine cup are associated with symbolic meanings which reveal Jahangir's emotional attachment towards wine (Fig. 3.27). Along with this, there are a huge number of motifs in SRE woodcraft which have been highly inspired from Mughal decoration like geometric patterns, wine cup, wine vessel, flowers and fruits etc. Hāṇḍā, & Jain, (2000) discussed in their study that the motifs of woodcraft were deeply influenced by the monuments of Agra that were built under the Mughal Dynasty. Amongst the lavish and resourceful masterpieces of Mughal architecture, Agra is a famous



centre of attraction for tombs and monuments. With the presence of these buildings in most parts of the city, one can find a variety of classic designs and patterns along with architectural details (Seth & Bhatnagar, 2016).

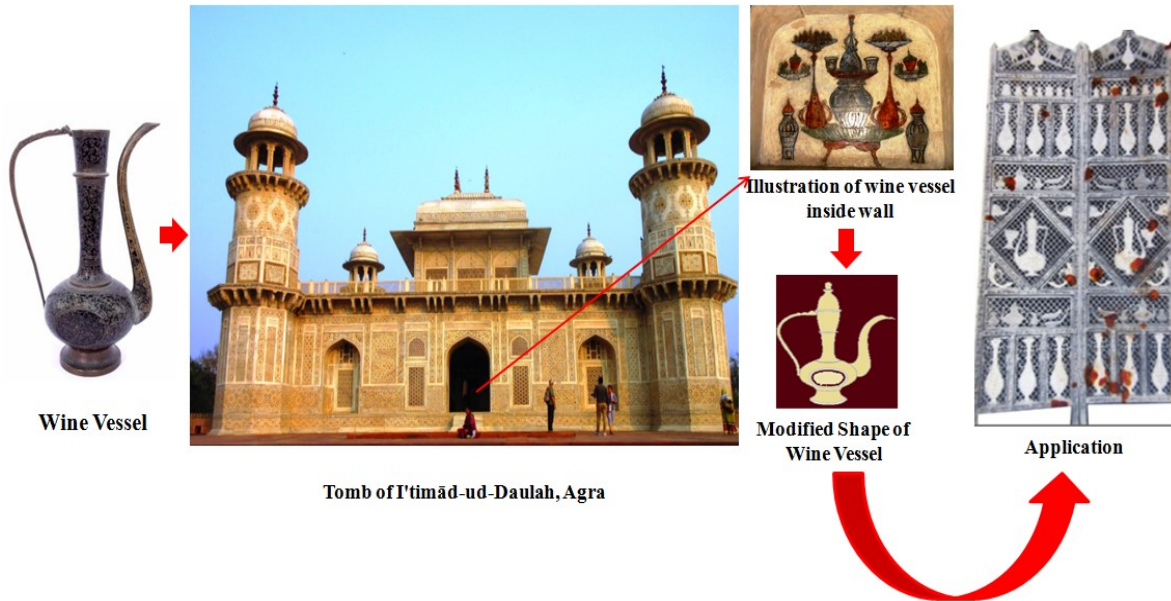


Figure 3.27 Inspiration from Tomb of I'timād-ud-Daulah, Agra

The western influence, besides that of the Mughals, was another significant impact. The designs were mostly highly aesthetical and conventional in their characteristics. However, nowadays, some of the modern designs are also being adopted in order to suit to the liking and preferences of the overseas tourists to cater to the market. The British influence is visible in architectural style, furniture and handicrafts of SRE. In this context, gothic arches which are very noteworthy and expressive, were designed in the buildings of SRE. Besides, the buildings, furniture and craft items also display these prominent features as is visible in the St. Thomas Church at SRE (Figs 3.28 and 3.29). Thus, the artists/artisans were always spellbound by the royal eras and their unique features. Historical accounts refer to several imaginative and creative techniques and lesser known forms that the artisans always learned while being under the royal patronage.



Figure 3.28 Lectern inside St. Thomas Church at SRE



Figure 3.29 Wooden furniture inside St. Thomas Church at SRE

### 3.5.3 RELIGIOUS CREED

Indian art and craft cannot be monotonous in the presence of an enormous store of myths, symbols and imagery which is the true mirror of culture and religion. Each religion has its own identity and particular symbol which conveys the message. The earliest evidences of sign and symbol can be traced from the Indus script which was a pictographic script used to record a language. In this regard, SRE district has demonstrated the communal harmony where people from different communities visit the Naugaja Peer, Shah Haroon Chisti Dargah and Mela Gughal etc (Jain, 2011).



Figure 3.30 Mela Gughal

Source: Borrowed from the private collection of Rajeev Upadhyay Yayavar by the researcher

Mela Gughal is a very famous fair in SRE where people from different faiths gather to offer prayers. Due to several myths and folktales, nobody can be certain about the exact time of the

starting of the festival. It is also known as *Chhadiyo ka Mela*. The fair is being held every year in SRE in the honor of Jaharveer Goga Chauhan for centuries (Fig.3.30). It is said that Jaharveer Goga Chauhan had struggled to defend the nation from Mahmud Ghazni. The value of his sacrifice can be seen in western Uttar Pradesh where there is great devotion towards him.

The feeling of religious harmony may be seen in the wooden handicraft industry where the Muslim *karigars* are making wooden idols of the Hindu deities and the replicas of Hindu temples without any inhibition, although it is prohibited under the Islamic tenet (Jain, 2011). It creates a massive path of companionship, affection and creates unity between all the religions. Religious symbols like *Allah* (written in Arabic), Star and Crescent, *Om/Aum*, *Swastika*, Wheel of *Dharma*, the *Khanda*, the *Ahimsa* Hand and the Nine Pointed Star are being used on wooden products such as wooden temple, *rehal*, wall hangings etc., for the purpose of worship. These symbols were associated with the identity of a particular religion in honor of the gods and goddesses.

### **3.6 WOODCRAFT MOTIFS AND THEIR SYMBOLISM**

Through the ages, symbols have played an important role in art and have evolved in repeated forms of a motif. As aforementioned, a repeated form of motif becomes a pattern which is considered as the visual dialogue and the most vivid path for the understanding of divergent cultures, religions and traditions. The language of symbols deals with the external and internal aspects of images that creates a visual appearance and forms a relationship between art and craft. Naseem (2002) asserted that just like a language, symbols are an indirect and brief method of expression and used by man for communicating his ideas. According to Encyclopedia of Britannica (1997), the term 'symbol' has originated from the Greek word *symbolon*, which means insignia and means of identification. The Hindu philosopher Ananda K. Coomaraswamy defines symbolism as 'the art of thinking in images.' Symbols have served the purpose of decoration and space filling. Talking about the motifs of woodcraft, one can find huge collections of motifs with their symbolic significance. To the artist, every creature of the universe is beautiful including flora and fauna, geometric and human figure etc. In SRE, the imagination of the artisans is very strong and they express their emotions through visual forms. Based on the huge collections of different motifs with their symbolic meaning, the present study may be divided into three groups.

### 3.6.1 PLANTS AND VEGETAL MOTIFS

Plants and vegetal motifs have always had a special position and religious value in different philosophies and cultures that are representative of the connection between the material worlds and the other spiritual ones. “Symbol is the production of nature and based on the principles of the school of Naturalism, the amalgamation and conveying of feelings in the field of natural elements with metaphysical senses are the creators of thoughts which are connected mutually to the internal part and the external (natural) form of the individual” (Dehkordi, et al., 2015). These types of motifs are considered as symbols of fecundity, procreation and cheerfulness. For instance, flowers commonly symbolize freshness, youthful gladness and bond of love. In woodcraft, flower is supposed to be the central element which connects all the secondary elements together. So, the flower symbol stands for unity, freshness and bond of love. In the same way, fruits usually symbolize good fortune, prosperity, wealth and fruitfulness. It is believed that pomegranate fruit has travelled to India from Iran with Iranian influence that stands for fertility as it is likened to the womb of nature with its hundreds of seeds. Being an evergreen plant it is considered a symbol of wisdom, immortality of the soul and prosperity. Similarly, the icon of grape, bunch and leaves of grapevine stand for devotion and rejoice. In the field of woodcraft, the role of fruit motifs is important which stand for reunion, freshness and devotion. Dehkordi, et al., (2015) asserted that “A world without symbols is a suffocating world and it will result in the spiritual death of human beings”. A tree or plant is the symbol of nourishment, rebirth, revitalization and development of mental life which is believed to connect the human soul to the utmost levels of existence. Cypress, chinar, the *kalpavriksha* etc. are very prominent trees that are supposed to be very sacred with their mythological attributes. For example, cypress is an evergreen tree which is believed to originate from paradise and stands for truth, strength, freshness, youth, rising, honor, straightness and immortality. Additionally, chinar tree (tree of purpose) symbolizes glory, fertility and prosperity. The *kalpavriksha* (tree of life) symbol represents good fortune, life and knowledge. Consequently, the artisans of SRE are widely using these motifs with their symbolic meanings in their artistic productions like woodcraft.

### 3.6.2 GEOMETRICAL MOTIFS

The significance of geometrical motifs is comprehensively connected with the symbolic aspect of universal expression (Dua & Jain, 2011) because these simple and complex forms of geometry reveal the vast reality of the motifs’ hidden meaning which directly and indirectly



influences human life. In the same way, the spirit of fascination has also been generated through the symbolic manifestation of artifacts (Verma & Gupta, 2015). For instance, a triangle has three equal sides which directly represent geometrical properties like exact measurements, calculation and logical reasoning but on the contrary, the basic shape of a triangle expresses trinity in such a world where a human being is associated with a god by worshipping. Worshipping is the path of that place where a human being feels divine experience in which he meets the supreme power of the universe. Therefore, a triangle noticed inside the stone brackets of the old *haveli* of *Chhatta Barumal* and handicraft products may be taken as a symbol of the trinity of the spiritual world. It also creates mesmerizing effects on the structural surface. Spiral is the most profound pattern in Islamic architecture which represents the progress of the universe. “Spiral is a process of coming to the same point again and again but at a different level, so that everything is seen in a new light” (Saraswat, 2012). Spiral is a visual representation of the development of a human being. In this context, the motifs of woodcraft display a variation of geometrical shapes and patterns like a hexagon, spiral, rectangle, six-pointed star and some grid patterns which have been developed by repetition, symmetry and continuous generation of design. These geometric patterns reveal a mystery of symbolism and give direction to human life.

### **3.6.3 BIRDS AND ANIMALS**

From the prehistoric time, animals and birds have always been the companions to man and these have been appreciable in the society. These are not just creatures of the universe but their divine presence is vital in Hindu mythology. For this reason, peacock is not just a beautiful bird but also possesses its value against poison that is mentioned in *Rigveda* and *Atharva veda*. It is believed that its plumage helps to protect a person from the evil eye. Being symbolic of love, cheerfulness and good fortune, it is a prominent motif which has been widely used by the artists in art and craft for a long time. Similarly mythologies advocate that elephant is the symbol of strength, power, fertility, intelligence and royalty. Like other living beings, fish is also a symbol of good fortune and happiness among the Hindus. Due to its shape, it is also believed that it is a visual representation/symbol of Yoni which indicates fertility. Being associated with mythological facts and symbolic meaning, animals and birds were selected and added as a new subject matter to the vast vocabulary of motifs by the artists to decorate the artifacts.

This discussion regarding symbolism explains that everything in this universe has a distinct meaning with regards to the concepts about blessing and essence of life and therefore, the artisans of SRE have been making use of such forms to create wood works for a long time and

even in the present. They are certain to use these forms in the future as well. After the discussion over symbolism, here the researcher serves the discussion on discarded motifs which were once added in woodcraft as design elements. Gradually, these have lost their existence and their identities have vanished with time.

### **3.7 AESTHETICS VALUE IN WOODCRAFT OF SAHARANPUR**

Aesthetic or 'aesthetica' as a word has its origin in the Greek word 'aesthesis' and its description includes 'any feature related to beauty'. Aesthetics make reference to the procedure of evaluating sensory observation and comprehension or sensualistic admiration for the subject of beauty (Hekkert, 2006; Harrington, 2004). The philosopher Baumgarten adapted this term in the eighteenth century to change its meaning into fulfillment of the senses or sensuous gratification (Goldman, 2001). The major reason behind the production of art is the same i.e. to satisfy our senses therefore, this theory has since been applied to all the aspects of experiencing art, such as aesthetic judgment, aesthetic perspective, aesthetic interpretation, aesthetic sensation and aesthetic significance. All these are regarded as elements of the aesthetic sense and experience. Aesthetic in arts incorporates symbols, language, meanings and procedure of explanation and it is based on the objective of the artist in order to achieve the emotional response of the viewer (Khan, 2016).

There have come modifications in the system of establishment of aesthetic significance in handicraft on the basis of role/purpose, form, presentation and also about its importance. These changes are also apparent in the changes that occur in the aesthetic significance of a work of craft because the substance of the aesthetic is beauty. The elements of line, shape, texture, color, composition and principles of harmony, repetition, variety etc. are covered under the aesthetic significance of a craft. Harmaen (2016) argues in the book *seni kerajinan Indonesia* that in order to understand the essence of aesthetic, the craft objects should exhibit aesthetic significance in works of art or the importance of the beauty of form whereas in the case of applied arts, aesthetic significance of craft cannot be differentiated from the significance of the point. It is different in the works of fine arts because there in, the artist freely uses the aesthetic value as a medium of expression without giving any precedence to the useful function of the art works. Aesthetic value in craft influences the quality of the art also just as it does in art. There is a major difference between the works of fine art and craft, that in the objects of craft, the ability, skill or the talent of the artisans is used not only to utilize the materials but also to produce an object that may prove useful in its purpose (Harmaen, 2016). It can be concluded on the basis of above arguments that the aesthetic significance of craft can be increased as applied

art when the purpose of each object is useful. It is in deep contrast to fine art where aesthetic significance is a resultant form of free expression of the artist in any medium notwithstanding the purpose/ use/ function of an art work.

Aesthetic significance is evaluated through visual analysis of the aesthetic components that are associated with color, shape, texture, line, design, composition, design principle etc. Any composition can be communicated and narrated in a vivid manner by applying the design principle (Harmaen, 2016). The aesthetic qualities of an art work can be influenced, increased and also upgraded by making use of materials, contrasting colors, shapes, textual effect etc. As far as handicrafts are concerned, design components possess the capability to occupy an important place through their schematic image in which the viewers are able to feel a high degree of self-satisfaction and also derive great pleasure (Verma & Gupta, 2017). In this instance, the wood carving of SRE is one such handicraft that shows aesthetic significance of a great level which also displays a richer diversity of its own and this diversity has functional usages as well. SRE motifs represent a certain kind of uniqueness of design and great significance and meaning that is evident in every type of engraving used herein. Motifs and patterns of the woodcraft are having a form and meaning of their own. With regard to motif, it can be generally classified into four different types namely flora and vegetative motif, fauna motif, geometric motif and miscellaneous motifs. In the process of production, artisans apply different techniques. The materials that are appropriate according to a particular technique are selected and then are further beautified through the skill and sensitive artistry of the individual artisan. According to the technique and choice, stylization may vary. The preferred choice for motifs and patterns are foliage, geometric shapes and fauna. As the Islamic principles were embraced, the Hindu forms began to be shown as foliated and abstract compositions. The major factor about the arrangement of patterns is that the patterns are mostly organized into an order of symmetrical and methodical arrangement. The organization of the patterns is attractive and technically fully justified, which also gives prominence to rhythmic and artistic abstraction of forms and creates a lyrical ambience. In this instance, various principles of art such as unity of harmony, importance of balance, rhythm and repetition play a very significant part in old havelis and woodcraft of Saharanpur that leave an impression of aesthetic and artistic excellence. The majority of artisans were inspired from the old havelis of Saharanpur for design inspiration to carving the woodcraft. Thus, the discussion regarding design principle was given in the context of havelis which were further implemented by the artisans in woodcrafts as well.

### **3.7.1 UNITY/HARMONY**

Unity is the focal component which lays emphasis on all elements of objects, and if combined together, these create balance and harmony in the architectural edifice. Unity is associated with a sense of completeness of all design elements. It can be categorized into three kinds: unity in static and dynamic, style, and theme. This can be seen in extremely exceptional carvings on wood as well as yellow stone in old havelis. In the *haveli* of chhatta Barumal, motif has been applied for filling the surface inside the stone brackets and creates a unity in theme with a variation of floral motifs. The carvers very skillfully controlled the elements combined together and presented a beautiful composition of ornamentation in havelis which can be clearly visible in the *haveli* of Aatma Ram and few others. It can be noticed that all patterns are different to each other but combined together will create unity.

### **3.7.2 REPETITION**

The repetition of design generates unity within the geometry design and makes an integrated effect which enhances the harmony in overall composition. This can be traced in well-proportioned designs and interchanging of sequence of designs in these *haveli* decorations and woodcraft products. The character of repetition can be seen in wooden doors of *havelis* in *chhatta* Jambudas, and it generates rhythm, unity, and interest in geometrical motifs. Repetition plays a key role in design elements in old *havelis* of Saharanpur because it produces a design free from tension.

### **3.7.3 VARIETY**

Variety is the major character of design element which throws light on miscellaneousness of design and increases curiosity and visual interest in design. In this regard, old *havelis* of Saharanpur demonstrate the variation of geometric patterns which attract the spectators and denote the aesthetical unification. The variety in design has the power to gain the spectator's attention (Sharma, 2010). The carvers of Saharanpur were fully aware of this interesting principle. Therefore, they made these geometrical patterns with intricate manner and variation of theme and used different motifs in one piece of art. For instance, it can be traced in *haveli* at *chhatta* Barumal which demonstrates the large variety of geometrical patterns inside the stone brackets. All brackets are carved out with divergent patterns of geometry that create a harmonious blending with other decorative elements.

### 3.7.4 RHYTHM

Rhythm is the combination of repeated patterns with variations. Through variation and repetition, rhythm is developed in artifacts which create a different feeling of music or dance. It is noticed mainly in patterns of old *havelis*, which express exquisiteness through their schematic quality. Old *havelis* and woodcraft of Saharanpur display a movement of life through regular arrangement of geometrical designs which was achieved by individuals as a rhythmic sense. The carvers of Saharanpur applied the value of rhythm in patterns and increase the beauty of *havelis* and woodcraft. Therefore, the *haveli* of Aatma Ram is a visual manifestation of rhythmic unity through repeated patterns of octagon grid which mesmerize the spectators.

### 3.7.5 BALANCE

“Balance is the most important characteristic of visual principle that a design should be weighted equally balanced on both side of a composition” (Hashimoto 2004). Balance can be classified into two ways: symmetrical and asymmetrical balance. In symmetrical balance, both sides of artifacts are divided into similar parts. Visual weight can be divided into the similar side of artifacts. A balanced design provides a feeling of stability. In an asymmetrical balance, both sides of artifacts are different but still look well adjusted. “An asymmetrical composition has two sides that do not match, but the composition appears to be balanced because the visual weights in the two sides are very similar” (Malloy 2014). The design elements of old *havelis* and woodcraft of Saharanpur are enriched with balancing action which interestingly increases the grace and charm through symmetry and asymmetry in geometrical forms. In this regard, symmetrical balance has been discovered in the *haveli* of Nanda Ghati and *haveli* in *chhatta* Jambudas. These *havelis* can be noticed for similar patterns through open lattices which increase the beauty of cusped arches. Hence, the overall effects of patterns of these *havelis* are complementary and admirable with balanced forms.

### 3.7.6 PROPORTION/SCALE

Proportion deals with unity of an object that creates a sense of completeness and relates all parts joined together. In a broader sense, proportion indicates the measurement or size of an object. Everything should be designed with the right proportions. In this regard, the motifs and patterns of old *havelis* and woodcraft have been created with technical skill and right proportion that hold the viewer’s attention as well as give us immense pleasure. This principle generates the spiritual and metaphysical aura through the visual representation of design on surface. The next section throws light on gradual changes in designs.

### **3.8 GRADUAL CHANGE IN DESIGNS, MOTIFS AND PRODUCTS**

This section throws light on the process of gradual changes towards the rejection of a motif. A particular form and design which had a long history and glorious past and was used by the artisans in a particular period of time, gradually loses its identity in the contemporary world. Therefore, it gets discarded from an existing rich vocabulary of design. Due to the unavailability of documentation on woodcraft motifs, it is very difficult to explain about declining patterns/motifs. Based on collecting facts through in-depth interviews of the artisans and manufacturers, the study gives justification for discontinuity of these motifs.

#### **3.8.1 REASONS FOR DISCONTINUITY**

There are several factors responsible for this discontinuity of specific designs e.g. globalization has touched every field of the society including arts and crafts. New versions of the products with new designs, techniques and new materials are assumed to attract the market and help in economic growth. On the basis of market survey and rich discussion with the artisans, stakeholders and buyers, we got to know that in Saharanpur, some of the traditional designs were improved and revived as per the international taste and some of the excellent designs were discarded according to the market requirement and changing tastes of the customers. For instance, wine vessel, wine cup, cypress tree, gothic architecture and the seed of life are the discarded motifs which were used on wooden folding screens (WFS) of Saharanpur during the sixties (Figs. 3.31). Today, these graceful patterns have lost their identity in WFS of Saharanpur. During the market survey, the study has found that due to lack of continuity, these forms do not exist today. The following factors are responsible for the discontinuity of these motifs.

- A. Change In Lifestyle and Consumer's Choice**
- B. New Patterns in Demand**
- C. Replica of Designer's Work Catalogue**

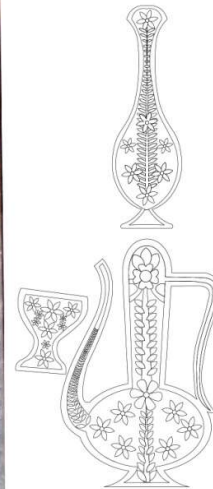
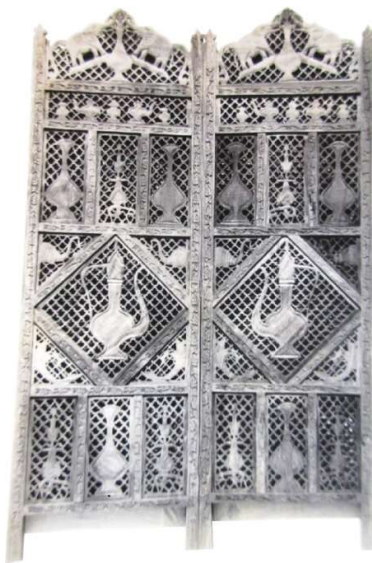


Figure 3.31 Discarded Motifs on folding screens

Source: Old images taken from the personal collection of Mr. Mohd. Arshad, Chairman, Handicraft Manufacturers and sketches created by the researcher

### A. CHANGE IN LIFESTYLE AND CONSUMER'S CHOICE

Today, we are living in the modern era where people's preference and way of life have changed along with the technology shifts. In present times, people are getting disconnected from customs, religion, social values and culture which are the indication of heavy moral losses for the humanity. Moreover, due to the westernized concepts becoming popular in the Indian

industry, western brands are getting a wider platform than the ethnic brands across the country (Deaden, & Harron, 1994). Therefore, consumers often ignore national/ethnic products and it is possible that one day such products may not enjoy such high status and even be devoid of their cultural essence in the domestic field. In the context of SRE woodcraft, many of the marvelous motifs and materials were discarded with time. In view of this, motifs are an integral element of both culture and cultural legacy which can give a spontaneous sense of union and association within a group. As a result, we are better able to comprehend the previous generations and also the history of our origin (Earl, & Saint, 2015; Vecco, 2010).

## B. CURRENT PATTERN IN DEMAND

As aforementioned, westernization has badly affected the Indian ethnic brands. Along with this, with changing time and demands, new product line was introduced in the market with new designs to appeal to the heavy traffic. As a result, new motifs replaced the old traditional motifs as the old ones were ignored by the consumers, for instance, the owl motif, (new) which was not a part of SRE woodcraft earlier. But in recent times it was absorbed by the artisans for effective sale. In recent times, the owl motif and Christmas ornaments like Christmas tree, heart, reindeer, snowflake and angel are in fashion and a majority of the artisans might have accepted it due to the changing market culture. The following figures 3.32 and 3.33 have been given for this purpose.



Figure 3.32 Owl motifs on key holder  
Figure 3.33 Christmas tree





### C. REPLICA OF DESIGNER’S WORK

Despite being traditionally skilled, a majority of the artisans are imitating the designers’ work or other ideas for creating their products and designs. While talking to them, they opined that some of the designers’ works and some particular styles of furniture and accessories already have a brand identity in the global market. Thus, it is easier for them to copy the designs and create the products. They do not want to take risks to produce a new design in a competitive market. For them, the replication of a renowned product is an easy task because a renowned product has already gained popularity and goodwill in the open market. As a result, they are welcoming such designs and absorbing them in order to gain high sale. For instance, during the interview schedule, an artisan of Saharanpur viewed that he used to copy the designs from magazines, designers’ work and other sources. He mentioned the interior of Rohit Bal’s Studio Delhi in which *Kamal ka Butta* (lotus motif) was used in *Jali* pattern (3.34). After seeing this in a catalog/magazine, he started including “*Kamal ka Butta*” in his woodcraft products (Fig.3.35) although, he himself did not know about this designer. The following figures 3.34 and 3.35 display the interior of Rohit Bal’s studio along with a SRE product.



Figure 3.34 Interior of Rohit Bal’s Studio Delhi

Source: Retrieved from [http://studiolotus.in/wp-content/uploads/2014/02/PRIVE\\_detail08.jpg](http://studiolotus.in/wp-content/uploads/2014/02/PRIVE_detail08.jpg)

Figure 3.35 Replica of lotus *Jali* in SRE product

### 3.9 MOTIFS AS CULTURAL IDENTITY

In present times, people are losing their connection with their customs, religion and social values which can prove to be a great loss of ethics in the future to come. Culture has a connection with the society in which people get attached to certain social values, beliefs,

religions and customs. In view of this, motifs are an integral element of both culture and cultural legacy which can give a spontaneous sense of union and association within a group. As a result, we are better able to comprehend the previous generations and also the history of our origin (Earl, & Saint, 2015; Vecco, 2010). In the context of SRE, people do not have enough understanding of the significance of these motifs which were developed in a particular decade and presently these types of motifs may not be found easily. These motifs remind us of the royal era which takes us into the lap of history. Thus, it becomes important to safeguard these motifs because these are very attractive and unique and have a historical value. For this reason alone, people should protect them because these are considered as a treasure given to us by our forefathers.

### **3.10 CONCLUSION**

The data which was found in public domain, majorly through one book titled “*Wood handicraft: a study of its origin and development in Saharanpur*” was not sufficient on its own because it was the only book which provides information regarding SRE woodcraft. Thus the data was purely based on very few books, along with related study, observation and market survey. The chapter throws light on the roots of motifs including the term ornamentation and discusses how a single unit (motif) becomes a pattern. Along with this, it also discusses the organization of pattern through symmetry and asymmetry by following the geometrical rules for symmetrical pattern and random flow for asymmetrical patterns. Furthermore, the study discusses about the symmetrical pattern as to how a motif gets transferred into a pattern. Discussing about ornamentation, motif, pattern, organization and representation, the study is focused on classification of motifs along with their inspiration sources. With regard to Indian art, one can get a huge collection of motifs on its own due to the pleasant presence of myths, mythology and facts. Thus the inspiration source of motifs was taken from Indian art and its royal and memorable eras. Coming towards the next section, the chapter serves the discussion about the symbolic significance of motifs that recalls how a particular sign was decoded into its language to communicate. This section has explained the connection between human beings and nature through semiotic study.

Additionally, this chapter also discusses the discontinuity of motifs through gradual changes with factors responsible that could not be denied. For this reason, it could be said that due to lack of awareness, change in the consumer’s choice etc. many beautiful motifs disappeared with time and lost their value in the present times which in turn have lead the artisans towards imbibing another vocabulary of patterns. Therefore, the ethnic brands are overlooked by people

nowadays, and the artisans no longer act like the earlier artisans. The focus of the artisans has turned towards materialization where such feelings like devotion and motivation for work have vanished in the contemporary world. Furthermore, this chapter also explains how a motif may be reintroduced in the market for the effective sale of the products, keeping into account that the woodcraft of Saharanpur still exhibits its uniqueness and freshness in the present market. This uniqueness stands for new designs, new materials and new techniques. Even though, in the past decades, the glory of woodcraft has been faded with time. To improve the whole scenario of the woodcraft industry, people should understand the original value of craft and patterns and also understand how to preserve tangible and intangible culture for the next generation.

## CHAPTER 4

# EXISTING MANUFACTURING PROCESS CHAIN OF WOODCRAFT INDUSTRY AT SAHARANPUR

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### 4.1 INTRODUCTION

The previous chapter was focused on ornaments, expressing the profound knowledge of motifs with their representation, organization and inspiration. Apart from that, the discussion threw light on the disappearance of the old traditional motifs along with the factors responsible for discontinuity. In the present chapter, the researcher attempts to explain the whole scenario of SRE wood carving industry, describing the journey from procuring the raw materials, to producing the final product and how the entire process revolves around the various people involved in it. Therefore, the chapter throws light on the complexities of the process chain filled with ambiguous players of woodcraft industry and details of the people involved in these processes and the markets they cater to. There is a need to understand the whole manufacturing process chain e.g. the process of production, process of procurement of raw material, varieties of raw material and auction of wood etc. The story of woodcraft at SRE started with the dreams of Atta Hussain and his intense desire to shape and beautify the local material. Consequently, the process of his imagination began with the selection of raw material. Therefore, the chapter starts with the major people involved in the manufacturing process.

### 4.2 MAJOR AMBITIOUS PLAYERS OF WOODCRAFT INDUSTRY

As in any other industry, there are different and important categories in the wood carving industry. These four categories are *Karigaars* (artisans), *Karkhanadaars* (manufacturers), *Adhaties* (commissioning agents) and traders. There is further division of these categories into sub categories. The network in wood carving industry is a combination of all these categories which is described below.

#### 4.2.1 KARIGAR (ARTISAN)

According to the Hindu mythology, artisans are identified as a special community of “*Vishvakarama*” who is known as a Hindu presiding deity of all craftsmen (Jaithly, 2001). It has been mentioned in the religious Hindu texts that all craftsmen worship him for increasing their productiveness and attain celestial inspiration to produce new products (Ramaswamy,

2004). Therefore, the position of artisans was very strong and they used to enjoy their reputation in the society. However, Muslim karigars of SRE do not belong to Vishvakarma's Community.

At SRE, the *karigars* are, though, at the lowest rung and yet are the most essential tread in the ladder. Though singularly named *karigar*, the term includes a wide range of experts, who perform certain specific tasks of wood carving. They could be as diverse skill workers as wood carvers, fitters, polishers, blacksmiths, *farma* (stencil) makers and even cutters. Furthermore, the wood carvers could show their expertise in dissimilar fields such as *takai*, *katai* or *bharai*, which means carving, cutting or inlay respectively. The *karigaars* could have the freedom to either associate themselves with a manufacturing unit or they could work independently. Those under the former category are generally employed permanently in a *karkhana* and those under the latter, either rent or own their small shops in the market place.

#### **4.2.2 CLASSIFICATION OF MANUFACTURERS**

There is a further division possible of the categories of the manufacturers in the Saharanpur wood carving industry. So, they can be further divided into three categories. These are the categories of small manufacturers, medium manufacturers and large manufacturers. Such a division is formulated on the basis of four characteristics, namely space for production, machines, labor and investment.

##### **4.2.2.1 LARGE MANUFACTURERS**

Skilled artisans and merchants are covered in this category. The clientele of such manufacturers are highly exclusive as they are either based in the UK, the USA or Asian countries and Middle East; {thus these manufacturers usually cater to the export market} or even some clients, having a highly refined taste, are based in the domestic market. Apart from these, some manufacturers cater to both the international and domestic clients such as Leo Arts, National Handicrafts, Famous Arts, Antique International, Miglani Handicrafts etc.

These companies come under the large manufacturers' category. Not only the large manufacturers, but even those belonging to the other two categories also benefit from the orders procured from such important sources. Their operations are generally large with few *karigaars* working under them on a permanent basis. When an order is procured it is executed in a systematic manner, thus the part of the order that can be carried out within their own premises and those designs that are exclusive to their own unit are executed by their permanent *karigaars*, {and this is done to protect the exclusivity of those particular designs,}; the rest of

the order is subcontracted from other capable sources. There is further specification about such outsourcing as they either have their own network of *karigaars* or they forward their orders to the middle level of *karkhanadaars* to accomplish those in due time and with complete dedication.

#### **4.2.2.2 MEDIUM MANUFACTURERS**

Medium manufacturers are also known as suppliers. They obtain their orders from the large *karkhanadaars* and in turn, these orders are further distributed to various *karigaars* in their own network. The suppliers also have their own manufacturing units in which they perform jobs of a rather simple nature, which is mostly assembling or packaging, for example, New Gulmarg Industries, Mughal Handicrafts, Chaman Handicrafts, Kalpana Handicrafts etc. These companies come under medium manufacturers' category. The wood to carry out these orders is purchased by them from either the local *mandi* or *botta* factory and that too depends on the article that is to be manufactured. The manufacturers of this category also, sometimes, obtain orders directly from the clients, both domestic and exporters, but this kind of direct linkages between the suppliers and buyers are rare to be seen.

#### **4.2.2.3 SMALL MANUFACTURERS**

The most significant attribute of this category of manufacturer is that their base of work or to be more specific the raw material is scrap wood or the wood they purchase from *botta* factory. However, there are few manufacturers in this category who can afford to buy wood from the *mandi*, but that kind of purchase is generally rare. Their specialty lies in manufacturing any one product like a tray, box or articles of small furniture. Since their raw material is either scrap wood or the wood bought from *botta* factory, the *karigars* of this category works more on *sheesham wood* and less on the other alternate woods. Their clientele is mostly the people visiting the local exhibitions or else the traders. The following table 4.1 explains the classification of manufacturers.

Table 4.1 Classification of manufacturers

Category	Space of production	Machines	Labour
Large manufacturers	Spacious manufacturing units with amenities like fax, computer and printer.	Most of the machines required in the processes like band saw, cutters, hex machine.	10-20 laborers work permanently here and the same number hired temporarily.
Medium manufacturers	Fittings and other follow-up and subsidiary activity is done in the manufacturing unit, adjacent to their houses.	Machines required for subsidiary activities	Hire labor on piece rate basis, they themselves work as laborers. Women are hired too for packaging work.
Small manufacturers	A small unit which is attached to their house or a rented space.	Basic machines which are relevant to their work.	Hire labor on piece rate basis, they themselves work as laborers too.

#### 4.2.2.4 TRADERS

Another important category in the industry is that of the traders who hold their own particular place in the wood carving industry. These are merchants having their own shops in the market and business links with buyer agents, both in India and abroad. Their business strategy involves having their own network of *karigaars* who are both small and medium manufacturers who sell those products to the traders which are not made specifically on orders. Just as the large manufacturers do, the traders also procure their orders directly from their buyers from different countries. Such orders are got manufactured from the suppliers who follow the same line of production by outsourcing it to the *karigaars*. Thus the traders are also exporters.

#### 4.2.2.5 COMMISSIONING AGENTS

The powerful and at the same time, the last category in this line of industry is that of the commissioning agents or *adhatis* who are essentially the raw material suppliers and procurers and are thus the real backbone of the industry as no production line is possible without the constant and uninterrupted supply of raw material. Interestingly, their clientele is rather vast in terms of diverse fields and not just limited to the wood carving industry; as they cater to a diverse group of artisans and establishments which include the wood workers of Rajasthan, plywood companies, construction companies etc. There is an entire street in Saharanpur where these commissioning agents are based. To a great extent, this section of wood trading is known to be dominated by the *Kalal* caste in Muslims even though many Hindu traders are also engaged in the same line of trade. The *adhatis* have always been significantly influential

category because of the disassociation between the source and the users. *Adhaties* operate with the help of a network of agents and have proper control over their operating activities. The operations of these agents are spread within and outside Saharanpur as well as in different states and they also have access to different sources of raw material. There is a hierarchy here that functions according to their level. Therefore, the *adhaties* are categorized into two categories. The first category comprises of those *adhaties* who are wealthy and experts in their trade while having a strong network whereas the second category comprises of those *adhaties* who are relatively novices in their line of work. Any kind of interaction and commercial deal between these two categories transpires in the following two cases:

- 1) If the latter receive the delivery but are not in the position to make the purchase due to want of required funds, they sell off the raw material to the former who have the purchasing capacity and power to purchase the raw materials against cash.
- 2) At times, there are few *adhaties* who purchase the A grade wood i.e. the wood of a higher configuration, from the second category of *adhaties*, to be used in the paper, plywood and construction companies.

#### **4.3 EXISTING MANUFACTURING PROCESS CHAIN OF WOODCRAFT**

The beginning of manufacturing process chain of woodcraft depends on the procurement of raw materials by the manufacturers/agents. Below is a summary of processing natural wood, from logging / harvesting to manufacturing a product (Fig. 4.1).



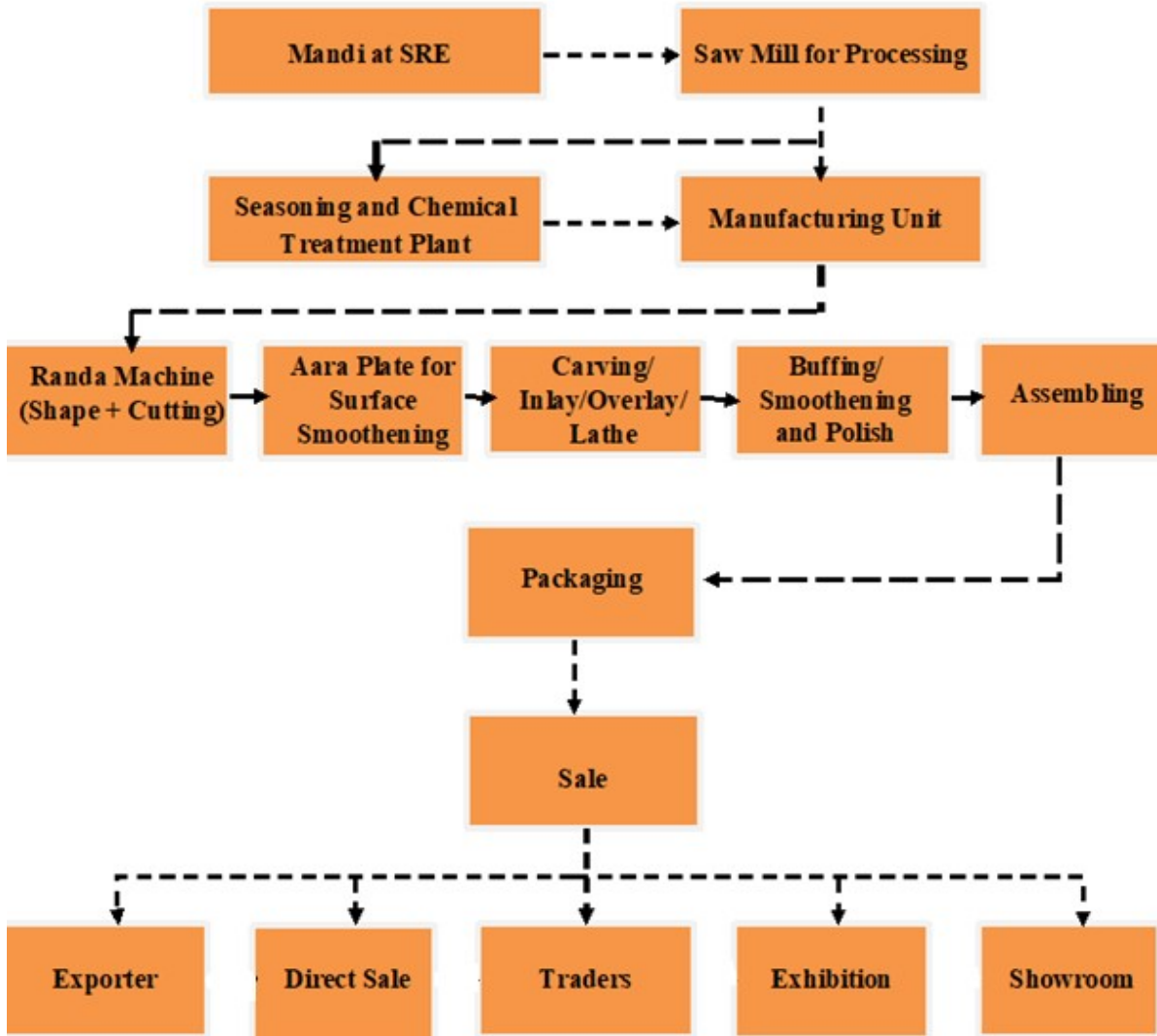


Figure 4.1 Woodcraft process from raw material to final product

Selection of raw material is the first stage of workshop process which goes through different operations. Although the process of making woodcraft is tedious because it is a multi stage process in which wood is used by one artisan, then another and so on; for different operations. After the purchase of wood from the mandi at SRE, wood has to go through seasoning and chemical treatment processes; thereafter it is sent to the manufacturing unit where different operations are done by different artisans like cutting, smoothing, carving, polishing, assembling and packaging. Sale is the last operation of any goods.

#### 4.3.1 SELECTION OF RAW MATERIAL

It is generally believed that the medium used by the artist for his work has a great relevance for the quintessential artistry of his faculties (Othman, 2000). Therefore, the wood carver has to be utterly careful in order to select his raw material. The most essential requisite is the quality of

plasticity in the wood. Apart from that, it must also be flexible enough to bring forth both the daintiness and boldness of invigorating, subtle and exquisite expressions of human forms, numerous postures of animals and birds and even the minutest details of flowers, creepers and trees (Mertz, 2016). It must lend itself easily to the administration of the cuts by his chisel and gouges through the movement of his hand. Another important feature is that the wood selected must have such strength to be able to sustain and provide support to the weight of the super-structure and prevail against the ravages of insects and also the climatic afflictions to which it is constantly exposed (Tsoumis, 1991). It would be extremely rare for a timber to combine all these qualities. Therefore, it is the responsibility of the craftsman to use his knowledge and skill to select the exact quality of wood according to his requirements. In the aptly put words of a dexterous artisan “To understand the *svabhav* or the temperament of the timber is highly required for a successful artist in order to comprehend the manner in which varying varieties will conduct under the stroke of his tools” (Pramar, 1989).

#### **4.3.2 WOOD AS A RAW MATERIAL**

Zobel (1984) and Jozsa & Middleton (1994) describe wood as a tissue having porous and sinewy qualities. It is found in the stems and roots of the trees and also in other woody plants. It is a biological substance, found in nature and composed of cellulose fibers having strong tension in them and enclosed in a grid of lignin that shows a resistance to compression (Othman, 2000). From time immemorial, as the human civilization evolved, wood has played an integral role in every phase of human life and its uses have ranged from making shelters to diverse kinds of domestic or utility articles such as utensils, furniture, agricultural equipments, wheels, several tools, vehicles, boats and in general an inexpensive fuel for the preparation of food (Tsoumis, 1991; Bledzki et al., 2002). Apart from that there are numerous species of barks and wood such as *neem*, *udumbara*, *vata* and along with these, many other kinds whose medicinal qualities are unquestionable, making them highly useful too. As these trees are very beneficial to human life in multiple ways, trees have always been recipient of their due admiration, gratefulness and are associated with diverse ceremonials; not only this but they are even revered in different cultures and societies of India (Pramar, 1989; Saxena, 2016). Moreover, wood has been utilized to a great extent because of its plasticity as a material and also to give shape to the innovative and resourceful impulses of the artisans all over the world, since centuries ago (Mertz, 2016). The characteristics that make it more favorable to the artisans are its abundant availability in different grains, varieties, patterns, textures and colors and also in different levels of pliability, from softer to tougher forms so that it can be carved

easily and yield better results when compared to other materials like metal and stone (Pramar, 1989; Bledzki et al., 2002 ).

#### **4.3.2.1 CLASSIFICATION OF WOOD**

There are two types of wood which are listed below. The following figure 4.2 gives the example of natural wood and man-made wood and shows the differences between them.

##### **I. NATURAL WOOD**

Wood is a biological substance, processed by a large number of woody plants and having various properties. Apart from this, natural wood is obtained directly from the tree. Then it may be cut into various shapes such as planks, lumber, slats, scantlings and veneer.

##### **II. MAN-MADE WOOD**

There is a large variety in man-made wood that includes natural wood fibers, chips, sliced log, thin slices e.g. veneer or wood fragments of different sizes including sawdust. These are usually joined together using special glues, heat and pressure (Hiebert et al., 2005). The most popular and commonly used man made woods are plywood, chipboard, Medium Density Fiberboard (MDF) etc.



Figure 4.2 Classification of wood

#### **4.3.2.2 STRUCTURE OF NATURAL WOOD**

Just like so many other materials, trees have a number of layers when they are peeled off (Othman, 2000). The hard and outermost layer or skin is called the bark. It is the dead tissue

that processes the cork. The bark is the protecting layer, protecting the tree from weather, insects and diseases. The next layer is the inner layer of the tree which is known as sapwood or alburnum. There is the part of wood core in the tree, having some types of xylem cells that exist in living form and therefore it is a physiologically active part; it is called sapwood and is in lighter color. Also there is the physiologically dead part of xylem that is heartwood and is in darker color (Harada, & Côté, 1985; Bamber, 1987; Sellin, 1994). It is the sapwood where water and dissolved minerals are transferred from the roots and towards the crown of the tree and to a lesser degree energy stocks are deposited too. However, there is no life in the heartwood. Herein, the xylem tubes get closed up with resins or gums and so, stop working. There is a thin active layer called the cambium, encompassing the outer edge of the sapwood and the trunk. In this layer, the tree actually grows on the outside, little by little bit, each year. Thus, the famous annual rings are formed; the function of which is to confirm the age of a tree (Coulson, 2011). When a tree is cut through horizontally while using the saw parallel to the ground (perpendicular to the trunk), the annual rings can be seen wherein one new ring gets added each year; thus forming the cross-section. Similarly when the tree is cut through vertically, lines can be seen inside, running parallel to the trunk. These lines are formed by the xylem tubes that also form the grain which is the inner structure of the wood. Occasionally, lopsided ovals are also visible that interrupt the grain and these are called knots, from which the branches grow out from the trunk of a tree (Hoadley, 2000). Though knots can give a pleasant appearance to the wood, they can also make its structure feeble. The following figure 4.3 describes the structure of wood through pictorial representation which shows a thorough knowledge of wood.

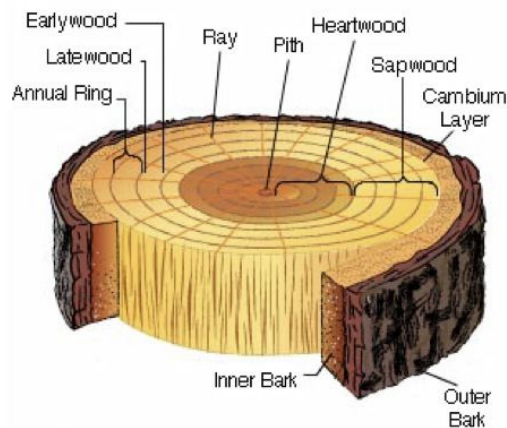


Figure 4.3 Structure of natural wood

Source: Retrieved from <https://in.pinterest.com/pin/796714990301373558/>

### 4.3.2.3 CLASSIFICATION OF NATURAL WOOD

There are two distinctive kinds of wood called hardwood and softwood, although in a bewildering manner, the names don't always pertain to their definitive hardness or softness:

- Hardwoods are particularly obtained from deciduous trees which are having broad leaves. These trees drop their leaves in the autumn season every year. These are also known as angiosperms as their seeds are enveloped in fruits or pods (Hoadley, 2000). There are so many examples of this kind such as ash, beech, birch, mahogany, maple, oak, teak and walnut.
- Softwoods, on the other hand, are particularly obtained from evergreen (coniferous) trees. These are the trees that have needles and cones and contain them year round. These are also called gymnosperms (Hoadley, 2000; Coulson, 2011). Some examples of this category include cedar, cypress, fir, pine, spruce, redwood etc.

### 4.3.2.4 MAN-MADE WOOD

Manufactured boards are the ones made by man and so are called “man-made” boards. The most common uses of manmade boards are for construction industry, for fittings in the interior of the buildings and for making furniture. They are different from natural wood as they do not grow naturally. Generally, waste wood materials are used in making manufactured boards. There are three types of manufactured boards namely ply woods (laminated boards), particle boards and fiber boards. These are made by man in factories/mills. Simple strips or pieces of wood (chips/dust) are joined together and then are compressed using a heat process in order to produce boards or sheets of larger sizes. Since these man-made woods are not expensive so these are often used in place of real woods and can be used to create larger projects. When the appearance of these manufactured boards is to be made more attractive, these are often layered with a thin layer of real wood which is called veneer.

- **Plywood:** Plywood is an amalgamation of various materials. Its composition consists of individual plies / veneers of wood. Synthetic resin is used in order to join together the plies at 90 degrees. Because of this construction, plywood is not so likely to buckle or crack. Another important feature is that it can be made and supplied in a variety of sizes and thicknesses. It is also used for making strong structures, as panel boards and also used in building construction and even in furniture making. Certain particular grades are used for such structures as boats and exterior work.

- **Chipboard:** Small chips of wood are used to create this type of wood as these small chips are joined together with resin and then compression technique is used to form sheets. Though it is not as sturdy as plywood or block board, yet this type is not expensive also. Chipboard is mostly used in cheap furniture and is layered with a plastic laminate or wood veneer. There are certain types available which are resistant to moisture and are used in the interior. Most of the times, it is used for kitchen cupboard making and bedroom furniture after it has been generally veneered or covered with a plastic laminate. Another usage is making of shelves and general DIY work.
- **MDF:** This type of wood is of good quality but is comparatively cheaper. It is constructed by making use of fine wood dust and resin which are then compressed into a board. It is easy to work, shape and also put into machine easily. It is easy to apply paint on it as there is no need of an undercoat or primer although the use of an MDF primer gives a better finish. It is also available in water and fire resistant forms. It is used a lot in making of buildings, shop fittings and furniture trades.
- **Block board:** It is another type of plywood. Its core is softwood strips joined together with the help of adhesive and then these strips are covered with a sheet of plywood on both the sides. Its major usage is as a building material but it is also used for furniture manufacturing as well as for fittings in the kitchens / bedrooms. It is a preferred material as it is a strong and heavy board which is unlikely to buckle and twist. The plywood faces used on the sides are generally beech or other such natural woods. These are used where heavier structures are required. Its most common uses are for shelf making and creating worktops.
- **Hardwood:** Wood fibers that have been pulped are used to make hardwood. The outcome is a sturdy board after the pulp has been put under pressure until the fibers get joined. The surface of the standard hardboard is smooth on one side and rough on the other. However, it is not as tough as the other boards. The hardboard having dual faces has two smooth surfaces. It has particular uses e.g. it is generally used for parts of the furniture that remain hidden such as the back of a cupboard.

#### **4.4 TYPES OF WOODS USED FOR MAKING WOODEN PRODUCTS IN SAHARANPUR**

This section describes the different raw materials that are used in the production of wooden products, the multiple sources from where these are obtained which are both local and distant and the allocation procedures that operate for business purposes. In this regard, sheesham wood

has been used traditionally as a raw material by the wood carving industry of SRE. Sheesham is regarded as one of the finest timbers. Sheesham of course, does not monopolize the industry as a raw material, as other than sheesham, many other species of timber are also used. But the use of such other species is limited mostly to the insignificant parts of a product e.g. the base. The following discussion enumerates the attributes of various woods that are used in the industry along with their technical details, characteristics and applications (Table No. 4.2).

Table No. 4.2 Details of different types of woods

S.N.	Common Names	Technical details	Characteristics	Applications
1.	Cn. Sheesham En. Indian Rosewood Bn. <i>Dalbergia, sissoo</i>	Close grained Color: Sap wood- white and odorless Heart wood – brown with darker longitudinal veins	It is a very strong, hard and durable wood. Thus, very intricate carving can be done on it. It has the combination of water and oil that supports carving. It does not crack easily.	It is extensively used for furniture making and carving.
2.	Cn. Aam En. Mango Bn. <i>Mangifera indica</i>	Straight to somewhat interlocked grains Color: Sap wood- Yellowish white Heart wood- Dark Brown	It can be colored and is cheaply available. It is being used for the last 15 years in carving but some content was always being used earlier too; in doors as well as furniture.	Mostly <i>chilai</i> does not support intricate carving. Also used in furniture making.
3.	Cn. Saugon En. Teak Bn. <i>Tectona grandis</i>	Fine & moderately compact grains Color: Sap wood – White Heart wood – Golden Yellow turning brown and finally black with age	The most naturally durable and excellent wood of the world. Due to durability and water resistance, it has been used extensively by the SRE artisans for the last 50 years.	It is used for structural as well as decorative work.
4.	Cn. Neem En. Neem Bn. <i>Azadirachta Indica</i>	Close grained Color: Sap wood- Grey Heart wood- Red	It is hard, scented and durable. It takes fine polish. Due to its bitterness, it is not attacked by white ants.	It is used mainly in doors, window frames and furniture making.

5.	Cn. Jamun/ Jamoya En. Black Plum Bn. <i>Eugenia Jambolana</i>	Straight grains Color: Sap wood- yellowish white heartwood – reddish brown	It is a very cheap wood. It is being used for the last 50 years at SRE.	It is used for cheap furniture only but only for such parts that are invisible.
6.	Cn. Cheed En. Pine Bn. <i>Pinus longifolia, Roxb</i>	Straight grains Color: Sap wood- yellowish white Heart wood- Reddish Yellow	It is best for its finishes and antique look. But due to its softness it is not suitable for carving.	It is mainly used in doors, window frames and furniture making.
7.	Cn. Kikar En. Acacia Bn. <i>Vachellia Nilotica</i>	Interlocked grains Color: Sap wood- Yellowish white Heart wood- reddish brown	It is known as a substitute of sagwan and sheesham. It is pest proof. It is being used for the last 30 years in SRE	It is suitable for furniture making but no carving can be done on it. Sometimes it is used for the support of products, for such parts that are invisible.
8.	Cn. MDF En. Medium- density fiberboard	It's a man-made wood	It is made of waste wood, since it is not used much, so it is easily available.	It is used for <i>Chilai</i> work but no carving can be done it.

Common Name (Cn.), English Name (En.), Botanical Name (Bn.)

#### 4.5 METHOD OF PRODUCTION

Woodcraft is a rather tedious craft as it involves multiple layers of various procedures which must be followed one after another to make it perfect. Thus, woodcraft can be classified into several processes, i.e. slicing of wood, seasoning of timber, chemical treatment of timber, sketching, wood carving and wood inlaying, sanding, buffing, polishing and joinery. Then there is the process which involves the arrival of the raw material from the *mandi* to manufacturing unit. Similarly, the production stage's involvement is from the shaping of wood to *takai/chilai/bharai*, buffing and fitting and the final stage ranges from packaging to sales.

##### 4.5.1 SOURCES OF PROCUREMENT OR *KHARIDARI*

The raw material can be procured from various sources. The following figure 4.4 illustrates the various sources of *Kharidari*.



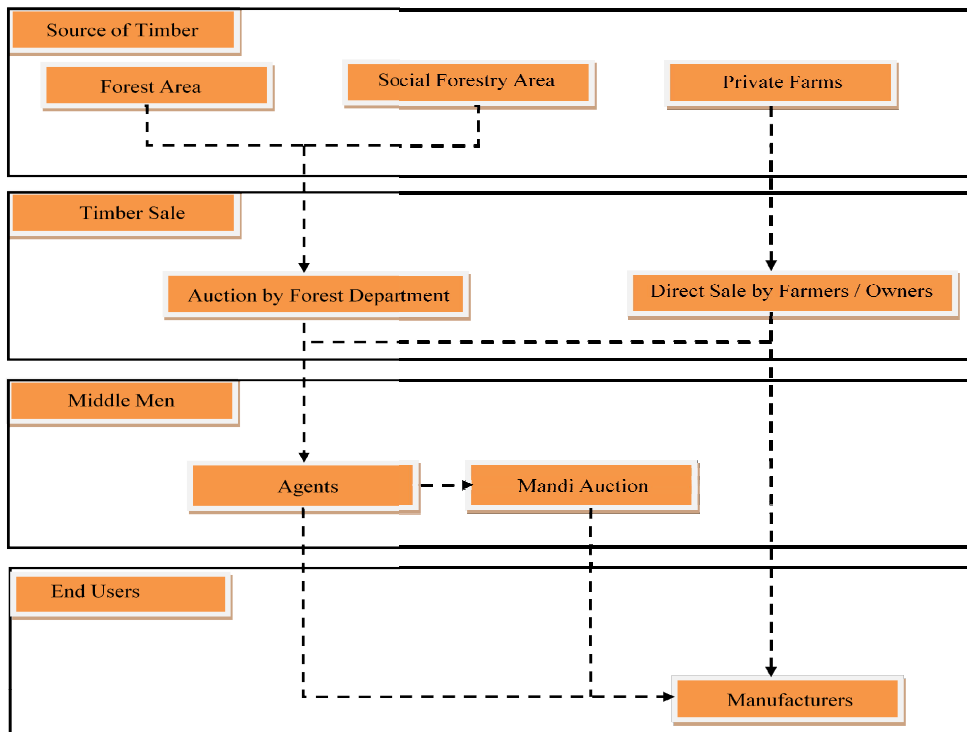


Figure 4.4 Different sources of procurement  
Source: Taken from Kaul (2012)

Earlier, the wood carving industry relied on the trees grown on the roadsides as the primary source of sheesham. Nevertheless, when such exhaustive resources started getting depleted, the forests of Shivalik hills were accessed for furthermore raw material. This local dependence is now extended to the nearby states (Menon, 1992). Locally, the wood is procured chiefly from two different sources, the first being the areas under social forestry division which include farm and agro forestry areas, road/rail/canal sides and the second area hails from the Shivalik forests. The procedure of such procurement is rather tedious. Once in a year, after the monsoons, the Forest Department identifies the trees that are dead, fallen and diseased within its jurisdiction. The next step involves the making of a list of such trees along with the details of their range, block, compartment and size specifications like diameter, length and species. After the head office of the Forest Department in Lucknow approves this list, it is then sent to the Forest Corporation that deploys its people to cut the trees and send it to the depot. According to Kaul (2012), there are nine such depots in Saharanpur division. Wood from the forest or social forestry area is brought for auction to a depot that is closer to the forests. Many a times, the trees are also cut for carrying out necessary development work like the expansion of rail or road networks. Other than Saharanpur, the forests or depots in places like Bhairich, Gonda and Shahjahanpur are other important sources of raw material. Apart from Uttar Pradesh, Punjab, Rajasthan and Uttarakhand are also the important states from where the raw material is

procured. The wood reaches Saharanpur through two channels. Generally, the agents either purchase the wood in auctions of the Forest Department depots or directly purchase it from the farmers and then bring it to Saharanpur. On the other hand, a manufacturer could also directly purchase the wood. But in the first case; in which the agents are involved, the timber reaches the Saharanpur *mandi* and goes through another level of auctioning before it is utilized by the manufacturer. While in the second case; the wood is directly bought by the manufacturer for its consumption.

#### **4.5.2 AUCTION OF WOOD**

The wood that is used by the wood carving industry is purchased through auctions, either organized by governmental or some non-government organization. Therefore, there are two levels at which the auction is organized. According to Sheikh Mohammad Iqbal, the first level of auction is organized by The Forest Corporation at the Forest Depot while the second level of auction takes place at the *mandi* in Saharanpur. The method of conducting both these auctions is different, however, what is mainly similar between the two, is representations from different industries. Van Nigam Forest Corporation depots, also known as Forest Depots arrange these auctions, once in a month. There were multiple aims for the founding of Forest Corporation including better conservation, administration, development of forests and better utilization of forest commodities within the state and it was instituted under the Uttar Pradesh Forest Corporation Act, 1976. By the year 2020, Forest Corporation plans to become the largest contender in the retailing of the important forest commodities. Majorly, its function is to manage the transporting and disposing of trees and using forest products assigned to it by the state government. It works systematically as the dates for auction in the depots are fixed. There are two categories and its members generally participate in the auction and these categories are identified by the Van Nigam. These are the categories of consumers or traders/ agents. Consumers are the real supporters of an industry. They are the ones who purchase the wood and use it directly for production. These consumers of wood again belong to a specific category. They could be the manufacturers from the wood carving industry in Saharanpur as well as the representatives from the plywood, construction and matchbox industry from local area or outside. On the other hand, traders and agents are the people who further sell the wood on commission basis. They can ensure the commission in two ways as they can either auction the wood purchased from the depot in a second level auction or secondly, sell it to the commissioning agents to auction it further. It is an open auction and allows everyone to participate and represent any person who wishes to buy the wood, whether from within or

outside the state. There is a slight difference in the auctioning procedure at the *mandi* in Saharanpur and the one conducted by the forest depot. There is more organization in the latter option. Moreover, it offers diverse varieties of wood species. Due to this aspect, it becomes convenient and open for a larger group of people to participate in this level of the auction when compared to the *mandi* in Saharanpur. At the forest depot, the wood to be auctioned is displayed and the participants are provided by the depot officials with a list of all the categories with required specifications such as lot number, grade, thickness, base price etc. Various factors decide the base price such as the logging fees, transportation cost and royalty. So, it becomes the choice of the participants to decide on the wood that they can consider purchasing on the basis of the details and the display. The forest official who holds the auction makes an announcement of each set of log in the list. Then through the bidding, interested participants bid for it and the one with the highest bid gets the set of logs. For participating in the exhibition, the members are required to pay a token fee of Rs. 20,000 which is refundable on completion of the auction. This token money is charged because there is a time lapse between the purchase and delivery of wood. Thus the officials ensure that the order remains intact and the member does not refuse to take the delivery of wood at a later stage. So the surety of the sale is maintained on entering the depot. The unit for the purchase is quintal and it is mandatory for the purchaser to buy the entire lot. The buyer has to collect the wood from the depot within a stipulated time against the payment. On the other hand, the auction at the *mandi* in Saharanpur is not held in such a systematic way; rather it is more makeshift in nature. The wood for the sale is displayed openly in the *mandi* area, according to the quality parameters. The first category of grading includes dry and straight wood. The lower grades are awarded to the wood having diminishing quality. The participants of the auction are not informed about the base price. The trader decides his margin and the commission that has to be paid to the agents after calculating the price of wood. This price also includes the bribe paid on the way (to collection or delivery) at the police check posts. The unit for sale at the *mandi* is *maan* which is equivalent to 40 kg. The following figures 4.5 and 4.6 show the wooden logs which are delivered from the Van Nigam Forest Corporation to the *mandi* and then to the manufacturer unit by loading these on a buffalo cart or mini truck.



Figure 4.5 Wooden logs



Figure 4.6 Buffalo cart loaded with wooden logs

### 4.5.3 CONVERSION OF WOOD

After having been purchased from the *mandi*, the wood is taken to sawmill for its processing where it is cut into planks according to the requirement (Fig.4.7). The specifications of size, length and width are provided by the manufacturer, based on the order procured.



Figure: 4.7 Conversion of wooden log in desirable sizes

First of all, the logs of wood are cut into flat slabs which would be later worked upon to create various sized pieces of this delicate craft. This procedure is called '*lakdi cheerna*' or "*lakdi chirai*" and it is done with the help of an electric saw. It is supposed to be a difficult process and usually two men hold the log of wood firmly to cut it precisely as it is not the job to be performed by a single person. To be accurate in measurements, these pieces are marked with pencil and cut in different shapes and sizes according to the desired product i.e. the products that are salable in the market. Then those products are worked upon by the carving artisans.

Generally, there are three types of slicing methods of wood, of which the first two are the most common (Fig. 4.8).

- Plane Sawn
- Quarter Sawn
- Rift Sawn

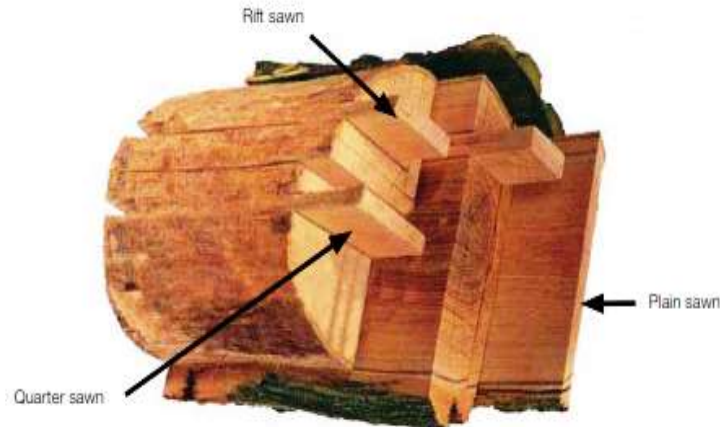


Figure 4.8 Types of wood sawn inside a log

Source: Retrieved from

[https://media.planchersmirage.com/webfolder\\_download/458b14f4f7ca2ee84bc906f6ce3ad9c3/wood-sawing-cutting-methods-e/7622504a478dc834c11a58ed58276e720a43aa9d/wood-sawing-cutting-methods-e.pdf](https://media.planchersmirage.com/webfolder_download/458b14f4f7ca2ee84bc906f6ce3ad9c3/wood-sawing-cutting-methods-e/7622504a478dc834c11a58ed58276e720a43aa9d/wood-sawing-cutting-methods-e.pdf)

#### 4.5.3.1 PLANE SAWN

This is the most common method of sawing logs into lumber and this technique is known by multiple names; the first name being plain sawing, the second, slash sawing and the third, flat sawing (Fig.4.9). This is not only the most preferred but also the most economical way of sawing logs. The reason for such a preference is that it gives the greatest possible amount of lumber with the least amount of waste (Schwartz, 1993). The squaring and sawing of logs is done lengthwise. Round or oval-shaped knots occur here and do not have much weakening impact on the constitution of the lumber. The annual rings occur as about straight lines that run across the grain. As these lines meet at the bottom, these make a U-shape on the surface; but, this part is sometimes cut off. The favorable factor for the manufacturers in this technique is very little shrinkage and swelling in thickness when the wood is cut in such a manner.



Figure 4.9 Plain Sawn

Source: Retrieved from

[https://cdn.shopify.com/s/files/1/0392/5621/files/Plain-Sawn-Wood-Flooring\\_medium.png?3218743974839476675](https://cdn.shopify.com/s/files/1/0392/5621/files/Plain-Sawn-Wood-Flooring_medium.png?3218743974839476675)

#### 4.5.3.2 QUARTER SAWN

What gives this technique an edge over the previously mentioned technique is that the quarter sawn wood is more dimensionally stable than plain sawn lumber (Fig. 4.10). However, another important factor to keep in mind is that more physical labor and time are required to make a piece of lumber or flooring plank that is quarter sawn (Cornelius, 1967). By cutting a log into four quarters, then plain sawing each quarter, you end up with lumber that naturally resists cupping. As a result, the lumber that is acquired after using this technique is a material that has a more unique and linear grain pattern (Vanderwalker, 2013). The fact that is to be kept in mind though is that the increased labor and benefits result in a higher cost per board foot and moreover, quarter sawing produces more waste than typical plain sawn lumber.

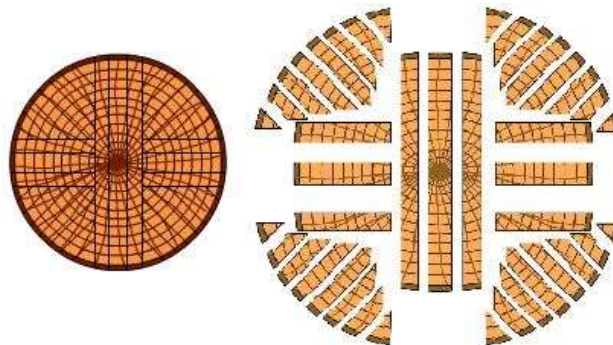


Figure 4.10 Quarter Sawn

Source: Retrieved from

[http://fce-study.netdna-ssl.com/2/images/upload-flashcards/91/72/35/4917235\\_m.png](http://fce-study.netdna-ssl.com/2/images/upload-flashcards/91/72/35/4917235_m.png)

### 4.5.3.3 RIFT SAWN

As milling of rift sawn lumber is a lengthy process and needs more toil, it is a somewhat hardworking procedure. It provides better results; therefore, it also has special advantages over quarter and plain sawn lumber. Furniture makers tend to use rift sawn lumber more as this cut provides the vertical grain which they need in their production (4.11). By milling perpendicular to the log's growth rings and milling carefully at an angle between 45° to 75°, such linear grain pattern is achievable. (Tsoumis, 1991; Bealer,1980).

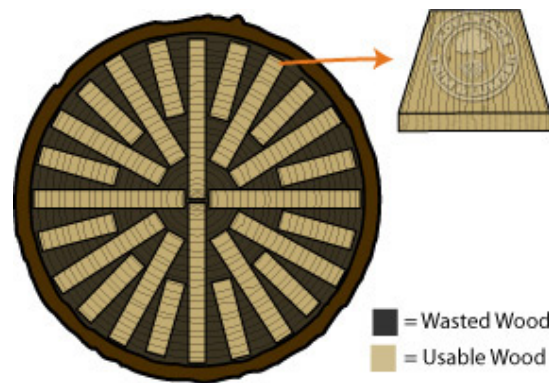


Figure 4.11 Rift sawn

Source: Retrieved from

<https://www.advantagelumber.com/images/sawn-lumber/xrift-sawn.jpg.pagespeed.ic.Ov1E2e5u4B.jpg>

### 4.5.4 TIMBER SEASONING

After processing, these planks are then taken to the seasoning and chemical plant for the treatment of the wood. Timber seasoning is an important process because in this procedure, wood is dried out to make it usable and workable (Pless, 1973). Moisture or sap forms more than half the weight of freshly cut timber. If the moisture related problems are to be avoided at a later period, a major section of the moisture is to be purged out of it before beginning on the timber to make final products.

#### 4.5.4.1 REASONS FOR SEASONING

- To prevent shrinkage, splitting, checking and warping in timber.
- To achieve greater stiffness and strength of the raw material.
- To allow penetration of preservatives for proofing against natural harms.
- To obtain a surface that will accept paint, polish or glue, giving it a finished look.
- To protect against decay.



#### **4. 5.4.2 MOISTURE CONTENT OF TIMBER**

Water is present in wood in two main forms:

- As free water in the vessels and/or cells, used to move nutrients from one place to another within the tree.
- As cell (or bound) water which is an integral part of the cell walls.

Initial seasoning removes the free water contained from within the cells to a moisture content of 25 to 35 percent (Keey et al., 2012). But water is not removed fully even now as the cell walls still contain moisture. This state is known as the fiber saturation point. When further seasoning is carried out, the combined moisture within the walls of the cells begins to dry out and the cells and timber now begin to shrink. As a result this part of the process must be carried out with careful control over the drying rate so as to avoid over drying the wood (Kape, 2013). The equilibrium moisture content (EMC) is the particular moisture content at which the wood is neither gaining nor losing the moisture which is usually 12-15%. This however, is a dynamic equilibrium and changes with relative humidity and temperature i.e. according to the change in humidity and temperature (Kape, 2013).

#### **4.5.4.3 METHOD OF SEASONING**

Woodcraft depends on the quality of timber and before the wooden articles are begun to be made, it is imperative to season the timber. In the process of seasoning, in which the bound moisture found in the walls of the wood cells is dried out in order to purge it out so that seasoned timber can be produced. Just as the sawing of the timber logs ends, the process of the seasoning of timber begins, so this starts rather quickly. Initially, when the timber is cut, there is a reduction in the moisture content as there is free water loss after the cutting. However, any significant dimensional changes to the timber do not take place. Therefore, the next step is to leave out the cut timber logs in the open for getting these dried.

Even after this step in which all of the free water has been lost, the timber is still classed as unseasoned as its moisture content is above 25% which is still way above the required percentage. Therefore, further drying is still required so as to bring the moisture content below 15% so that it can be classed as seasoned. The result of this kind of further and additional reduction in moisture content, which is at this stage below fiber saturation point, causes the timber to shrink in size. Now the workers take the help of the seasoning kiln. The kiln seasoning accelerates the process of seasoning as external energy is used herein to drive the moisture out (Keey et al., 2012). The timber is stacked in the same manner as is done in the



process of air drying and then it is placed inside a chamber in which the conditions can be varied to draw out the best seasoning results. Air is circulated around the stacked timber for the drying process and the temperature and humidity can also be varied to give optimum level of drying. Each species of wood has different cell characteristics and therefore it requires different levels of drying schedules. Typically, the timber may be placed inside the kiln for a varying period ranging between two days to one week. Thereafter, the timber is placed in the reconditioning chamber and steam is introduced inside it for a designated period and thus, some moisture is put back into the outer cells of the timber and this removes the effect of seasoning collapse. It is always suggested by the timber seasoning specialists to arrange the timber in such a way so that lot of air can flow around each piece. Therefore, wide spaces are given between each piece of the timber in a horizontal manner while stacking the timber. In order to ensure that there is a vertical separation also, strips of wood are also placed between each layer. Thus, air can move and flow around and through the stack and it becomes easy to slowly remove the moisture. Sometimes, weights are also placed on top of the stacks so that warping of the timber may be prevented during the process of drying.

There is more strength in dry wood than wet wood. The benefits of the timber drying process include increase in proportional balance, reduction or elimination in attack by corrosion or stain, reduction in the weight of the timber and increase in the durability of the timber (Simpson, 1991; Keey et al., 2012). The following figures 4.12 and 4.13 represent the timber seasoning process through kiln and chamber steps.



Figure 4.12 Timber is inside the chamber in Wood Seasoning Plant at Saharanpur  
Figure 4.13 Wood inside kiln

#### 4.5.5 CHEMICAL TREATMENT OF WOOD

According to the report of GI, (2013), Biological or insecticidal deterioration may affect the wooden articles in a damaging manner when they are kept in contact with ground or exposed to high moisture conditions. Therefore, the chief purpose of the chemical treatment of wood is to minimize the deterioration of wooden articles. There is a particular technique that is used for this purpose and it is known as Pressure Treatment. In this treatment, preservative chemicals are forced deep into the cellular structure of the wood. These chemicals thus save the wood by acting as a barrier between the wood and the deterioration agents. To initiate this process, wood is placed in a horizontal cylinder, the dimensions of which are up to 150 feet long and up to 7 feet in diameter. The two processes used in the Pressure Treatment are Full-Cell and Empty-Cell processes of which the Full-Cell technique is the older and widely used (GI, 2013). In the first technique, i.e. the Full-Cell technique the process begins with an initial vacuum to evacuate air from the cylinder. After that the cylinder is filled with preservative chemicals and even the pressure is increased to 150 psi for several hours. After that the preservative chemical is drained out for cleaning the wood and vacuum is also applied to clean the excessive chemical that is left on the surface of the wood (GI, 2013).

There are two types of chemicals that are used here. The oil-borne and the water-borne preservative chemicals are used in the Chemical treatment as explained above (GI, 2013). Mainly, an oil based preservative, Pentachlorophenol (PF) is widely used for treating the wood to be used for commercial interior applications. The water-borne preservatives that are also used widely in the wood processing industry are Arsenic and Copper based preservatives, such as Ammonium Copper Zinc Arsenate (ACZA), Ammonia cal Copper Arsenate (ACA), Chromate Copper Arsenate (CCA) and Copper Naphthenate. The wooden planks are shifted to the unit by the manufacturer after having been treated. The following figures 4.14 and 4.15 demonstrate the chemically treated woods which were placed inside the UP seasoning plant.



Figure 4.14 Chemical Treatment and seasoning plant at Saharanpur

Figure 4.15 Chemically treated wood

After the timber seasoning and chemical treatment, wood is sent back to the manufacturing unit for the next operation where the artist and the art work comes in the picture. Before moving further, we need to understand the craft skill sets of the artisans, tools and machines along with their functions in this process. A tool is a necessary object in different operations during the production process. It plays an important role in the work efficiency of human and ergonomic factors.

#### 4.5.6 WORKPLACE (*KARKHANA*) FOR PRODUCTION

Production generally takes place at various places, mostly in small rooms, which are built amidst the bustling markets as centers of business and are generally adjacent or attached to the houses of the artisans, locally known as *karigars*. A *karkhana* which means workshop or factory is a rather bigger space than the smaller rooms. Roy (1999) explains that in the late nineteenth century, the term *karkhanas* was applicable to all non-family workshop whether large and small. It was the merchants who owned the large ones and the small ones were owned by the *ustads*. The majority of these artisans were male Muslims working as a team in a *karkhana* who were the disciples of their masters or *ustads* and shared a relationship of subordination to the seniors. Several specialized tasks were performed specifically under a shed by senior artisans or by the merchants. At SRE, such *karkhanas* are, like Roy describes, non-family workshops. They operate either at a small or relatively larger level, a delineation of which is given in the next section.

These operations could be carried out with the help of basic machineries and these heavy equipments were accommodated in one or two rooms adjacent to where the owner or manufacturer called *karkhanadaar*, lives. Other spacious set-ups of bigger proportions were also owned by the *karkhanadars*. These bigger operations were situated mostly in the outskirts

of the town. These set-ups housed about 20 or sometimes even more permanent *karigars* working at a time. Generally, these types of *karkhanas* accommodate temporary *karigars* also whose working rate is at the basis of per piece. Such operations are run efficiently so that each section has a separate area for the different processes being run in there and those involved in the production and then a warehouse is required to store the final and finished products till the consignment is dispatched. The *karigars* and *karkhanadars* are linked together to assemble a product together. A *botta* factory is another important site of production where production is based on the processing of wood. Generally, there is a saw mill in such a factory in order to cut the logs into small pieces of wood which can be then sold to the small manufacturers who either do not need to or cannot buy the entire log for the production. There are only three to five *karigars* working in a *botta* factory.

#### 4.5.7 AVAILABLE CRAFT SKILL SETS IN SAHARANPUR

According to Mrs. Kalpana, Joint Director of DIC (District Industry Centre), approximately 1,00,000 woodcraft craftsmen are active in crafts practices in and around SRE city. According to the nature of available woodcraft forms, craftsmanship and their skill set, the craftsmen of SRE area could be classified into four sub classes, i.e., Wood carving, Inlay, Overlay and Turning (Fig.4.16).

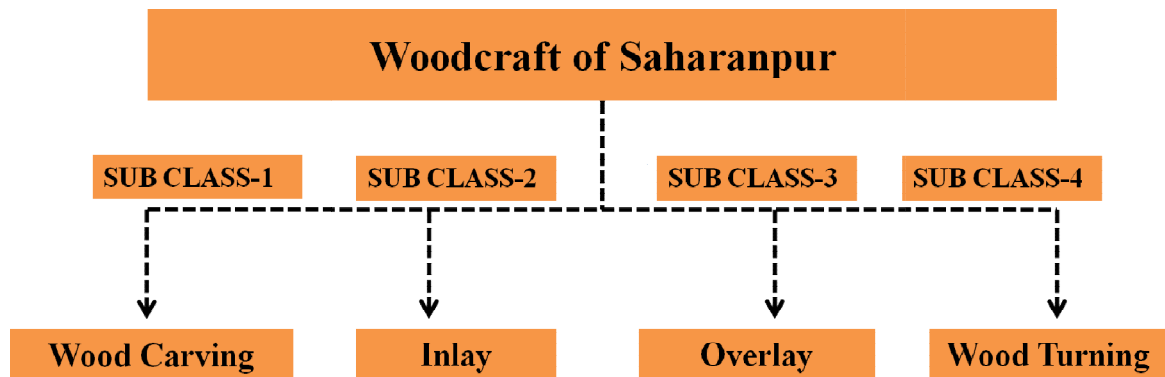


Figure 4.16 Classification of different woodcraft skill sets available in Saharanpur

#### 4.5.8 TOOLS (UPAKARNAS) USED BY THE ARTISANS







Wood carving is a versatile technique that includes three forms of craft being applied to wood, *takai* (tucking), *chilai* (removing the layer) or a combination of both. *Bharai* (inlay) is another form of this craft in which a brass wire is inlaid after *takai*. A variety of tools are used for *takai*, called *nahni*, *chaursi*, *girdara*, *sumbi*, *sumba*, in their respective local language. The technique of doing *takai* is typical as it is done by hitting the head of the tool with a hammer. However,

the most commonly applied technique on furniture is *Chilai* ; its favorable feature being the fact that it can be used on all varieties of wood like saugon, sheesham, kikkar, mango etc. The tool used for *chilai* resembles *nahni* with a wooden handle on one end so that it can provide a better grip. In this way, simply designed tools are used which are also easily procurable in the local market in SRE at an economical cost. These tools are named specifically in their respective local language. These are some of the widely used tools by all the woodcarving units: The following table 4.3 displays the wide range of tools that are used during the operation of wood carving/inlay.

Table No. 4.3 Details of different types of tools with their usage

S.N.	Component	Component Details with Uses	Image
1.	HAND SAW (Aari)	It is used for cut pieces of wood into different or desirable shapes.	
2.	POWER DRILL	It is used for boring holes in wood.	
3.	PLANE (Randha)	It is used to flatten a rough piece of lumber or timber, reduce its thickness and impart it a smooth surface.	
4.	NAIL-PULLER (Jambur)	It is used for pulling out the nails.	
5.	GAUGES (Hathkhas)	It is used for marking the parallel lines on the edges of wood.	
6.	RIGHT ANGLE (Guniya)	It is used for marking and measuring a piece of wood.	
7.	SANDER	It is used to smooth the wooden surfaces by abrasion with sandpaper.	
8.	INCH TAPE (Fita)	It is used for measuring a piece of wood.	
9.	ADZE (Barsola)	It is used to flatten the wood roughly.	
10.	COMPASS (Parakaar)	It is used for inscribing circles or arcs and measuring distance. It is available in several sizes like 50, 75, 100 and 150 mm.	



S.N.	Component	Component Details with Uses	Image
11.	ELECTRIC PLANER	It is used to smooth the surface.	
12.	HAMMER (Hathodi)	It is used to drive nails.	
13.	METAL NAILS (Keel)	It is used for joining pieces of wood or for fastening other materials to wood.	
14.	MALLET (Thaapi)	It is used for hitting the head of the tool (chisel).	
15.	NAKSI ('V' shaped gouge)	It is used for inscribe veining of leaves by grooves.	
16.	FULKI (Chisel)	It is used for peeling the wooden layer.	
17.	NAHNI (Circular edge chisels set)	It is used for rounding over the edges of flowers and leaves.	
18.	CHISELS	It is used for different operation of carving.	
19.	CHISEL SHARPENER	It is used for sharpening the blunt chisel tip.	

#### 4.5.8.1 LOCAL TOOLMAKERS (*LOHAAR*)

In SRE, every artisan has his own collection of various tools prepared by the local Blacksmith (*lohaar*). In order to work comfortably, the craftsmen have designed several tools for themselves. They themselves have been engaged in designing the tools from the initial time, right from when the woodcarving crafts began. The craftsmen's needs became the basis of most of the tool designs. The required size and design is given to the local vendor by them to get these made according to their own specifications.

There are tools which are mainly called "*nahni, chaursi, girdara, sumbi, sumba* etc. (small carving chisels) and are made by the local *lohaars* (Blacksmiths) with great deal of efficiency

and in the best quality (Fig. 4.17). Every artisan has his own tool box in which he puts all his required hand tools (Fig. 4.18). The chisel used for wood carving is developed in a varying range, from 1/32” to 2” in width. One cannot get it in the adjunct area of SRE. These Blacksmiths are experts in creating such tools. Besides these, hammer, planer, compass, chisel etc. are also widely used for carving. In SRE, there are about 7-8 shops of blacksmiths where they make tools in the range of 50 gm. to 100 gm. range.










Figure 4.17 Lohaar making tools according to the requirements of customers

Figure 4.18 Toolbox

#### 4.5.8.2 BASIC MACHINERY USED IN THE MANUFACTURING UNIT

There is a huge variety of mechanical devices used by the woodcarving units, like sander, grinder, lathe machine and drill machine. The table 4.4 displays various simple machines which are being used by the artisans for a long time.

Table 4.4 Details of machines with their usage

S.N.	Component	Component Details with Uses	Image
1.	VERTICAL DRILL	For boring holes in various materials with the use of fasteners.	
2.	HORIZONTAL DRILL	For boring holes in various materials with the use of fasteners.	
3.	LATHE MACHINE	To create functional furniture components, beautiful decorative wood projects such as bowl, candlesticks etc.	
4.	BUFFING MACHINE	To polish the goods.	
5.	CIRCULAR SAW	To get the accurate cut of the wood.	
6.	TABLE SAW	For uniform accuracy, given more than the circular saw.	
7.	SANDING MACHINE	To smooth the surface.	

#### 4.5.9 CARPENTRY OR *BADHAIGIRI*

The next stage is of paramount importance as it is the core stage of production. It is in this stage that the procured order is subcontracted to other sources than the permanent workers. The manufacturer distributes the work to different artisans within his network. Then demarcation is also done, between the work that is to be done within his own unit and the work that is to be outsourced. A number of techniques are employed to the wood in this stage to create the finished product. Carpentry is one of these techniques which have been explained below. When the wood dries up after seasoning, seasoned wood is adapted by the carpenter; then he takes measurement of the wood slab/lumber and cuts it into the desired size as per the requirement of the article which is to be produced (4.19 and 4.20).





Figure 4.19 Wood being cut into desirable shape



Figure 4.20 Marked wooden slab cut into desirable shape

#### 4.5.9.1 PLANING

Planing is called *randhai* in the local language. In the next process, the surface of the cut wood is given a plane and smooth appearance. For this purpose, different types of planes are used. The following figures 4.21 and 4.22 display the artisans who are engaged in this particular operation.



Figure 4.21 Artisan using the planer



Figure 4.22 Artisan trying to smooth the surface

#### 4.5.10 DRAWING OR *NAQUASHI*

The artist-carver is known as *naquash*. First, he draws the required design on the paper (Fig. 4.23). If he has to reproduce the same design, then he makes the stencil, called the *khaka* or *farma* which is made of tin sheet or cardboard in order to preserve the design. According to Handa & Jain (2000), during the past decades, the *khaka* was made of goatskin. The wood carvers began to preserve a huge collection of *khakas* for commercial usage. These *khakas* held special significance for the wood carvers as vital family heirlooms, so, care was taken to preserve them. Nowadays, the *farmas*/ stencils, are made of a different material i.e. either of tin or zinc sheet and cardboard (Fig. 4.24).



Figure 4.23 Artisan sketching a design on white chart paper

Figure 4.24 A collection of *khakas* (Stencils)

The next process is transferring of the design on wood by using a stencil. The following figures 4.25 and 4.26 explain how the artist places the stencil on wood and gets its impression. Potassium permanganate is called *baiguni* in the local language which is used to dissolve in water by the artisans for marking purpose. It is applied on the stencil which is placed on the wood with the help of a polish brush. When the stencil is removed from the wood, one can see the impression of potassium permanganate.



Figure 4.25 Stencil being used for marking

Figure 4.26 Wood gets the impression of potassium permanganate

#### 4.5.11 WOOD CARVING

For a long time, it was a common practice to use only hand tools in the woodcraft industry, however, as time passed, sophisticated automatic machines running on electric energy were introduced. The multiple procedures that are a part of the wood carving industry, from sawing to polishing the carved wood are mostly performed using a machine. Originally, to a large extent, wood carving was dependent on hand tools like hammer, chisels like *Fulki*, *Tahaki*, *Chorsi* etc. This was the time when machines were not an integral part of this industry. Nowadays, 90% carving is done either completely by hand or when required, in combination with an electric saw.

Before the whole operation is started, the patterns which are later intended to be carved are drawn on a piece of paper and then the paper is pasted over the surface. Holes are drilled to precisely carve out the negative spaces and this process is carried out quickly in order to achieve precision (Fig. 4.27). This is the procedure to craft see-through carved portions. The machine removes only the portion which is not required still it is required to give the carved shape to the remaining portion (Fig. 4.28). This is known as the chiseling process and it is quite important too. The artisans have to use the hand held tools to chisel the wood to carve out the desired design. When the carving is done completely by hand, it makes for a very fascinating sight. It is so appealing because though the instruments used are extremely simple (saw, plane, fine-grained hard stone, chisels etc.), still the carvers use them with such aptitude to produce some astonishingly outstanding results complete with minute details, keeping intact the



intricacies, really subtle light and shade effects, every desired curve, expression and texture. There are three main styles of woodcarving:

1. **Deep carving:** It is generally used for deeply carved pieces of furniture.
2. **Semi carving:** It is used in thin panel design along the rim with central motif. It gives medium depth to wood.
3. **Shallow carving:** It is used to give a little depth to wood. It is used for small products.

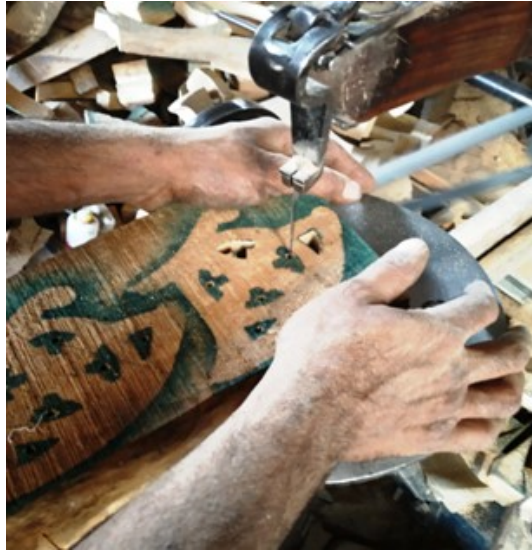


Figure 4.27 Holes being drilled for carving out the negative spaces.

Figure 4.28 *Chilayi*' or textural carving in progress

After that, the objects/articles are to be provided with an antique and dark look and so the objects are placed before the burner flames. Figures 4.29 and 4.30 below show the ongoing process of antique finishes.



Figure 4.29 Burner flames being used for antique look

Figure 4.30 Product with antique finish

#### 4.5.12 MAKING OF WOOD INLAY

It is called *bharai* in the vernacular parlance. Brass is a metal which is extensively used for inlaying floral, zoomorphic, geometric and typographic patterns into wood. In SRE, a sizeable collection of design samples is available; these specimens having been made using diverse kinds of dies (Figs. 4.31 and 4.32). If metal wire is used for inlaying than it is called wire inlay-work or *tarkashi* in the local language. Apart from metal, bone, plastic and wood are used as material for inlay work.

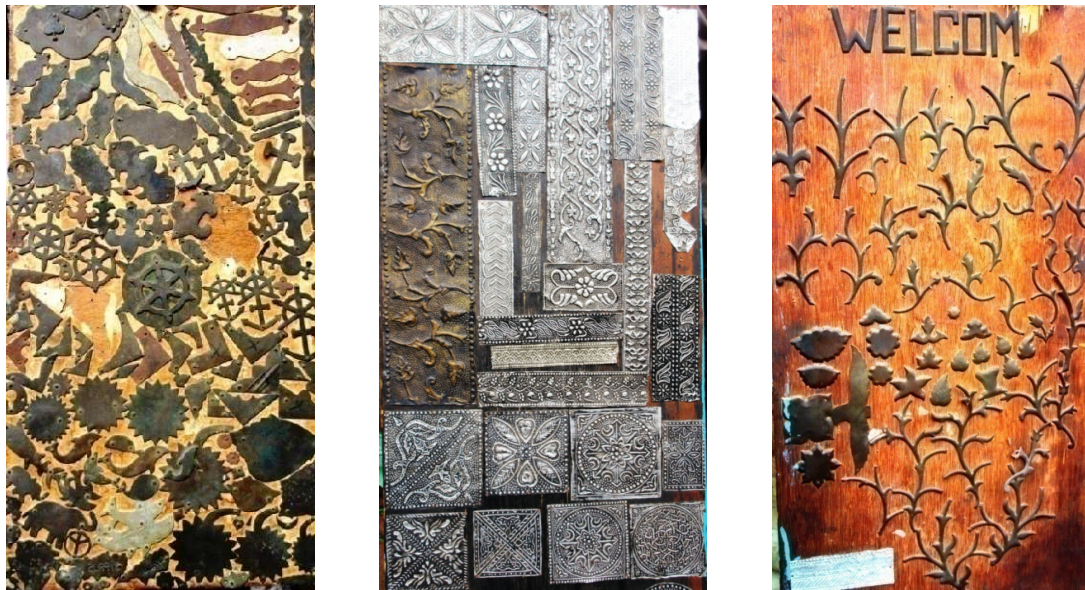


Figure 4.31 Inlay sample designs

This process involves the cutting of strips of metal and then die-pressing them to get the desired shape. The left over strips are not wasted but recycled into fresh metal and used again. At SRE, vast collections of inlay and overlay patterns can be found, based on particular themes like auspicious signs shaped naturally and geometrically and these are sold by their weight to the carvers.

The following figures 4.33, 4.34 and 4.35 show the huge collection of dies and an expert who is making the patterns by using the die pressing technique.





Figure 4.32 Collection of dies



Figure 4.33 A die pressing expert



Figure 4.34 Cut of strips of brass



Figure 4.35 Desirable brass patterns

Other kind of articles that are also made in SRE, are those in which metal is filled in the engraved designs. Inlay is a technique and it is commonly used in the decoration of craftwork where desirable patterns of metal sheet are inserted into wooden surface by using adhesive and finally these pieces are nailed in for durability (Fig. 4.35). To make such an item, the first step is to engrave the design on the surface of the wood. Thereafter, as is the requirement of the design, small pieces are cut out of the metal sheet. The engraved design is made by either filling in or pasting the cut pieces of metal. As there can be any difference between the metal and the wooden surface, the surface is then smoothed up/leveled to fill it up. Sometimes, other materials such as ivory and plastic are also used for inlay work. The following figure 4.36

shows the process of inlaying and figure 4.37 shows the overall elegant look of the final product of wood inlay.



Figure 4.36 Inlay work of brass wire

Figure 4.37 Wooden box having inlay work

To go along with the changing trends, apart from embedding brass into wood, the *karigars* of SRE have started combining wrought iron with wood. Such an amalgamation is done for two purposes. This is either to lend strength to the structure of the product (like chairs, tables, beds etc.) or purely for lending aesthetic value to the product (like in vases, lanterns, candle holders etc.).

#### 4.5.13 MAKING OF WOOD OVERLAY

Wood overlay is also known as *bharai* in local language. This technique of the metal overlaid on wood, is also carved with the help of hand tools which is another example of the artisans' integrity and hard work. First, the drawing is made onto the metal sheets and the sheets are cut into desirable shapes which are pasted or struck with the help of nails on the surface of the wood. The respective figure 4.38 displays the floral die pressed patterns which are purchased according to their weight. Figure 4.39 is shown as an example of overlay on wood.





Figure: 4.38 Flowers of brass

Figure: 4.39 Brass overlaid on wood

#### 4.5.14 WOOD TURNING

In wood turning, a lathe is used to produce objects from wood. The lathe keeps on turning, the wood is held in the same position and slowly the working of the lathe shapes the wood. Although the process is basic and simple, it is possible to use it to make various objects from wood including some intricately detailed designs. There are two types of this process and the first is- Spindle turning in which the grain of the wood runs in the same direction as the lathe bed. Some examples of the items made through this process are - table legs, legs for chairs, etc. The following figure 4.40 displays the procedure of the wood lathe machine and figure 4.41 shows the specimens of the final products.



Figure: 4.40 Artisan working with lathe machine

Figure: 4.41 Samples of lathe machine



The second process is faceplate turning in which the running of the wood grain is vertical to the revolution of the lathe. Some examples of the objects made by this process are - wooden platters, bowls and charger plates. The turning machines are powered by electricity in the workshops. A saw is used to cut wooden logs in small pieces. Thereafter, the logs are brought in the workshop and fit into the machine. The first step is to scrape off the outer rough skin by the machine that gives a cylindrical shape having a plain surface. Then, skilled craftsmen give the required shape of the object to this shape.

#### **4.5.15 SANDING AND BUFFING**

When the carving of the wooden goods has been completed, the process of polishing the carved goods begins. After the process of carving is taken care of, the work of the polishing experts begins. First, loads of putty is rubbed by the experts in order to clear the incomplete edges and cracks, if there are any. After the drying of the putty, sandpaper is used for further smoothening of the wooden article and then a layer of paint or polish is applied or coated onto it. The layer of polish is applied according to the finish that is desired by the artisan. There are two major aims of sanding the wood; the first being the need to remove the mill marks. These mill marks are the result of the operations of the woodworking machines. Secondly, there are other imperfections to be removed as well e.g. the dents and gouges which are probably caused during the process of handling (Fig.4.42). The purpose of the sanding process on wood is to smooth the wood and maintain it as scratch-free. In order to carry on the sanding, the artisans use sandpapers having diverse ranges such as those of 80, 100, 120, 150, 180, and sometimes even of 220 grits.

The very process of wood finish involves the usage of wax, oil and varnish and its purpose is to protect the wooden surface. During the earlier periods, wooden items were given the sheen by using coal powder. With the progress of different mediums, wax polish was begun to be used as the polishing medium. This polish is applied with the help of a brush. Even today it is the preferred mode of finishing and polishing the wooden goods. As technology advanced, another new medium, Buff Polishing came to be used by the artisans. It is generally applied on small sized items like boxes, trays and pen holders. In the process of finishing a product, buffing is commonly the last stage in the process. It is a process in which a wheel is used to shine the wood and this wheel is loaded with cutting compounds or rouges (4.43).



Figure 4.42 Sanding being done by the artisan



Figure 4.43 Buffing process

In all, the three major types of finish processes are explained below.

**Evaporative:** Wax is one process which comes in the category of evaporative finish. The reason is that it is mixed in turpentine or petroleum distillates and a soft paste like substance is made as a result. The left over is the wax residue after the evaporation of the distillates.

**Reactive:** The base used in reactive finishes may include solvents such as white spirits and naphtha. The examples of reactive finishes are varnishes, linseed oil and tung oil. Reactive finishes are those which change chemically during the process of curing which is entirely different from evaporative finishes. Such a chemical change is particularly known as a polymerization. Typically, the material that is left as a result, does not get so readily mixed in solvents.

**Coalescing:** The coalescing category generally includes the water based finishes.

The table 4.5 below gives extensive information on the various types of finishes, along with their features for greater understanding on the topic.

Table 4.5 Different types of wood finishes

Finishes	Appearance	Protection	Durability	Safety	Ease of Application	Reversibility	Rubbing Qualities
Wax	Dull, even sheen unless spit polish	Short term	Need frequent reapplication	Safe when the solvent in the paste wax evaporates	Difficult to be applied on bare wood	Difficult solvent, thin wax causing it to penetrate deeper. Sanding creates heat. Scraping recommended	Needs to be buffed for low sheen, buffed with damp pad for high gloss

				te			
Varnish	Transparent, good gloss	Excellent protection against many substances.	Hard and durable	Uses toxic solvents, including toluene	Protection gear is needed for safe breathing	Requires spray equipment used in professional shops only	Difficult to reverse
Polyurethane Varnish	Sight cambering. Comes in a variety of sheen	Excellent protection against many substances. Tough finish	Durable after approx. 7 days curing period	Relatively safe, uses petroleum based solvents	Very easy when thinned and wiped on. Also brushes and sprays well	Can be stripped using paint remover	Easy to rub out with steel wool and synthetic pads to reduce sheen. Because it is soft, it cannot be buffed to a high gloss
Water based Polyurethane	Transparent	Good protection	Newer products (2009) also UV stable when noted	Durable after approx. 10 day curing period, safer than oil-based varieties, fewer volatile organic compounds	Brush or spray. Fast drying demands care in application techniques	Can be stripped using paint removers	Excellent. Acrylic finishes are very hard and can be buffed to an extreme gloss. Use a release agent
Oil-varnish blends (i.e. Danish oil, Teak oil, Tung oil finish)	Enhances natural figure like a drying oil, but easier to apply and	Low, but more than pure oil finishes	Fairly durable but not recommended for heavy use items such as table tops	Relatively safe, uses petroleum based solvents	Easy, apply with rags and wipe off. Too many applications can	Difficult. All saturated wood needs to be removed (sanding/scraping)	Dries hard can be buffed to a matte finish or to a gloss finish. Often sopped coated

	more protective.				result in sticky build up		with paste wax for extra protection
Epoxy resin	Thick, high-gloss and transparent. Some formulations can get clouded or yellowed with UV exposure	High level of protection	Flexible and durable	Safe when cured	Easy pour-on application for flat surfaces, difficult to apply evenly on more complicated shapes	Cleanable with acetone when as liquid. Irreversible once cured	Flexibility makes sanding difficult but possible

Source: Wikipedia contributors. (2018, July 30). Wood finishing. In *Wikipedia, The Free Encyclopedia*. Retrieved 14:27, August 5, 2018, from [https://en.wikipedia.org/w/index.php?title=Wood\\_finishing&oldid=852627219](https://en.wikipedia.org/w/index.php?title=Wood_finishing&oldid=852627219)

The above mentioned techniques have been discussed in a broad manner to understand the different types of wood finishes that exist in the market. Presently, in SRE, wax, varnish, lacquer, latex paint finishes are in prevalence. It may vary as per customer's demand.

#### **4.5.16 ASSEMBLING, PACKAGING AND DISTRIBUTION**

Assembling is the process in which diverse parts are joined or fixed together in order to build a complete object. The different parts of a complete product are assembled as a last task before it is packed in its packaging box for the delivery to various places.

The finished product is taken to the manufacturing unit for packaging after the whole process of manufacturing is complete (Fig.4.44). Packaging is the technology that is used to accommodate, safeguard and retain the products during the process of their circulation, storage and administrating. Packaging also involves the process of identifying the items, giving information about their usage and also the ways to advertise and promote them.



Figure 4.44 Wooden box packed cartons to be sent for export

Source: Retrieved from the URL <http://www.dsource.in/resource/wood-carving-saharanpur/process/assembling>

At SRE, most of the times, packaging is done according to the clients' demand. Table 4.6 gives the information on various types of packaging materials that are being used by this cluster. In order to cater to the demands of a smaller scale, the services of different courier services such as Indian Post, DTDC, *Gati* etc. are availed and at minimal charges. The charges for such services are different according to the states and pin codes. As these finished products are to be distributed to domestic and international markets, shipment is routed to the dry port (New Delhi) and sea port (Mumbai) (Yadav, & Mahara, 2018). Generally a large no. of companies, almost around half of them, are in possession of their own vehicles by which goods are transported. However, when there are large shipments to be transported, at that time hired/rented service providers are utilized. As the government of Uttar Pradesh intends to widen the scope of this craft, it has provided special facilities for fulfilling the transportation needs of the woodcraft industry by starting the QTS (Quick Transit Service) train service in order to deliver the goods to the ports and business hubs of the country (Yadav, & Mahara, 2018). This service is available on Tuesday and Friday every week. Through this service, wooden goods are transported to the sea port in Mumbai within 3 days and within 1 day to Delhi. It is a highly beneficial service as it saves 4 days of delivery to the sea port; that is the duration spent while using the roadways. Moreover, it also protects the goods from any prospective damages and thefts (Yadav, & Mahara, 2018).

Table 4.6 Details of packaging material

S. No.	Packaging Material Type	Description	Product Type
1.	Corrugated rolls	They are a protective packaging product for customers who require a flexible solution for their products in transit. Corrugated board in rolls provides the easiest way to package and protect irregular items of different sizes and forms.	Rugged small items(mainly gifts and kitchen items)
2.	Composite packs	Composite packs consist of multiple materials to create the optimal solution to protect fragile and vulnerable goods whilst in transit. Predominantly made from heavy-duty corrugated board, a range of additional materials are used to support the supply chain requirements such as foam, plastics, polystyrene, plywood and timber.	Fragile items
3.	Single face corrugate	Single face corrugate predominantly consists of two layers of paper (an outer liner and fluting) and is supplied in rolls. It is mostly used as inner packaging to separate and protect individual products inside the outer packaging	Gift, antiques and kitchen items which are rugged and durable.
4.	Heavy-duty corrugated packaging	Heavy-duty corrugated packaging is designed to give extreme levels of protection in transit and is often used for heavy, fragile, bulky or high value products. Predominantly made from double or triple wall board, heavy-duty packaging can	Gift, antiques and kitchen items except big items like furniture.

		also incorporate a range of additional materials to support the supply chain requirements including foam, plastics, polystyrene, plywood and timber.	
5.	XXL packaging- big boxes	XXL packages are those that are typically between 10 and 22.5 square meters in size. XXL packaging is suitable for big or awkward shaped products, pallet displays or simply for creating larger sized packs to provide transit and stronger efficiencies.	Furniture or bulk orders

Source: Taken from Yadav, & Mahara, (2018)

#### 4.5.17 SALES

Without any doubt the most significant phase is the phase of selling the products after they have been packaged. Sale is carried out through various mediums. This purpose of selling the product can be resolved as there are various outlets for it e.g. products can be exported or can be sold straight to the buyer by the manufacturer in the domestic market or even sold to the traders who further sell those to the small scale retailers or sold through exhibitions and trade expos and also sold to the showrooms. Thus, the prospects for the sales are multiple.

As is its mission, the cluster, in order to meet the demands and needs of the customers, has recourse to direct and wholesale sales channels other than targeting the export buyers.

- **Direct Sale Channel:** Forming interactive relationship with the customers and garnering positive feedback from the clients is important for better business and Direct Sales Channel is among the foremost and most reliable channels that aid in forming one to one relationship with the clients and availing more feedback regarding their products directly from the consumers.
- **Wholesale Retail Sales:** It is one of the prevalent sales platforms that promote the sales being made to the merchants, retailers or commercial and industrial users. The major action of these wholesalers is mostly acting as middlemen or brokers between businesses. It is rather unfortunate that most of the Small Medium Enterprises (SMEs)



do not take many efforts in propagating/marketing their products. As a result these mediators/brokers exploit this chance and purchase the products in bulk in order to sell them through different sales channels at much higher prices and thus gain high profits (Yadav, & Mahara, 2018).

- **Export:** There is a great deal of respect and recognition for SRE wooden handicraft cluster in the international markets due to its wonderfully remarkable carvings. A huge part of the sales consists of the exports for this cluster. Almost 40 % export revenue share is earned through the wooden based handicrafts out of the total revenue of the handicraft industry (US\$2 billion) in India (Planning Commission 2005). There is a vast and diverse range of the wooden products that are exported from the market in India including small gifts and ornamental items, toys, statues, ornately carved suave, sophisticated and also simple masterpieces, furniture and household articles.
- Here in SRE, only a few companies evaluate wholesales as a reliable source of earnings as it is not possible to create superior most products in each field. Several companies focus on the individual/retail buyers only. On the other hand, manufacturers of semi finished products aim at industrial units as their major buyers. Then there are few companies that earmark only the exporters and spot wholesalers internationally as their prospective buyers. The Chinese counterparts are considered as the biggest competitors as well as a threat to the local businesses by most of the SRE manufacturers as the Chinese create low quality counterfeits of the highly specialized products which are manufactured by this cluster.

#### **4.6 EXISTING PRODUCT RANGES IN THE MARKET**

Based on the uses of above discussed raw materials, tools and skill sets of craftspeople, there are different set of product ranges are being developed in SRE woodcraft cluster. The entire range of woodcraft products can be classified into four sub-sections, i.e. 'Household Utility Products', 'Toys', 'Decorative and Religious Products' and 'Furniture'. The complete order is produced at all four types of units of the cluster, based on the demands and needs of the shopkeepers. There are mainly four types of products which may be seen through the following figure 4.45:

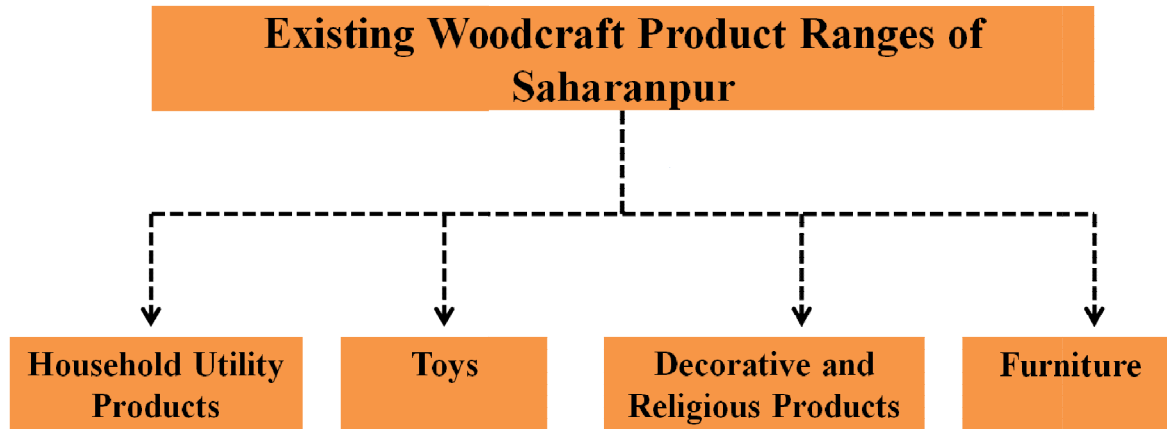


Figure 4.45 Classification of woodcraft products of Saharanpur

#### 4.6.1 UTILITY PRODUCTS FOR LIVING SPACES

During different field visits, the researcher came across some finished utility products. Especially, four different products which were marked as- **Wall Base** - to cover interior and exterior walls, wall products are available in different dimensions and forms; **Table Top Base** - to create magic on table top space, table top products available in all sizes and forms. **Ground Base**- to provide height to the ‘object’ from ground level in an interior or exterior living space.

#### 4.6.2 WOODEN TOYS

Manufacturers of SRE have used a number of small mechanisms like cam, linear and rotary movements in toys. Made mainly in mango, pine and sheesham wood, they are exported and sold locally too. These include piggy banks of different designs, pencil boxes, pen holders etc. These wooden toys are functional, flexible and movable.

#### 4.6.3 DECORATIVE AND RELIGIOUS PRODUCTS

##### A. DECORATIVE PRODUCTS

Vast ranges of decorative wood carving products are available in the market. Mostly carved architectural products which are used for wall applications are available such as corners, rosettes, wooden doors, partition walls, panels etc.

##### B. RELIGIOUS PRODUCTS

There is a huge collection of decorative products with religious importance which is targeted to be used by the end-users of different religions, belonging to Muslims, Hinduism, Jainism,

Buddhism and Sikhism. The wall hangings, wooden temple, Christmas tree, *rehal* etc. produced by this craft community are available in different dimensions and forms.

#### **4.6.4 WOODEN FURNITURE**

In the present scenario, wooden carved furniture of SRE is in huge demand. It is the backbone of the industry because majority of furniture is exported to different countries according to their demand. Different types of furniture can be seen here like beds (single & double), chair, sofa, folding screen and table in different sizes and finishes (Fig. 4.49). The majority of furniture is made in sheesham and teak if we are looking at a higher price range. Neem is also used. A lot of carpenters use neem along with sheesham in big furniture pieces to save the cost. Some pieces are also done in mango, oak, pine. Wrought iron is also used with wood to make furniture. The United States is the major importer of it. It is done majorly with sheesham and given a shiny perfect polish finish. Wall units are the most sought after products in the States. The European countries majorly want wall pieces, *jalis* and cabinets finished with water paints. The UAE wants teak and sheesham polished with varnish and the beautiful intricately carved patterns.

#### **4.7 CONCLUSION**

The purpose of this chapter was to describe the various factors of the manufacturing process chain and track the movement of wood from one member of the industry to another and also to show the transformation of timber to a finished product. As we know, woodcraft industry of SRE comes under informal sector and informality may be seen everywhere in this cluster, from wood *kharidari* to the making of the final product. As it has been discussed in this chapter, artisans are being continuously involved to explore new techniques and new materials to rejuvenate this craft. Consequently, they have introduced carving, inlay, overlay, *jali* work and antique work with different finishes in the product line. According to Mohd. Iqbal, the majority of the carving including the inlay and overlay works are done manually within a span of 10-12 hours per day. Manual work always takes time and efforts. Thus, the artisans should not be treated as laborers; they are the creators and the most talented group of society. This is our legacy and a precious gift given by our ancestors to be cherished. Due to modernization, in today's times, ethnic brands are overlooked by buyers and western brands are mostly preferred by them. Apart from that, by bringing small changes in the different activities of the supply chain, the performance can be improved significantly including procuring or acquisition, auction, saw mill process, marketing, sales and human resources etc. which will further aid to

increase the competition among the cluster units. Some activities will need short and long term involvements which can be achieved even with low budget and can result in quick outcomes. This will ultimately lead to a larger growth and progression of the SRE cluster.

## CHAPTER 5

# SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE ARTISANS AND THEIR PROBLEMS RELATED TO THEIR WORK

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### 5.1 INTRODUCTION

The previous chapter was focused on manufacturing process chain of SRE woodcraft which is a very composite process undergoing a long and slow procedure from the initial to finishing point. In the process of manufacturing, wood passes through various interlinked sub processes, starting from procurement of wood and ending with polishing or coloring of woodcraft. Focusing on the present chapter, it explains the socio-demographic characteristics of the artisans and their problems related to their work. The woodcraft industry of SRE has always been a labor concentrated industry. The major reason of its flourishing in that area is based on fact that the city and its surrounding areas do not lack traditionally skilled labor (Kumar, 2012). Moreover, the location of most of the industries covers an approximate range of 15-20 Km area of SRE. The first hand information regarding general profile (age, education, occupation) has been collected through “Survey Method” with the help of a questionnaire. The quantitative analysis of socio-demographic characteristics of the artisans is done by including various factors such as age, gender, marital status, community, religion, education status, type of family, size of family and monthly income and their work related problems.

Therefore, 138 artisans, including male and female were covered in this survey and each artisan engaged in the wood carving industry was interviewed. The sample selected for the study encompasses all the artisans involved in the profession of wood crafting, woodcarving in the Saharanpur district. The Saharanpur district, as mentioned earlier on page no. 10 is the famous for its unique quality, design, woodcraft making and export. According to Mohd. Asif (EPCH), the annual value of the wood carving industry of Saharanpur is pegged at about Rs 400 crore and it supports the livelihood of about 150,000 artisans. Thus, to study the different dimensions associated with the woodcraft work, Saharanpur district is selected purposively. The areas “Khatakheri, Nadeem Colony, Azad Colony, Mandi Samiti Road, Sabri ka Bag, Kamela Colony, Mehendi Sarai, Gotesah Road, Manak Mau, Halalpur and Ambala Road have been selected on the basis of highest proportion of wood craft making and export from the particular market and further, the artisans are selected randomly form the respective areas to examine all

the aspects of this profession. The woodcraft work is done by the experts of this profession. Hence, only those are involved in the work who have shown expertise and experience to pursue this profession. Therefore, our sample constitutes only the artisans; their family members are not involved in any of the task. SRE district is one of the famous centers of the wood carving industry, but the working conditions of the workers are not as per the requirement. So, it becomes important to examine the working environment of the artisans who have brought this market to the highest level.

The chapter is divided into four sections. The first section displays the socio-demographic characteristics of woodcraft artisans. The second section represents the skill details of the artisans. The third section discusses the workshop details and the fourth section explains health related problems of the artisans. The data has been analyzed as per the objectives of the study using tabular and graphical representations. Apart from that, the chapter throws light on the strengths, weaknesses, opportunities and threats of the SRE woodcraft industry. The primary aim of this chapter is to focus on the problems of the artisans which are being faced by them while working.

## 5.2 SOCIO-DEMOGRAPHIC PROFILE OF THE ARTISANS

To develop the socio-demographic profile of the artisans, a survey has been conducted. Total 138 (one hundred thirty eight) artisans were interviewed and findings are discussed in the following table 5.1.

Table 5.1: Distribution of the respondents according to socio-demographic profile

SOCIO-DEMOGRAPHIC PROFILE OF ARTISANS OF WOODCRAFT				
S. No.	Indicators	Respondents		
		Particulars	N	%
1	Gender	Male	135	98%
		Female	3	2%
		<b>Total</b>	<b>138</b>	<b>100%</b>
2	Age	10-18	13	9.45%
		19-25	36	26%
		26-40	40	29%
		40-55	26	18.8%
		56-70	23	16.7%
		<b>Total</b>	<b>138</b>	<b>100%</b>
3	Religion	Hindu	4	2.9%
		Muslim	134	97.1%

		Sikh	0	0%
		Christian	0	0%
		<b>Total</b>	<b>138</b>	<b>100%</b>
4	Community	Gen	1	0.7%
		OBC	135	97.9%
		SC/ST	2	1.4%
		<b>Total</b>	<b>138</b>	<b>100%</b>
5	Education	Illiterate	63	45.7%
		Primary (1-7)	51	37%
		Higher Secondary (8-10)	12	8.7%
		Matriculate	8	5.8%
		College	4	2.9%
		<b>Total</b>	<b>138</b>	<b>100%</b>
6	Marital Status	Unmarried	36	26.1%
		Married	95	68.8%
		Widow	7	5.1%
		Separated	0	0%
		<b>Total</b>	<b>138</b>	<b>100%</b>
7	Family Size	Nuclear (1-3)	16	11.6%
		Extended (4-6)	51	37.0%
		Joint Family (7-9)	41	29.7%
		More than 9	30	21.7%
		<b>Total</b>	<b>138</b>	<b>100%</b>
8	Income(Monthly)	Rs. 2000-3000	6	4%
		Rs. 3000-4000	12	9%
		Rs. 4000-8000	77	56%
		Rs.8000-15000	35	25%
		> Rs. 15000	8	6%
		<b>Total</b>	<b>138</b>	<b>100 %</b>

Source: By the researcher through primary survey

In order to know about the actual situation of that area, socio-demographic data is significant. Through survey, the type of improvement that needs to be implied there, can be easily analyzed (Bhola, 2014). Similarly, the data was collected to know about the actual condition of the artisans which tells us about their problems. The problems of the artisans were ascertained



through the survey and also how to improve their conditions. Hence, it is very important for planning purpose.

## **DISTRIBUTION OF THE RESPONDENTS ACCORDING TO:**

### **5.2.1 GENDER**

Wood carving is mainly a male concentrated craft activity which is carried forward from one generation to the next. The area is tremendously rich in terms of craft activity but work participation rate of male is extremely high in the woodcraft industry as compared to female. Female are mostly employed as unskilled laborers and they are performing unskilled work in the industry such as buffing, polish, packing and any other minimal level work. According to Adu-Agyem et al., 2013, female are not engaged in carving as it is considered immodest for a woman to spread her legs and place a block of wood between them for carving. This is considered indecent exposure. On the contrary, male laborers are performing semi-skilled/skilled work such as carving, chiseling, in lay, outlay, cutting and polishing work. Therefore, women are still involved in the unskilled work category and there are no opportunities for them for further advancement in their career. After spending so many years in this work, they are not upgraded from unskilled workers to the skilled ones as is done with the male.

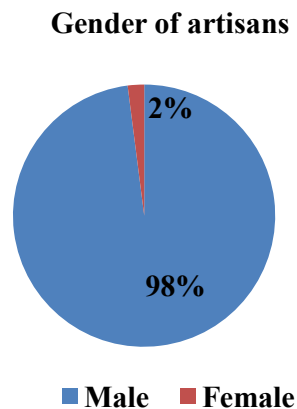


Chart 5.2.1 Gender distribution among the artisans  
Source: By the researcher through primary survey

As can be seen through chart 5.2.1, a great majority of the respondents (98%) are male whereas the rest of respondents (2%) are female, may be because carving is a very laborious craft and it always needs focus, attention and great deal of efforts. During the survey, the study found that a majority of male artisans don't want to consider the involvement of their wives and other female artisans in this profession for financial aid because of some orthodox practices

associated with the religion such as *purdah*, a religious practice which has been adopted by the Muslim women for self-protection in the public sphere (*Purdah*, 2016). Another important aspect of using *purdah* is that women should have minimum possible interaction with the other male. Due to such minimum interaction of women with other male, a majority of male artisans do not allow their wives to work in the public sphere. According to them, women should remain housewives and not become anything else. Although the woodcraft artisan community of SRE is following the male oriented family structure yet the time has changed and as a result, female have also started practicing woodcraft with their family members to nourish and maintain their family traditions.

Thus, it can be concluded that the wood carving industry of SRE is labor intensive and demands more skilled labor for high competition. As they have a lot of flexibility and control in their fingers, child laborers are engaged in executing very fine carving like *jali* work which is a very tedious job. Female artisans feel isolation and disconnected with this art because the orthodox beliefs of Muslims are becoming an obstacle in the growth of female artisans. Thus, female artisans should also be involved in this craft industry.

### 5.2.2 AGE-GROUP

The artisans of woodcraft can be classified into three broad categories on the basis of age group, namely “young” (up to 24 years), “middle-aged” (25 to 55 years) and “old” (above 56 years). The following data chart 5.2.2 generated from the survey shows that 47.8% of the artisans are within the age group of 26 to 55 years which actually represents the most economically active population. Most of the handicraft production is labor intensive and that might explain the reason why the middle age group forms the majority. The following figure 5.1 shows a child laborer and fig. 5.2 shows an old age artisan.



Figure 5.1 Child laborer



Figure 5.2 Old age artisan

It clearly signifies that majority of the respondents (29%) are in the age group of 26-40 years, followed by 26% of the respondents from the age group of 19-25 years while 18.8% of the respondents are from the age group of 41-55 years and 16.7% of respondents are from the age group of 56-70 years. 9.4% of the respondents are from the age group of 10-18 years. In spite of the fact that a majority of the artisans belong to a young age group, the woodcraft industry is less progressive and further imposes immense pressure on the old age artisans and child laborers to work harder.

According to Mr. A. K. Gupta (Regional Deputy Labor Commissioner of Labor Commissioner Organization U.P), the Labor Department does allow the children to work in the *karkhanas* for few hours in a day so that they could be taught the delicate nuances of this craft. Earlier, the Labor Department had implemented a complete ban, according to the laws, on children assisting their fathers in any activity that was related to wood carving. Now, they have been allowed to work in the *karkhanas* only for four hours in a day. On the other hand, child laborers are working in the *karkhanas* for full day as their financial condition does not allow them to go to school. Therefore, a majority of child laborers work hard the whole day and avoid going to school.

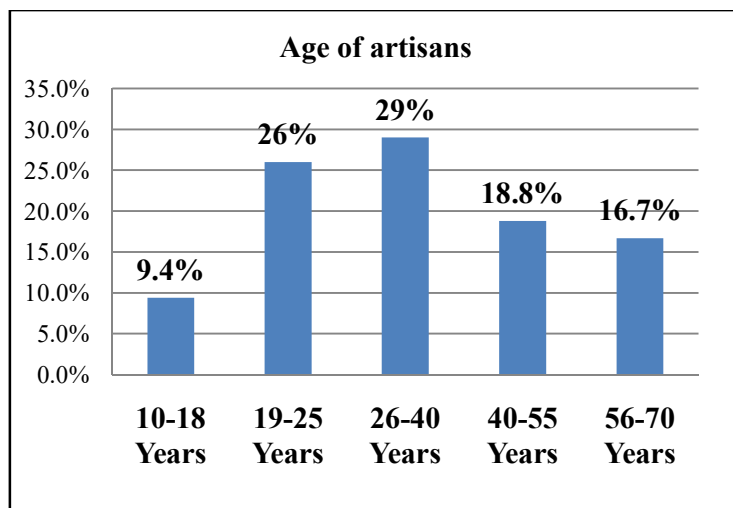


Chart 5.2.2 Age distribution of the artisans  
Source: By the researcher through primary survey

### 5.2.3 RELIGION

In almost all handicraft industries, Muslims are engaged but there are certain industries in which Muslims have dominance and Saharanpur is one of them (Khalidi, 1995; 28). According

to Denis, & Zérah, (2017); Belcher et al., (2013), mostly the wood carving work is performed by the Muslim population and they hail originally from SRE. On the other hand, the local *Dalit* communities carry out the polishing and varnishing works.

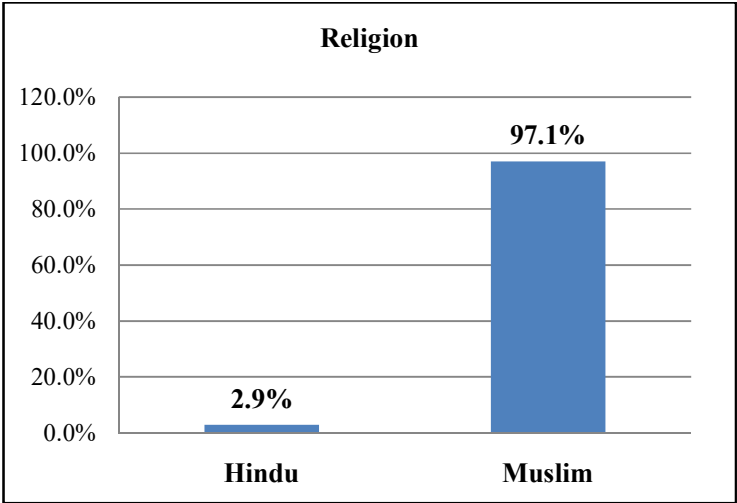


Chart 5.2.3 Distribution of the respondents according to religion  
 Source: By the researcher through primary survey

There are various sub-castes in Muslim communities such as *Teli, Sheikh, Sayyed, Kamboj* and *Ansari*, belonging to the Muslim religion and mostly the woodcraft artisans at SRE are from these castes communities. The survey result shows through the above mentioned chart 5.2.3 that out of the total no. of the artisans, 97.1% belong to the Muslim religion. The rest of the artisans, i.e. 2.9%, are Hindus. No craftsman from any other religion is found in the study except the above mentioned two. As per official census of 2011 and population data 2018 of SRE, Hindu (56.74 %) and Muslim (41.95 %) population are in a majority as compared to other religions but in the case of woodcraft, the majority of population is Muslim.

**5.2.4 COMMUNITY**

As shown in the chart 5.2.4 below, majority of the respondents (97.9%) belong to Other Backward Caste (OBC) group, followed by 1.4% of the artisans belonging to the Schedule Caste categories and only a few, i.e. 0.7%, belong to the general caste. It is evident that OBC people share the major portion of craftsmanship in woodcraft. As the result indicates, majority of the Muslim community in SRE woodcraft industry comes under the OBC category and in woodcraft industry majority of the artisans belong to the Muslim community. That’s why the survey result indicates a higher percentage of OBC community in it.

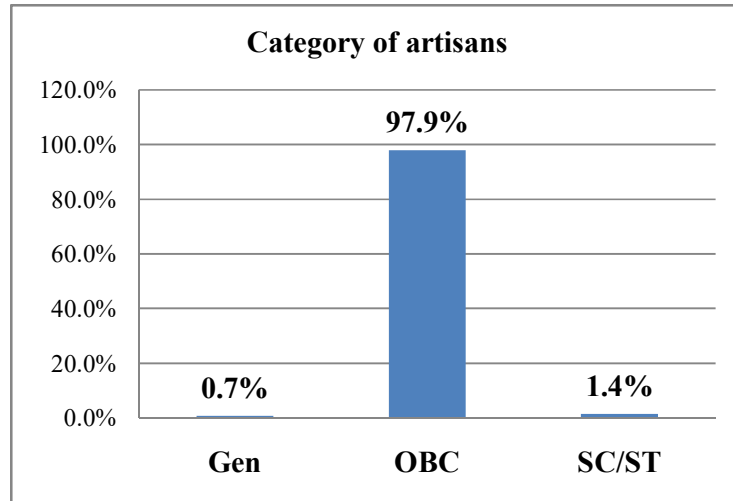


Chart 5.2.4 Distribution of the respondents according to Community  
 Source: By the researcher through primary survey

### 5.2.5 EDUCATION

One of the most significant factors that influence man’s capabilities of performing in life is definitely education. It is also the fundamental need of man which aids in the reduction of poverty, expansion of the source of income and improvement of perception in every field. Suffice is to say that education is the first step a man takes on his road to develop his persona; further, he has to improve his communication skills and other life skills too.

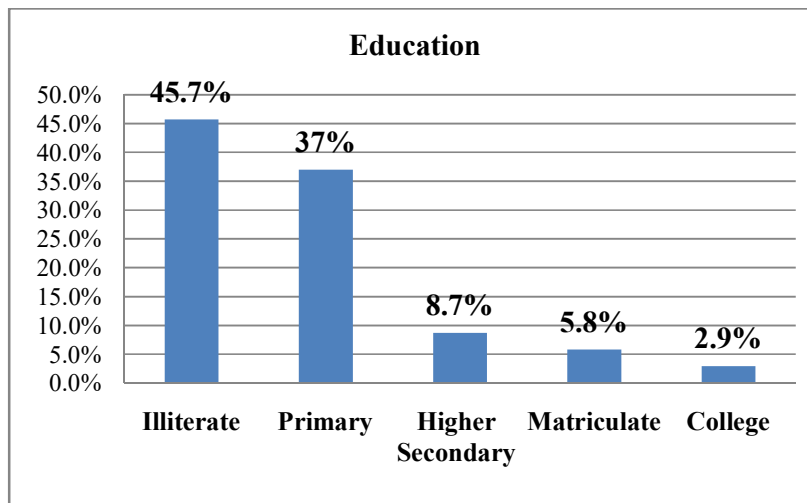


Chart 5.2.5 Distribution of the respondents according to level of education  
 Source: By the researcher through primary survey

In this context, literacy rate of the artisans in Saharanpur is very low which has been depicted in the chart 5.2.5 above. It indicates that a majority of the respondents (45.7%) are illiterate,

which is quite a discouraging phenomenon. The percentage of the respondents who have studied up to primary level stands at 37%, whereas 8.7% of the respondents have studied till Higher Secondary level and 5.8 percent of them have completed Matriculate level, only 2.9 percent of the respondents have studied till college and higher level.

During a discussion with the artisans, the researcher found out from them that they had wanted to focus on their education but could not continue it. Because of family responsibilities, they had to drop out from school. Therefore, with the lowest education profile, they were not able to find any other job and were forced to adopt this tedious job either as a laborer or as a self-employed artisan. Due to lack of education, these artisans are not able to access the government schemes, market information and a few other facilities. Low education level is a major problem among them because all the challenges are associated with education level.

It can be concluded that with the lowest education profile, they are not able to find any other job and are forced to adopt this tedious job either as a laborer or self-employed artisan. Due to lack of education, the artisans are not able to access government schemes and market information. Low education level is a major problem among them because all the challenges are associated with education level.

#### **5.2.6 MARITAL STATUS**

Marital status of the respondents can be considered as a vital social trait. After matrimony, a person is even more committed to further responsibilities in life. So is the case with the woodcraft artisans whose marital status is one of the governing factors of their socio economic conditions. It is possible that those who are still not married may perform in a more satisfactory manner. Therefore, the researcher has attempted to define the marital status of the woodcraft artisans. It appears that the artisans engaged in the woodcraft industry of SRE have different categories of marital status such as married, unmarried, divorced and widowed.

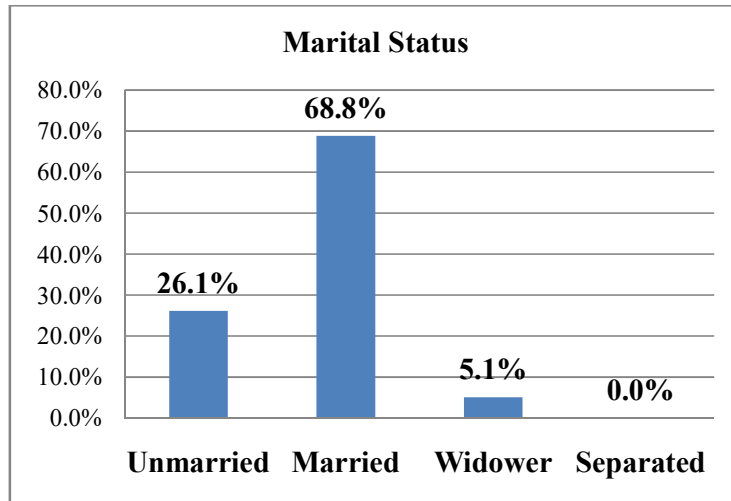


Chart 5.2.6 Distribution of the respondents according to marital status  
Source: By the researcher through primary survey

The data indicated through above mentioned chart 5.2.6 that out of 138 artisans in the study area, majority of artisans (68.8%) are married and the next majority of 26.6% of the artisans are unmarried. Rest of the artisans (5.1 %), are widowers.

### 5.2.7 FAMILY SIZE

There are varying socio economic conditions in a nuclear or joint family. There are limited earnings as well as limited expenses in a nuclear family. But in a joint family, the income and spending are larger. So in this research, clear details have been collected regarding the size of the artisans' families. It becomes clear that the woodcraft artisans belong to two distinct types of the families i.e. nuclear and joint families.

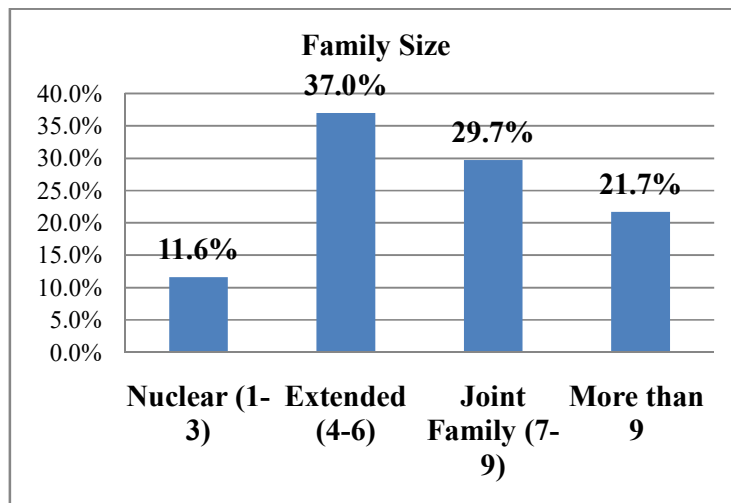


Fig 5.2.7 Distribution of the respondents according to family size

Source: By the researcher through primary survey

The above mentioned chart 5.2.7 shows the classification of woodcraft artisans on the basis of the type of family they belong to. The following graph shows that out of the total, majority of (37%) the artisans belong to the family size of 4 to 6 members and the next majority of (29.7%) the artisans belong to the family size of 7 to 9 members. The rest of the artisans (21.7%) belong to the family size of more than 9 members while 11.6 % respondents belong to the family size of 1 to 3 members.

Thus, it can be concluded that due to large family size, majority of the artisans are lacking basic facilities till now and want to shift to alternative sources of earning. Most of them are surviving on loan and residing in rented houses. Due to family responsibilities and lack of any other earning source in the family, a large group of artisans have adopted this profession. According to the field survey of the production units in the city, the skilled artisans get Rs.150- 500 per day depending upon their expertise and experience. As a result, they cannot afford good nutritious food, education and healthy environment.

### 5.2.8 MONTHLY INCOME FROM ARTISAN ACTIVITIES

Income plays an important role in the socio-economic condition of any person. A majority of the artisans are just living on a subsistence level and the economic condition of the artisans is not satisfactory (Jain, 2000). Because of very low earning, they are devoid of even basic facilities till now and therefore, want to shift to alternative sources of earning. Thus, the artisans of wood carving industry are struggling due to their poor financial condition.

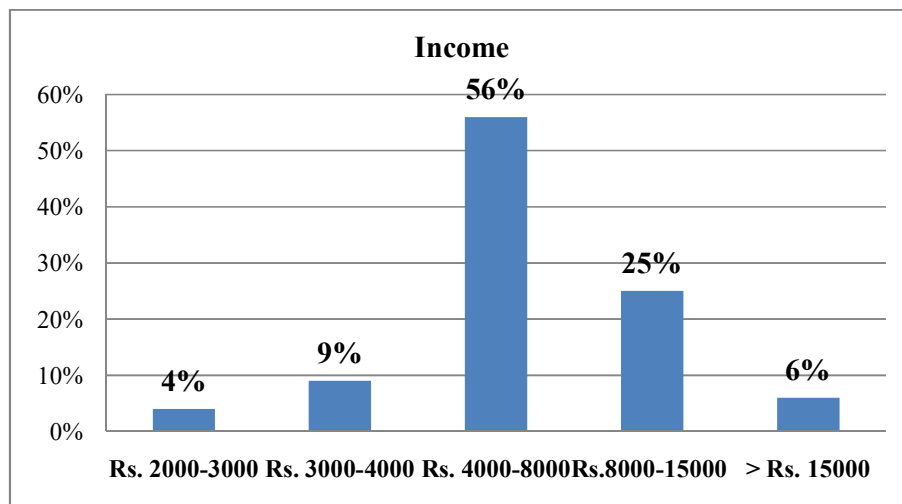


Fig 5.2.8 Distribution of the respondents according to monthly income  
Source: By the researcher through primary survey



The data represents through chart 5.2.8 that 4% of the respondents earn 2000-3000 Rupees per month through the wood carving profession. The data also shows that 9% respondents earn 3000-4000 Rupees per month by doing this tedious work. From the mentioned data, it has been observed that 56% respondents earn approximately 4000-8000 Rupees per month through woodwork; the following 25% respondents earn 8000-15000 Rupees and the remaining 6% respondents earn more than 15000 Rupees per month through woodwork. According to their living standard, the wages are not sufficient for fulfilling the basic requirements of family members. After doing the hard work for 8 to 12 hours, they do not even earn a sufficient income and spend their lives with lots of troubles as their income is not enough to survive with unexpected expenses erupting at any given time. Most of them stated that their family had no savings since their income was spent on their daily expenses on food, health, education of children and other expenses. During the discussion, they commented that their income and expenditure were equivalent. All the respondents were not satisfied with their monthly income.

To fulfill their day to day requirements, most of them are surviving on the loans they have borrowed and are residing in rental houses. Apart from this, some of them are self-employed with their own workshops which are on rental basis and a group of artisans work together in there. Herein, they have family responsibilities too. A large group of artisans have adopted this laborious profession due to family responsibilities and lack of any other earning source in the family. According to the field survey of the production units in the city, the skilled artisans get only Rs. 350 to 500 per day depending upon their expertise and experience. Apart from that, the artisans who are working under the middleman are also in a very pathetic condition. The middleman obtains the orders from the shopkeepers and wholesalers. He works as a mediator between the artisans and shopkeepers. These mediators take advantage through their commission from shopkeepers and artisans both. They earn money out of the hard work of these artisans. During the survey, majority of the artisans stated that they didn't have the money and direct connection with the market and customers. If the government does support the artisans financially, they can open their own units and display their products in the exhibitions directly where they can get the exposure as well as face to face interaction with the customers.

Apart from that some of the artisans observed that they did not have frequent orders for making woodcraft products all year around. Sometimes, they have lots of orders and sometimes they do not have any order at all. According to them, it is seasonal work and it is not always the same. Therefore, their monthly income is dependent upon the market demand.

### 5.3 WORK DETAILS OF THE ARTISANS

Artisans have the special talent of converting a piece of flat slab into excellently designed woodcraft products. Their occupation makes them distinct from the other group of workers. Occupational details reflect the basics of work culture. It also indicates the skill, interest, experience and duration that the artisan employs to complete a product. This section represents the below mentioned data (Table 5.2) which gives the details about the nature of work such as work experiences, working hours, procurement of order, designing concern, mode of payment etc. Through this data, one can understand the artisans' problems which they have been facing for a long time but nobody has taken any kind of initiative to resolve these issues.

Table 5.2 Work details of the artisans

WORK DETAILS OF THE ARTISANS				
S. No.	Indicator	Respondents		
		Particulars	N	%
1	Reason	Hereditary	67	49%
		Livelihood	71	51%
		<b>Total</b>	<b>138</b>	<b>100%</b>
2	Work Experience	1-5 Years	15	11%
		6-10 Years	31	22%
		11-15 Years	19	14%
		16-20 Years	29	21%
		21 and above	44	32%
		<b>Total</b>	<b>138</b>	<b>100%</b>
3	Acquisition of Art	Informal Training	129	93%
		Formal Training	9	7%
		<b>Total</b>	<b>138</b>	<b>100%</b>
4	Knowledge Shift	Master Craftsman	68	49%
		Family Member	43	31%
		Friends/Relatives	18	13%
		Any other	9	7%
		<b>Total</b>	<b>138</b>	<b>100%</b>
5	Working Hours	1-4 hours	3	2%
		6-10 Hours	77	56%
		>10 Hours	58	42%
		<b>Total</b>	<b>138</b>	<b>100%</b>
6	Participation in Workshop	Design Development	84	61%
		Ergonomics Awareness	4	3%
		Raw Material	15	11%
		Others	10	7%
		No Participation	25	18%
		<b>Total</b>	<b>138</b>	<b>100%</b>

7	Procurement of Order	Exporter	35	25.3%
		Supplier	67	48.5%
		Wholesaler	24	17.3%
		Others	12	8.6%
		<b>Total</b>	<b>138</b>	<b>100%</b>
8	Material Usage	Own Material	21	15.2%
		Owner	117	84.7%
		Consumer	0	0%
		<b>Total</b>	<b>138</b>	<b>100%</b>
9	Types of wood	Sheesham	29	21.0%
		Mango	77	55.7%
		Teak	15	10.8%
		Others	17	12.3%
		<b>Total</b>	<b>138</b>	<b>100%</b>
10	Source of Designing	Self Imagination	21	15.2%
		Magazines/Catalogs	15	10.8%
		Demand of Owner/contractor	66	47.8%
		Old Designs	36	26.0%
		<b>Total</b>	<b>138</b>	<b>100%</b>
11	Types of Motifs	Floral	66	47.8%
		Animals and Birds	22	15.9%
		Geometrical	36	26.0%
		Others	14	10.1%
		<b>Total</b>	<b>138</b>	<b>100%</b>
12	Mode of payment	Weekly Wages	28	20.3%
		Monthly Wages	52	37.7%
		Contract Basis	36	26.0%
		Other (Self employment)	22	16.0%
		<b>Total</b>	<b>138</b>	<b>100%</b>

Source: By the researcher through primary survey

Through this survey, the researcher came to know that the artisans were working under pressure and their nature of work was not satisfactory. They were being exploited and forced to leave their traditional profession and adopt other professions in search of better employment opportunities (Narasaiah & Naidu, 2006). Gradually, their ancestral and challenging profession and skill evolved over thousands of years is being demoralized. Due to enormous challenges, their progeny are not willing to continue and assume this family tradition.

**5.3.1 REASONS BEHIND THE SELECTION OF WOODCRAFT AS A PROFESSION**

As shown in the chart 5.3.1 below that out of the total, majority (51%) of the sample respondents have preferred woodcraft as a source for livelihood. They were forced to take up the family responsibilities at a young age due to dire financial conditions. Therefore, in order to earn their living, they decided to choose woodcraft as their profession. As a large majority of these artisans came from a deprived and very poor social class, they had no other option but to work very hard due to insufficient educational qualification and responsibilities of large families. According to a respondent, financial difficulty becomes an important cause for preferring to choose woodcraft as an occupation. The 49% respondents which make for the rest of the total, have chosen to carry on this profession as it has been their family business and they have had the example of their forefathers/father/relatives who have been doing this laborious work and so, have become a source of inspiration for the next generation and it is from them that the new generation of the artisans take the necessary training required for this hardworking skill. In fact, woodcraft is an integral part of their heritage, left for them by their forefathers/father. Along with that, other circumstances such as low educational background and insufficient knowledge about other formal occupations forced them to carry on the occupation of their previous generations.

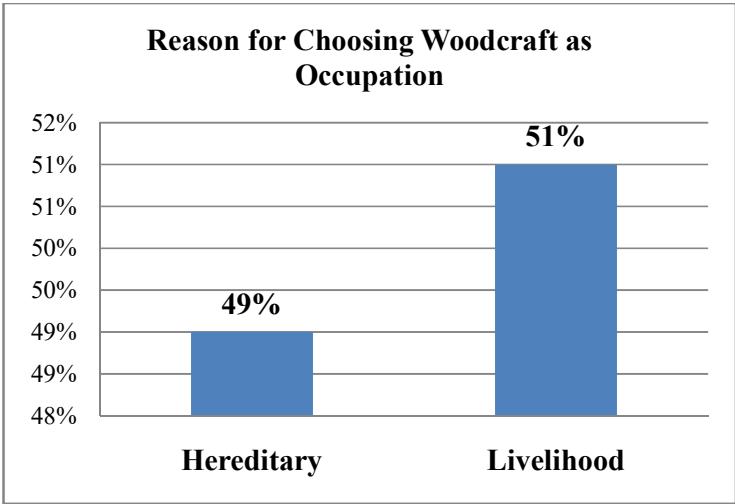


Chart 5.3.1 Distribution of the respondents as per their reasons behind the selection of woodwork as a profession  
Source: By the researcher through primary survey

**5.3.2 WORK EXPERIENCE**

From the below mentioned data in chart 5.3.2, it becomes clear that majority (32%) of the respondents have more than 20 years of experience in this profession because they had learnt

and started this work at the tender age of 12-15 years. Woodwork is a very intricate work and it needs a great deal of patience, hard work and flexibility of hand. Consequently, majority of the artisans start learning this art at their tender age. While 21% of the respondents are having working experience of 16-20 years; the following 22% respondents are having 6-10 years' experience in woodcraft, the following 14% respondents are having 11-15 years' working experience. Only 11% of respondents are having 1-5 years' experience in woodcraft.

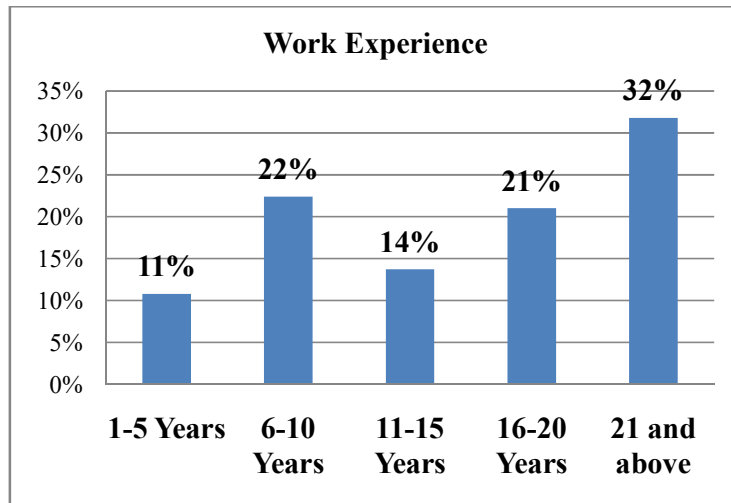


Chart 5.3.2 Distribution of the respondents as per their work experience  
Source: By the researcher through primary survey

It can be concluded that there are very experienced artisans in the wood carving industry of SRE which is the strength of the industry. In spite of the abundance of very experienced master carvers in the industry, the expected impact or contribution of the industry to the economic development of the country has been minimal (Adu-Agyem et al., 2014).

### 5.3.3 ACQUISITION OF ART

To become a successful master craftsman, one requires special knowledge, skill and experience in working with wood, handling of tools, designing technique and practice. Keeping all these aspects in mind, occupational training can be received in two ways, such as formal and informal means: 1.) Informal training is given in informal way e.g. no institution is involved in this type of training and people get training from their family members, relatives and other persons who are skilled in this profession. In this context, the artisans usually learn the skills of wood carving by just observing and working with the elders in their families or others at an early age. 2.) On the other hand, formal training is given through specific training institutes such as the DIC, EPCH, NCDPD and a few others (Dak, 1989).

At SRE, training system cum knowledge shift can be divided into two broad levels. It is also clear from the sample that 93 percent of the respondents replied that they had participated in informal training to become artisans under the guidance or supervision of their *Ustaad* (master craftsman/family member), whereas only 7% of the respondents had undergone the formal training provided by the government. There were a very small number of artisans who have been trained in formal training institutions. The following chart 5.3.3 displays the above mentioned data through graphical representation.

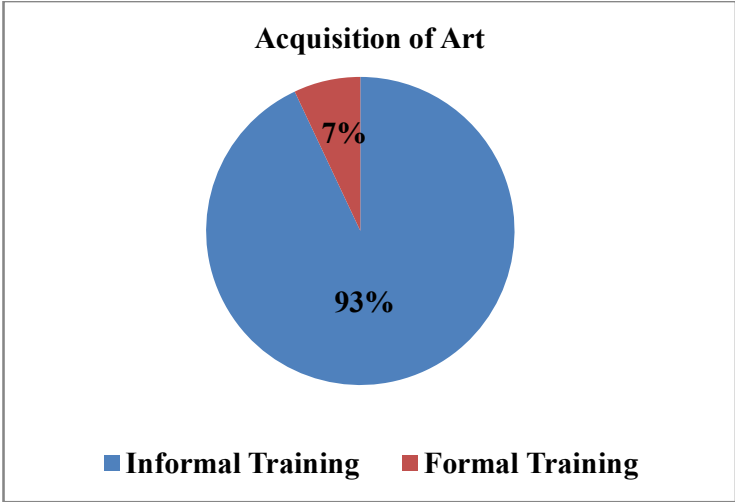


Chart 5.3.3 Distribution of the respondents as per acquisition of art  
Source: By the researcher through primary survey

**5.3.4 DIFFERENT SETS OF TRADITIONAL KNOWLEDGE SHIFT**

According to existing literature, “Traditional Knowledge is the information that people in a given community, based on experience and adaptation to a local culture and environment, have developed over years, and which is being continued to develop and evolve” (Lukose, 2009; 51).

At SRE, it is found that there are two sets of knowledge shifts. These are the following:

- A. Informal (family, relative, master craftsman)
- B. Formal (NCDPD, DIC, EPCH, NGOs, SHGs etc.)

**A1. INFORMAL (KNOWLEDGE SHIFT-I)**

Woodcraft manufacturing skills and techniques are generally passed from father to son and then to grandson and so on. In the traditional system, the son is trained at the hands of the father right from his childhood. At first, the elders teach the easiest tasks like hammering, cutting, carving, inlaying and polishing. It takes a long time to learn all the techniques used in

producing woodcraft. An apprentice boy has the complete freedom to undertake the training from his family. Mohammad Atta Hussain's craft-family was practicing this craft in SRE for a long time. He had trained his progeny and other artisans to fulfill the increasing demand of woodcraft. He also wanted to share the secrets of his heritage not only with his own generation but with all the people and wanted to make SRE as the major hub of woodcraft. Therefore, most of these artisans were trained by their family members. Consequently, they have adopted their ancestral profession and are still continuing it. The following discussion is an example, based on personal interview.

For instance, one of the national award winners in the wood carving industry named Dilshad Ahmed S/o Haji Mohammad Ishaq had learned woodcraft under the guidance of his father. The journey of Dilshad Ahmed started with the sound of biting mallet and chisel. He looks almost skinny and his face reveals his lifelong experience, confidence and energetic ideas towards his profession. He adopted his ancestral work and started to learn wood carving at the tender age of 14 years. He comes from a very poor family. Dilshad Ahmed has three sons. He became a role model to his sons and inspired them a lot.



Figure 5.3 Dilshad Ahmad's family with their awards



Figure 5.4 Dilshad Ahmad and the researcher during interview schedule

He is the only one among all the awardees whose all sons are involved in the ancestral legacy of handicraft. Being inspired by their father's achievement, Dilshad's sons feel an unbroken bond and respect for their ancestral work. As a result, their dedication has made them achieve the milestones in life as they all are awardees; two are national awardees and one has won the state award (Fig. 5.3). The above figure 5.4 was captured during the interview schedule with them.

## A2. INFORMAL (KNOWLEDGE SHIFT-II)

These days, a number of skilled and induced woodcraft artisans live in SRE and the nearby areas. The master craftsman (*ustaad*) is responsible for training them in order to build a valuable group of professionally and competently trained and skilled human talent at local level. These newly trained artisans are usually members of various social communities and play their part in craft practices. Such a hierarchy is developed through the traditional bonding of the *ustaad* and *shagird*; *ustaad* being the master, the one who teaches his disciple the requisite skills and *shagird*, the apprentice, the one who learns the intricate details of the art forms with dedication. The training of the *karigars* to learn the skills from their *ustaaads* starts at a tender age, anywhere between six to ten years. Such a training goes on either along with the regular school education i.e. the training is done after the school hours or in other cases, the trainees drop out of school and begin to be apprenticed under a trained *ustaad*. A different work environment will help an apprentice learn new techniques and also teach him how to live with people other than his own family. Usually, the *shagirds* undertake a few months' training and learn a great deal from their *ustaaads*. No fees are charged for the training imparted to the students.

For instance, Mr. Fayyaz Ahmad is a 'Shilp Guru' (2011) who has been awarded with the National award (2007) for wooden inlay in Saharanpur. The following images 5.5 and 5.6 were taken during the interview schedule with Mr. Fayyaz Ahmad. The image 5.5 represents the award ceremony of Shilp Guru 2011, when Mr. Fayyaz Ahmad received this prestigious award from the Hon'ble President of India, Mr. Pranab Kumar Mukherjee.



Figure 5.5 Fayyaz Ahmad receiving Shilp Guru award by Hon'ble President Mr. Pranab Kumar Mukherjee  
Source: Photograph taken from Fayyaz Ahmad's collection



Figure 5.6 Fayyaz Ahmad giving training to shagird

He started working on his craft at the age of 15 years under his brother in law's tutelage and learnt everything from him as an informal trainee. He comes from a very poor family and he could never go to a school as he had to provide for the family and all his time was taken up by working on woodcraft. He does not have a workplace where he can work in a free manner. He resides in SRE with his family, comprising of his wife, 5 sons and 4 daughters. He wanted to pass down his artistry to his sons. Unfortunately his sons could not take advantage of their father's talent. Therefore, they are involved in some other business which is different from woodwork. Mr. Fayyaz is deeply attached to his craft for which he has been providing the workshops and training programs relating to wood carving, inlay and outlay to many artisans for about eight years (Fig.5.6).

## **B. FORMAL WAY OF KNOWLEDGE SHIFT**

In the present time, GOI (Government of India) is very active with regards to skill up gradation programs of the artisans. Additionally, government organizations like NCDPD, EPCH, DCH and even the NGOs and SHGs etc. are providing formal training programs to the artisans through which they can earn their livelihood and also preserve this traditional art form. In these training programs, they invite the subject experts from the local areas who impart the knowledge and give demonstration of various art skills. For instance, Mr. Fayyaz was invited as a subject expert to give training to the artisans from Ghana. These artisans from Ghana had come to India to learn the legacy of woodcraft. That event was entitled "Ten Days Craft Exchange Program between India & Ghana" and was sponsored by DCH and organized by NCDPD & EPCH. Apart from that, these organizations are giving training to the local artisans also. The following photograph 5.7 was taken as evidence during the interview schedule with Mr. Fayyaz Ahmad. The following photograph 5.8 was taken during the workshop which took place on 7<sup>th</sup> to 8<sup>th</sup> April 2017 at the Department of Architecture & Planning in Indian Institute of Technology Roorkee. The principle organizer of the workshop was Prof. Ila Gupta, Head of the Department of Architecture and Planning, IITR. Mr. Fayyaz Ahmad was the program specialist (master craftsman of wood carving and wood inlay). It was begun with a presentation on product design and development by Prof. Ila Gupta. This was an introduction and brainstorming session on product designing which incorporated the product specifications, design details, selection of materials, processes of manufacturing, launching and selling of the product. The key objective of this workshop was to bring awareness among the learners about the product design and its importance in the designing aspect. The presentation was designed to

enhance the knowledge in the area of interior architecture, design innovation, design trend and color forecast in product development. The students/ learners were able to interact directly with the master craftsmen (*Shilp Guru, Awardee*) and acquired information from his distinguished knowledge of design principles and developing prototypes of design techniques with brainstorming ideas.



Figure 5.7 Fayyaz Ahmad giving training to the artisans in an event organized by EPCH

Figure 5.8 Fayyaz Ahmad giving training to the students in a workshop of wood carving organized by Architecture & Planning Department, IITR

Focusing on the data, which is mentioned in the chart 5.3.4, it is also clear from the sample that 49% of the respondents stated that they have participated in informal training to become artisans under the guidance or supervision of the master craftsman. They call him “*Ustaad*”. “*Ustaad*” usually does not expect fees and teaching and learning are the only objectives of such activity. While 31% respondents said that they had learnt this art from their family members; the following 13% respondents said that they had learnt woodwork from relatives/friends. Only 7% of the respondents have undergone the formal training process of the government. A very small number of artisans have trained from the formal training institutions. As the result indicates, majority (93%) of the respondents have learnt this art in an informal way. Only few respondents (7%) have learnt formally through workshops and training programs organized by the NGOs, EPCH and NCDPD. Although there are so many institutes in India that provide diploma courses and vocational trainings in soft (clothes) and hard materials like wood and metal etc. These institutes not only provide technical knowledge of materials and techniques but also provide training about how to earn money through this skill.

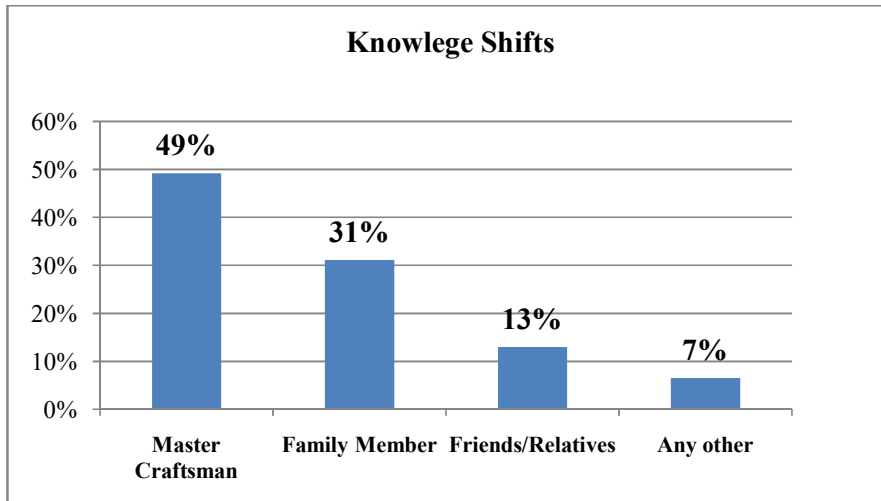


Chart 5.3.4 Distribution of the respondents according to different sets of traditional knowledge shift  
Source: By the researcher through primary survey

These institutes are *Lalit Kalashetra*, Raviraj institute for Art & Culture, Coimbatore, and Ministry of Skill Development, Craft Development Institute, Srinagar etc. Due to lack of awareness regarding these renowned institutes they could not take advantage of these. Because of this, very few artisans, only 7% out of the total have learnt formal training of wood carving.

### 5.3.5 WORKING HOURS

As shown in the chart 5.3.5 below, out of the total respondents, majority (56%) of the respondents work for 6 to 10 hours per day; the following 42% of respondents work for more than 10 hours per day because they follow “no fixed hours” policy regarding the hours of work. It usually depends on the quantity of work available and time granted by the person who has placed the order. The remaining 2% respondents work for 1 to 4 hours daily.

They usually do unskilled work such as making putty from wood dust, packing, putty filling etc. They are very less because they are not required for more hours and are not being paid well. As per the results, out of the total respondents, majority of them devote their maximum hours per day to wood work because sometimes when they get huge demand/huge order from the contractor/middleman, they work for more than 8 hours as they have to complete their assignment as early as possible.

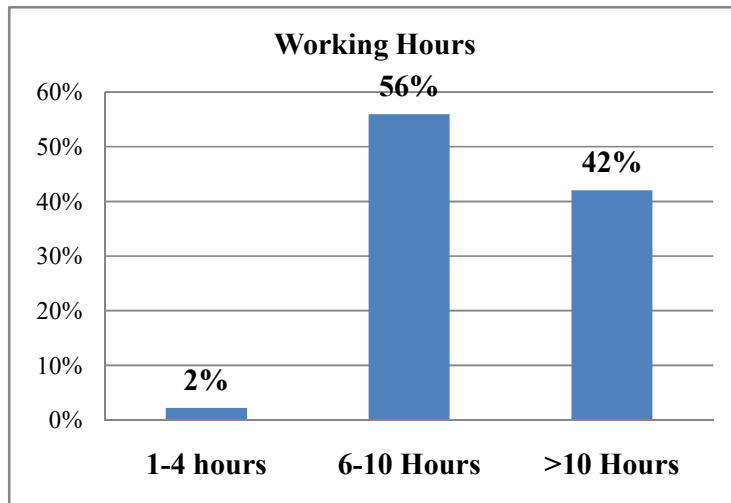


Chart 5.3.5 Distribution of the respondents according to working hours  
Source: By the researcher through primary survey

The above mentioned chart 5.3.5 is showing all the details of categories of skilled and unskilled workers and their working hours.

### 5.3.6 PARTICIPATION IN WORKSHOP/SEMINAR FOR LEARNING

The govt. organizations have organized several workshops /seminars at different intervals, for the sharpening of their skill and to improve the knowledge of the artisans. In these types of workshops, designers or subject experts related to the theme of the workshop are invited to give their presentation and increase the awareness of the artisans regarding the latest trends, startups, ergonomic factors related to health issues and raw material etc. As can be seen in chart 5.3.6, 61% respondents had participated in design development workshops. During the discussion with them, one of the respondents stated that he had attended a 2 days seminar related to the nuances of design but the time was limited and the designer who had come as a resource person, had discussed briefly about the latest trends of design, trend forecast and requirements of the market regarding the designs. According to the respondent, this type of seminar/workshop should be scheduled for at least 1 or 2 weeks. On the contrary, one of the respondents stated that he had attended workshop related to design development organized by EPCH. Unfortunately, he did not get any awareness. According to him, these workshops cum training programs are organized only for media coverage, certification, having refreshments/food, talks, money and just to show that govt. bodies are involved in these matters deeply. 18% of the respondents have never participated in any workshop/seminar. Majority of them said that they wanted to be aware of the latest trends, trend forecast and raw material experimentation etc. but nobody tells them about it. 11% of the respondents had participated in

other workshops/seminars like raw material issues, where they got awareness regarding the material. 7% of the respondents had participated in other workshops/seminars such as market scenario where they got awareness regarding startups; only 3% respondents had participated in the seminar/workshop of ergonomic awareness.

While replying to these queries, one of the respondents said that he was aware of the proper sitting posture, the need of safety mask and handling of tools. During this seminar/ workshop, he had received an improved tool kit set and safety mask which can improve their work efficiency (Fig. 5.9). If the artisans are provided with a comfortable environment, there can be reduction in probable dangers occurring during the process of craft making; this may result in improved efficiency, further resulting in enhancement of production values (Chakrabarti, 1997; Pandit et al., 2013).



Figure 5.9 Respondent receiving improved tool kit by DCH

When the researcher again asked him if he had been using the improved tool kit and mask while working, then the respondent replied that he was not using such tools as he had designed his own tools according to his requirement. He was very comfortable with his own designed tools and he was not willing to use the improved tools and safety mask. Again the respondent said:

*“Madam ji, hum to lakdi mein hi rahe hai shuru se, aur lakdi mein hi mareenge. Lakdi ke burade se hume koi nuksan nhi hoga”*(मैडम जी, हम तो लकड़ी में ही रहे है शुरू से, और लकड़ी में ही मरेंगे. लकड़ी के बुरादे से हमें कोई नुकसान नहीं होगा.)

“Madam ji, we are living in wood, from the beginning and will die in wood. Wooden chips will not harm us” (English Translation).

On the contrary, one of the respondents said that he had attended the workshop related to design development that was organized by EPCH. Unfortunately, he did not get any awareness. This is a general observation and opinion of the artisans. These workshops cum training programs are organized only for media coverage, having refreshments/food, socializing and for relaying to the public that govt. bodies are honestly involved in these matters.

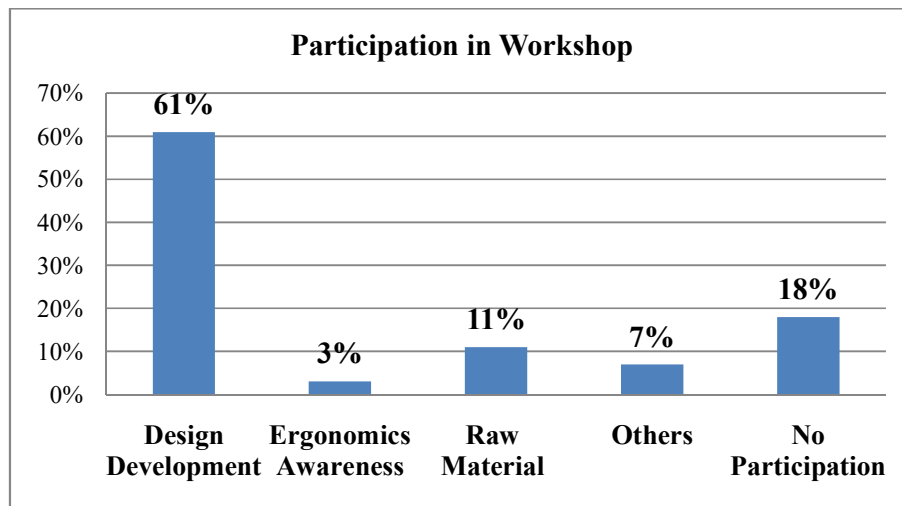


Chart 5.3.6 Distribution of the respondents according to participation in workshop related to their work  
Source: By the Researcher through primary survey

Thus, the result indicates that some artisans do not feel deeply motivated here because they have become accustomed to this environment and adopted these things happily. Some of them had benefited from the toolkit and safety mask but they are still taking the risk with their health even after receiving ergonomic awareness. A great number of artisans are really averse to acquire new technology or tools as they are afraid to lose the traditional style of wood carving (Gulati et al., 2012). Therefore, the old traditional style techniques are being used for a long time. Using the improved tools, it is possible to increase their work efficiency in less time. Apart from that, health issues always affect the immune system of humans. Despite being affected from diseases, the artisans have access to private health care facilities in slum area because they prefer temporary doctors who provide medicines on the cheapest price with speedy recovery. Hence, it can be concluded that due to lack of motivation factor among the artisans, the woodcraft industry of SRE is less progressive as compared to other woodcraft industries running in the other states.

### 5.3.7 PROCUREMENT OF ORDER

The data reveals in the chart 5.3.7 that out of the total, 48.5% respondents receive the orders from the suppliers because supplier is the most important person who receives orders from his networks. Thus, the supplier plays the main role in the procurement of orders. 25.3% respondents get the orders from the exporters because the exporters provide their services for international as well as domestic buyers. According to the buyer's requirement or wishes, they give their orders to the supplier to fulfill the demand of the buyers. While 17.3% respondents receive their orders from the wholesalers, the rest of 8.6% respondents get the orders from other sources. Thus, the majority of respondents get their orders from the suppliers. Apart from that, the artisans come under the deprived group who generally do not have direct communication with the customers and it is difficult for them to procure the orders from the market. As a result, these suppliers/middlemen take advantage and earn profit for themselves from the exporters as well as from the artisans. The following chart 5.3.6 is indicating the number in percentage and showing in a much better manner the ratio of the work instructions given by the researcher.

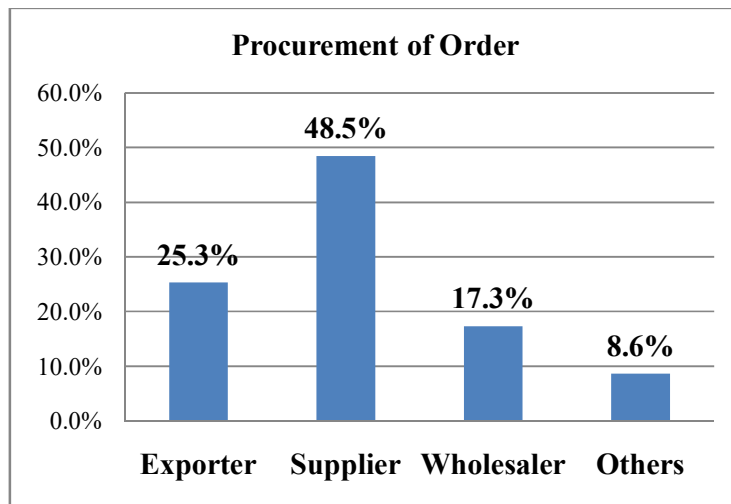


Chart 5.3.7 Distribution of respondents according to procurement of order  
Source: By the researcher through primary survey

### 5.3.8 RAW MATERIAL-USAGE

As the data denotes, out of the total, 84.7% respondents get the raw material (wood) from the person who is giving them the order who can be the exporter/supplier/wholesaler. Only 15.2% respondents use their own raw material for making woodcraft. But this rarely happens because they don't easily get 'A' quality raw material i.e. the best quality material.

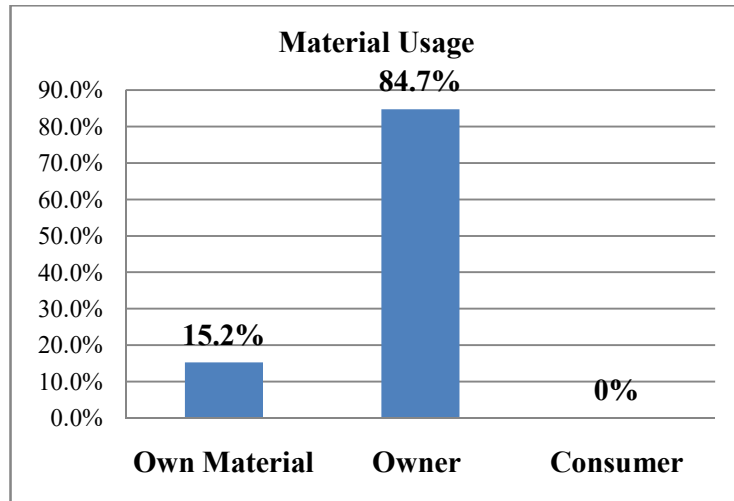


Chart 5.3.8 Distribution of the respondents according to material usage  
Source: By the researcher through primary survey

It is because good quality raw material is mostly purchased by the manufacturers and so the small scale artisans remain deprived of it. At Saharanpur woodcraft industry, buyers never give their own material to the artisans for making woodcraft products. The following chart 5.3.8 represents the above mentioned data.

The result indicates that in this industry, majorly the raw material is provided by the owner. There is no official raw material bank at Saharanpur, due to which the artisans do not get best quality wood. Due to purchase of good quality raw material by manufacturers, the artisans remain empty handed. Apart from that, the auction of raw material at *mandi* in SRE is more ad hoc in nature. As one of the respondents replied that nobody tells them regarding the auction of raw material at the *mandi*. The wood put on sale is displayed in the *mandi* area according to the quality parameters. Dry and straight wood falls in the first category of grading. The lower grades indicate diminishing quality. The base price is not revealed to the auction participants. It is decided by the trader after calculating the price of wood, commission to the agents and his margin. This also includes the bribe paid on the way at the police check posts. The sale is done on the basis of *maan* which is equivalent to 40 kg. Majority of the artisans belong to low financial background and as a result, they cannot afford the good quality wood for making woodcraft products.

### 5.3.9 TYPES OF WOOD USED FOR MAKING WOODCRAFT PRODUCTS

Until a few decades ago, Saharanpur was known as *Sheeshamgad* city of *sheesham* because initially, the woodcraft production had begun in *sheesham* wood. *Sheesham* was the most preferred wood for making woodcraft because it is of the best quality and its grains are the



most beautiful as compared to all the other woods. But over the last few decades, the woodcraft industry in SRE is facing a shortage of sheesham wood (Bose et al., 2006). Due to the restriction of sheesham supply from the outside sources, a big problem was created for the woodcraft industry (Kaul, 2012). Due to unavailability, inaccessibility and affordability of sheesham, the core dependence on sheesham has now shifted to shared dependence on a variety of species like *papdi*, *kikar*, *jamun* and primarily mango. Then the artisans began to explore other materials for making woodcraft. As a result, the woodcraft industry was uplifted again with the new innovations. It was the time when the artisans introduced different types of wood in the industry.

As per the displayed results in the chart 5.3.9, out of the total, 55.7% respondents are using mango wood because it is easily available in abundance and it is a very cost effective wood as compared to sheesham. Only 21% respondents are using sheesham wood because sheesham is very durable and the grains of sheesham look very classy. It is a water resistant wood. It is an expensive wood, so majority of the artisans are making craft products in mango wood. Sheesham is majorly preferred for furniture making. 10.8% respondents are using teak wood and the rest of 12.3% are using other woods for creating the products. Other woods like *jamun*, *neem*, *kikar*, *babul* and MDF (man-made wood) etc. are being used by the artisans as supportive material only because these woods are not very good in term of quality.

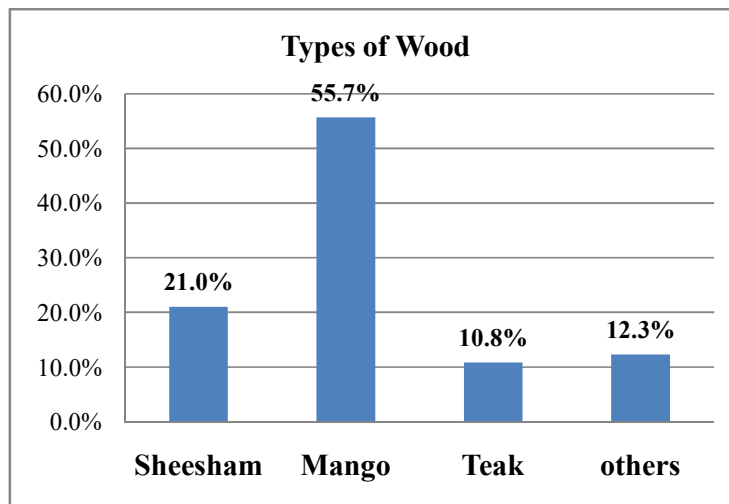


Chart 5.3.9 Distribution of the respondents according to types of wood used for making woodcraft products  
Source: By the researcher through primary survey

One of the respondents said that it was 15 years back that the idea of substitute wood got accepted in the industry. Mango became the most successful substitute of sheesham because it was cheaply available and it could be colored too. But, apart from this, mango possesses no

attribute of sheesham which has created various disjunctions in the wood carving industry, as craft in its original form can no more be practiced on mango. Mango is a soft wood and therefore cannot sustain the traditional intricate carving done on sheesham. As a result of this, there is a change from heavily carved motifs to minimum carving. Also, with the change in the raw materials, even though the tools have remained the same, the measurement of the requisite tools increased in variety. The tools that the *karigaars* use are designed based on the strength of the wood and the amount of pressure it requires to do *takai* and *chillai*. Since mango is soft, tools used on sheesham cannot be used on it. The implication of substitution of sheesham by mango has therefore affected the craft. The designs as well as the tools have changed. Thus, the result indicates that in this industry, presently the raw materials used are mango and sheesham which are the most suitable and durable materials for woodcraft.

### 5.3.10 SOURCE OF DESIGNING

The sources from the relevant information are being collected for design samples. Design sources are not limited. Out of the total, 47.8% respondents make the design according to the demand of the customer because the market is customer centered and they always want to satisfy their customers and fulfill the customers' demand.



Figure 5.10 Artisan imitating the design from photograph, which was given to him by the customer/owner  
Source: Retrieved from [https://images.firstpost.com/wp-content/uploads/large\\_file\\_plugin/2018/12/1545995693\\_saharanpur-4.jpg](https://images.firstpost.com/wp-content/uploads/large_file_plugin/2018/12/1545995693_saharanpur-4.jpg)

According to Sameer Malik (woodcraft manufacturer), he is constantly looking at foreign designs online and showing them to the artisans employed under him so that they can be inspired by something new and unique. He did a replica of an Italian design some time ago and

it became a hit. Now some customers search such designs online which are imitated by them. The annual turnover of his business is close to 10 lakh (Nighoskar, 2019). The following figure 5.10 has been given for that purpose.

The second major source of collecting relevant information related to their work is old designs (used by 26%), followed by 15.2% respondents making their own designs which is based on their own imagination and creativity. Mostly they get the designs from the customers but some designs may not look good after manufacturing.

Therefore, the artisans express the power of their own creativity and make the design with such modifications that it looks like the customer’s design. The remaining 10.8% respondents are receiving information through magazines /catalogs. The following chart 5.3.10 represents the above mentioned data.

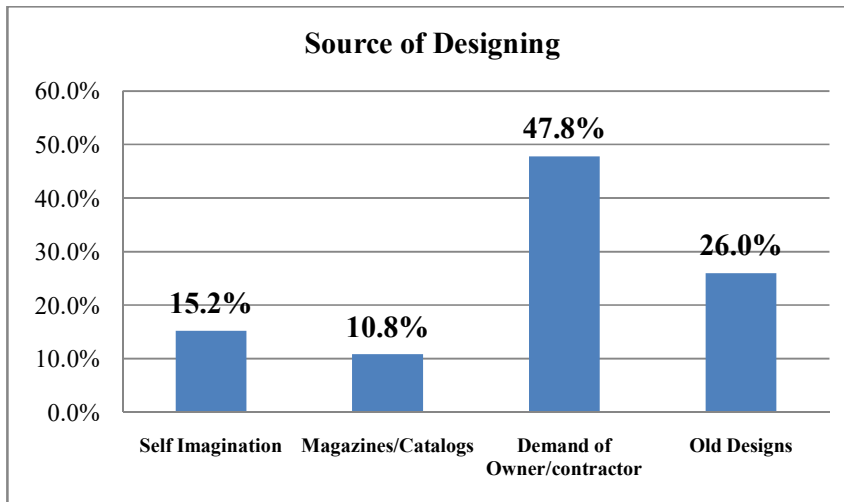


Chart 5.3.10 Distribution of the respondents according to source of designing  
Source: By the researcher through primary survey

As the result indicates, the demand of the owner /contractor plays a major role in terms of designing as the market is competitive and the artisans/manufacturers are trying to fulfill the demand of the market. Majority of the respondents are dependent upon their owner/contractor for designing motifs as the artisans work under their owner and they do not have any option except to follow the order of their owner.

### 5.3.11 TYPE OF MOTIFS USED IN WOODCRAFT

The discussion throws light on the motifs. The woodcraft industry and SRE both are extremely rich in terms of motifs. The city has a vibrant and glorious culture where different religions, festivals, folk arts and storytelling are the prominent parts of daily life. Thus, the motifs of

woodcraft are deeply influenced by nature, religion, culture and the royal eras. Flowers are among nature’s most beautiful creations, infinitely varied in form and texture. These flowers are semi-naturalistic in style and these artisans are expert in creating these motifs and plant based designs.

The collected data indicates through chart 5.3.11 that 47.8% respondents are using floral motifs such as flower with dancing stem, all over floral pattern on surface and symmetrical floral pattern. It is a known fact that nature is the mother of all creations. Therefore, majority of the artisans are making floral motifs to be close to nature. Apart from that, 26% respondents are inspired from Islamic geometry, the example of which is the lattice work in the old part of the city. So, the artisans are making geometrical patterns too. It has been observed that only 15.9% respondents are using animals as motifs such as elephant and bird motifs such as peacock and swan in particular. There are only 10.1% respondents who are using miscellaneous motifs such as fruits, vegetables, auspicious motifs and human figures.

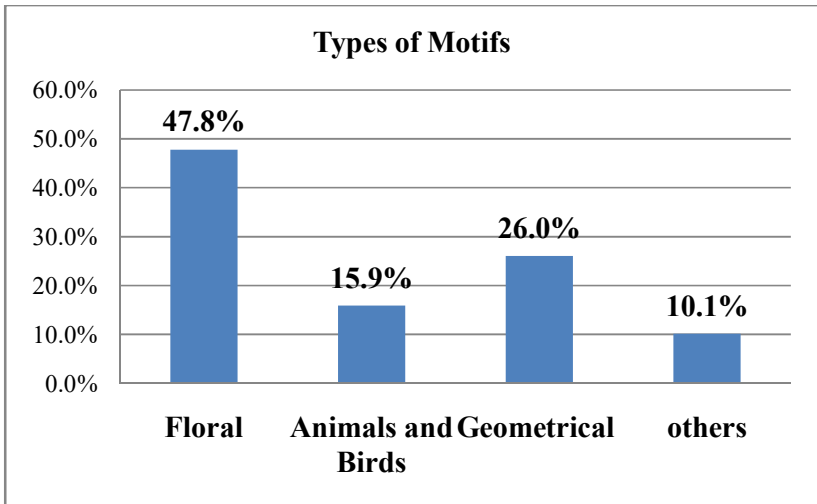


Chart 5.3.11 Distribution of the respondents according to types of motifs used in woodcraft  
Source: By the researcher through primary survey

Thus, It can be concluded that majority of the artisans are making naturalistic forms which they imbibe from their surroundings and make the craft alive. Intricate carving with naturalistic forms is the best combination of this craft which makes it internationally famous. In the present time, both designing and carving are depending on the quality of raw material.

**5.3.12 MODE OF PAYMENT**

As the data represents in the chart 5.3.12, 37.7% of the respondents out of the total, work on monthly wages; 26% of the respondents work on contract basis, the following 20.3% respondents work on daily wages and 16% of the respondents are self-employed (shop owners).

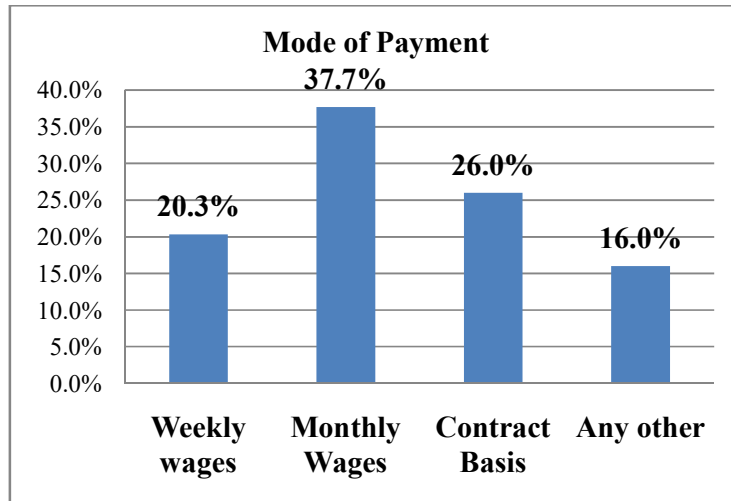


Chart 5.3.12 Distribution of the respondents according to mode of payment

Source: By the researcher through primary survey

In woodcraft industry, monthly and contract wages are given to those artisans who are skilled because this privilege of getting monthly salary depends on their quality of work, skills and capability to complete the order within the given time. On the contrary, daily payment is given to those artisans who are fresher and semiskilled/unskilled. These people are getting training under the skilled person. They are not as reliable as compared to the skilled ones and they can leave the job without any prior notice. The chance of mobility is really high among them.

## 5.4 WORKING ENVIRONMENT

The level of performance exhibited by the artisans is greatly dependent on the conditions of work. At SRE, it is a usual practice for the artisans to work industriously in a workshop or even a rented room that could have been made available by the contractors/owners. The more open and more comfortable the space is, the better are the working conditions for the artisans. Workshop is the place where the artisans pass their maximum time. As can be seen through the data, majority of the artisans are experiencing lack of proper facilities. The below mentioned opinions were gathered during the survey and through personal visits. It was found that the working conditions are generally pathetic. There is no provision of proper ventilation and proper lighting. The area where they are working is also generally very dirty, clumsy and unhygienic.

### 5.4.1 DISTRIBUTION OF THE RESPONDENTS ACCORDING TO DISCOMFORT

Work conditions determine about the physical or mental state of the artisans. If the conditions at work are not favorable, it can have an adverse effect on the artisans' capability, performance and focus on work. The value of a handicraft product is based on how high or low is the quality

of the production and the artisans are mainly responsible for it as their capability and skill determine the appearance of the final product (Chakrabarti, 1997; Pandit et al., 2013). At SRE, the artisans are capable of producing at a high production level, however, the conditions that they work in, are not conducive enough for a high degree of performance. Their work environment is neither healthy nor safe.

Moreover, there are other hindrances too that obstruct them in performing to the best of their creativity which include workstations that are designed poorly, lack of enough space in the work area, poorly ventilated workshops, not enough lighting, too much of noise and also deficient preventive measures against harmful chemicals that affect their health badly. As a result, they are very susceptible to diseases caused during the time of their occupation. The following chart 5.4.1 represents the reasons behind the discomfort in the workshop.

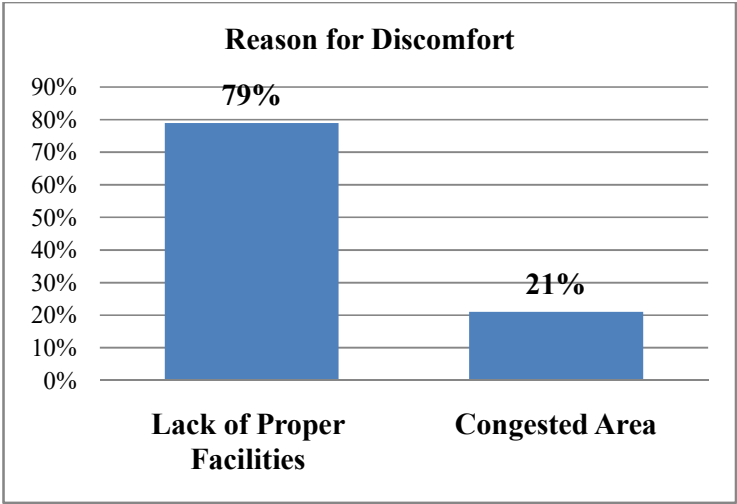


Chart 5.4.1 Distribution of the respondents according to comfort in workshop  
Source: By the Researcher through primary survey

Out of the total, majority (79%) were not satisfied and they opined that lack of infrastructure facilities like proper light, space, ventilation and hygiene were beyond satisfaction. While only 21% respondents feel uneasiness due to congested area. The following figure 5.11 shows a polluted and unhygienic workplace of SRE. Only one bulb has been provided in such a big hall.



Figure 5.11 Unhealthy workplace

## 5.5 HEALTH RELATED DETAILS

It is customary to manufacture items of woodcraft with the help of simple tools while making use of those indigenous materials which are easily found nearby and locally. As a result of expansion and growth in the market demand and contesting atmosphere in the business, there have come changes in the traditional practices in woodcraft. In place of traditional techniques, machines and chemicals are in use nowadays which results in the reduction of the total labor burden. Consequently, such changes cause heavy risk to the artisans' health. Other factors such as sitting posture, chemicals in use and working environment also leave crucial repercussions on the artisans' health. Despite this, no medical facilities are being provided by manufacturers. The following table 5.3 shows the details of the health status of artisans.

### 5.5.1 FACTORS IMPACTING ON THE HEALTH STATUS OF THE ARTISANS

Table 5.3 Impact on health

IMPACT ON HEALTH		
Sitting Posture	Chemical Used	Conditions in Workshop
Angles	Paint	Work environment of workshop
Length of Time	Varnish	Hygiene
Forces exerted on the environment during the posture		Ventilation and Dust

#### 5.5.1.1 SITTING POSTURE

Generally, the artisans have to toil hard for 10 to 12 working hours each day in their workshops. For prolonged hours, they remain bent forward, deeply engaged in the work at hand. Majority have to sit on the uncomfortable base floor of the workshops while their bodies

remain in a bent posture. During the visits, the researcher found that there was a severe lack of facilities for the artisans such as seating furniture or work-table or even any backrests. When the artisans have to remain bent and sometimes at a twisted angle to give the delicate details, it gives them increased degree of discomfort and causes pain at the lower back, neck and shoulders. Thus, it is clear that long hours of work in the same bent, uncomfortable stance becomes the cause of soreness, aches and cramps in the artisans (Chakrabarti, 1997; Bora et al., 2017). As there is hardly any user friendly infrastructure in the workshops, these artisans recounted several issues related to health and well being.

### 5.5.1.2 CHEMICALS USED

The artisans at SRE use the following chemicals which create health hazards:

Wax, varnish, and paints are used for finishing purposes. These chemicals are harmful to humans and the effect on health is bad as these cause health hazards like headaches, irritation in the eyes, nausea, dizziness, fatigue and drowsiness (Suri et al. 2000). Therefore, artisans should ensure their safety, while using these chemicals by wearing safety masks and safety eye protective glasses.

### 5.5.1.3 CONDITIONS OF WORKING

Several elements become the reason of occupational diseases for the artisans including the creation of wood work at ill-designed workstation, shortage of ventilation, inadequate lighting, uncontrollably high noise, lack of protection from hazardous chemicals and deficiency of personal safety gear etc. dust, heat and humidity in workplace lead to complaints related to sight, visual strain, blurred vision and respiratory problems. The total observation of health matters is exhibited in the following table 5.4.

Table 5.4 Health problems of the artisans

HEALTH PROBLEM			
S. No.	Indicator	Respondents	
		N	%
1	Breathing Problem	43	31.1%
2	Eye sight	36	26.0%
4	Back pain	38	27.5%
5	Neck Pain	24	17.3%
6	Headache	28	20.2%
7	Stomach problems	54	39.1%

Source: By the researcher through primary survey

In most cases, the artisans reported more than one health problem, hence, the total is more than the sample size of 138.



Majority of the workers suffer from one or the other kinds of diseases or pain. Breathing problem, stomach problems like constipation and hyper acidity, back pain and eye sight problem is more common among the woodcraft artisans. This is caused by the sitting posture, lack of sufficient light and chemicals used in the manufacturing of woodcraft. Continuous and nonstop work could be held the prime reasons for this. Getting cuts is a common problem while working with the band saw. It is also observed that the artisans get medical treatment from private hospitals or clinics. Most of the time, they buy the medicines from the nearby small medical store and do not approach the hospitals or clinic for any small injury or imbalance in health status. Majority of the artisans wanted effective and safe work environment. According to them congested work area, smoke, dust, lack of ventilation and facilities create health problems. The owners are not providing any incentives or facilities to them; they only expect the work to be done and the order to be completed. No chance of postponing the work or getting any leave is possible for them.

#### 5.5.1.4 FACING OTHER PROBLEMS

Table 5.5 Distribution of the respondents according to facing other problems

PROBLEMS FACED BY ARTISANS			
S. No.	Indicator	Respondents	
		N	%
1	Low Wages	98	71.0%
2	Lack of Marketing Opportunities	47	34.0%
3	Exploitation at the hands of Contractors	78	56.5%
4	Lack of Govt. Support Related to Loan	94	68.1%
5	Poor infrastructure	122	88.4%

In most cases, the artisans reported more than one problem hence, the total is more than the sample size of 138.

According to the above mentioned data in table 5.5, out of the total, 88.4% respondents reported that they are not satisfied with infrastructure facility; 71% reported that they are not satisfied with their income from their artisanal work; 68.1% respondent don't want to give the interest of loan, so they are not satisfied with govt. schemes related to loans. Apart from that, majority of them said that they wanted to be aware of all the schemes but nobody tells them about it. 56.5% respondents were exploited at the hand of the contractor or middleman. 34% reported that they are suffering due to lack of marketing opportunity.

From the above data, it can be concluded that the artisans are poor in terms of income and loan and lack awareness about the new trends of the market and the taste of consumers. Due to lack of information, a majority of artisans are not able to access these facilities and most of them are not aware of the social media and internet. They do not know how to access internet for design

advancement, to make new prototypes and to learn new techniques for woodcraft. Apart from that, it also indicates that wood carving and carpentry is a sensitive work which requires both man and machine mechanism to complete an article. Thus, the artisans usually migrate to the place where they can get better facilities of machine, transport and raw materials. As a result, the skilled artisans of Purani Mandi are migrating from SRE to other places like Delhi, Jaipur and Mumbai, switching to other forms of employment or better opportunities. Unskilled artisans, on the other hand, become rickshaw-pullers or do some other manual labor. According to Mrs. Kalpana (Joint Director of DIC), about 3000 skilled artisans have migrated from SRE to Jodhpur for better opportunities to continue their work. Thus, the net result has been a sharp fall in the numbers of woodcarvers.

## **5.6 SWOT ANALYSIS OF SRE WOODCRAFT INDUSTRY**

SRE has evolved its unique identity in craft cluster as well as craftsmanship through design, quality and skilled artisans. With the changing times, most of them are on the verge of giving up and leaving this tedious profession and opting for another livelihood.

The artisans are facing various problems as the researcher has discussed above, such as unhygienic workplaces, exploitation at workplaces and lack of awareness due to illiteracy etc. Some unstructured systems like low networking, direct contact with the consumers, lack of awareness of innovative trends, inappropriate ways of production and distribution are needed to be considered. Even after spending their precious time, they do not have any recognition in the markets; they are being treated as laborers. Their place as artisans is in danger due to mechanization and technological advancement.

### **STRENGTHS**

1. Ample heritage of brilliance in art and craft since 400 years
2. Large no. of trained and hard working artisans
3. A great degree of talent in domestic and international market
4. Opportunity of mixing woodcraft with other crafts such as dokra, marble inlay etc.
5. The most significant feature of this craft is the traditional motifs which attach significance to it.
6. Capacity for expansion of the merchandise
7. Availability of machinery and implements at commonplace facility centers such as EPCH, Uttar Pradesh govt. seasoning plant, etc.
8. Ease in implementation of conventional and contemporary designs due to the expertise of skillful laborers

9. After the launching of new techniques, there is quick implementation of those and the prepared products are sold during the span of the same season. Thus, the working of the industry is really quick.
10. One of the major strengths of the industry is the production of craftwork on a large scale.
11. As the cost of production is low, there are higher profits in sales

## **WEAKNESSES**

1. Unsystematic and disordered craft cluster
2. Conventional means of production
3. Lack of decent working space
4. Inconsiderable knowledge about current market orientation
5. Shortage of infrastructure and groundwork facilities
6. Frequent power cuts
7. Insubstantial information regarding newer technologies and developments required for improvement in production
8. Deficiency in obtaining raw material at proper price and lack of legal system for its acquirement
9. Lack of structure for spreading of cutting-edge technology for enrichment in manufacturing and finishing
10. Poor reflection of the country in a general sense due to lack of consistency in supplying high quality products
11. Craftsmen being unfamiliar with the requirements and conditions of the international market.
12. Inadequate coaching facilities/ education for encouragement to adopt power tools by the craftsmen.
13. Exporters of Saharanpur are failing to fulfill the order on time.
14. The artisans are not very capable in communication as they are mostly illiterate or have a low education background and lack awareness, so they are not able to take advantage of the benefits of government policies.
15. Lack of training facilities/ guidance for encouraging them to take up power tools.

## **OPPORTUNITIES**

1. Availability of a large trained/expert and dexterous manpower support
2. Already existing international partnerships
3. Foundation of centuries old traditional knowledge
4. An increasing demand of quality products in the market overseas
5. Increasing finesse in Indian customers' taste and growth in the buyers' capacity for consumption
6. Emergence of E-commerce and internet as new channels for circulation of the final products
7. Opportunities for employment of more women in this field whose capability can be made use of in various phases of the process.

8. Introduction of raw materials other than wood.

## **THREATS**

1. As there is lack of alertness among the youth, there is not much involvement on their part to carry out the tradition of woodcraft; rather they tend to adopt other occupations such as rickshaw pulling and some other occupations.
2. Drop outs from the work: As a result of lack of reasonable wages and proper routine jobs and woodcraft being a very hard working and tedious job, the artisans are adopting other regular jobs in several other fields.
3. The artisans are ignorant about its highly impressive history and consequence.
4. Indian exporters are being given tough contest and being edged out by their competitors on account of level of quality
5. Wood being a natural material, grave concerns over threat to the environment in the country, resulting in inadequate supply of raw material
6. Lack of cooperation among different organizations resulting in bad impact on production and exports
7. Growing competition among local suppliers resulting in price wars and increase in transportation expenditure.

## **5.7 DISCUSSION AND CONCLUSION**

There has been aping of the western culture by the youth since the last few decades of the 20<sup>th</sup> century as technology has brought about multiple changes at a great speed which are visible to all. A large number of young people generally like to use modular furniture and compact, sleek, light and multipurpose products which may be termed as the basic reason behind the setback for the handicraft sector. Although it appears that the craft sector is moving fast on its way to the point of almost vanishing, yet creative vision, new techniques and more exhaustive endeavors can bring about the necessary changes making the craft sector very appealing and lucrative. There have been efforts on the part of the central and state government which have started many projects at intervals for the progress and betterment of handicraft.

However, due to lack of information, the artisans generally do not take advantage of such schemes and they remain bereft of their due benefits. Man tends to have multiple needs; basic or otherwise and every human being has the right to fulfill his basic needs in a satisfactory manner. As regards the artisans, they do not pay much heed to their health issues and deliberately work for much longer hours for extra income. Several factors affect their health and work execution due to the hazards of saw-dust, poisonous vapors of varnishes and continuously sitting for many hours. They face multiple ailments such as back pain, breathing, under nutrition, respiratory diseases, allergy, eye ailments etc.

Thus, in this chapter, different subjects related to the artisans have been focused. The focus is on the analysis of their social and economic circumstances and problems concerning their work. In conclusion, it can be said that the unpleasant circumstances of the artisans are clearly visible. They are from poor social and economic background and are less educated; thereby, suffering from a huge gap between themselves and modern technology. They require guidance for the enhancement of their expertise and capabilities through training/coaching and knowledge. Another important factor is the need of governmental support and opportunity ideas to the artisans on a larger scale in order to preserve the culture through the promotion of woodcraft products in the market. The government needs to make better resources available to the artisans like health & wellness facilities, social security, local resources and solutions, women empowerment etc. so that they can attain their due recognition and respect, both at the national and international level. This will result in the uplifting of their socio-economic standing in the society.

## CHAPTER 6

# DESIGN DEVELOPMENT AND ITS EXECUTION IN SAHARANPUR WOODCRAFT

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### 6.1 INTRODUCTION

The prior chapter was focused on the problems and difficulties of the manufacturing process chain. The present chapter deals with the prototypes development. On the basis of previous studies in different phases, this researcher understood the need of design innovation in this craft community to broaden the product-line, so that this craft community may receive more professional attention with their enhanced professional abilities. A number of total 10 new prototypes had been explored. Two different collections were designed: collection 1 deals with floor accessories and collection no. 2 stands for table-top accessories. Technical drawings of prototypes have been made for the purpose. Floral and spiral motifs of nature were taken as a source of inspiration for designing the specimens as the artisans were proficient and used to creating motifs on nature. The aesthetic value of nature designing springs from several different attitudes such as perseverance, grit, creativity, artistic temperament, sensitivity, insight and technical knowhow. The masterpieces created by the most talented craftsmen showcase all these values which are mostly inspired by nature. Woodcraft of SRE is like a heritage art. To preserve its identity in changing times, innovations are desirable. Hence, this subject was selected. The new products developed incorporate the art of SRE in a representative form. Thus, retaining the functionality of the product unchanged and augmenting it with the decorative pattern of SRE art is evident. The art appreciation is a qualitative subject which is related to the visual effect it produces. The SRE art (carving, inlaying, embossing) has been incorporated in to the products to improve their visual and aesthetic values without affecting their functionality.

According to Mr. Parvez Alam (woodcraft artisan), the designs in SRE woodcraft that are inspired from naturalistic motifs like trees, flowers, creepers, and leaves have created a unique identity in the prevailing market. He also viewed that he uses these motifs in his designs in abundance and gives twists to these to create different styles. According to him, these designs are like USP (Unique Selling Point) to SRE woodcraft which makes the SRE woodcraft unique as compared to other woodcrafts and increases the sale of woodcraft products in the competitive market. Keeping these points in mind, the researcher utilized the USP of SRE

woodcraft and designed 5 products with naturalistic theme in order to sustain them in the market. In this connection, Dua (2014, p. 39) writes, “New designs are probably taken from the infusion of new ideas into conventional styles or from the deliberate reawakening of motifs from the past”.

The term “Collection” stands for the set of items: In SRE, no one can find collection in particular items, although the diverse craft items available in the market but collection cannot be found. The following sample prototypes that divided into two categories:

- I. Collection 1: It is having the characteristics of decoration, purpose of illumination items and few are of other utility purpose. These products are not available in the market.
- II. Collection 2: It includes the products of multifunctional purpose. These are two in numbers.

## **6.2 COLLECTION 1**

This collection displays a number of 5 different products with traditional wood carving. This collection is based on floor accessories showing floral motifs carved on wood as economically as possible. The designs incorporate four important factors i.e. cost effectiveness, style, aesthetic appeal and trendiness. For that purpose, mango wood was preferred to achieve the goal because of its cost effectiveness and abundance of availability in the area of SRE. Burning effect provides the wood an antique look which makes these products appear regal. These carved products are targeted to be used as floor accessories by the end-user.

### **6.2.1 DESIGN INSPIRATION**

These days it has become trendy to coexist with nature. For diverse sections of art, nature proves to be inspirational. Different types of patterns are in trend at different times but the floral pattern has stayed forever. Ranging from art to fashion, in different eras, such as the ancient and then towards the contemporary, the floral patterns have always remained one of the most creative patterns invented by man (Suri, 2011). Right through the ages, flowers have remained a very favorite subject of the artists. Here in these prototypes of floor accessories, dancing stems with flowers have been used as the motif which give a lively appearance to these and also bring the viewer closer to nature (Fig.6.1)



Figure 6.1 Floral pattern with twisted stem

Source: Retrieved from the URL <https://www.aliexpress.com/item/Sofa-Fabric/32315639507.html>

Usually it is the base or foundation in carving, from which the plant motif originates and it symbolizes the tale of life i.e. the philosophy of life, indicating that there is both the beginning and ending to life (Haziyah et.al, 2012). The endeavor of the artisans is to showcase the natural traits of the plants that include having beautiful flowers, climbers and tendrils, stems in a curled manner around a support, also creepers on the ground; all are depicted as parts of a woodcraft item through carving after having observed the plant characteristics (Shaffee, & Said, 2013).

### 6.2.2 LAMP STAND

This prototype sample is primarily an electric floor lamp and secondarily a sculpture, which may provide light during the night whereas during the day, this product works as a decorative piece of sculpture. This product is made of mango wood. The intricate surface ornamentation through wood carving is one of the key features of SRE craft cluster. So this skill was used in developing this product. Its conceptual inspiration was based on geometry in shape and floral in pattern. The product dimension is: length 15.5”, width 15.5” and height 55”. This product is unique in the product line of SRE woodcraft in terms of portability and craft skill sets and novelty in design. 3 different craft skill sets such as carving, *jali* and turning work were used to make the product which makes it unique. Apart from that it is portable and can be carried easily. It is in 4 pieces. Its shade is made in wood which makes it different from other lamps. The *jali* in this shade performs the key role in lowering the temperature by compressing air via holes. Moreover, when the lamp is on, a beautiful pattern is developed on the wall of the room that generates the reflection of *jali* work.

This product has been created within 12 days and total 5 artisans were employed to develop this product such as carpenter, lath artisan, carver, *jali* cutting artisan, sanding and polishing artisan.



It was a new and sample product for the artisans. For that reason, majority of the artisans were not willing to make this. That's why it has taken time to develop it. 3 different craft skill sets were used for this product because in SRE majority of products can be found within one craft skill set. Therefore, the researcher had observed it and decided to make a product with 3 different techniques together. In totality, the product is novel for the market and it can leave a lasting impression on the mind of buyers. Please refer to figure 6.2 for conceptual sketch and figure 6.3 for final prototype sample. The following figure 6.4 represents the manufacturing process of the lamp stand.

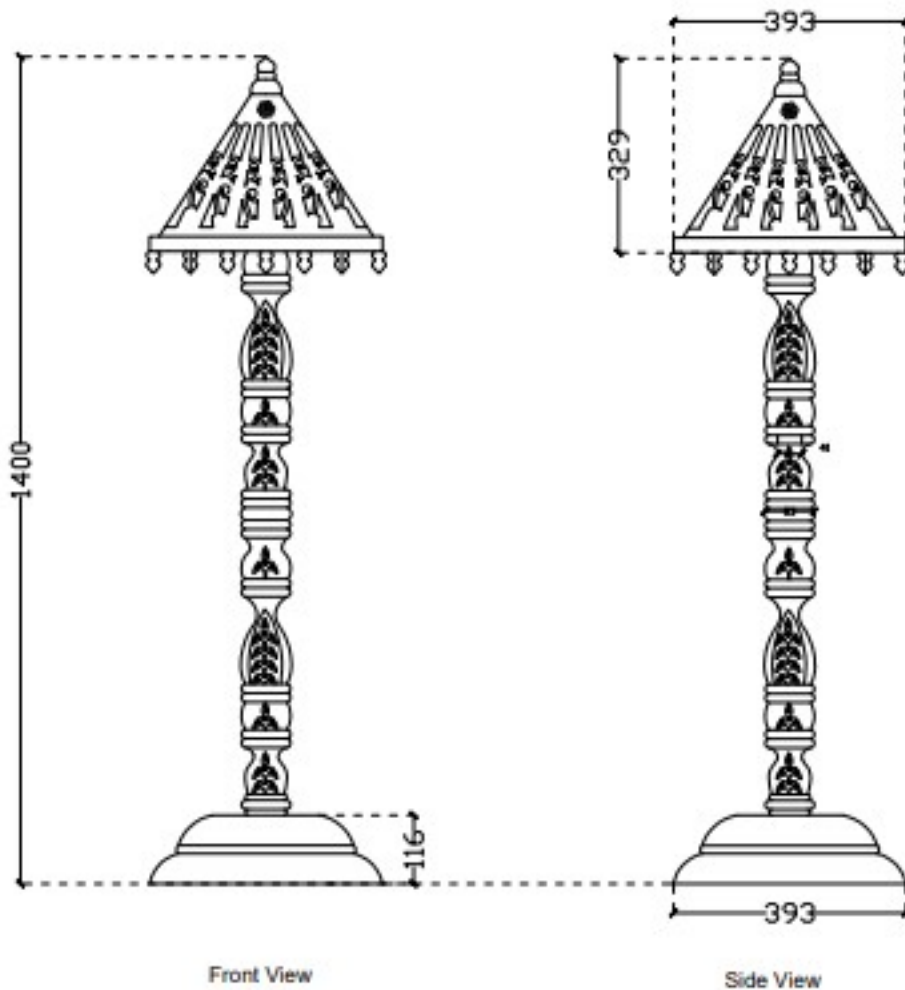


Figure 6.2 Conceptual sketches of wooden lamp

**FINAL PROTOTYPE**



Figure 6.3 Wooden lamp stand with detailing

**PROCESS IMAGES**



Figure 6.4 Manufacturing process of wooden lamp shade

- A: Artisan measuring the wood
- B: Cutting process
- C: Hole being drilled by machine
- D: Jali designs on wooden strips

- E: Artisan using adhesive to join the wooden strips
- F: Artisan assembling all strips together for shaping the lampshade
- G: Artisan working on lathe machine
- H: Artisan displays the outcome of the lathe
- I: Artisan doing wood carving on wooden rod
- J: Carved wooden rod
- K: Burning treatment on wood to make antique look

Due to the multiple processes and the involvement of multiple artisans in this work, few images could not be captured. Figure 6.4 (A) to (K) represent the entire development process of lamp stand. Several procedures were followed by the artisan to complete this product.

### 6.2.3 STOOL CUM SIDE TABLE

This product is primarily a stool cum side table and it can be used as a side table as well as a stool. This product is made of mango wood. The product dimension is: length 22”, width 13” and height 18”. The intricate surface ornamentation through wood carving is one of the key features of the SRE craft cluster. Floral pattern and antique finish were used to enhance the beauty of this product.

This product with floral carving has been designed for multi-utility which adds value to this product. In the product line of SRE, majority of stools are being made by using *jali* technique on the top because *jali* cutting work takes less time and the artisans are willing to do *jali* work. If the artisans use carving on stool, then they usually do shallow carving. Additionally, stools are made in sheesham wood which is a very expensive raw material. Keeping these views in mind, the researcher designed this product in mango wood with antique finish and with semi carving. Semi carving gives medium depth to wood and floral patterns appear to emerge out of wood. Deep carving could not be suitable for the stool because wood should be dense for deep wood carving. Due to this, the stool could be bulky. So for that purpose, this product is different from the others because of the carving and it looks heavy but it is hollow from inside. It is light weight and durable. It is easy to handle anywhere.

Apart from that, this product was developed within 8 days and total 5 artisans were employed to develop this product such as carpenter, carver and the artisan working on antique finish, sanding and polishing artisan. The following figure 6.5 has been given to show the conceptual sketch; figure 6.6 has been given for showcasing the final product and figure 6.7 explains the step by step process of the development.

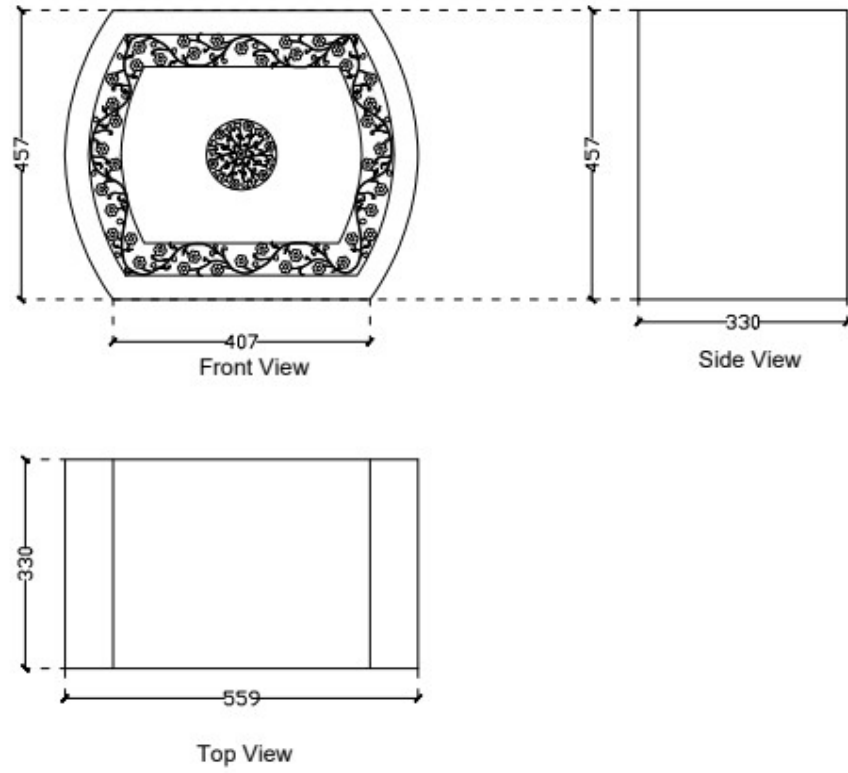


Figure 6.5 Conceptual sketch of stool cum side table

**FINAL PROTOTYPE**



Figure 6.6 Carved Stool cum side table with details

## PROCESS IMAGES



Figure 6.7 Manufacturing process of stool cum side table

- A: Artisan busy with wood cutting
- B: Wood gets desirable shape by the artisan
- C: Wood carving operation
- D: Artisan involved in wood carving
- E: Final outcome of wood carving
- F: Artisan trying to join all parts of the stool with nails
- G: Final assembling of the stool
- H: Artisan using sander on the stool to make the surface smooth
- I: Artisan using flame to make it look antique
- J: Wood Polishing

Figure 6.7 (A) to (J) represent the entire development process of stool cum side table. Several procedures were followed by the artisan to complete this product.

### 6.2.4 CANDLE STAND

This is a floor and table-top utility product which is intended to hold a candle. This product is designed to fulfill utility-cum-decorative purposes in the interior living space of the end-user. The raw material used to develop this product was mango wood. The product dimension is: height 11”, length 4” and width 4”. The product has been designed in a common shape because in recent times, most of the candle stands are being designed in round shapes without any carving or very less carving. Nowadays, the quality of floral decorative patterns is decreasing day by day. This is an attempt to revive floral pattern through semi-carving. This product was completed within 4 to 5 days by the carpenter, carver and the artisan working on antique finish, sanding and polishing artisan. The following figure 6.8 shows the conceptual sketch; figure 6.9



stands for the final product and figure 6.10 gives details of the step by step process of the development of the sample.

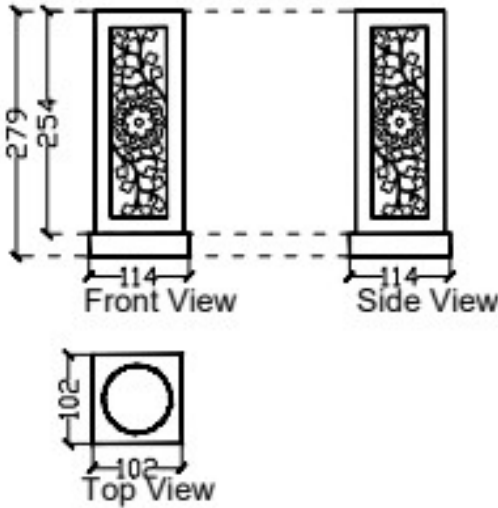


Figure 6.8 Conceptual sketch of candle stand

**FINAL PROTOTYPE**



Figure 6.9 Candle stand with detailing

## PRODUCT PROCESS



Figure 6.10 Development process of candle stand

- A: Wood being cut in desirable sizes
- B: Wood gets impression of the compass to create circle to draw the flower
- C: Wood carving starts inside the circle
- D: Final result of carving (carved flower inside the circle)
- E: Again the next level of carving starts
- F: Final assembling of candle stand
- G: Artisan using sander on candle stand
- H: Artisan using flame to make it look antique
- I: Final product

Figure 6.10 (A) to (I) stand for the whole development process of candle stand. Numerous actions were followed by the artisan to complete this product.

### 6.2.5 PLANTER

This product is primarily a decorative dry flower planter. The product is made of mango wood. The product dimension is: length 14.5", width 8" and height 12.5". Floral pattern and antique finish were used to enhance the beauty of this product. This product has the combination of geometrical form with floral decorative carving pattern. This can be suitable for dry flowers arrangement as well as for unique abstract sticks. It is different from other planters. It has unique characteristics like semi carving and difference in shapes. One can see rounded planters in SRE. So the designed planter is fresh for the SRE woodcraft industry. This product was developed within 4 to 5 days by the carpenter, carver and the artisan working on antique finish, sanding and polishing artisan. The following figure 6.11 is shown as the conceptual sketch;

figure 6.12 stands for the final product and figure 6.13 gives details of the step by step process of the development of the sample.

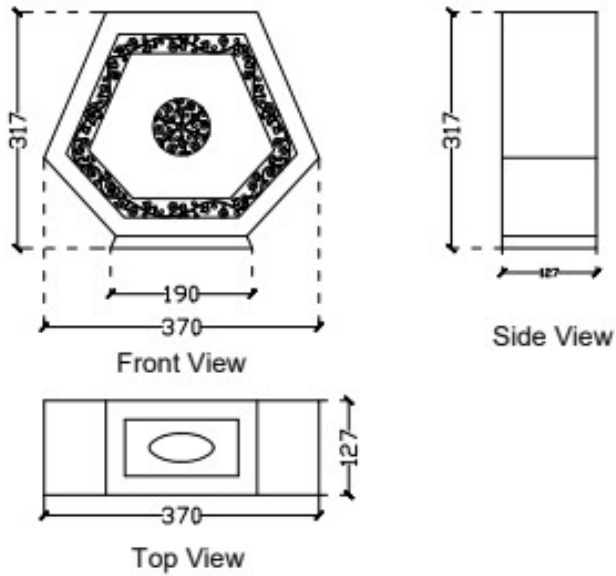


Figure 6.11 Conceptual sketch of planter

**FINAL PROTOTYPE**



Figure 6.12 Wooden planter



## PROCESS IMAGES



Figure 6.13 Development process of wooden Planter

- A: Wood being cut in desirable sizes
- B: Wood gets impression of the compass to create circle to draw the flower
- C: Wood carving starts inside the circle
- D: Final result of carving
- E: Artisan trying to assemble all parts of the planter
- F: Final assembling of the planter with the help of nails
- G: Artisan filling putty
- H: Artisan doing sanding to make it even
- I: Artisan giving antique looks to the planter
- J: Sanding operation starts again
- K: Artisan polishing the product and making it glossy

Figure 6.13 (A) to (K) give the details of entire process of planter. Various artisans with different skill sets and various actions were involved to complete this product.

### 6.2.6 LANTERN

This product is primarily a floor lantern which has been designed for utility-cum-decorative purposes. The product is made up of mango wood. Its dimension is: length 12.5”, width 12.5” and height 13.5”. This is another attempt of geometrical form with decorative carving that creates beautiful reflection on the floor during illumination. Floral pattern and antique finish were used to enhance the beauty of this product. This product is unique for the market. One cannot find it in the market. It was made in wooden strips with carving. A cylindrical glass is placed inside the lantern. To improve the product line of SRE, it was introduced through this research. This product was developed within 4 to 5 days by the carpenter, carver and the artisan working on antique finish, sanding and polishing artisan. Figure 6.14 is shown as the

conceptual sketch; figure 6.15 stands for the final prototype and figure 6.16 gives details of the step by step process of the development of the sample.

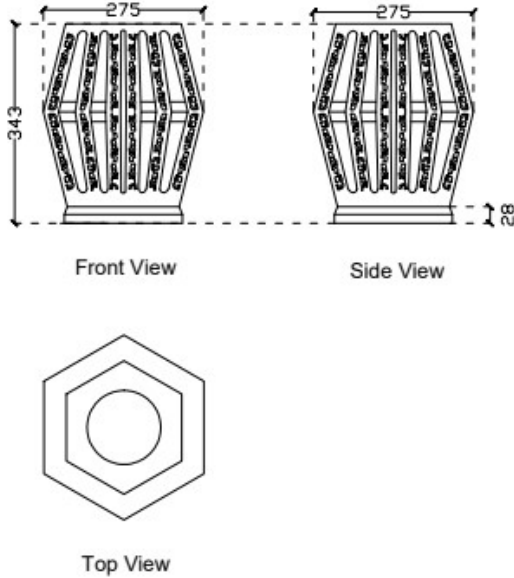


Figure 6.14 Conceptual sketch of wooden lantern

**FINAL PROTOTYPE**



Figure 6.15 Wooden lantern

## PROCESS IMAGES



Figure 6.16 Development of wooden lantern

- A: Wood cutting
- B: marking on wood by pencil
- C: Wood carving starts
- D: Final result of carving (carved strips)
- E: Making the tip of strips plain
- F: Joining of the product
- H: Surface smoothing by sand paper
- I: Final process of making it plane
- J: Artisan giving antique looks to give it the final touch

Figure 6.16 (A) to (J) provide the details of entire process of lantern. Various artisans with different skill sets and various actions were involved to complete this product.

### 6.3 COLLECTION 2

As consumers' lifestyle demands more versatile products, all the designers such as textile designers, day to day plastic manufacturing brands etc. are responding and reacting to specific activities. The urban consumers are specifically targeted as busy lifestyles lead them to require products that offer durability as well as versatility. Keeping these factors in mind, following prototypes were designed. This collection, designed after having taken inspiration from Saharanpur woodcraft, deals with table-top accessories which were selected for the end user. For this collection it would be better to say that it is a very decent collection and a new technique was used to make it novel. For novelty, white paint was used for the surface treatment to give a classy look to the products. This collection includes a total number of 5 different functional products made of sheesham wood. Inspired by the spiral shape, these tabletop accessories have been updated to give them a thoroughly modern flavor. The elegant

curves and daring rounded lines of these accessories perfectly demonstrate the simplicity of organic forms and textures that inspires very much. The combination of organic forms has been carved out on wood along with surface treatment, making these products more sophisticated and contemporary.

### **6.3.1 DESIGN INSPIRATION**

Spirals have been one of the oldest geometric forms created even throughout the ancient era. It is known as an archaic sign of progress. Spiral is one of the most ancient signs of human divinity in actuality and the archeologists have found it carved into cave habitats, rocks and tombs all around the world (Fig.6.17). It is believed that it epitomizes the development of the natural world, the infinite course of progress, variation and everlasting life as well as the periods of the seasons. It appears to tell a tale about the passage of life and death and recounts the probability of reawakening (Suri, 2011). Each circuit of the spiral takes us forward to a loftier level, yet brings us back always to the same point. It exhibits the revival of life by coming back to the origin.



Figure 6.17 Spiral pattern  
Source: Rearranged by the researcher

An ageless attraction is displayed in the daintily carved fittings with the clarity of natural shapes and textures. The blending of the color tonalities and components of naturalness are showcased in the products. Another important factor for choosing spiral design in all office products is to create harmony and synchronization.

### **6.3.2 PEN STAND CUM CARD HOLDER**

The purpose of this product is to hold the pens, pencils, painting brushes etc. Another purpose of this product is to hold and keep the visiting cards and pens. Its target consumers are officials and consultants. Sheesham wood has been used in this product as raw material. The product



dimension is: length 13", height 4.25" and width 4". It is multi functional and easy to carry product. The technique of this product is new to the market.

Please refer to figure 6.18 for conceptual sketch, figure 6.19 for the final product and figure 6.20 for the manufacturing process of the product.

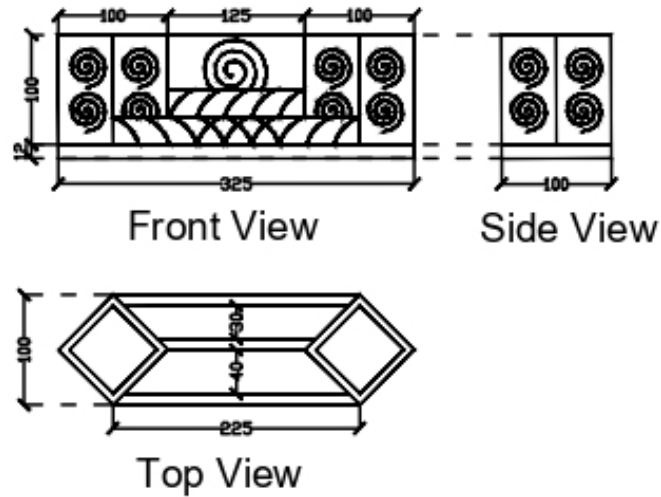


Figure 6.18 Conceptual sketch of pen stand cum card holder

### FINAL PROTOTYPE



Figure 6.19 Pen stand cum card holder

## PROCESS IMAGES



Figure 6.20 Process of pen stand cum card holder

A: Wood cutting in desirable shape

B: Design pasted on wood

C: Final designs

D: Wood engraving starts

E: Joining of pen stand

F: Surface smoothing

H: White paint used for filling the surface

I: Sanding of product

J: Assembling of product to give it the final look

Figure 6.20 (A) to (J) give the information about the manufacturing process of the pen stand cum card holder.

### 6.3.3 CANDLE STAND (SET OF 3)

This product is designed for decoration and lighting purposes. The elegant surface ornamentation increases its elegance. Sheesham wood was used as raw material for this product. The product dimension is: length 3”, height 12”, 9”, 6” and width 3”. Figure 6.21 is a conceptual sketch of candle stand, figure 6.22 for the final product and figure 6.23 for manufacturing process of the candle stand.

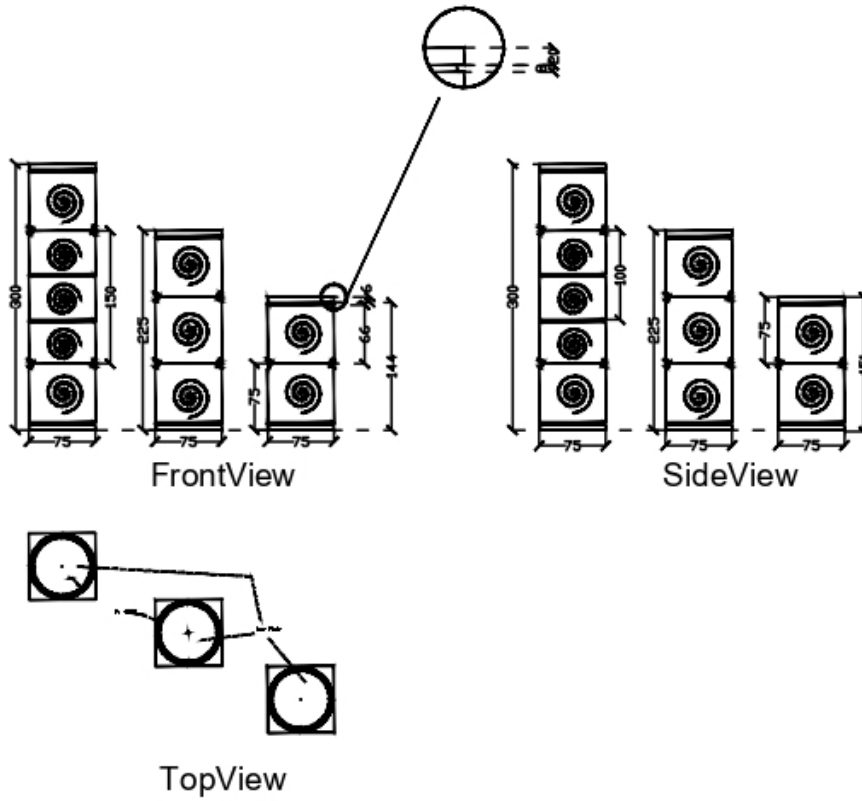


Figure 6.21 Conceptual sketch of candle stand

**FINAL PROTOTYPE**



Figure 6.22 Final product of Candle stand

## PROCESS IMAGES



Figure 6.23 Process of candle stand.

- A: Cutting process of wood
- B: Marking on wood by pencil
- C: Final shape of the holder
- D: Completed 3 sets
- E: Design pasted on wood
- F: Wood engraving starts
- G: Wood engraving completed
- H: Sanding
- I: White paint used for filling the surface
- J: Sanding of product

Figure 6.23 (A) to (J) represent the entire process of candle stand development. Various artisans with different skill sets and various actions were involved to complete this product.

### 6.3.4 FILE TRAY

This product is a file tray which can be used in an office. Its targeted end users are the students and officials. Sheesham wood was used to develop this product sample. Engraving with surface treatment was used to beautify the product. The product dimension is: length 15”, height 15.5” and width 12”. The following figure 6.24 is given for conceptual sketch of file tray, figure 6.25 for the final product and figure 6.26 for manufacturing process of the file tray.



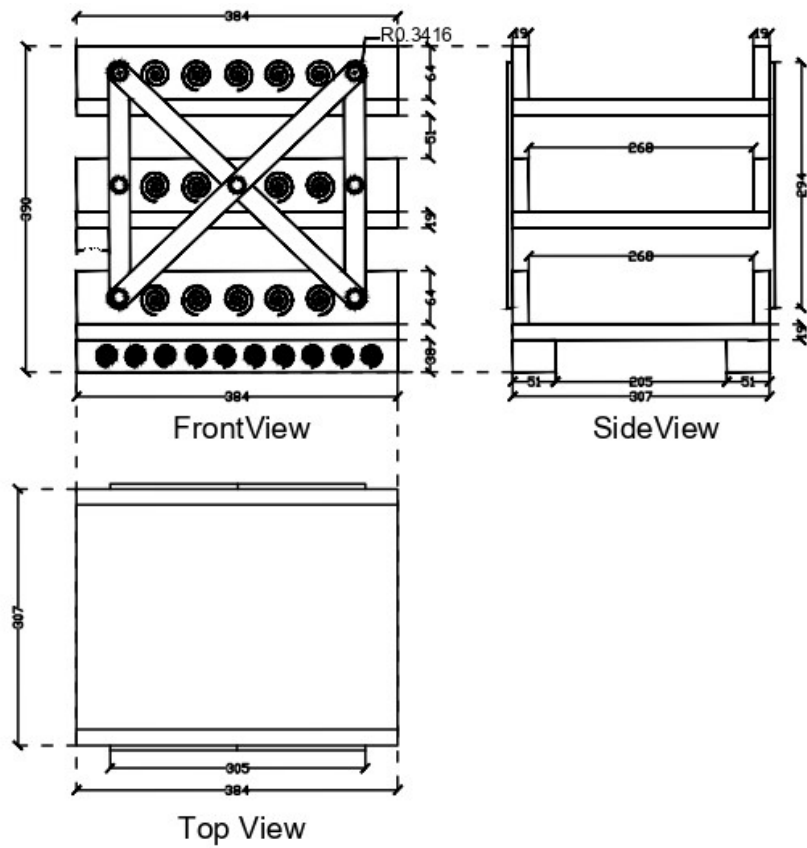


Figure 6.24 Conceptual sketch of file tray

**FINAL PROTOTYPE**



Figure 6.25 File tray

## PROCESS IMAGES

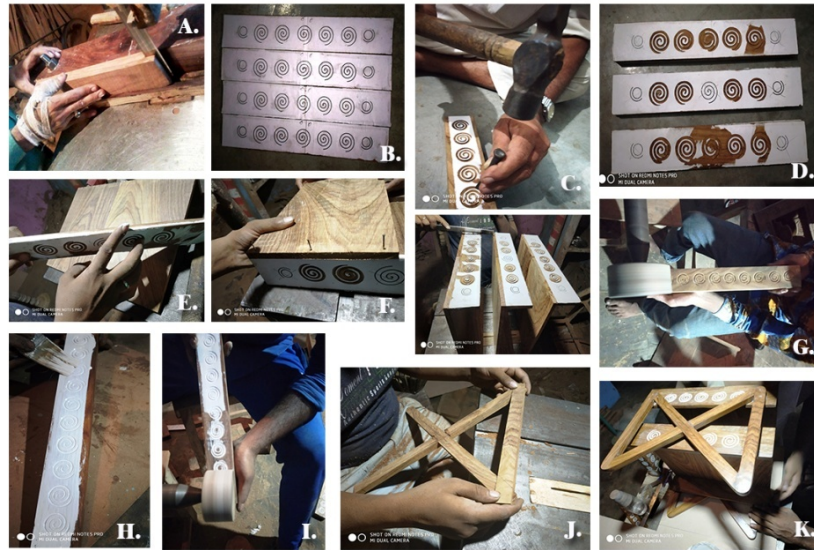


Figure 6.26 Process of file tray

- A: Cutting process
- B: Design pasted on wood
- C: Wood engraving starts
- D: Completed 3 sets of tray
- E: Artisan using adhesive to join this
- F: Artisan using nails and measurement of all the trays in sizes
- G: Sanding of trays
- H: White paint used for filling the surface
- I: Sanding
- J: Assembling
- K: Final assembling of trays

Figure 6.26 (A) to (K) narrate the entire story behind the making of this product. A variety of artisans with different skill set and diverse actions were involved to complete this product.

### 6.3.5 PHOTO FRAME

Various raw materials were used here including sheesham wood, standard photo frame fittings that include the back stand, turn buttons & screw, mount, glass, middle density fiber board etc. Its product dimension is: length 8.5”, thickness 1 cm and height 5”. The skill used here to develop this product is wood surface carving. The following figure 6.27 shows the conceptual sketch, figure 6.28 showcases the final product and 6.29 is given for the understanding of manufacturing process of a photo frame.

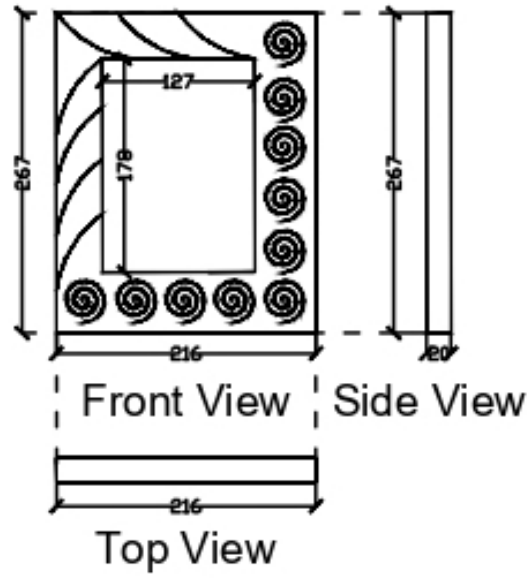


Figure 6.27 Conceptual Sketch of photo frame

**FINAL PROTOTYPE**



Figure 6.28 Photo frame

## PROCESS IMAGES



Figure 6.29 Development process of photo frame

- A: Cutting process
- B: Design pasted on wood
- C: Artisan using adhesive to join this
- D: Wood engraving starts
- E: Completed engraving
- F: Sanding of frame
- G: White paint used for filling the surface
- H: Sanding

Figure 6.29 (A) to (H) give the ample details of the entire process of frame development. A variety of artisans with different skill sets and diverse actions were involved to complete this product.

### 6.3.6 NAPKIN HOLDER

This product holds various uses for the end user i.e. to place the napkins at office table, reception counters and during meetings and conference. The raw material used was sheesham wood. The product dimension is: length 7", thickness 2.5" and height 4". The skills set combinations of wood carving and *nakasi* were used in development of this product. Please refer to figure 6.30 for conceptual sketch and figure 6.31 for the final product and figure 6.32 for the production process.

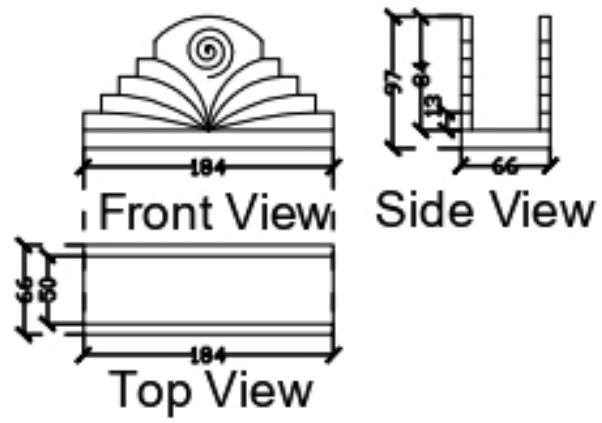


Figure 6.30 Conceptual sketch of napkin holder

**FINAL PROTOTYPE**



Figure 6.31 Napkin holder



## PROCESS IMAGES

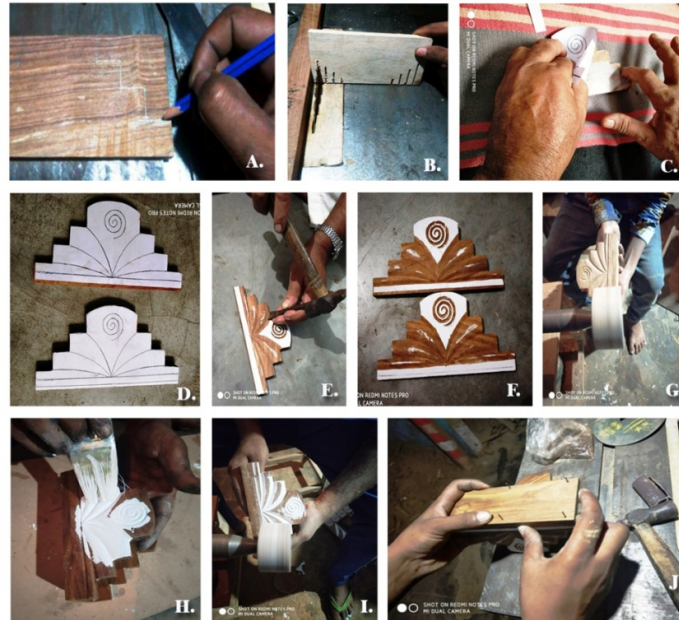


Figure 6.32 Process of napkin holder

- A: Artisan marking on wood
- B: Cutting process
- C: Design pasted on wood
- D: Final desirable design on wood. Artisan using adhesive to join this
- E: Wood engraving starts
- F: Completed engraving
- G: Sanding
- H: White paint used for filling the surface
- I: Sanding
- J: Assembling of all the parts of napkin holder to make it complete

Figure 6.32 (A) to (J) give ample details of the entire process of making of napkin holder. A variety of artisans with different skill sets and diverse actions were involved to complete this product.

### 6.4 COST CALCULATION OF PREPARED SAMPLES

The cost price of developed woodcraft samples was calculated after considering the cost of raw materials, carving, jali, wood turning (lathe) work, labor cost in carpentry, finishing, transportation, electricity and rent of workshop and packaging of woodcraft samples. The researcher has given sample cost along with the wholesale cost of woodcraft samples for their betterment. In this way, these prototypes can be feasible in the market. The following table 6.1 displays the costing for prepared woodcraft samples and shows the difference among sample cost and wholesale cost of prepared woodcraft samples.

Table 6.1 Cost calculation of prepared woodcraft samples

S.NO.	PRODUCT	SAMPLE COST	COST ACCORDING TO 100 PIECE
1.	Lamp stand	Rs.1940/-	Rs.1120/-
2.	Stool cum side table	Rs.2100/-	Rs.1210/-
3.	Candle stand	Rs.540/-	Rs.240/-
4.	Planter	Rs.1210/-	Rs.755/-
5.	Lantern	Rs.1060/-	Rs.530/-
6.	Pen stand cum card holder	Rs.450/-	Rs.215/-
7.	Candle stand set of 3	Rs.1182/-	Rs.491/-
8.	File tray	Rs.1580/-	Rs.840/-
9.	Photo frame	Rs.384/-	Rs.162/-
10.	Napkin holder	Rs.270/-	Rs.115/-

Source: By the researcher through primary survey

## 6.5 VALIDATION AND MARKET TESTING

The prototypes developed by the researcher have been reviewed and validated by the professional designers, academics and experts who are working in hard materials, because they knew the pros and cons of wood and its products. The professional details of them are following:

Santosh Kumar Jha: Professional designer, post graduated from Indian Institute of Craft & Design (IICD), is currently working as a senior faculty at Footwear Design & Development Institute (FDDI) Noida. He has received various awards in the field of Product design like National Winner (India): “Full-Fellowship Award” by the Madras Craft Foundation & Dakshinchitra, Chennai (2007), granted by the Madras, Craft Foundation and Dakshinchitra. National Finalist Award (India), for the research work: “Sustenance of Languishing Traditional Crafts through Design and Processes”, in the Lexus Design Award India’ 2018, under the category of “Design Research & Education”. This award had been jointly organized by the Association of Designers of India-ADI & Lexus.

Ranveer Singh: Guest faculty at National Institute of Technology (Delhi Campus).Empanelled designer by DC (Handicrafts), Ministry of Textiles govt. of India.

Kapil Kumar Madhukar: Assistant Professor (Fashion Design) at Mandsaur University, Mandsaur, MP

Devanand Bagga: Professional designer, graduated from National Institute of Fashion Design (NIFT) Shillong, is currently working with Swoon Editions UK in Jodhpur and Jaipur as a Quality Control General from April 2018 to current. He has worked as a product designer with NCDPD in a project on product development in woodcraft of Saharanpur.

Sonu Gahlaut: Professional designer, graduated from National Institute of Fashion Design (NIFT) Shillong, is currently working with Global Glory PVT LTD Noida from 05/2017 to till date as a Product Designer/ Product Developer. He has worked as a product designer with NCDPD in a project on product development in woodcraft of Saharanpur. Apart from that she has conducted seminar on “Importance of design and product development” on woodcraft at Saharanpur Uttar Pradesh, Sponsored by DC(H) organised by EPCH.

Anupama Chautala: Professional designer, graduated from National Institute of Fashion Design (NIFT) Kangra, is currently working as an accessor in a project Pradhan Mantri Kaushal Vikas Yojana. He has worked as a product designer with NCDPD in a project on product development in woodcraft of Saharanpur.

Apart from that the developed prototype samples were also tested in the market. The strategy of market testing is to take a smaller version of one’s business theme and obtaining customer feedback for that. In order to do so, *Delhi Haat* known as *Dilli Haat*, INA at Delhi was chosen for exhibiting the specimens (Fig. 6.33). A metropolitan city, Delhi showcases the blending of both the ancient and modern cultures. In Delhi, *Dilli Haat* displays the spirit of traditional village crafts created for the present day requirements. At first glance, one can not dismiss *Dilli Haat* as just a market place; it has been envisioned as a place exemplifying the nuances of traditional Indian culture; a platform where urban business thrives on the combination of rural life and folk art brought closer to each other.



Figure 6.33 Map of Delhi Haat

Source: Retrieved from <https://www.slideshare.net/varungoyal05/dilli-haat-janakpuri-73211086>

Ms. Jaya Jaitly can be credited for the lovely and inspiring concept of *Dilli Haat* which is located opposite the INA market in South Delhi and she is the real brain behind its conception.



This place was established in 1994 through joint collaboration of Delhi Tourism, Government of Delhi and NDMC, D.C. (Handicrafts) and D.C. (Handlooms), Ministry of Textiles and Ministry of Tourism, Government of India. The idea is to bring the customers and craft people at par with one another.

The researcher was very grateful to Mr. Fayyaz Ahmad who gave the contact details of his close friend Mr. Firoz Abbasi. Mr. Firoz Abbasi is a woodcraft artisan of SRE. Stall no. 103 in *Dilli Haat*, INA was allotted by the concerned authority from 16.08.2018 to 30.08.2018 to him to showcase his woodcraft products. The researcher had requested and taken permission from Mr. Firoz Abbasi to exhibit her prototypes for only one day, in his stall. The researcher gave Mr. Firoz Abbasi the confidence that she wanted to display her prototypes only for academic research and her prototypes would not be sold. The purpose of this display was only to take the feedback from the customers. Considering the value of research in the area of SRE woodcraft, Mr. Firoz Abbasi had given his permission to the researcher. As a result, the researcher displayed her prototypes at stall no. 103 on the date of 28.08.2018 and visitors filled the appreciation/criticism in specially designed questionnaire.



Figure 6.34 Fayyaz Ahmad and the researcher  
Figure 6.35 Displayed products at stall no. 103, *Dilli haat*  
Source: Photographs taken by Mr. Abhishek Bharti

The above figure 6.34 was taken at the entrance of *Dilli haat* (researcher with Mr. Fayyaz Ahmad) and figure 6.35 was taken as a proof that the researcher had displayed her products at stall no. 103, *Dilli haat*.

### 6.5.1 SELECTION OF MARKET TESTING SITE

These are the causes for which *Dilli Haat* was selected to be the venue for market testing:

- The set up of the market is such that it provides both the rural and traditional ambience, as it showcases diverse art forms and crafts from several states of India. Moreover the overall impression is again both informal and formal as is displayed through various characteristics of both informal and formal markets. This informality is evident in its set up e.g. its architecture, the stalls selling the goods, goods being sold right there on the path.
- During the last few years, this place has grown as a tourist attraction which has greatly benefitted the vendors. *Dilli Haat* displays the scenario of a rural or local market in the midst of an urban area. Its regulation is undertaken by the management of New Delhi Municipal Corporation (NDMC) and New Delhi Tourism and Transportation Development Corporation (DTTDC).

### 6.5.2 ASSESSMENT OF PREPARED PROTOTYPE WOODCRAFT SAMPLES

In order to test the feasibility of the woodcraft prototypes, a survey was conducted at *Dilli Haat*, New Delhi. In total, 44 respondents participated who visited *Dilli Haat* to make some purchase or to have a leisure time. The following figures 6.36 and 6.37 were taken during market testing to collect feedback from respondents.



Figure 6.36 Respondents filling questionnaire at stall no. 103, *Dilli haat*

Figure 6.37 Respondents with the researcher at stall no. 103, *Dilli haat*

Source: Photographs taken by Mr. Abhishek Bharti

Survey was conducted on 28.08.2018 and the reviews and feedback collected from respondents pertaining to designs and their satisfaction level are categorized under the following heads:

- Material
- Craftsmanship
- Aesthetics
- Value for money
- Designs
- Overall appeal of the product

### 6.5.3 PREFERENCE OF THE RESPONDENTS REGARDING THE QUALITY OF WOOD FOR WOODCRAFT SAMPLES

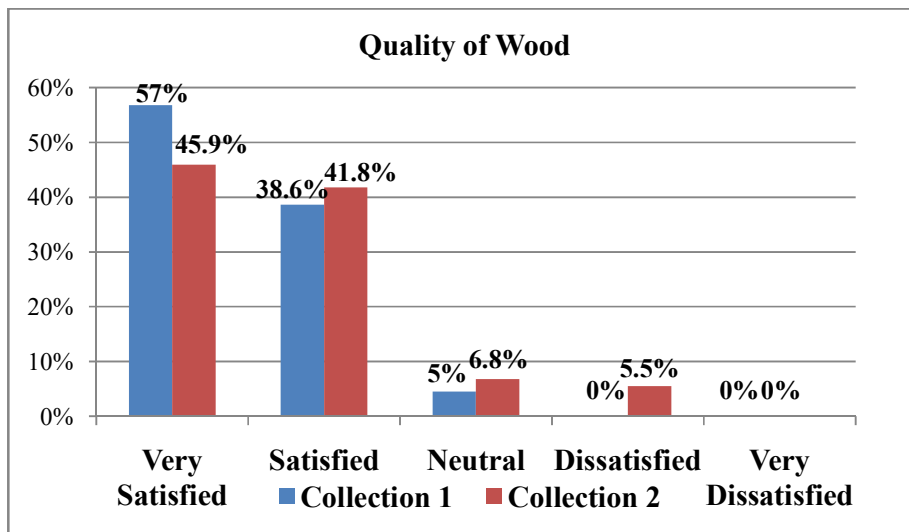


Chart 6.5.3 Distribution of the respondents according to quality of wood  
Source: By the researcher through primary survey

During the purchase of a product, the customers spend considerable time in making their choices in terms of cost, quality, pattern, types, functionality of product etc. In this context, quality of the raw material is the major factor which decides the life of a product. We can see through the chart 6.5.3 for collection 1, that out of the total, 57% respondents are found to be strongly satisfied with the quality of wood because seasoned and chemically treated wood was used to make these products which was the main reason of high satisfaction. 38.6% respondents are satisfied while 5% respondents are neutral with the quality of wood used for the products. Thus, the percentage of respondents highly satisfied and satisfied with the quality of wood is very high (nearly 98.1%) which denotes that the quality of raw material used for the products is excellent and the antique look makes these appear marvelous. If we see their opinions regarding collection 2, 45.9% respondents are strongly satisfied and 41.8% respondents are satisfied with the quality of wood. 6.8% respondents are neutral and 5.5% are dissatisfied with

the quality of raw material. In total, 87.7% respondents are found to be happy with the quality of the products. Thus, in the current study we find that majority of the respondents are satisfied with the raw material of both the collections.

#### 6.5.4 PREFERENCE OF THE RESPONDENTS REGARDING THE QUALITY OF CRAFTSMANSHIP FOR WOODCRAFT SAMPLES

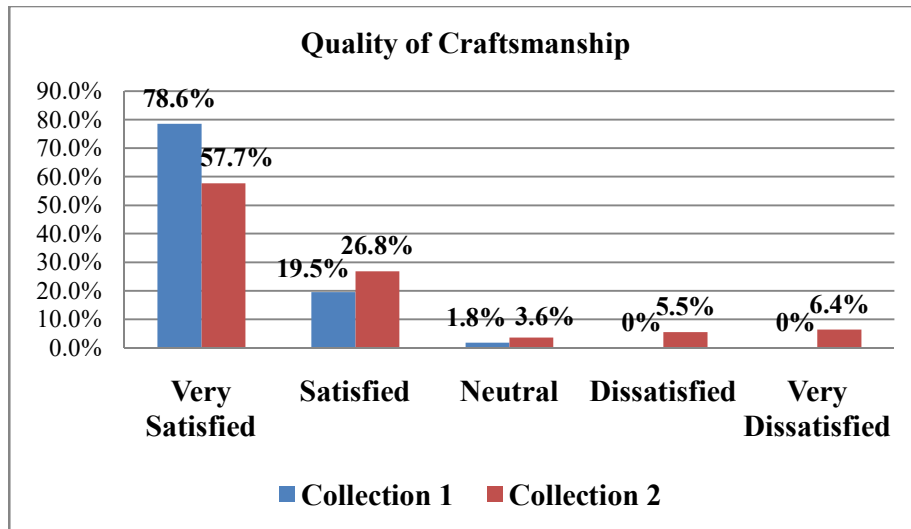


Chart 6.5.4 Distribution of the respondents according to quality of craftsmanship  
Source: By the researcher through primary survey

Craftsmanship is displayed in a piece of art work with a combination of skill, technique and passion by the artisan. Artisans are known as the creators and preservers of culture. The definition of artisan pertains to such a person who creates goods or gives services to others while making use of his/her own skills and hard work and his/her skills are associated with conventional knowledge (Kramrisch, 1958; Ishtiyah, 2011). Additionally, the creativity of the artisans is precious and a gift of God which cannot be purchased with money. Artisans put their heart in making the products and satisfying the consumers as their satisfaction is priceless. Talking about the artistry of collection 1, majority of the 78.6% respondents are highly satisfied with the craftsmanship because they appreciate and respect the crafts and craftsmen. That is why they frequently visit *Dilli Haat*. 19.5% respondents are satisfied with the craftsmanship of the products because they know the value of a craftsman's work. Only 1.8% respondents have given neutral opinions regarding craftsmanship because they are neither satisfied nor dissatisfied with the quality of craftsmanship. For collection 2, majority of the respondents (57.7%) are found to be highly satisfied with the quality of craftsmanship of the products because it was a unique technique for them. Moreover, the surface treatment of the products is elegant. 19.5% respondents are satisfied with the quality of craftsmanship because the surface

treatment given on sheesham wood appears decent to them. 3.6% respondents are neutral, the following 5.5% are dissatisfied and the rest of 6.4% respondents have highly disagreed because they like the traditional way of carving.

The result reveals through chart 6.5.4 that majority of the respondents have a good sense of art work and they want to protect the legacy of India and craft is considered as a part of the heritage which passes on from one generation to the next. Therefore, the artistry of both the collections is unique. For collection 1, 98.1% respondents are highly satisfied and satisfied with the quality of craftsmanship as compared to collection 2 (84.5% satisfied). Thus, the satisfaction level can be seen through the results of both the collections.

### 6.5.5 PREFERENCE OF THE RESPONDENTS REGARDING THE QUALITY OF WOOD FINISHES FOR WOODCRAFT SAMPLES

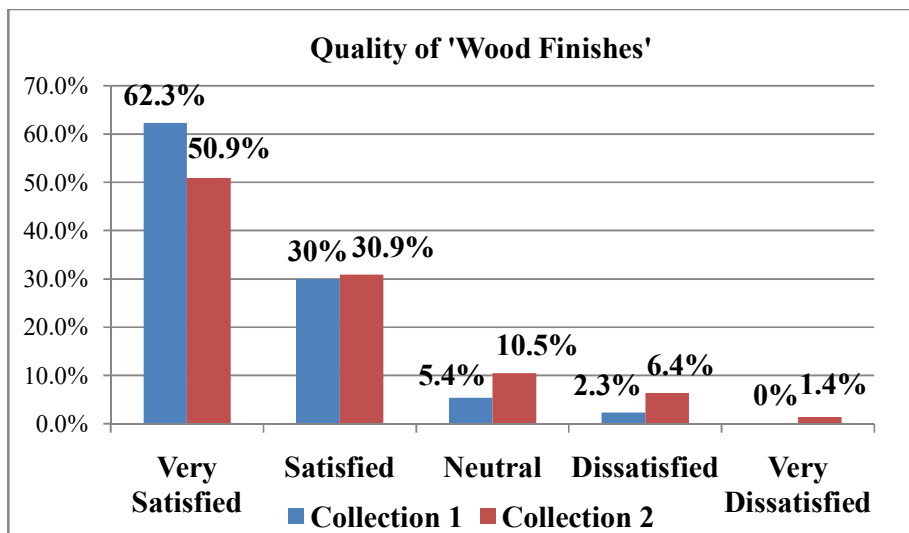


Chart 6.5.5 Distribution of the respondents according to quality of wood finishes  
Source: By the researcher through primary survey

Wood finishes make reference to the film forming layers that are applied to the surface of the wood to preserve it and focus on its look. Lifeless wooden objects can also transform into vibrantly embellished products with the use of such finishes. In this regard, out of the total, 62.3% respondents are found to be very satisfied while 30% are satisfied with the quality of wood finishes because they know the role of finishes for the durability of wooden products. If the person is a connoisseur of art then he /she will choose the right finishes for the wooden product and make it more interesting and long lasting too. Only 5.4% respondents have given a neutral response and the following 2.3 are dissatisfied with the quality of wood finishes. As a



result, collection 1 is appreciated in terms of wood finishes because an antique look and glossy polish make them durable and protect them from the elements of weather.

As per the displayed results (Chart 6.5.5), out of the total, 50.9% respondents are very satisfied; the following 30.9% respondents are satisfied with the quality of wood finishes of collection 2. 10.5% respondents are neutral; the following 6.4% respondents are found to be dissatisfied. The rest of 1.4% respondents are highly dissatisfied with the quality of wood finishes. Thus, collection 2 is also liked by majority of the respondents in terms of wood finish because wax polish was used to give final touch to the products which makes them non glossy and provides a rich look to the grains of wood.

**6.5.6 PREFERENCE OF THE RESPONDENTS FOR PRODUCT DESIGN INPUT BY THE RESEARCHER FOR WOODCRAFT SAMPLES**

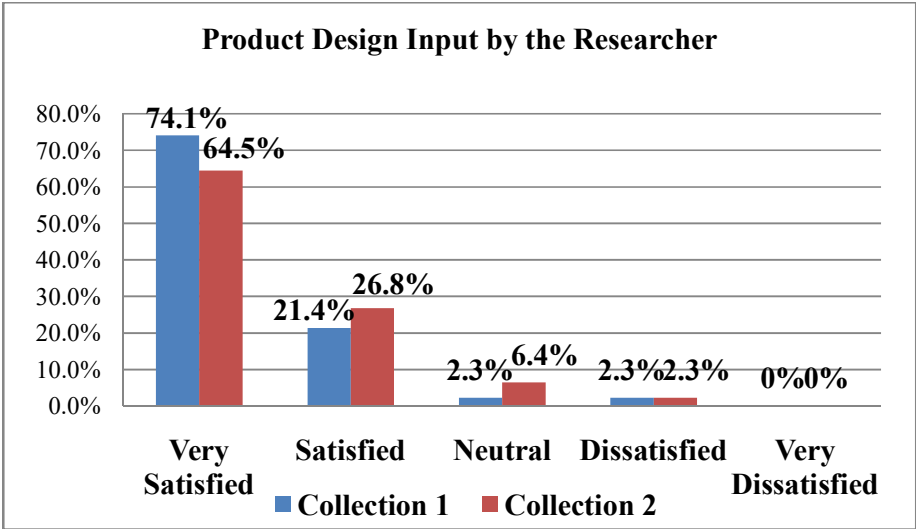


Chart 6.5.6 Distribution of the respondents according to design input by the researcher  
 Source: By the researcher through primary survey

The procedure to develop a product is a challenge to the intellect and it requires the knowledge and proficiency of a designer. The term ‘designing the product’ refers to the ascertainment of form/shape, model and pattern of the product. According to the above mentioned data (Chart 6.5.6), out of the total, majority of the respondents (74.1%) are very satisfied; the following 21.4% respondents are satisfied with the product design input of the researcher. According to few respondents, these designs are fresh and unique. However, 2.3% respondents are neutral and 2.3% respondents are dissatisfied with the design input. Thus, the result indicates that majority of the people were satisfied and few of them were so happy that they proposed to get their living space designed by the researcher. On the contrary, two respondents opined that the

design quality of the products could have been improved and made more interesting. If we talk about collection 2, we find that out of the total, 64.5% respondents are highly satisfied and 26.8% respondents are satisfied in terms of design input of the researcher. While 6.4% respondents are neutral, the following 2.3% are dissatisfied which means partially satisfied with the design input.

### 6.5.7 PREFERENCE OF THE RESPONDENTS REGARDING THE FUNCTIONAL CLARITY OF WOODCRAFT SAMPLES

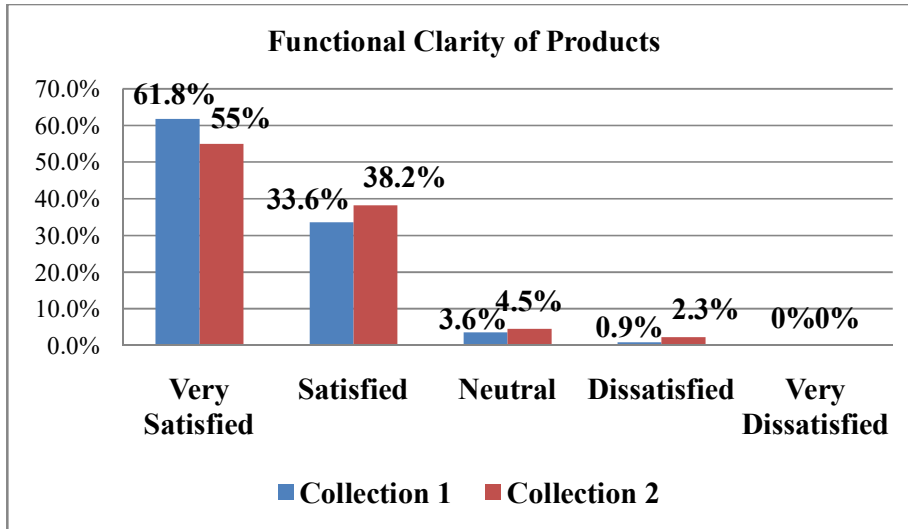


Chart 6.5.7 Distribution of the respondents according to functional clarity of products  
Source: By the researcher through primary survey

A product proves to be saleable provided it fulfills the requirements of the consumer and therefore, the product must be designed to fulfill such requirements. As the data (Chart 6.5.7) denotes, out of the total, 61.8% respondents are very satisfied and 33.6% respondents are satisfied with the functional clarity or usage of the products. However, 3.6% respondents are neutral and 0.9% respondents are dissatisfied with the usage of collection 1. One respondent opined that in today's time, candle stands are not used by anyone for lighting purpose but the researcher justified by giving the example of the restaurants where candles are used for fragrance as well lighting to create a romantic aura around the people. So the researcher had designed the candle stand keeping such usage also in mind.

For collection 2, out of the total, 55% respondents are very satisfied and 38.2% are satisfied with the usage of these products. While 4.5% respondents are neutral, the rest of the 2.3 % respondents are dissatisfied with the functional clarity of these products. It can be concluded



that all the products were designed for daily use. The usability of these products was appreciated by the respondents.

### 6.5.8 PREFERENCE OF THE RESPONDENTS REGARDING THE COSTING OF WOODCRAFT SAMPLES

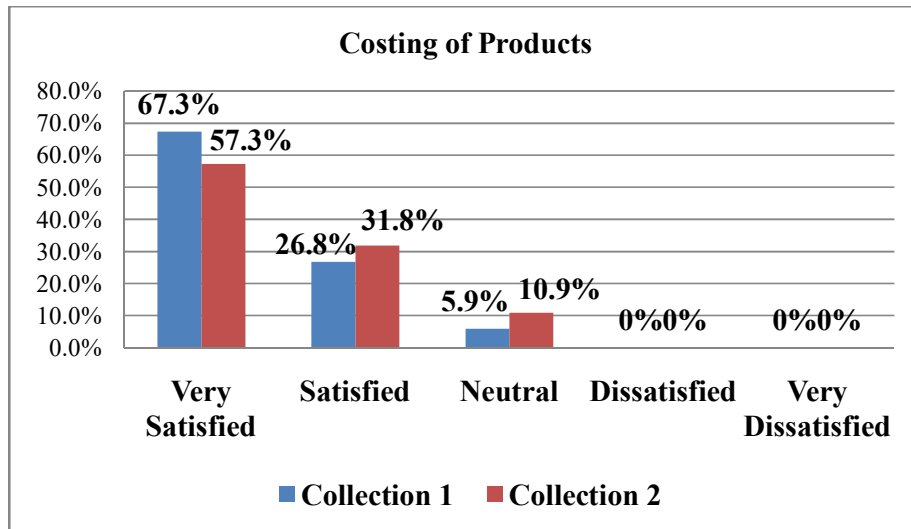


Chart 6.5.8 Distribution of the respondents according to the costing of the products  
Source: By the researcher through primary survey

Price, quality and functionality are the major factors of a product which influence the buying behavior of the customers. People always want to buy the cost effective products which fulfill the requirement of the user. It is imperative for a good product design to ensure that its manufacturing cost must remain the minimum. In this regard, the above chart 6.5.8 represents that 67.3% respondents are very satisfied with the cost of the products. So much so that majority of the respondents wanted to buy these products. While 26.8% respondents are satisfied, the following 5.9% are neutral.

According to the above mentioned data, 57.3% of the total respondents are highly satisfied; the following 31.8% respondents are satisfied with the price of the products of collection 2. The rest of 10.9% respondents are neutral in terms of price of the products. They had given a neutral response because they were neither satisfied nor dissatisfied with the cost of the products.

### 6.5.9 PREFERENCE OF THE RESPONDENTS REGARDING THE OVERALL EXPERIENCE OF WOODCRAFT SAMPLES

Based on the survey (Chart 6.5.9), it was observed that 70% of the respondents viewed that the overall experience of collection 1 was very satisfactory and admirable while 28.2% respondents

said that the overall experience was on a satisfactory level. The rest of the respondents (1.8%) stood for a neutral experience. Their overall experience regarding collection 1 was neither so good nor so bad.

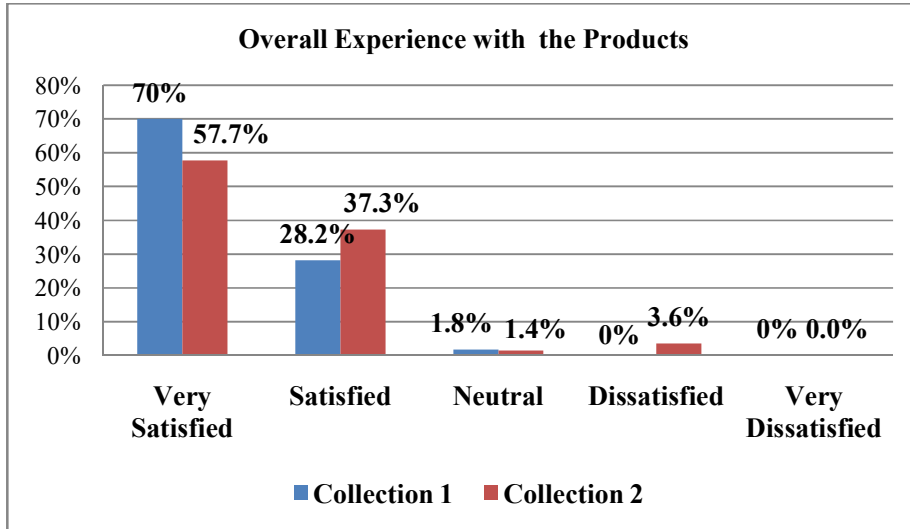


Chart 6.5.9 Distribution of the respondents according to overall experience of the products  
 Source: By the researcher through primary survey

When evaluating the overall experience regarding collection 2, we find that 57.7% of the respondents opined that they were highly satisfied with the quality of material, craftsmanship, finishes, design and cost, so the overall experience for collection 2 was highly satisfying. 37.3% respondents were satisfied and their overall experience was good. 1.4% respondents were neutral; the following 3.6% respondents were dissatisfied. Following is the brief narration of questionnaire and respondent’s reaction.

### 6.5.10 PREFERENCE OF THE RESPONDENTS REGARDING ALL WOODCRAFT SAMPLES

Feedback always helps the researcher to know about the client’s need and level of satisfaction with the product. Additionally, their valuable suggestions are a resource for enhancing the product or service.

Table 6.2 Distribution of the respondents according to their opinion of respondents regarding all woodcraft samples

Feedback of Respondents for Overall Products					
Questions	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Satisfaction level regarding raw-material	51.4%	40.2%	5.7%	2.7%	0.0%
Satisfaction level regarding 'craftsmanship'	68.2%	23.2%	2.7%	2.7%	3.2%
Satisfaction level regarding 'wood-finishes'	56.6%	30.5%	8.0%	4.3%	0.7%
Satisfaction level regarding the product design input	69.3%	24.1%	4.3%	2.3%	0.0%
Satisfaction level regarding functional clarity of products	58.4%	35.9%	4.1%	1.6%	0.0%
Satisfaction level regarding costing	62.3%	29.3%	8.4%	0.0%	0.0%
Satisfaction level regarding overall experience with our products	63.9%	32.7%	1.6%	1.8%	0.0%

**A. Satisfaction level of customers with the quality of wood being used as structural raw-material:** A customer always makes sure that the product and its raw material is durable and cost effective before purchasing it. So on the basis of these facts, the researcher had prepared these prototype samples in seasoned woods. Seasoned or matured wood restrains any modifications in the size and form of the objects, erases wood deterioration, improves the hardness of the wood, lessens the weight of the objects, toughens glued joints and enhances the quality of finishing (Mishra, 2017). Thus, on the basis of above mentioned data, it can be ascertained that 91.6% respondents are very satisfied and satisfied. As per feedback, customers are aware about the wood quality and its properties.

**B. Satisfaction level of customers with the quality of craftsmanship:** Craftsmanship not only depends on the creativity of an artisan but it is also the unique combination of skill, hand work, imagination and analysis of an artisan. In the context of prototype samples, the researcher had selected the best artisans who were Shilp Guru Award and National Award winner Mr. Fayyaz Ahmad and Dr. Ram Manohar Lohiya Special Handicraft State Award winner Mohammad Haroon and they were contacted for the manufacturing of prototypes. Samples were customized under the supervision of professionals and their highly talented team. Thus, 91.4% respondents are highly satisfied with the quality of craftsmanship.

**C. Satisfaction level of customers with the quality of wood finishes:** Further analyses were carried out for the quality of wood finishes of samples. Wood finishes always play a vital role in the appearance of the products. Wooden products always require protection and it can be achieved through effective coating of finishes. It has already been discussed that majority (56.6%) of the respondents are highly satisfied; 30.5% are satisfied and 8% of the respondents are neutral about the quality of wood finishes while 4.3% respondents have given an unsatisfactory response and rest of the 0.7% respondents are highly disappointed with the quality of finishes. As the result represents, 87.1% respondents are satisfied with the quality of wood finishes.

**D. Satisfaction level of customers with the design input by the researcher:** The next section describes the design input. The designer plays a leading role in the revival of handicrafts. He always acts as an interface between the market and the artisans and creates a connection between them. The artisans do not know about the consumers' needs and a designer makes the artisanal work marketable through his or her creativity. As the above data shows, from the total no. of respondents, majority of 69.3% respondents are highly satisfied and 24.1% respondents are satisfied while 4.3% respondents are neutral and the rest of the 2.3 % respondents are unsatisfied with the design input by the researcher. In total, 93.4% respondents are satisfied with the researcher's efforts. Accordingly, one respondent who is a professional accessories' designer, opined that all the products were excellent and showed newness in the market. He expressed that as a designer he knew how critical it was to make prototype samples.

**E. Satisfaction level of customers with the functional clarity of displayed products:** While discussing about the functional clarity of the samples, it is found that majority (58.4%) of the respondents are extremely satisfied and 35.9% respondents are satisfied while 4.1% respondents are neutral and the rest of the 1.6% respondents are unsatisfied with the functional clarity of the samples. Thus, the researcher had designed the products according to the utility that fulfills the needs of the customers.

**F. Satisfaction level of customers with the costing of displayed products:** The customers always appreciate a cost effective product that fulfills the customers' needs and has aesthetic appeal and great quality. As the data denotes, out of the total, majority (62.3%) of respondents are very satisfied; 29.3% respondents are satisfied and the following 8.4% respondents are neutral about the cost of the prepared samples. One of the respondents expressed that the prizes were very genuine and majority of people would like to pay happily for these products because the cost of the products is within the budget. Discussing about the lamp shade, majority of the

respondents opined that the lamp shade was very cost effective as compared to other lamp shades that were already available in the market. Even the existing range of lamp shades in the market is very costly and a very limited number of people can afford to buy the lamp shades from the market. Therefore, the study reveals that the prices of these prepared samples are very genuine.

**F. Satisfaction level of customers with the overall experience of displayed products:** The overall experience of the products was excellent which can be seen through the above mentioned chart. The data explains that out of the total, majority 63.9% of the respondents are very satisfied and 32.7% respondents are satisfied with these products whereas 1.6% respondents are neutral and rest of the 1.8% respondents are unsatisfied with the products. For instance, one respondent said that the overall experience was neutral because he did not like all the products but just a few. But majority of the respondents said that they were happy with these products and these samples had never been seen before, so these were new specimens for them and they wanted to buy these products. They wanted to buy them and decorate their homes/office/hotels by their placement. Thus, all prototypes/samples were tested in terms of raw material, craftsmanship, finishes, design, functionality and cost.

## 6.6 RANK WISE PREFERENCES OF THE RESPONDENTS FOR DEVELOPED WOODEN PROTOTYPES ALONG WITH THE MEAN SCORE

Table 6.3 Respondents' preferences for developed wooden prototypes

S.No.	Prototypes	WMS	Ranks Order
1.	Lamp stand	4.70	I
2.	Stool cum side table	4.64	II
3.	Candle stand	4.53	IV
4.	Planter	4.63	III
5.	Lantern	4.64	II
6.	Pen stand cum card holder	4.41	VII
7.	Candle stand (set of 3)	4.44	VI
8.	File tray	4.46	V
9.	Photo frame	4.31	VIII
10.	Napkin holder	4.31	VIII

WMS-Weighted Mean Score

The wooden prototypes were evaluated on the basis of raw material, craftsmanship, finishes, design, functional clarity, cost and overall experiences by the respondents. It is clear from Table 6.3 that various factors were considered for evaluating the wooden prototypes. The first rank most preferred by the respondents was given to lamp shade with mean score 4.70, followed by stool cum side table and lantern with the mean score 4.64. The other designs in descending order were planter with mean score 4.63, candle stand with the mean score 4.53,

file tray with the mean score 4.46, Candle stand (set of 3) (4.44) and pen stand cum card holder (4.41). The least preferred designs were photo frame and napkin holder with the mean score 4.31.

Thus the result indicates that the wooden lamp was the most preferred prototype which was appreciated in terms of raw material, craftsmanship, finishing, design, functional clarity, cost and overall experiences by the respondents. On the other hand, photo frame and napkin holder were the least preferred prototypes.

## **6.7 SUGGESTIONS REGARDING PROTOTYPES SAMPLES**

Suggestions are the most valuable part of any research/product/survey etc. Through the suggestions of the respondents, it can be known how one can improve a product for future sale and what can be done for the next levels. Following suggestions were given to the researcher to improve these products:







- **Lamp Stand:** It is very affordable and durable, along with the essence of traditional carving. The creativity and innovation in its design and motif placement is unique. The antique finish is providing life to the dead wood. One valuable suggestion came that this lamp shade can be made as hanging shade like a chandelier and a wooden hanging may be used on the ring of the shade.
- **Stool Cum Side Table:** Few respondents said that although, it is a multi functional product serving as a stool as well as side table, yet, one more feature can be included as drawers. The overall look and utility make it more appealing and innovative.
- **Candle Stand:** Placements of motifs is done creatively.
- **Planter:** Floral carving could be better if used all over in wooden surface ornamentation. Borders can be widened and the placement of motifs should be arranged in a different way. It must be made in a smaller size because it is a little bulky as compared to other planters.
- **Lantern:** The product is very innovative.
- **Pen Stand cum Card Holder:** This pen stand-cum-card holder is good. However, it can be designed in a more innovative manner.
- **Candle Stand (Set Of 3):** Its technique is innovative and appealing in an aesthetic way and its surface treatment looks marvelous which adds value to it.
- **File Tray:** It could be portable. This product is very innovative and most usable and has beautiful ornamentations.

- **Photo Frame:** This photo frame must be thin and lighter in weight as compared to the actual thickness.
- **Napkin Holder:** It can be improved.

## 6.8 CRAFTSMEN INVOLVED IN PROTOTYPE DEVELOPMENT PROCESS

In order to carry out any visionary/theoretical ideas, the biggest requirement is of a cluster of skilled artisans. The following skillful craftsmen were working on a regular basis during the prototype design and development intercession procedure and aided this researcher to execute her design intended theoretical ideas into actual products. The following table 6.4 gives further details about individual craftsmen.

Table 6.4 Details of individual artisans

S.No.	Name of the artisan	Educational details	Work experience	Image
1.	Mr.Fayyaz Ahmad (Shilp Guru)	Illiterate	Professional experience of 45 years	
2.	Mr. Satish Anand	12 <sup>th</sup> standard	Professional experience of 38 years	
3.	Mr. Naim Ahmad	9 <sup>th</sup> standard	Professional experience of 30 years	
4.	Mr. Usman	5 <sup>th</sup> standard	Professional experience of 29 years	
5.	Mr. Mohammad Haroon	10 <sup>th</sup> standard	Professional experience of 21 years	
6.	Mr. Sannawar	8 <sup>th</sup> standard	Professional experience of 19 years	



7.	Mr. Yaseen	8 <sup>th</sup> standard	Professional experience of 8 years	
8.	Mr. Farman	8 <sup>th</sup> standard	Professional experience of 6 years	
9.	Mr. Shahrukh Ahmad	9 <sup>th</sup> standard	Professional experience of 6 years	

## 6.9 TECHNOLOGICAL ADVANCEMENT IN THE FIELD OF WOODEN HANDICRAFT

For the last few decades of the 20<sup>th</sup> century, technological advancements in India have witnessed a significant change in the world economy coupled with the rapid pace of increasing demands of knowledge. For this purpose, CNC machines (Computer Numerically Controlled) are made use of for executing mechanical work such as cutting, engraving, drilling and other such procedures which result in correctness, efficiency, skillfulness, speed, harmony and pliability in the final product. According to Peters (2007), Computer Aided Design (CAD), Computer Aided Manufacturing (CAM) and Computer Numeric Control (CNC) routers have brought a revolution in the profit-oriented woodworking industry. CNC machines affect the manufacturing industry by their skillful use to a great extent and increase the production as well.

Keeping these views in mind, the researcher has utilized the facilities of Tinkering lab at IIT Roorkee using dispersal of technology for enhancing productivity. There are several advanced machines installed in the Tinkering lab at IIT Roorkee, for instance, 3D Printer, Computer Numerical Control (CNC) wood carving machine, CNC lathe machine, laser- etching machine, 3D printer and 3D scanner for prototyping from the last year which aim to promote innovation in the production. Thus, the researcher had developed few prototypes which can be considered as additional techniques for making woodcraft patterns without disturbing the present employment.

The researcher developed a prototype (wooden tray) with the combination of machine work and manual work. Apart from that, few patterns were also developed by using CNC wood engraving machine which display how technologies could add value by optimizing the production process of the wood carving industry. During the research, the researcher got familiar with hand tools as well as advanced CNC machines and utilized both for product development. For instance, in wooden tray, seamless carving was done by using CNC Router and floral work was done by the artisan using inlay technique (Fig.6.38).



Figure 6.38 Tray in wood showing the combination of manual and machine work

The following figures 6.39, 6.40, 6.41 and 6.42 represent the process of development of this prototype and give an insight about how the machine works. The following figures display the image design, engraving process, sanding process and inlaying process.

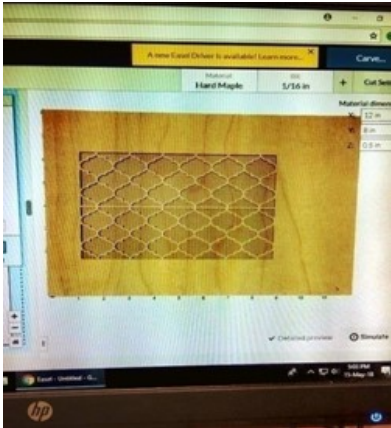


Figure 6.39 Image design



Figure 6.40 Engraving process



Figure 6.41 Sanding process



Figure 6.42 Inlaying process

Source: Photography by Mr. Abhishek Bharti

Apart from that the researcher has developed 2 engraving patterns by using CNC. The following figures 6.43 and 6.44 represent geometrical and floral pattern.



Figure 6.43 Engraving in geometrical pattern by using CNC wood engraving machine



Figure 6.44 Engraving in floral pattern by using CNC wood engraving machine

As we know that the market has become very competitive and we have to understand the market's demand. In this concern, manufacturers can introduce and utilize the faculty of CNC in Saharanpur woodcraft industry for technological advancement which may increase the production in lesser time and can generate income. Although the artisans are skilled here, they need to learn about the technological advancements in the industry along with the knowledge of more customized and marketable designer products.

The fruitful outcomes including implementation of new technologies along with traditional craft footsteps may provide solution for the development of this industry. This would also help

the artisans to implement their ideas to contribute in market trends with industrial applications. Furthermore, the negative repercussions of existing technologies and manual efforts of the artisans can be replaced with easier technologies with high output that would help the artisans to improve their efficiency of work in the area of handicraft and their livelihood. CNC machines have a number of advantages and disadvantages in contrast to traditional tools. These are given below in the following table 6.5.

Table 6.5 Advantages and disadvantages of CNC machine

S.No	Advantage	Disadvantage
1.	CNC machine generates precise and accurate result.	Operating CNC machine is more costly if compared to those operated by hand.
2.	Continuous use for 24 hours a day and 365 days a year is possible.	It can generate unemployment as it requires fewer workers to operate.
3.	It requires less labor. One skilled operator can run several of the autonomous CNC machines.	Conventional hand carving is the competitive advantage of SRE woodcraft industry. Thus, It cannot beat handwork.
4.	It reduces the labor cost and production cost.	
5.	CNC machines are programmed such that a product can be manufactured hundreds or even thousands of times.	

Apart from that, the researcher had designed and developed a multifunctional product which is inspired from ideology of IKEA. IKEA is a brand in itself that serves the multifunctional, modular furniture for multiple spaces.



Figure 6.45 Multifunctional product

Keeping this view in mind, the researcher had designed a multipurpose product which can be used as bookshelf, storage box, keychain holder and mobile stand. It can be considered a 4 in 1 product that serves 4 utilities at one time with traditional carving and *jali* work. As we know that wood carving of SRE is the competitive advantage of the market, so the value of the multi

utility product increases with the signature carving of SRE. The following figure 6.45 has been given for that purpose.

## **6.10 CONCLUSION**

It would be notable to express that this chapter which is based on the researcher's exposure to the various experiences during her craft study-cum-exploration at SRE, has many other intentions than to just put into place some external elements such as tools, less conducive environment for the craftsmen, shortage of provisionally workable design ideas etc.; rather there are other motives too, which include to initiate new concepts that can be willingly acquired by the craft community with nominal changes in the already surviving craftsmanship procedures. By doing so, it would be possible to achieve a legitimately continual model of craft maintenance with a comprehensive approach. Such a situation is achievable, provided the researcher should have carried out an exhaustive pre analysis prior to initiating any new intercession for the selected craft community, about the existent craft-situation, tools, existing mastery, talent and craft community's preferences oriented professional psychology. However, the most significant factor is to find out and analyze what effects the pre and post intercessions would have on the craft-cycle; before those can be employed by the researcher. It is possible that technical and practical intercessions in craft and domestic sectors would be executed in a well resulting manner, provided these are organized and applied step by step and by keeping enough time lapses between two subsequent application stages. Such a kind of formulation can very well promote craft communities to build up an effective intellectual as well as experimental line of thought among community members in order to carry out the necessary intercessions. In this manner, constructive changes that are the outcome of interventions may preserve for longer duration of time, along with the already existent craft heritage.

During the course of this craft study cum exploration, this researcher came to the conclusion that it is not sufficient to study the running and progress of a traditional and/or promoted craft in order to aid in its up gradation of the present craft scene and that it requires fresh interventions through professional approach along with the already existent talents and skillfulness.

## CHAPTER 7

### SUMMARY AND CONCLUSION

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#### 7.1 SUMMARY

The present study entitled “Critical Analysis of Saharanpur Woodcraft: Practice Status and New Design Possibilities” was planned with the following objectives:

##### Objectives

- To examine the historical influences on Saharanpur woodcraft industry as well as various other factors responsible that have influenced the industry.
- To study the factors responsible for motifs and designs along with their rejection in the prevailing market.
- To document the production process of woodcraft along with that of raw materials, tools and techniques and problems related to work in Saharanpur.
- To design and develop new prototype samples of woodcraft for its enhancement while using traditional as well as contemporary motifs.

The first chapter titled “Introduction” gives emphasis on the historical accounts of wood carving along with the crucial study of SRE with its timeline, International branding along with reward system and recognition in the respective fields. Apart from that, the chapter starts with research questions and major objectives. A systematic method was followed for achieving the objectives of the study which pass through the purpose of the study and their limitations.

The second chapter, that has several sections, focuses on the reviewed literature related with a brief introduction of handicrafts and detailed study of SRE. The chapter has been divided into seven sections. The first section is the introduction of the chapter. The second section describes the entire historical records of SRE woodcraft after focusing on some major studies. The third section highlights the ornamentation and philosophy of motifs and patterns. The fourth section describes the materials used and techniques in SRE woodcraft. The fifth section narrates the related studies which were used as supportive study. Although the woodcraft of SRE has already received attention from the great connoisseurs of art but in spite of this, the area lacks badly in terms of focused study in this field. Very few studies were found in this area and that were not enough on their own. Thus, the researcher has used the relative studies in this domain which are connected with woodcraft directly and indirectly. The last section describes the



existing gap between the literature reviews along with the present concerns. Various studies have been done on the woodcraft of SRE but not much attention has been given towards motifs study and its prototype development. Moreover, to improve the status of woodcraft, it is essential to do both the quantitative and qualitative analysis, so the study has been carried out in the light of such objectives.

The third chapter titled “A Comprehensive Study on the Existing Motifs in Saharanpur Woodcraft” focuses on the traditional and contemporary forms of woodcraft. Motifs were majorly documented and selected from primary and secondary sources such as internet, books etc. The chapter discusses the organization and representation of forms along with their symbolic significance and values. Apart from this, it includes gradual changes that occurred in the motifs along with the factors responsible for it. For instance, the vocabulary of motifs is huge and some of the beautiful forms which have had a glorious history, got discarded with time and for the lack of demand by the customers. The discarded forms were unique and extraordinary because they were associated with the sentiments of the artisans and belonged to the royal eras. In earlier times, the artisans used to put in their best efforts most passionately to make woodcraft more fascinating. On the contrary, gradual changes with freshness in the forms were also accepted which was a result of the demand from the foreign shores. Therefore, many unfamiliar forms were adopted by the artisans and then used in woodcraft. Thus, the conclusion of the chapter closes with the suggestions which should be implemented for the uplifting of the woodcraft industry. In conclusion, it can be ascertained that the objective of woodcraft is to produce and adorn with the aim of making appealing ornaments (patterns, motifs, designs) along with being the fundamental desire of an individual. It showcases an in-depth knowledge of design features. These design features make SRE woodcraft distinctive and generally latest ideas are found which expresses the face of advancement. For the betterment of the woodcraft industry, people should comprehend and accept the basic value of craft and patterns and also understand how the tangible and intangible culture can be preserved for the next generation.

The fourth chapter, “Existing Manufacturing Process Chain of Woodcraft Industry in Saharanpur” deals with the production process; details of people involved in these processes; markets they cater to; process of raw material procurement; varieties of raw material and auctioning of wood. The entire process of the working, from procuring the order to producing the products has been described. Furthermore to these, it examines the tools and machines being used in this industry. Apart from that, the chapter gives details regarding the tool makers and their work. With regards to the wood carving technique, more than 80% of the total work is



done by hand with the help of hand tools that the artisans purchase from the tool maker as per their preferences. For that reason alone, the woodcraft industry of SRE is famous internationally. It can be concluded that manual work always takes time and efforts. Thus, the artisans should not be treated as laborers; they are the creators and the most talented group of our society. In the thrust of modernization, we cannot afford to lose the charm of handicraft because it is our legacy which we have received from our ancestors. If we want to keep alive the tradition of the handicraft and sustenance for the creators' families, we will have to respect the artisans and their work.

The fifth chapter, "Socio-Demographic characteristics of the Artisans and Their Problems Related to Their Work" is based on personal visits of the area. The chapter helps to understand the socio-demographic profile of the artisans and the problems which they face during the manufacturing process of woodcraft. There are various issues that the wood carving industry has been facing in the recent times; these include the fall in exports, inability to comply with the requirements of the buyers, difficulties in procuring raw material, de-skilling of the artisans etc. But this study explores the issues arising from the manufacturing process. In this chapter, the researcher attempts to explain what problems are involved in the manufacturing process and how it affects the artisans involved in it. Apart from that, the chapter highlights the SWOT analysis of the artisans and as well as the SRE woodcraft industry. The wood carving industry at SRE comes under the category of small scale industries and it is a major source of employment for the local people. Even more than a source of livelihood, wood carving itself has a heritage value and also an enormous potential for exporting the prepared goods. In conclusion, it can be said that the unpleasant circumstances of the artisans are clearly visible. They are from poor social and economic background and are less educated; thereby, suffering from a huge gap between themselves and modern technology. What they require is a new guidance for the enhancement of their expertise and capabilities through training/coaching and knowledge. Another important factor is the need of governmental support and opportunity ideas to the artisans on a larger scale, in order to preserve the culture through the promotion of woodcraft products in the market. The government needs to make better resources available to the artisans, so that they can attain their due recognition and respect both at the national and international level. This will result in the uplifting of their socioeconomic standing in the society.

The chapter six, "Design Development and its Execution in Saharanpur Woodcraft" is based on prototype samples which have been developed on the basis of observation, market requirements

and manufacturers' feedback. In this chapter, 2 collections that have been developed are shown and each collection has 5 prototype woodcraft samples with both traditional and contemporary flair. Two themes were selected for both the collections such as floral and spiral. We all know that there are countless forms in nature. Floral and spiral, both are organic forms of nature. Floral pattern was selected to make floor accessories by using traditional wood carving with antique finish. On the contrary, spiral pattern was selected to make table top accessories by using the wood carving with surface treatment. These prototypes were displayed at *Dilli Haat*, INA on 29/08/2018. To test the feasibility of the products, survey method has been used and data has been collected from the selected samples of 44 respondents. Interview schedules have been used as a tool to collect the relevant information. The results indicate that positive reviews have been obtained from the survey regarding design, cost of products and their sustainable and economical aspects. The respondents are willing to buy the products for home/office/restaurant use.

## **7.2 CONCLUSION**

Through this research it can be concluded that SRE is an extremely rich city with regards to art and craft practices which have an economic and traditional significance. Gradually, it is losing its identity in the contemporary world. There are few facts that have evolved through this research which are the following: There is no official record available in the public domain which can serve as the base study on the traditional craft of SRE. The origin of the woodcraft was accepted from the time when the evidence was found about its origin whereas the foundation of the woodcraft had been laid long before documenting the records. In the context of artisans, it is found that there is resistance on the part of the artisans to acquire new technology as they are skeptical of losing their conventional style of the traditional motifs. Therefore, old design motifs are being used by them from long ago. The majority of artisans are copying the catalogue designs though they are traditionally skilled which creates a doubt about their potential. As a result, the inspiration of design has changed from historical to decorative type. Because in earlier time, the artisans used to make designs with symbolic intentions but now this has become the only source of their livelihood, they are not given precision in their work. The artisans are not willing to make new samples and new designs because it is a time taking task and their first priority is to earn money rather than develop an innovative product line. Among all artisans, no one is interested in reviving the discarded motifs which were designed at a particular time. Although conspicuous ignorance is found among the artisans' community which is about making of the age old designs as well as fresh ones regarding the

motifs. In recent time, majority of the artisans feel commercial and economic pressures on them. It is also found that the artisans were extremely proficient in imbibing foreign influences and making patterns that appeared extremely spontaneous and appropriate to the end user. Gradually, the artisans have made changes in the technique and material: In the history of woodcraft, all artisans had used metal for inlay. However, the shift from metal to wood/plastic/ivory has helped increase production. Apart from that, experimentation in different woods has also opened the door for new opportunities to earn better livelihoods. Due to the low wages, their progeny do not want to continue this craft tradition as a source of income. As a result, about 3000 skilled artisans have migrated from SRE to Jodhpur to continue their work (Kalpana, DIC).

The multi-staged production process is not artisan friendly. The artisans are working in unhealthy workplaces where they don't even get the basic facilities that are required for this tedious job. Unhealthy environment invites many diseases. Due to low financial background and large size of family, child labor has become another burning issue here. Majority of artisans are poor and they cannot afford to educate their children. Thus, child labor is found in abundance here. Apart from that, in the wood carving industry of Saharanpur, female work participation rate is very less in numbers as compared to their male counterparts as wood carving is thought to be a job meant for men. Due to the minimum interaction of women with other male, a majority of male artisans don't allow female of their families to work in the public sphere. According to them, women should remain as housewives only and nothing else. Therefore, very few female workers are involved and that too in menial work only in the manufacturing process chain which is very unpromising. They are being paid either daily or monthly. However, the dues for their services or payments are not being registered anywhere officially. Their services can be terminated any time and without even being officially notified. Thus, it is the initial necessity of Indian society to empower and uplift the social and economic status of the women. It is also found that the artisans are being harassed by the middlemen in terms of procurement of order, designing, providing the material etc.

In the context of wood carving industry of SRE, there is no raw material bank in the city. The best quality of raw material is purchased by the manufacturers and agents. As a result, a majority of artisans are not able to purchase raw material of good quality. For this reason, they purchase the material directly from the agent by paying extra charges. Timber is being supplied out of the state which should be strictly banned. Due to this supply, some of the other state industries (especially Jodhpur) are flourishing and the woodcraft industry of SRE is facing a

slow down. There is a lot of wood wasted during the manufacturing process which should be utilized. Although wood in the form of wood dust is already used to create putty but wood shavings and wood cut outs are not used in any process. However, wood shavings can be used by converting these into putty. Even wasted residue is not disposed off in an eco-friendly manner because majority of the waste wood is consumed for fuel uses. NGOs and SHGs are not much active here. The contribution of these organized bodies is at a dissatisfactory level. Most of the training programs are being conducted without any actual guidance. It seems that the prime motto of such type of training programs is to gather the crowd and take photographs for official records only. In these types of programs, 30 female were selected along with 1 or 2 male artisans who supervise them. The female artisans were selected randomly by DCH. Majority of the female were beginners here. Thus, it was not possible to develop good quality products under the guidance of 1 male artisan only.

In Saharanpur district, there are a number of state and national award winners along with one 'Shilp Guru' award winner. But no proper official documents are available online on the website of DC Handicraft. However, several reports on "Saharanpur Woodcraft" serve wrong information regarding the award winners. Most of the researchers who are working in the same field are being misguided by such kind of reports. One such instance is the Geographical Indication Journal No. 54, 2013; A Compendium of Indian Handicrafts & Handlooms Covered under Geographical Indications (GI), 2017. The researcher has already addressed the complaints to DCH main office and regional office and Intellectual Property Lab, Lucknow. It seems the distribution of the award has become a business here because a few of national and state award winners have got the awards unfairly and they were not actually artisans at the time of receiving the award. Therefore, this is the humble suggestion that the distribution of awards should be based on a live demonstration of their expertise. One of the national award winners has three sons and all of them are also the national and state award winners. All three had received their awards at an early age. Apart from that, this award winner and his sons have received a number of foreign training exchange programs by DCH and EPCH etc. while Shilp Guru (Fayyaz Ahmad) did not get a single chance of any foreign exchange program till today. It is a very depressing phenomenon on its own. There must be the criteria that the person who is applying for the foreign exchange program must have the working experience of minimum 15-20 yrs.

To secure the future for the SRE art, it is desirable to try development of new and innovative products with the SRE art amalgamated for aesthetic enhancement.

### **7.3 BENEFITS OF RESEARCH**

The historical background of Saharanpur woodcraft is not available in a systematic manner, only scattered data was served in the public domain which misleads the researchers and readers. Due to non availability of accurate data in DIC and Municipal records, the work of Handa and Jain (2000) has been considered as the one and only resource material. Thus, this research may provide resourceful material of Saharanpur woodcraft in terms of historical background, motifs study and the entire production process from raw wood to making the final product.

Apart from that, this research may become beneficial for society majorly on a two levels: first one is social and economical benefits. This study may increase production which may generate revenue because the production possibilities were given by the researcher in terms of cost calculation and the responses of visitors/respondents.

Another benefit is that this research may create interest or fondness in the heart of the buyer towards wooden handicrafts. This research is highlighting the working conditions, living conditions, very minutely observed details of artisan's problems and challenges that they are facing. This study may be beneficial for the Govt. organizations and private industries to take appropriate actions and provide better life and working environment to them.

The possibility of new innovations in designs and aesthetic enhancement of products can be explored for a safe future of this art.

### **7.4 SUGGESTIONS**

To uplift or rejuvenate this beautiful craft, there are certain recommendations which can be followed so as to make SRE woodcraft more innovative.

- Awareness programs like short term courses, brainstorming workshops, seminars based on craft innovation, furniture designing and design study should be organized by the government of India to train the artisans to use new technology wherever possible in an attempt to make quality products using innovative opportunity. Furthermore, these activities will help to link the traditional knowledge system with contemporary designs. The reason is that the artisans were never formally trained in design theory with any guidelines. So, they are producing woodcraft with their natural sensibility of form.

- There should be training centers with diverse fields for the training of the artisans that would educate them about the basic training of computer, online trading, certification and exposure to new initiatives and also the policies of the government. Training should be given free of cost here. If the artisans get knowledge of online trading, then they can sell their products directly to buyers without any interference of the middleman.
- Raw material bank should be opened in the city from which the artisans, manufacturers and everyone else can avail this facility directly without any involvement of the agents in this process.
- For the preservation of the tangible heritage of wood carving in SRE, seminars and workshops should be conducted. Through these activities, the attention of the younger generation can be focused on this art.
- Hand tools should be improved because work efficiency of the crafts depends on tools. Production process can be made easy by using the improved tools and advanced machines which can provide and increase the extra leverage to the artisans.
- The workshop environment should be improved with proper infrastructure facilities (lights and colors etc.) and should be cleaned on regular basis. Apart from that, ergonomically tested furniture should be developed for improving the work efficiency of the artisans.
- To ensure the safety of the artisans, proper safety masks should be made available and it should be made compulsory for the artisans to wear the masks while working.
- First-Aid facilities should be provided in the manufacturing units.
- Fire extinguisher cylinders should be installed at work places as wood catches fire very easily.
- To empower the women laborers in the Saharanpur woodcraft Industry, many important programs such as capacity building program, welfare and developmental program for women should be organized in the woodcraft sector. Apart from that, women laborers should be involved in diverse operation of wood carving.
- Designers' input can be added to improve the product line which can open new doors for the wood carving craft to come out of its restricted technique of designing and this in turn will develop a new and contemporary look. With the help of designers, new ranges of prototypes and designs can be made more interesting as per the requirement of the user and the current market needs and demands. Because any design continues to be adopted until it changes its shape, color and pattern. So, the whole scenario can be changed and a motif may be reintroduced into the market. It completely depends on a

designer because a designer develops a product or redesigns an existing product with modification in pattern, shape, size, color, function and utility. Regarding the pattern, the designer can rearrange, add and discard few elements in it and make it a different and unique form by utilizing the old one. These suggestions are essential in today's time, so as not to lose the identity and soul of SRE woodcraft.

## **7.5 LIMITATIONS OF THE STUDY**

- This study looks at two aspects of woodcraft documentation and new design possibilities and tries to explore the relationship between the two. In this process, the study focuses on only the two aspects not more than that.
- Unavailability of adequate literature.
- Limitations in the selection of study area, as it became difficult to cover all in one study.
- Problems related to interviews with artisans and manufacturers, because they both refused to divulge any information related to their work, production or export.

## **7.6 AREA FOR FURTHER RESEARCH**

- A website on E-Design Source should be developed which can be accessed by the large audience where people can gain access to old traditional designs as well as the new ones and select designs for their desired product.
- Several artisans described that they are producing an assortment of designs by interweaving various motifs. Apart from that, nobody takes the initiative to reintroduce the older motifs on a contemporary product range. Thus, some of the beautiful art forms were eliminated from the catalog of motifs forever. So, there is urgent need to document old designs, their gradual changes and eliminated forms. Every motif or design has its own story. Story and visual presentation makes the product saleable in the material world. Additionally, this area should be explored for future research.
- There could be more scope for exploring the designs and materials which could be used with wood carving, leading to the enhancement in the embellishment of the products.
- A similar study can be conducted for designing furniture using traditional wood carving of SRE.
- An investigation can be conducted to study the social, technological and market interventions.



- An ergonomic study in designing work equipment (Fig. 7.1) and workplace may be carried out to improve work posture and workplace environment which would benefit in occupational stress reduction as well as in improving the production scenario.



Figure 7.1 Artisan sitting on chair while working

- Even more relevant is the information that the woodcraft cluster of SRE is not the only highly accomplished craft cluster, rather many more clusters exist which are still untapped and deprived of their due status in our beautiful world.

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## Appendix 1

### QUESTIONNAIRE FOR THE ARTISANS

This interview schedule is a part of doctoral research work conducted by Aayushi Verma, Research Scholar, Department of Humanities & Social Sciences at Indian Institute of Technology, Roorkee, Roorkee, Uttarakhand, India. The interview schedule has been used to obtain the information related to Saharanpur Woodcraft. The questionnaire covers several topics for soliciting views about materials, tools, techniques and various design elements applied in Saharanpur Woodcraft. This questionnaire is designed to obtain information related to contemporary woodcraft of Saharanpur from the artisans.

All information that is obtained from the survey will be treated as confidential and used only for the academic research purpose. If you have any queries pertaining to the questionnaire, please do not hesitate to contact me at [ayushi03verma@gmail.com](mailto:ayushi03verma@gmail.com)

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#### A. BASIC PROFILE OF THE RESPONDENT

1.	Name	
2.	Age	
3.	Education	
4.	Location Rural/ Urban	
5.	Village	
6.	District	
7.	Religion	
8.	Social Category (Gen-1, OBC-2, SC/ST-3)	
9.	Gender (Male-1, Female-2)	
10.	Family Size (Nuclear-1, Extended-2, Joint Family-3, More than 9-4)	

11.	Marital Status (Unmarried-1, Married-2, Widow/Widower -3, Separated-4 )	
12.	Do you migrate to other places for this craft If yes, give details	

**B. WORK DETAILS**

1. For how many years have you been working in wooden handicraft?

in years

2. At what age did you start working on this craft?

.....

3. Why did you take up this craft?

Hereditary  Livelihood

4. From whom did you learn this craft?

Family member  From other craftsman   
 Friends/Relatives  Any other

5. Have you received any training program for learning the training of wood carving?

Yes  No

If Yes, give details.....

Type of Training	Institute	Duration

6. How has the training helped?

Increased Production  Increased Income   
 Produced better quality goods  Prevented Wastage   
 Produced new designs  New technique to increase speed

To use new materials  Any other

7. Do you think training is necessary for the craft?

Yes  No

If "Yes" Why?

Learn about new raw materials  Learn new techniques

Designs Development  Ergonomics awareness

Any other(specify)

8. How many hours does it take to complete a product?

.....

9. How much do you earn from wood carving?

.....

10. Do you receive payment according to working hours or according to produced products?

.....

11. Is it your main occupation?

Yes  No

If no, what is your other occupation?

.....

12. Nature of your Employment

Employed  Member of Co-operative

Working for self  Any other (specify)

13. If employed, are you

Temporary  Contract-based

Permanent/Regular  Any other (specify)



14. What is the mode of your payment?

Monthly

Piece basis

Daily wages

Any other (specify)

15. Are you satisfied with the payment process?

Yes

No

If no, please explain.....

16. What kind of products do you produce?

.....

17. The products are made according to the consumer demand or owner demand?

.....

18. Have you participated in a craft fair/Handloom fair/promotional activity through government/private organization?

.....

19. What was the experience?

.....

**C. WORKPLACE**

1. Where do you work (specify place name)?

.....

...

2. Do you work with any institutional organization (NGO/Govt. Organization/Manufacturer's Unit/Individual)?

.....

...

3. Why are you working for the above mentioned working place?

.....

...

4. Are you facing any problem with your working place?

Yes

No

If Yes, please explain .....

5. Do you want any changes regarding your work place?

Yes  No   
If Yes, please explain .....

6. How is the atmosphere in your workplace?  
.....

7. Has the organization/mannufacturer provided any training regarding the tools and technique?

Yes  No   
If Yes, please explain .....

8. Has the organization/mannufacturer provided any assurance about health issues?

Yes  No   
If Yes, please explain .....

9. How many hours do you work in a working day?  
.....in hours.

**D. RAW MATERIAL**

1. Which types of woods are being used for the production of goods?  
.....  
...

2. Do you receive raw material?

Yes  No   
If Yes, please explain.....

3. Who provides you with any type of raw material?  
.....  
...

4. What is the design process of contemporary wood carving?  
.....  
...

5. What skill sets are required for the artisans?  
.....  
...

6. What types of materials are required for doing wood carving?

.....

...

**E. TOOLS AND TECHNIQUES OF WOODCRAFT**

1. Give a detailed description of the tools used?

Type of tool	Tool Name	Usage

2. Are you satisfied with the existing tools?

Yes  No

If No, Which other tools are desired?.....

**F. PRODUCT AND PROCESSES**

1. From whom do you get the order for the products?

Direct customer  Wholesaler/Middleman

Shopkeeper  Any other

2. Do you have rejected goods?

Yes  No

If Yes, please explain.....

3. What do you do with your rejected goods?

.....

...

4. On what basis do you reject your goods?

Crack in product  Improper finish

Distorted shape  Any other

**G. PROBLEMS AND PROSPECTS**

1. Would you like to give up this craft?

Yes

No

If Yes, please explain.....

2. In general what do you think are the major problems of carrying out this craft?

.....  
...

3. What would you suggest in order to improve this situation?

.....  
...

## H. HEALTH CONDITIONS

1. Do you suffer from any ailment due to work conditions?

Yes

No

If Yes, please explain.....

2. What type of health problems do you face currently?

Bad Eye Sight

Breathing Problems

Back Pain

Neck Pain

Headache

Stomach Problems

3. What do you think are the causes of your health problems?

.....  
...

4. What steps have you taken for its treatment?

.....  
...

## I. SCOPE AND FUTURE

1. Do you wish to continue with your craft?

Yes

No

If Yes, please explain.....

2. What are your ideas regarding the future of your children and self?

.....  
...

3. Awards and Prizes

Have you received any awards or prizes?

Yes

No

If Yes, please explain.....

Please give your suggestions for reviving and preserving this craft.

.....

...

## Appendix 2

### QUESTIONNAIRE FOR THE MANUFACTURERS

#### Personal Information:

- Name:
  - Age:
  - Education:
- 1) Name of the manufacturing unit?
  - 2) Is it a registered body?
  - 3) How old is the unit?
  - 4) Who started it?
  - 5) How many artisans work in your unit?
  - 6) How many hours do they work per day?
  - 7) Do they come to work depending on the order?
  - 8) Do they work only with you?
  - 9) How do you pay them?- per day/ per week/ per fortnight/per month/piece rate
  - 10) How much do they get paid?
  - 11) On what basis do you decide their wages? (Is it different for carvers, chisel workers and cutters?)
  - 12) Is this space rented or your own?
  - 13) What machines are there in your unit?
  - 14) Traditionally, what varieties of wood were used as raw materials?
  - 15) For what products were these used as raw materials?
  - 16) Now, which is the most preferred wood for wood carving?
  - 17) What varieties of wood do you use?
  - 18) Since when did you start using alternate wood?
  - 19) Why did you switch to alternate wood?
  - 20) What are the advantages of using alternate wood?
  - 21) What are the disadvantages of alternative wood?

- 22) How do you season the wood? Natural / seasoning plant?
- 23) Where do you procure the wood from?
- 24) What are the problems that you face pertaining to wood?
- 25) Since when have you been facing these problems?
- 26) Why did these problems start?
- 27) Which motifs/designs are being used in woodcraft?
- 28) Do you make the designs as per the requirement of the user or your personal choice?
- 29) Please share the information about gradual change of motif/designs.
- 30) Why did you introduce new designs in woodcraft?
- 31) What are your personal views about the promotion or preservation of this art form?
- 32) Do you want to share anything with me about the wood carving industry?

### Appendix 3

#### Products Feedback Form

#### **SECTION A: Basic profile of the respondent**

Basic Information	Please tick (√) wherever necessary				
Name					
Address					
Phone and E-mail					
Gender	1. Male		2. Female		
Age/Date of birth					
Education					
Occupation					
Marital status	1. Single	2. Married	3. Widowed	4. Divorced	5. Separated

#### **SECTION B: Products feedback of respondent**

1. How satisfied are you with the quality of wood being used as structural raw-material in following products?

S. No	Products	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
1.	Lamp					
2.	Stool					
3.	Candle stand					
4.	Planter					
5.	lantern					
6.	Pen stand cum card holder					
7.	Candle stand set of 3					
8.	File tray					
9.	Photo frame					
10.	Napkin holder					

Please may specify

(optional):.....  
 .....

2. How satisfied are you with the quality of 'craftsmanship'?

S. No	Products	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
1.	Lamp					
2.	Stool					
3.	Candle stand					
4.	Planter					
5.	Lantern					
6.	Pen stand cum card holder					
7.	Candle stand set of 3					
8.	File tray					
9.	Photo frame					
10.	Napkin holder					



Please may specify  
 (optional):.....  
 .....

**3. How satisfied are you with the final quality of ‘wood-finishes’?**

S. No	Products	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
1.	Lamp					
2.	Stool					
3.	Candle stand					
4.	Planter					
5.	Lantern					
6.	Pen stand cum card holder					
7.	Candle stand set of 3					
8.	File tray					
9.	Photo frame					
10.	Napkin holder					

Please may specify  
 (optional):.....  
 .....

**4. How satisfied are you with the product design input by the researcher?**

S. No	Products	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
1.	Lamp					
2.	Stool					
3.	Candle stand					
4.	Planter					
5.	lantern					
6.	Pen stand cum card holder					
7.	Candle stand set of 3					
8.	File tray					
9.	Photo frame					
10.	Napkin holder					

Please may specify  
 (optional):.....  
 .....

**5. How satisfied are you with the functional clarity of displayed products?**

S. No	Products	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
1.	Lamp					
2.	Stool					
3.	Candle stand					
4.	Planter					

5.	lantern					
6.	Pen stand cum card holder					
7.	Candle stand set of 3					
8.	File tray					
9.	Photo frame					
10.	Napkin holder					

Please may specify  
(optional):.....  
.....

**6. How satisfied are you with the costing?**

S. No	Products	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
1.	Lamp					
2.	Stool					
3.	Candle stand					
4.	Planter					
5.	lantern					
6.	Pen stand cum card holder					
7.	Candle stand set of 3					
8.	File tray					
9.	Photo frame					
10.	Napkin holder					

Please may specify  
(optional):.....  
.....

**7. How would you rate your overall experience with our products?**

S. No	Products	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
1.	Lamp					
2.	Stool					
3.	Candle stand					
4.	Planter					
5.	lantern					
6.	Pen stand cum card holder					
7.	Candle stand set of 3					
8.	File tray					
9.	Photo frame					
10.	Napkin holder					

Please may specify  
(optional):.....  
.....

**8. Would you recommend these products to your friends and other people around you?**

**Any Specific Feedback:**

.....  
.....  
.....  
.....  
.....

*Provided feedback-dataset in above columns are based over my experience as: “product-human interaction (as a user)”/ “product-market interaction (as an entrepreneur)”:*

\_\_\_\_\_ ]  
**(Signature of Interviewee)**

*Above feedback-dataset had been collected by main my presence. Above data will only be used for academic purpose. Thanking this interviewee for providing feedback:*

\_\_\_\_\_ ]  
**(Aayushi Verma, PhD Scholar, IIT Roorkee)**

Purpose of this survey-cum-feedback form is to receive ‘product-feedback’ from the pool of potential end-users/buyers. The set of wooden products included/displayed/exhibited in these sessions had been conceptualized and designed by this researcher and developed by the traditional woodcraft artisans of Saharanpur area in Uttar Pradesh, India (during 2018-2019), under her guidance. The research work, titled “Critical Analysis of Saharanpur Woodcraft”, is currently being pursued under the guidance of Dr. Ila Gupta at Indian institute of Technology, Roorkee.

## LIST OF PUBLICATION

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### **Book Chapter**

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1. Verma, A., & Gupta, I. (2017). A Study on Geometrical Motifs with Special Reference to Old *Havelis* of Saharanpur. *Understanding Built Environment* (pp. 201-217). Springer, Singapore. [https://link.springer.com/chapter/10.1007/978-981-10-2138-1\\_18](https://link.springer.com/chapter/10.1007/978-981-10-2138-1_18)