Chapter 4

RESULTS AND DISCUSSION

The wood block making craft of Pethapur, Gujarat, stands as a living testament to the intersection of tradition and contemporary challenges. This research, titled "Wood Block Making Craft of Pethapur: Evolution and Promotion" embarked on a comprehensive exploration of the craft's historical evolution and contemporary dynamics, followed by strategies for its sustainable promotion as researched in two phases of the study. This research, thus, endeavoured to unravel the nuanced evolution of the wood block making craft in Pethapur while laying the foundation for its sustainable promotion in the contemporary globalized landscape as enlisted under various sections and subsections below.

Phase I EVOLUTION OF THE WOOD BLOCK MAKING CRAFT

The evolution of the craft unfolded through a meticulous examination of the *Saudagiri* trade and its profound influence on block making. Navigating through traders, producers, and end-users records and interactions, the research scrutinized manufacturing patterns, consumption trends, trade routes, and the intricate designs that have shaped the craft. A detailed timeline spanning two decades chronicled the rise and decline of the craft, unraveling the profound impacts of various events. Simultaneously, the researcher made an attempt to dissect changes in the craft over time, evaluating the shift in communities engaged, alterations in raw material utilization, and advancements in tools and techniques, modifications in design preferences, and changes in the size and number of blocks used. The documentation of the chisel-making process and an analysis of the socio-economic status of craftsmen in Pethapur enriched the understanding of the wood block making craft evolution.

4.1 EVOLUTION OF THE CRAFT

4.1.1 Changes taken place in the craft of block making

4.1.1.1 Community (Men)

4.1.1.2 Raw material (Material)

4.1.1.3 Tools and Technique (Method)

4.1.1.4 Design Configuration (Motifs)

4.1.1.5 Size and Scale of blocks (Magnitude)

4.1.1.6 Supply Chain (Management)

4.1.2 *Saudagiri* trade and its influence on the craft of block making

4.1.3 Documentation of the process of chisel making

4.1.3.1 Step-by-step process of chisel-making

4.1.4 Socio-economic status of the craftsmen of Pethapur

4.1.4.1 Social Condition

4.1.4.2 Economic condition

4.2 CASE STUDIES

Phase II PROMOTION OF THE WOOD BLOCK MAKERS AND THEIR CRAFT

The focus here was on the promotion of both craftsmen and the craft itself. An ergonomic analysis investigated the work patterns and workplaces of craftsmen, identifying physical parameters, job-related information, discomfort in body parts, and postural nuances using the RULA scale. Capacity building strategies followed, exploring the integration of technology through CNC machines and imparting knowledge about government schemes through workshops. The research further delved into the promotion of the craft through the development of Do-It-Yourself kits, an informative website, and exploring opportunities to showcase the craft at various platforms for local outreach. The collection and analysis of feedback from respondents provided insights into their effectiveness

4.3 PROMOTION OF THE CRAFTSMEN

4.3.1 Ergonomic analysis of the work pattern and workplace of the craftsmen

4.3.1.1 Demographics and body composition

4.3.1.2 Daily practices

4.3.1.3 Health implications

4.3.1.4 Postural Analysis

4.3.1.5 Workspace Analysis

4.3.1.6 Recommended Remedies

4.4 CAPACITY BUILDING OF THE CRAFTSMEN

4.4.1 Integration of technology in wood block making craft

4.4.1.1 Exploration: Development of wood block using technology

4.4.1.2 Comparison and analysis of CNC wood block with the hand carved block

4.4.1.3 Suggestion and possible ways of technology up gradation

4.4.2 Imparting knowledge of various Government Schemes

4.4.2.1 List of appropriate schemes for the craft and craftsmen

4.4.2.2 Impart knowledge of relevant schemes

4.4.2.3 Feedback and Analysis

4.5 PROMOTION OF THE CRAFT

4.5.1 Increase visibility of Pethapur Wood Blocks

4.5.1.1 Development of Do-It-Yourself Hand Block Printing Kit

4.5.1.2 Craft demonstrations

4.5.2 Creating digital identity

4.5.2.1 Development of informative website

4.5.2.2 Development of commercial cards

4.5.3 Exploring opportunities for promoting craft

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The changes occurred in craft over a period of time were studied considering the influence of historical and cultural elements. The period of study was divided into two parts; pre-independence and post-independence with special reference to the study of *Saudagiri.* The secondary research would support the study of craft evolution during the pre-independence era specially the period of *Saudagiri* trade i.e., 1840 – 1949. Primary as well as secondary research was employed to study the craft evolution post-independence especially the 75 years after independence (i.e. up to 2022), now celebrated nationally as *Azadi ka Amrut Mahotsav*.

The changes that occurred have been studied in terms of community, raw material, tools, process, design, and size of wood block, quality, and cost, with that of past

events happening. The ups and downs have been studied through the major events that happened and led to the changes. It has been described below.

The craft has undergone changes at every stage of its making through the passage of time to its present status which has been described below. It was done by dividing the period of study into the timeline. The timeline was divided as per the interval of historical events occurred for different components of craft; men, material, method, motifs, magnitude and merchandising.

4.1.1.1 Community- Wood block makers (Men)

1840-1940: Period of *Saudagiri* trade traditionally the craft was practiced by the *Gajjars* i.e. Carpenter community. The skill has passed through generations. The *Gajjars* have been credited for initiating wood block making in Pethapur. They were associated with the carpentry work and wood carving. It was stated in the literature that the forefathers of *Gajjars* went to Africa and worked as royal carpenters (An interview with Maneklal Gajjar,Gujarat Samachar,2003). From the literature review it has been found that after returning from Africa they had started the wood block making. It was the time of *Saudagiri* trade. It was mentioned in different literature that during the *Saudagiri* trade, there were around 122 households and 1200 workers involved in block making.

1961 Gazetteer data: The gazetteer of 1961 report had covered the status of wood block making craft of Pethapur including community involvement, their socio-economic status, tools and materials used, raw material, trading pattern, cost of the tools and wages paid to the worker. It was mentioned in the report that total 29 households were involved in block making out of which 24 were from Pethapur, three were from Ahmedabad and two from Rajkot and all of them were male workers. It was divided into the artisan community and workers hired.

Artisan community distribution: Craftsmen involved were majorly *Gajjar (*Suthar) in which 16 were from Pethapur, and four and six from Ahmedabad and Rajkot. Apart from these 4 families of *Prajapati* and one family of *Patidar* community was involved in the craft. Majority of *Gajjar* (Suthar) were involved, all were male members and owing their workshops in their houses.

Hired workers: The *Gajjars* were the only owners of the workshops under which people from other communities such as *Prajapatis*, *Thakors* worked as *karigars*. The

type of work they were given on the basis of their skill. Initially the all-laborious work was given and then gradually, they were given the carving of filling block and outline block. These *karigars* learnt the craft skills and with years of experience started their own workshops. Gradually the decrease in the numbers of craftsmen from *Gajjar* community had taken place and *Prajapatis* took over the craft in practice.

At present only one craftsman **Ghanshyambhai Gajjar** from the Gajjar community remains in this woodblock making craft of Pethapur. There were various reasons such as the newer generation was not interested in pursuing the craft as they were well educated and getting better earnings, many of them found the craft laborious and less profitable, the financial crisis was also one of the reasons for leaving the craft. Some craftsmen were having only girl child as there was no one in the next generation left to take the craft forward. This has gradually resulted in minimizing the engagement of *Gajjars*.

1990-till date: *Prajapatis,* the *potter* community has taken over the craft for the last three decades. There were seven workshops of *Prajapatis* and only one workshop owned by *Gajjar* presently.

- Community shift has been observed in the craft of block making
- For the last two decades, block makers who migrated from Farukhabad had started making blocks in Ahmedabad, who reside on the outskirts of Pethapur.
- Pethapur wood block makers gradually have become dependent on these block makers which is really an alarming situation for their traditional identity, when it has also, received its GI status in 2017.

4.1.1.2 Raw material (Material)

Using a wide variety of raw materials, Pethapur's wood block makers manufactured textile printing blocks as part of their ancient skill. The meticulous choice and deft use of these raw materials showcased the rich legacy and ability inherent in Pethapur's wood block making tradition.

Wood: Wood was the main raw material used for making a block. In Pethapur, seasoned teak wood was used for making an entire block because of its inherent properties of water resistance and long shelf life which was suitable for making a block.

(1952-1982) - The wood was sourced from the forests of South Gujarat. It was purchased through auction. There was an active block making co-operative society which was formed around 1957 and it was responsible for purchasing wood at a reasonable rate for all the block makers at Pethapur (Census report 1961:7). The society representative with a member used to visit the forest at the time of auction and made a purchase with the help of an agent. After that the wood was distributed among all the members, according to each one's requirement. The society has been inactive since 1982. Purchasing wood directly from the forest was much more advantageous because the craftsmen were getting good quality wood at a reasonable price. The wood purchased was in log form and unseasoned. Therefore, the whole log was first cut into pieces and all the block makers would stack those pieces in their workshop by covering it with a quilt like cloth for seasoning.

(1985 till present) - As the co-operative society became inactive block makers had started sourcing the wood separately as per their requirement. At present all the block makers purchase the wood mainly from timber mart at Idgah chowk and Naroda area of Ahmedabad and Mansa near Gandhinagar. All the craftsmen made an independent purchase as per their individual need. They also got the wood pieces cut at the same place as per their requirement thus; it was easier and convenient for transport and storage by saving time and energy at the same time. The wood purchased was seasoned teak wood and mainly the pillar of old houses was used. Thus, there was no need to season the wood. In addition to this, at present block makers made the purchase of wood as per the availability of wood and their requirement and not stock the wood for the whole year. The reasons behind were the cost, availability and amount of an appropriate wood for block making with the dealer.

Plate 4.1: *Patli nu lakdu* (Pillars of old houses)

It has been shown in Plate 4.1 that at present wood blockers purchase wood from the timber mart and the pillars of old houses locally called *Patli* used for making blocks. Selected wood was first weighed and then cut into required sizes.

Cost of wood: Earlier wood was sold on weight that is kilogram and at present since last 20 years it has been sold on per cubic foot. The cost of wood earlier was 150 rupees per kg and at present the cost was 1500 rupees per square foot.

Cost of single wood piece (in the year 2000) - 1 rupee per 6" x 6"

Cost of single wood piece (from the 2015) - 200 rupees per 6" x 6"

- A hike in wood price was observed.
- According to the craftsmen wood quality and its availability had reduced.
- Due to increase in wood prices since last twenty years; wood block makers had started making a handle separately (to hold the block), which reduced its thickness from 6 inches to 3 inches, thus saving on the amount of wood required for block.

Oil: Oil was used at the end of the wood block making process. The prepared block used to be immersed in oil till 2-3 days. This was done for achieving the protective layer to prevent water related damage to the block as it undergoes washing after every use. Oil was also used for the finishing purpose. Most commonly the cooking oil i.e. groundnut oil or cottonseed oil was used as it was readily and easily available.

At present most of the craftsmen stopped immersing the block in oil and many times printers themselves used to immerse the block in oil before use.

In addition to this a *khaddi* / chalk powder was used for creating base for tracing a design on wood piece and an oil paint used to take an impression of prepared woodblock on to the paper to check the result of carved design as well as for record and reference.

Since three decades craftsmen started using the white poster colour to create base.

4.1.13 Tools and Technique (Method)

Tools used: Traditionally only hand tools, were used for making a block such as hand saw, hand file, fiddle, hand drill, chisels and many others. (Plate: 4.2, 4.3, 4.4).

Since the last two decades (from the year 2010) the craftsmen have started using electric tools such as hand drill machines, grinder, trimmer etc. Trimmers have been used for finishing a wood piece (Plate 4.5). Trimmer was used for removing negative areas in the filling block (Plate 4.6). Hand drill machines were mainly used for making air holes in a block which is a very tedious job (Plate 4.7). The use of such tools saved energy and time by increasing productivity and maintaining quality.

Plate 4.2: Different types of fiddle/ hand drills and files

Plate 4.3: Set of tools used in drawing/ making design

Plate 4.4: Different types of chisels and dies

Plate 4.5: Different types of grinders used for finishing a wood piece

Plate 4.6: Trimmer used for removing negative area from filling block

Plate 4.7: Drill machine used for drilling air holes in wood block

Process of wood block making:

The process of wood block making was tedious and time consuming. It began with the sourcing of wood to dispatch of prepared blocks. This whole process was divided into different stages. The sequential process of wood block making has been described in Figure 4.1. There have been major changes observed in the making of wood blocks in the last two decades. Thus, a process followed at present by the craftsmen was discussed along with the traditional process for better understanding.

The process of block making was a tedious job. It would take a minimum 3 to 5 days to carve an outline block. It required skill, precision and concentration at each stage of its making. Traditionally the whole process was done by hand. The change has also occurred in the process of block making. The process has also been changed with the use of mechanized tools as discussed here.

Process: The sequential process of block making is shown below.

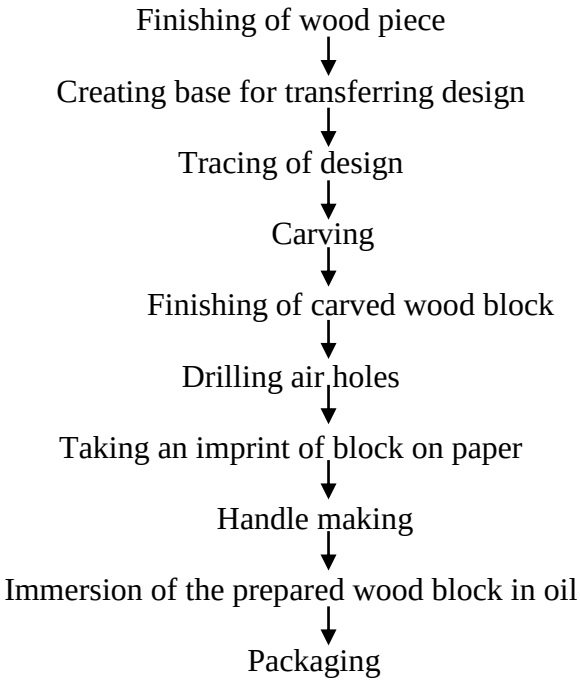

Figure 4.1: Sequential process of wood block making

i) **Finishing of wood piece:** It was essential to make a wood piece smooth and leveled before proceeding to a further stage. The process was divided in three different steps:

- Scraping
- Levelling
- Final finishing

Plate 4.8: Scraping

Plate 4.9: Levelling

Plate 4.10: Finishing of wood piece using file

Plate 4.11: Rubbing of sand stone on wood piece for polishing of wood piece

Traditionally the wood piece was finished by scraping it with a hand plane (Plate 4.8) to remove hard wood. The levelling was done using a file (Plate 4.10). The level was checked simultaneously after every little amount of filing (Plate 4.9). After the leveling process, wood pieces were then rubbed on the rough and smooth river stone along with water for the polishing purpose (Plate 4.11). This whole process would take 45 minutes to one hour.

Changes taken place*:*

The finishing of wood pieces has been easier using grinders and the time taken for finishing has been decreased to 15 minutes. Simultaneously the level was been checked with scale. After that a rough stone was used to rub over a wood piece along with water for the polishing the wood (Plate 4.12).

Plate 4.12: Finishing of wood piece using electric grinder

ii) Transferring design on to wood piece

Creating a base on to the wood piece:

Earlier *Khaddi* (Plate 4.13) was applied onto the wood piece first for creating white base. So that design traced on it was clearly visible, just as much it helped in creating a contrast base for drawing; all of which was also made by craftsmen themselves.

At present white poster colour or a chalk powder solution was used for creating a base due to the unavailability of *khaddi* and was time saving too. (Plate 4.14)

Plate 4.13: *Khaddi* (a chalk)

Plate 4.14: Poster colour used in place of *Khaddi*

iii) Drawing of design:

Drawing or Tracing of the design

Earlier the process of transferring design was an important step. It required knowledge of geometry and good drawing skills. This step included measuring the design, taking accurate measurement of each motif, modification of designs if needed i.e. enlargement or reduction of design. This was done traditionally using two methods. One was tracing from paper using a blunt chisel and the other using a graph method. In this method the measurement was taken using a compass then marked onto the wood piece. Thus, the design was directly drawn on a wood piece using compass, scale and different shaped chisels (Plate 4.15). This whole process would take 6-8 hours.

Plate 4.15: Drawing the design directly on wood piece

Plate 4.16: Transferring the design onto wood piece by tracing from the imprint

Changes taken place:

At present the block makers used the photocopy technique for enlargement and reduction of the design as it was easily done by the use of photocopy. The younger generation of

block makers lacked good drawing skills. Thus, the photocopy and computerized print made the enlargement and reduction of the design easier. After that the similar process was followed for tracing (Plate 4.16). This method saved a bit of their time, however, it required much more time for minor modifications and adjustments to the design which had to be done manually.

- Nowadays, printers (the buyers of the block) started sending the images for designs in the form of small swatches of fabric or a cropped image of paper.
- Designing required good knowledge of geometry to draw and trace the design.
- The process of design making though has not changed much.

iv) ***Carving:*** The carving process was divided in following steps:

Drilling the holes in negative area of design
Breaking the holes
Clearing the base
Carving
Finishing

The carving process was different for outline block, filling block and background block. The time taken for carving an outline block was more as compared to filling block and background block.

Traditionally, the holes were drilled using fiddle drill from the negative part of the design. (Plate 4.17) Different sizes of drills were used as per the fineness of design. Then the holes were broken using a mallet and sharp chisel and the base was made clear. After this the design was carved carefully by giving proper shape to each motif using appropriate chisels. (Plate 4.18) Process of carving an outline block has not changed, but the process of making filling blocks have changed.

Plate 4.17: Drilling holes in negative area of the design

Plate 4.18: Breaking holes and clearing the base

Changes taken place:

For a decade block makers started using electric grinder, trimmer and hand drill machine to drill out holes and other carvings (Plate 4. 19, 4.20, 4.21). The trimmers and grinders majorly used in carving of filling block and background block. The use of such tools saved their time and energy.

Plate 4.19*:* A wood piece fixed for grinding operation

Plate 4.20: Removing excess wood using grinder

Plate 4.21: wood piece with excess wood removed.

v) Drilling air holes:

Earlier, after the carving process, air holes were drilled throughout the wood block to avoid air pressure while printing. The air holes were drilled at all four sides of an outline block vertically and horizontally at 90-degree angle. This was done traditionally using a fiddle drill by hand. This process was also tedious and time consuming. (Plate: 4.22).

At present the air holes were created using electric drill machines which resulted in saving of time and energy. (Plate 4.23)

Plate 4.22: Making air holes in wood block manually
Source: Trivedi 2011, unpublished master's

Plate 4.23: Drilling air holes using electric hand drill

vi) Handle making:

Traditionally the handle was carved out from the same wood piece. The thickness of the wood piece taken was 3 inches then, so half of it was utilized in handle making (Plate 4.24). This method was time consuming and at the same time usage of wood was more which ultimately called for a greater price of the block of wood used for

Plate 4.24: Stages of carving out a handle from the wood block with carved design – Marking, Eliminating and Finishing

Plate 4.25: Attachment of handle separately on to the carved block

Changes taken place:

From a decade the block makers have started making the handle separately (Plate 4.25). They used to buy teak wood bands of a minimum length of two feet and then cut into the desirable handle size. After this the handle was attached to the wood block using nails. This method had eventually saved time and reduced production cost.

4.1.1.4 Design Configuration (Motifs)

The art of making blocks was significantly influenced by block designs. It displayed the skill of Pethapur's craftsmen in carving. Over time, numerous design modifications have been done. Block makers would sell their clients the blocks, but they would always keep an imprint of the specific carved block in their records. This allowed researcher to examine the variations in design, which was a wide subject in itself. The modifications examined in this study centered on the ability to make blocks utilizing various design elements, motif types, carving details, colour combinations, and repeat patterns.

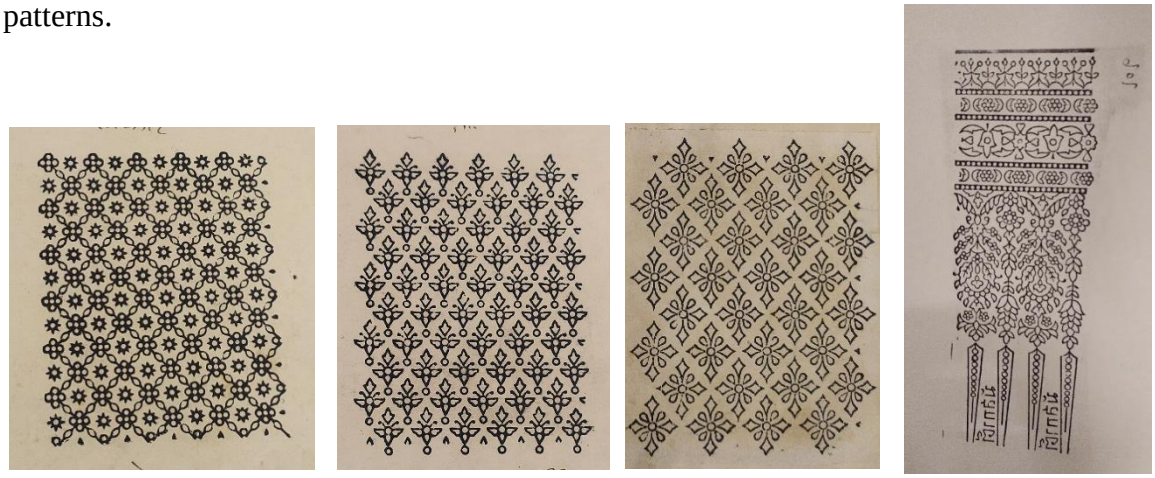

Plate 4.26: *Saudagiri* Designs (All over and End repeats)

In the past, designs were altered to suit each user's needs, preferences, and interests. The designs of carved wooden blocks underwent numerous variations during the course of seven decades.

The modifications and their causes have been examined and are shown below. Earlier the blocks were made only for the three printed textiles namely- *Chhidri, bangala* and *Saudagiri.*

i) *Saudagiri* Designs: (1839-1940)

Design configuration: The designs of *saudagiri* prints were of mixed Indo-Siamese origin. It was inspired by the temple architecture of Thailand as well as from Islamic lattice work of Mughal architecture of Gujarat

- **Motifs used:** Combination of Geometrical and floral motif. Geometrical lines alternating with floral garlands gave a rhythmic elegance to the borders (**Bhatia, 2015)**

- **Number of colours used:** The designs usually carved for eight-colours but printed in three or four colours **(Bhatia, 2015)**
- **Details of design and carving:** The minute and delicate features of the carving were noted. A grid-like arrangement of several similar, detailed designs were observed. Each component of the design was found to be symmetrical, and composition of lines and dots produced an elaborate pattern that resembled a snowflake or flower. Uniformity in the entire image was created by maintaining a consistent distance between each design element. (Plate 4.26)

ii) After *Saudagiri* trade (1940-1960)

The designs carved on block of wood were attractive and in great demand. These designs were having various motifs of flowers, creepers, dots, leaves, human figures, birds, animals, freehand and geometric. Each design was given the local name and a number was mentioned against each. So that merchant or printer could recognize it. The most popular designs were Geometrical and floral. (Census report, 1961:7)

After the end of *Saudagiri* trade, the blocks were made mainly for Mumbai printers and then for the buyers from the centres of hand block printing like Jetpur, Rajkot and Ahmedabad. During that period, saree printing was done on a large scale in here. A large number of imprints of various sizes of borders were found in the records of the craftsmen of Pethapur, which revealed that various sizes of border designs were created to be printed on sarees. Owing to the constraints at hand, the illustration of such borders is limited to fostering an awareness of the carved pattern and the dominant trend of the time.

It was observed from the images of imprints that designs carved were closed, minute and fine. The motifs used were human figured motifs (Plate 4.27 and 4.28) and stylized bird motifs (Plate 4.29). Number of colours used in deigns were five to seven. The designs carved were minute, decorated, and fine, and motifs were close to each other. It could be said that here the amount of precision and fineness was demonstrated in carving. Border design with two colours having animal (horse) motif with human figured (Plate 4.30) is yet another example of showing process of their carving skills. The design as a whole covered various motifs and created a scene with every minute details carved so carefully that each of these were visible after printing too. A border design with geometric motifs (Plate 4.31) was inspired from the embroidered textiles.

Plate 4.27: Border design with figurative

Plate 4.28: Border design with figurative

Plate 4.29: All over design with stylized bird motif

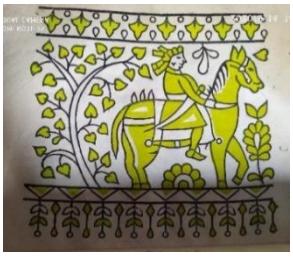

Plate 4.30: Border design with figurative motif

Plate 4.31: Border design with geometric motif

Bandhani (tie-dyed textile) printing was also practiced and was also in demand then. Various blocks and imprints of *Bandhani* were found in the records of block makers and printers. An indication of the carved designs of tie-dyed textile can be seen in the photographs below, which show a circular butta block (Plate 4.32), a border block (Plate 4.33), and an all-over Bandhani textile design (Plate 4.34). This suggests that the craftsmen were well-versed in the motifs, design patterns, and processes of other traditional Indian textiles in order to be able to carve such intricate blocks for printing. The traditional textiles, whether woven or embroidered, may have served as a source of inspiration for block makers.

Plate 4.32: Circular Butta blocks of Bandhani print

Plate 4.33: Border block of Bandhani print

Plate 4.34: Imprint of all over design (Bandhani print)

iii) Period of 1960 - 1980

This might be considered another transitional stage for Pethapur's crafts and craftspeople. Only the blocks for the well-known Ajrakh print of Kachchh were started to be carved at Pethapur shortly after 1960, and this technique is still in use today. During this period, *chhidri* printing, mud printing in Vadodara, and saree printing in Mumbai and Jetpur were all done.

Plate 4.35: Border design of chhidri print Ahmedabad

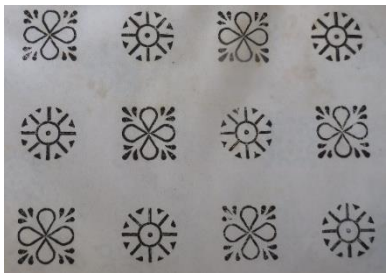

Plate 4.36: Design of *Gamthi* print

Plate 4.37: Contemporary designs of flower inspired from paintings

Plate 4.38: Design of tree inspired by painting

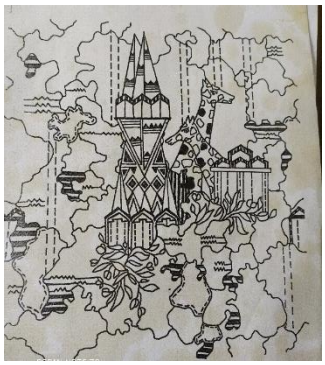

Plate 4.39: Novelty design (Combination of monument and wild life, Africa)

Chinese cartoon motifs, elaborate flower designs, and Gujarati folk styles like the Gamthi print (Plate) and *Chhidri* print (Plate) were in high demand (Gohel, 2007). It was a period of great discovery and modern design, as well as block observations of monumental designs, fancy designs, and painting-inspired designs (Plate 4.35, 4.36, 4.37, 4.38 and 4.39).

By examining the designs of this era, one can get the conclusion that the causes were the civil unrest that ensued after independence in 1947, government actions, tourism, and, in the end, industrialization and the impact of emerging technologies (Edwards, 2005).

Additionally, it was noted that throughout this period, figurative motifs, the quantity of colours utilised in designs, and minute details all gradually vanished. Simple patterns with few details, strong lines, and one or two colours were noted

iv) Period of 1980-2000

During this period, the blocks for Ajrakh prints (Plate:) were made by many wood block makers of Pethapur. It is important to mention here that each workshop in Pethapur was having their own clients and market. Monopoly work culture was also developed during this period.

At the same time some craftsmen were making blocks for Bagh prints of Madhya Pradesh (Plate:). It required a detailed, fine and minute carving skill.

This was the time when many printing centers of Mumbai and Jetpur were gradually closing due to screen printing.

Plate 4.40: All over design Bagh Print

Plate 4.41: Designs of Ajrakh print

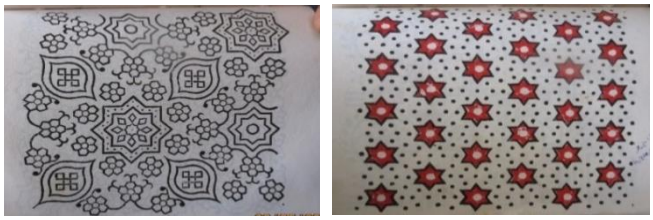

Plate 4.42: Modified designs of

Plate 4.43: Exploration of Ajrakh motifs

Period of 2000- till date:

There was a noticeable change in block-making designs around the beginning of the twenty-first century. Pethapur block makers were now heavily involved in the production of the blocks used by Kachchh printers. The earthquake in 2001 had a devastating effect on the Kachchh area. Kachchh has once again become notable due to the governments' and other agencies' initiatives for reformation and redevelopment. Numerous designers and design institutes altered and explored different Ajrakh patterns, while exports were also boosted (Plate: 4.41). This was made feasible by the artisans of Pethapur who fashioned locks in Ajrakh with a variety of inventive patterns. At the moment, Pethapur wood blocks' main market is Kachchh (Plate:4.42, 4.43)

In addition to Ajrakh patterns, craftsmen of Pethapur carved exquisite blocks for independent designers and printing studios throughout Gujarat and other regions of the nation.

Changes in designs observed

- Earlier designs made were having at least three to seven colour with background with human figures, animals and bird motif with borders as it was mainly printed on saree. The designs were intricate and closely arranged.
- It was also observed that minute details, number of colours used in designs, figurative motifs were disappeared gradually during this time. Simple designs with minimum details, bold lines, with single to four colours were observed.
- Border designs have been totally erased
- Trivedi R., stated in his census report after analysing the designs carved that, "There was no legend behind these designs. \But it can be stated in general that geometrical designs are preferred by Muslims, while Hindu go in for all sorts of floral designs and decorative motifs luke birds, animals, human figures and deities." (**Census report, 1961:7**) This is quite relatable if one observes the designs.

A very interesting and important information was found during the secondary research, in a census report it was mentioned that how the printers value the carved block. It was mentioned that a set of carved blocks which is outline block(*rekh*), relative/filling block (*datta/ datlo*) and background block (*gad*) could be used for

printing 500-600 saris, after which they become out of fashion and thrown into the river. Sometimes they were kept for a while in the hope that the design would have a good market. Craftsmen preserved some blocks which were not worn out for further printing in future. **The craftsmen never used these old blocks as fuel as they consider these as the symbol of livelihood**. Present-day techniques and process have not changed from this vogue in the past. No improvements have been or can be devised for this handicraft except the designs to be engraved according to the demands and taste of the modern times.

4.1.1.5 Size and Scale of blocks (Magnitude)

Size of the wood blocks has changed over the years since the *Saudagiri* trade. It was affected by various reasons which has been described below. Size of the blocks were measured in inches.

Earlier *Saudagiri* blocks were of two types: One used in the field of cloth and other used
to print on the ends(Plate 4.44)

***Saudagiri* blocks**

- Size of the block:

3" x 5", 3" x 4" or 3.5" or 3.5"

- Thickness of the block: 3"

- Carving depth: 2" to 3"

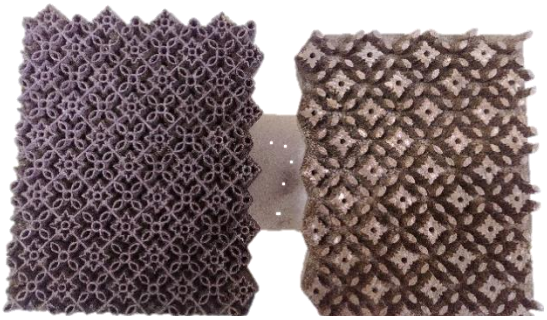

Plate:4.44 Saudagiri blocks (all over)
Source: Collection of Afzal (Laduji) Chakchaktawala, Butee Prints, Ahmedabad

Saudagiri blocks were of the sizes 3.5" x 3.5". After that around 1960s the changes were observed in the sizes

- Size of the border block: 4" x 6"
- Size of the blocks used for ground:
  6" x 6" to 7" x 12" (Plate 4.45)
  - Thickness of the block: 3"
  - Carving depth: 2"

Plate:4.45 Wooden block (6" x 6")

Changes taken place:

After 1960s the changes made in the size of the block. The length of the blocks was increased (Plate 4.46)

- Size of the block: 5”x6”
- Thickness of the block: 3”
- Carving depth: 1”

Present time:

- Size of the block: 8”x6” (Plate 4.47)
- Thickness of the block: 1.5”
- Carving depth: 0.75”

Plate:4.46 Butti block (5” x 6”)

Plate:4.47 A set of wooden blocks (8” x 6”) (four colours)

Plate:4.48 Wooden block (10” x 6”)

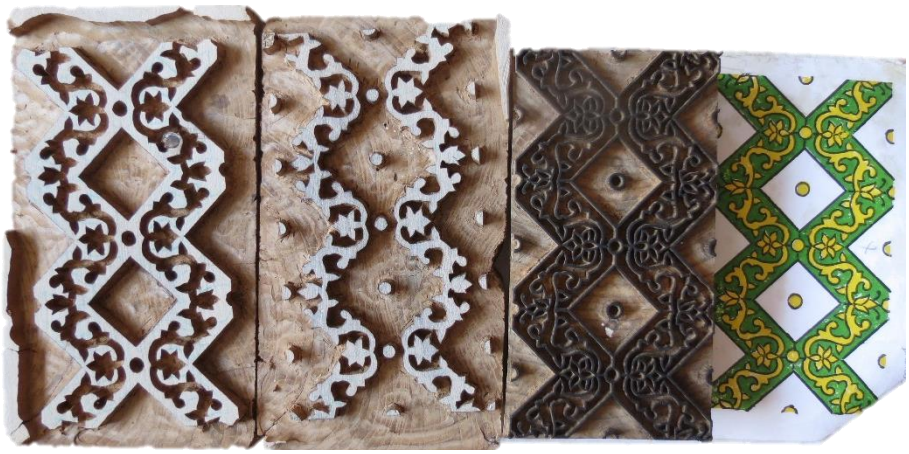

Plate:4.49 Border block (8” x 6”) (Three colour)

Changes observed in the size of blocks:

Since *Saudagiri* trade till present several changes observed in the size of the blocks. The changes observed were in the length, width, and thickness and carving depth too.

Earlier the size of the blocks was 3.5” x 3.5” and gradually it was increased to 4” x 6” and 5” x 6” and at present the blocks ranged from 5” x 6” to of 8” x 6”. The reason behind the increase in the size of the block was to increase production rate. More time was consumed in printing a cloth with the small size of block so in order to increase the printing speed the size of the blocks were increased.

Thickness of the block: The handle was cut out of the same piece of wood, the blocks used to be thicker—three inches thick. It was gradually lowered to 1.5". The craftsmen deliberately took this action when the cost of the wood increased. As a result, the three-inch-thick wood piece was divided into two pieces that were 1.5 inches thick. This meant that two blocks could be prepared for the price of one wood block, or one wood component. By buying the teak wood sticks and fastening them with screws, the handle was attached separately. The cost of manufacturing was lowered in this way.

Carving depth: During the *Saudagiri* period, the depth of the carvings ranged from two to three inches According to the craftsmen, the deeper the craving, the longer the shelf life of the block, and the better the printing quality. To retain the same printing quality even after extended use, the depth would preserve the fineness of the carved line. Additionally, the depth was gradually lowered to speed up carving and lower production costs. It was noted that the depth was currently between 0.75 and 1 inch.

According to the nature of the design and placement the number and size of the blocks would differ.

4.1.1.6 Supply Chain (Management):

The details of Pethapur's wood block supply chain are covered in this section. Supply chain management includes everything from the order's receipt to the completed product's packing, profit and cost, client information, etc. Each is explained and shown with images and captions below.

Orders: The four trading enterprises used to receive orders and bring plans for constructing wood blocks during the *Saudagiri* trade period. After then, the situation was altered, and it was now necessary to demonstrate the craftsmen's proficiency in order to receive orders. Block makers would take inspiration from everything around them and used to draw different designs on paper in accordance with the trend at that time.

In the past, block makers would bring sets of their own designs to the printing factories so they could show the printers and receive an order based on those patterns. This served as the fundamental model for obtaining work from printers. Earlier the craftsmen went themselves to deliver the order as well by bringing the new designs with them to get next order and to receive the payment.

After a constant flow of orders was established, the number of visits to the printing workshops gradually decreased, and a buyer-customer cycle developed. After that, postal mail was used for all correspondence. The frequency of trips to the printing unit was reduced as a result of the printers sending new orders with specifications by posting letters. Ideally, the craftsmen would come once a quarter to talk about their work, new trends, prices, and working procedures

During this period, it was necessary for every competent craftsman to acquire drawing abilities in their free time (Plate 4.50 and 4.51). As per the craftsmen of Pethapur, many years ago a painter came to village with number of designs to sell them to the craftsmen of Pethapur.

1970-1990: Numerous design students came to get understanding of such crafts. In order to create a new trend and expand the market for hand-printed textiles, the students also thought of ways to explore and investigate more modern designs. Following this, a large number of designers began to share their original wood block designs. As a result, the practice of creating drawings in order to obtain orders, progressively altered, and craftsmen now received a large number of designs from their customers in order to carve blocks. All they had to do was to modify it before carving.

Changes taken place: In the present digital era, printers and block makers were communicating through Whatsapp for the placement of orders, modifying and approving designs, etc. Printers have started sending images of swatches of fabric from which block makers were supposed to make blocks.

Plate 4.50: Various designs sketched **on paper**

Plate 4.51: Floral and free hand designs sketched

Packaging and dispatching orders: Packaging and dispatch were as important as block-making. The finished wood blocks were packed and dispatched in such a way that these do not get damaged. There was a systematic procedure followed for packaging and dispatching and important to understand.

Earlier, the blocks were packed in a wooden chest, prepared from *deodar* boards of discarded packing cases of cigarettes, tea, etc., costing 2 to 3 INR per piece in the local market. Waste paper or wasted *bidi* leaves were used to fill in the gaps to prevent damage to the block. For the destination like Mumbai the parcels were transported by Railway parcel. The transport charges of 20 kilogram from Pethapur to Mumbai were 5 to 6 INR. These charges were paid by the craftsmen rest of the charges and taxes paid by the clients at the destination. The blocks were delivered themselves at the nearby printing centres (Census report, 1961:7).

Changes taken place: Nowadays, craftsmen used a corrugated box, which was sourced from nearby shopkeepers for a minimal rate of 5 to 10 INR. To fill the gaps between the blocks, left-over fabric pieces sourced from the tailor's shop were used. Some craftsmen use EPE (Expanded Polyethylene) foam fitment, which was discarded packaging of LED televisions or refrigerator; used for packaging which, was not purchased, but reused by the craftsmen. The blocks for the Kachchh region were transported via private transport buses (travels) at a rate of 100 to 150 INR, and the amount was paid by the craftsmen.

For the centres like Delhi, Bengaluru, Chennai, and other than Kachchh, the prepared blocks were sent through courier service at a rate of 150 per kilogram, and the fast delivery rate paid was 300 per kilogram. This amount was paid by the client.

It is important to mention here that with the packaging of blocks, a detailed bill and imprint of each carved block were kept for reference and record. Craftsmen also kept similar copies for their future references and records.

Marketing: The section of marketing covered the information regarding the places where the wood block was traded, the problems in marketing and the changes taken place in marketing after *Saudagiri* trade that is post-independence is listed.

1940-1960: The carved wood blocks were marketed in all the prominent hand block printing centers of India. Most of the blocks of Pethapur were consumed by Bombay only where more than 45 printing workshops were also involved in block making. Many craftsmen from Pethapur also went to Bombay for block making. The other centres for Pethapur wood blocks were Jetpur, Rajkot, Jamnagar, Ahmedabad, Vadodara, Deesa in Gujarat, Mumbai in Maharashtra, and *Khadi* printing centres of Bengal, Madras and Uttar Pradesh (Meerut). The wood blocks of Pethapur were also marketed abroad. (Census report, 1961:7)

1970: Kachchh was not mentioned as a centre for Pethapur wood blocks in the literature review. During a chat with printers and craftsmen, it was discovered that blocks were manufactured for Kutch prior to the last 60–70 years. In other words, the blocks for the Ajrakh print were created for the Kachchh region after 1960. Kachchh and Madhya Pradesh's Bagh has been the main hub for requirement of Pethapur wood blocks for the past 40 years. The advent of screen and roller printing led to the closure of numerous hand printing businesses in Mumbai, Jetpur, Rajkot, and Deesa.

Changes taken place: At present, the main centre for Pethapur wood blocks is Kachchh. Ahmedabad, Vadodara, Chennai, and Bengaluru also sourced blocks from Pethapur, while Ahmedabad market was mainly covered by the craftsmen who migrated from Farukhabad.

Middlemen: There was no middleman or cooperative society for the sale of finished blocks to the printers. The carved blocks were sold by the artisans themselves to the workshop engaged in hand printing on credit. The amount was generally paid by the party (printers) within 30 days, though sometimes delayed in the case of regular customers. (Census report, 1961:7)

Present: At present, one cannot say that the middlemen are directly involved. However, the scenario was that many designers and brands are promoting the local

craft and craftsmen and developing innovative products using hand-printed fabrics. Such units were directly contacted by the craftsmen of Pethapur, who customized the wood blocks by giving design specifications and then got them printed at the printing workshop in Kachchh. It can be added, that this resulted in the expansion of the market for block makers.

Economic Characteristics: This was quite similar to the census report 1961, that at that time also craftsmen were able to finance themselves. They did not depend for loans on Government, cooperative societies, banks or any other agency to establish their workshop which is fully equipped. At Pethapur, they got raw material at reasonable rates from the co-operative society. Capital investment required to set up a block making workshop at Pethapur with furniture and fixtures could be estimated Rs; 30,000 and circulating capital Rs. 1,50,000. A workshop required on average Rs. 1000 to 1500 for the purchase of raw material, Rs. 200-300 for tools and implements and Rs. 1000 cash to pay to the hired workers. (Census report, 1961:7) Although all the workshops in Pethapur were attached to their dwellings so it was not affected much. This estimation was studied to understand the craft as business.

Present: It was found during the interview that the craftsmen hardly depended on loans, Government schemes or any other agency whenever they needed any kind of financial assistance for building houses or wedding functions etc. their clients of Kachchh had helped them. The **capital investment** estimated for establishing workshop could be 20,00,000 INR. A workshop required on average 20,000 INR for tools and equipment and minimum of 15,000 INR for purchasing raw material.

Production cost and profit: The production cost was calculated including the raw materials expenditure, number of blocks per design, number of days or men required to complete the wood block. It was quite difficult to ascertain the cost of produced wood blocks as price of the outline blocks and filling blocks varied according to the designs engraved. The attempt made by estimating for a single block and a set of blocks.

Earlier the cost of single block having size 6” x 7” was calculated as Rs. 5 for raw materials, Rs. 12 cost of making a block, for one day of work, Rs. 4 for unpaid family wages and average earning of Rs. 6.(**Census report, 1961:7)**. The total production cost calculated was Rs 27 per single block during the 1960s.

The block makers had hired workers until 1990. The numbers varied according to the workshop. After that, gradually, a decrease in the number of workers was observed as they paid higher wages for construction work than block making. Earlier, semi-skilled workers were paid Rs. 2 to 2.50 (**Census report, 1961:7)**, skilled craftsmen earned Rs. 3, and unskilled workers earned Rs. 1 per day. The wood cost was reasonable till there was an active Block Making Co-operative Society from 1952 to 1987.

Before twenty years, which means during 1990-2000 the cost of single wood piece was calculated Rs. 1 (6"x 6") and after that it was increased to Rs. 200 (6' x 6") at present. During the period per day wages for hired workers were Rs. 3 to 4.

Since last two decades, the number of craftsmen engaged in this craft has decreased, and the cost of wood has increased. Earlier, wood was sold per cubic foot, and at present it is sold by weight, i.e., per kilogram. The price of wood ranges from 150 INR to 180 INR per kilogram. The wages given to the skilled craftsmen were Rs. 500 per day. The total production cost was calculated. This says that monthly earning of Rs. 15, 000 is very minimal to survive in present time.

After studying the changes taken place in the craft the findings deliberated were:

- Community shift
- Decrease in number of craftsmen
- Higher wood cost
- Low wages
- Demands for wood blocks increased
- Craftsmen started giving the blocks for carving in Ahmedabad (Outsourcing)
- *Saudagiri* **trade** had made Pethapur a block making hub and it was about hundred years of trade. Now it could be added that for past seventy years Kachchhh has been a prominent centre for Pethapur wood blocks which would complete 100 years in nearest future. So, another milestone achieved in the history of Pethapur. *Saudagiri* trade has made Pethapur a wood block making hub while Kachchh has maintained the same and survived the craft

4.1.2 *Saudagiri* trade and its influence on the craft of block making

This section focuses on the growth and decline of the craft since 1940 (Post independence) till present with reference to *Saudagiri* trade. It was this trade that made Pethapur a block making hub. The journey of the craft during the last 70 years was studied. It has been presented in chronology with the past events that happened

According to the 1961 census, the Suthar artisans, who were traditionally carpenters, developed and specialized in this skill. The record further mentioned that the craft may have originated in Iran under the era of the Mughals and was concentrated in Shikarpur Sindh, from where it migrated to Gujarat. It is possible that the craft of block printing spread from Sindh to Rajasthan, Gujarat, and Western Madhya Pradesh (India Census 1961:7).

The block makers believed that many years ago, women became tired of wearing white, plain clothing and began patterning their clothes with coloured bangles. Carpenters noticed and decided to give the women alternative styles, which led to hand block printing (Indian census 1961:7).

Making blocks was not a family business for carpenters. Originally, they were carpenters. Mr. Maneklal, a master craftsman, talked in an interview (Gujarat Samachar newspaper, 2003) that his grandfather was a carpenter for the Royal Court in Africa and the Queen of Africa's personal carpenter. Before 100 years, he brought ten additional carpenters from Pethapur to Africa. The King awarded his grandfather a gold medal for his exceptional craftsmanship. This gives an impression of the competence and craftsmanship of Pethapur's carpenters from the beginning. Somnath Gajjar thereafter earned a life doing construction work as well as making and repairing agricultural equipment after returning from Africa. They had previously lived at Chamapaner, near Vadodara, before their grandfather relocated to Borij on the Sabarmati River, near Pethapur. Trikamlal Gajjar, father of master craftsman, who mastered the talent of block making and started making blocks for *Saudagiri* print (Jain, 1985). This time must be around the middle of the nineteenth century.

This was the time of pre-independence and middle of the *Saudagiri* trade. When the *Saudagiri* trade was started around 1839, India was under the British rule. By the end of the seventeenth century, the British East India Company had begun to trade various varieties of silk, silk and cotton mix, plain cotton like muslins from west Bengal,

Bihar and Orissa. These coastal areas along with Gujarat and the Coromondel coast also gathered export fabrics from other local textile centres of India. Due to this, the European market flooded with Indian textiles. Patola was the double ikat silk fabric and popular cloth exported from India to Indonesia and this export began much earlier in the thirteenth century (Jain, 1985). From this it could be said that this gave rise to the *Saudagiri* trade.

Saudagiri **trade (1839-1940)**

The renowned *Saudagiri* trade had made Pethapur, a wood block making hub. It was hundred years of trade ended by 1940 due to the Second World War i.e. (1939- 1945).

It was trade between the block makers of *Saudagiri* prints from Pethapur, Chhippa dyers and printers of Ahmedabad and the descent of the trading families namely Maskati, Baghi, Vashi and Malbari.

During the period of *Saudagiri* trade (1839-1940) there were around 122 households involved and 1500 craftsmen engaged in wood block making craft (Prapassorn P.,). It was the time when the craft flourished. It was quite mysterious to get to know about how and when the carpenters of Pethapur contacted and made blocks for the *Saudagiri* trade.

There were about sixty Gajjar families in Pethapur. They all lived in *Gajjar no vah* or called as locality of Gajjars. Their hereditary profession was carpentry (Jain 1985)

During the field visit to Pethapur, the researcher got an opportunity to meet Satishbhai Gajjar, whose forefathers were also involved in *Saudagiri* block making. Satishbhai and his family had shifted to Kalol, near Gandhinagar, in search of a job. Since 2015, they have come back to Pethapur in an old house that was just beside the house of Maneklal Gajjar. Satishbhai's father, Shri Damodardas, and grandfather, Ranchhoddas Gajjar, were skilled block makers. These match with the census report. (Census report, 1961:7). In the detailed survey, under the section of very skilled workers in Pethapur and in the list, the names of all the skilled craftsmen were there (Plate: 4.52), and all of them were from the Gajjar community (Census Report, 1961:7). The list of skilled craftsmen in block engraving stated the name of master craftsman Shri Maneklal Gajjar.

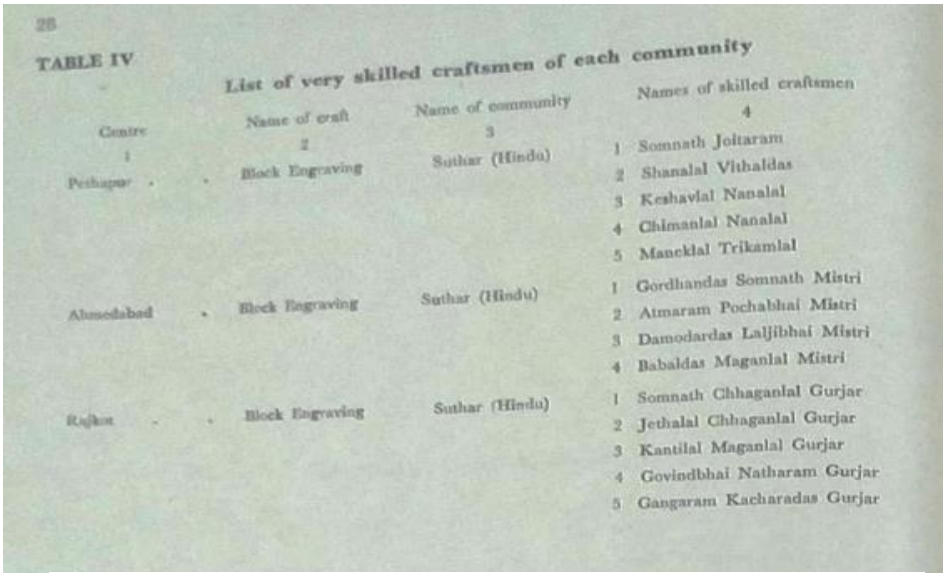

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TABLE IV

List of very skilled craftsmen of each community

Centre	Name of craft	Name of community	Names of skilled craftsmen
1	2	3	4
Pethapur	Block Engraving	Suthar (Hindu)	1 Somnath Jeltaram 2 Shanalal Vithaldas 3 Keshavlal Nanalal 4 Chimanlal Nanalal 5 Manecklal Trikamlal
Ahmedabad	Block Engraving	Suthar (Hindu)	1 Gordhandas Somnath Mistri 2 Atmaram Pochabhai Mistri 3 Damodardas Laljibhai Mistri 4 Babaldas Maganlal Mistri
Rajkot	Block Engraving	Suthar (Hindu)	1 Somnath Chhaganlal Gurjar 2 Jethalal Chhaganlal Gurjar 3 Kantilal Maganlal Gurjar 4 Govindbhai Natharam Gurjar 5 Gangaram Kacharadas Gurjar

Plate 4.52: List showing the skilled craftsmen of Pethapur
Source: Selected crafts of Gujarat, Trivedi R.K., Census of India, 1961:7

Plate 4.53: Six block makers with craftsman Damodardas Gajjar (at right)
Source: From the collection of Satishbhai Gajjar, Pethapur

Effects of *Saudagiri* trade (Transition to Craftsmen from block maker)

Motifs of *Saudagiri:* Fine floral and geometric motifs

Designs: Designs were of mixed Indo- Siamese origin

Process: The black outline pattern originated from Siam. These design samples served as the basis for the blocks that block makers had to construct. The traders gave the block manufacturer's instructions to produce a few more design samples with little

modifications. After that, Siam was consulted over these well-received samples. These variations were well-received by the firms, who placed substantial orders for fabric featuring our designs (Plate: 4.54).

Plate 4.54: Original wood blocks of *Saudagiri* print
Source: From the collection of Afzal (Laduji) Chakchaktawala, Block Printer (From the family of block printers of Saudagiri fabric) Ahmedabad

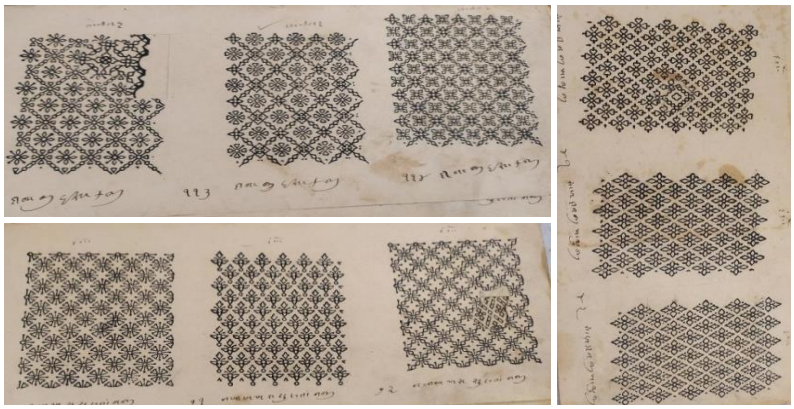

Plate 4.55: Imprints of *Saudagiri* print
Source: From the collection of Afzal (Laduji) Chakchaktawala, Block Printer (From the family of block printers of Saudagiri fabric), Ahmedabad

Jain, (1985) stated in his conversation with Maneklal Gajjar that the variations made in designs were in grid form. Designs of *Saudagiri* were described very well stating that "As the eye gradually passed from one design to other, it was like a kaleidoscope where one pattern emerged from other-each one independent but organically linked" (Plate:4.55)

Carving technique: As the designs were floral and geometric and repeated all over, the floral form was conceived as a bound in by a square, a triangle, a rectangle, a circle or a rhombus or a combination of similar. The designs were complex geometric patterns and each shape needed to be carved precisely and uniformly. Therefore, to carve such blocks or designs block makers used a special tool called *edi* (dies). These were the solid chisels or iron bars having different shapes embossed on either side, of a leaf, four petalled flowers, sun, moon, star, dana, and so on. These were also made

by themselves (Plate: 4.56). This punch was placed on the block and hammered down to create a deep relief on the block.

Plate 4.56: Different shaped punches/dies (*edis*)

Trade pattern: It was hundred years of trade between Siam (Thailand) and India. Surat based four trading companies were involved in the business namely Maskati, Vashi, Baghwal and Malbari. From which Maskati & Co. controlled a major part of *Saudagiri* trade. They ensured the high quality and standards in *Saudagiri* prints.

As discussed above the designs came from Siam, blocks were prepared at Pethapur, fabrics were printed at Ahmedabad and Pethapur and printed goods were then sent to Siam via sea routes of Cambay.

A *khepio,* or messenger, travelled on foot from Pethapur to Ahmedabad carrying blocks along with specific instructions for the printers, bringing back new designs, specifications and messages with him. He charged half rupee per trip (Jain, 1985).

Status of the Craftsmen: The craftsmen (Gajjars) prospered as the *Saudagiri* trade flourished. The affluence was seen at festivities such as Makarsankranti and Diwali.

However, there was no organization or association established with appropriate rules and regulations among Pethapur's block makers in terms of procuring raw materials or setting wages. As Maneklal noted, professional rivalry or jealousy among the craftspeople damaged one another's businesses. (Trivedi, 2011; Jain, 1985). Because block making was not their usual occupation, the craftsmen were not formally united and worked separately. The Gajjars' primary occupation was carpentry. Although there were some events that brought the craftspeople together, they responded collectively to them. Many boys from the Gajjar community came to Pethapur from nearest villages to learn and lived in Pethapur for a long duration in order to get

acquainted with block making skills. At that time The Thakor Saheb, ruler of Pethapur had laid a tax of one rupee per month per trainee who came to the village from outside. All the Gajjars were upset about this and collectively stopped working till the tax was abolished. (Jain 1985).

Decline of the trade: Due to the Second World War and also the development of imitated *Saudagiri* fabric using screen printing in Thailand started the decline of the trade. It was mentioned in the literature that the textile industry was given a rise again after the Swadeshi movement. The growth and survival craft of block making was affected by a number of events.

Effect of Swadeshi movement: 1918-1947: Mahatma Gandhi gave a boost to the movement on July 31, 1921, when he declared a boycott of foreign goods and burning English clothing at Elphinstone Mill Compound in Parel, Mumbai. Mahatma Gandhi, who referred to Khadi spinners as liberation warriors, established Khadi spinning factories around the nation. This led the rise to Indian handicrafts as well. The British flooded the market with inexpensive cotton with mill prints, undermining India's handcrafted textile sector. The Indian block print's glory came to an end as a result of the loss of the skills and knowledge that had been handed down through the generations of craftsmen. (Marathe, 2023)

Technological development (1950-1960): In the 1950, the Research Advisory Panel of textile printing industry, notified that with the concerned rate the workers in hand block printing were being displaced by machine-printing. According to the report, in Ahmedabad alone between 1953 and 1957 the number of hand printing were being displaced by machine printing. The number of hand printing had been reduced by 70 per cent from 8000 to 2500 by machine printing. This was similar to the report of All India Handicraft Board. (Jain and Kapadia, March 1984)

Census report of 1961, showed the major decrease in numbers of hand block printers after the Second World War. The number of block makers practicing the craft was 51 households and 114 craftsmen. Which was lesser than the craftsmen involved during *Saudagiri* trade. (Census 1961:7). The decrease observed in craftsmen of Pethapur was affected by many other events described below.

Golden Period for the craft of printing and block making (1960-1970): Although there was a decrease in the number of craftsmen making blocks in Pethapur, the 1960s

and 1970s saw a rise in interest in Indian block printing. Indian block prints had a renaissance in popularity due to their rustic aesthetic and inquisitiveness about eastern spirituality. Indian wood block prints now bridge the gap between the past and present by including a broad variety of traditional designs and contemporary styles. (Marathe 2023). Master craftsman Maneklal Gajjar has also shared in his interview that it was a golden period for the block-making craft during 1960–1970. (Gujarat Samachar, 2003)

Establishment of Capital City Gandhinagar (1960): The establishment of Gandhinagar Thermal Power Station (1977) and Gandhinagar as Gujarat's capital (1960) also provided employment opportunities at the Gujarat Electricity Board (GEB) and government printing press for residents of Pethapur and the surrounding villages. Many of the hired workers and skilled craftsmen chose to work in the thermal power station and Government Printing Press instead of continuing with the craft practices. In spite of this, the craft was still surviving.

Financial crisis: The financial crisis all over India during 1991-1993 due to the policy of foreign trade and in paying the country's debts, an economic crisis was declared in the country. In 1991, the government had budgetary limits that prevented it from directly or through banks provide funding for investment to struggling industries. It became essential to have access to private financing and to de-license industrial activities (Mittal A, 2016). Soon the reformations took place and things started settling down. After this, due to competition, globalisation, mechanisation, and industrial growth, this affected the handicraft sector. The printing workshops also got less orders as export slowed down, and the block makers could get limited orders and delayed payments.

Crisis faced by the Printers of Kachchh: It was found during interview with craftsmen that printers of Kachchh used to work for Government. A lot of printed fabric was rejected and returned to them. This caused a big loss to all the printers and they stopped printing for two years. This was directly affected to the craftsmen of Pethapur, as they also stopped getting orders for block making. Due to this, many of the craftsmen left the craft practices and many of them started other work with the block making, like grocery shops, stationary shops, etc.

Natural Disaster (Earthquake): In January, 2001 earthquake was a natural disaster which had affected majorly the Kutch region. Kutch, one of the major hand block printing centers of Gujarat. Many printing workshops as well as other crafts were destroyed in the earthquake. Earthquake had destroyed the Kutch and its nearby villages. Relief material and aids had poured into Gujarat from all over the country and the world. Rescue and relief works took a long time due to confusion and lack of organization. However, the Government, the non-government organizations, armed forces, the community leaders, workers, police and with time it was made possible. After that, an appropriate plan and programme for rehabilitation and sustainable socio-economic redevelopment of villages and towns of Kutch was implemented immediately (Chauhan, 2002).

After an Earthquake Government and Non-Government Organizations had come up and initiated the rebuilding of crafts of the Kutch region. This had resulted in an upsurge in demand of hand block printed textile in both export as well as local market which trickled down to the block makers of Pethapur who got enough orders to overcome their financial crisis. Hence, the craft was rising up once again. But the decrease in the number of craftsmen could not be reserved.

According to the wood block makers:, "*bhukanp pachhi kaam vadhyu che atakyu nathi. Ghana orders avec che ame pahochi nathi valta."* After the earthquake there was no looking back and they were getting enough orders and work from printers. Therefore it can be said that the growth in wood block craft has been observed after the earthquake.

According to the research conducted in 2011, investigators had made an attempt to identify the strength and weakness of this craft which has helped in its progression and regression respectively. There were some external and internal factors analyzed that contributed to its growth or decline. (Trivedi, 2011)

The factors that contributed to the progression of the craft were:

- Good design skills
- Well documented designs
- Dedication

The factors that contributed to the regression of the craft were:

- Wood quality and cost

- Lack of design skills and inability to adapt to making newer designs
- Jealousy among the block makers
- Competitors (screen printing)
- Shortage of workers
- Lack of interest in younger generation to learn this craft due to higher education

Present status of the craft (2012- till date): During the field visits to Pethapur and interviews with craftsmen, research revealed that due to the decreased number of craftsmen, the craftsmen were unable to achieve the target of completing orders within time. Hence, most of the craftsmen started giving job work, or, in other words, the wood block was made by outsourcing to Ahmedabad. It was found that a group of craftsmen had migrated from Farukhabad to Ahmedabad and started practicing the craft. These wood block makers were settled near Narol and the GIDC area in Ahmedabad. They were around seventeen in numbers which is nearly equal to the existing craftsmen in Pethapur. The workers used to change often as they come from Farrukhabad. The researcher had visited all these workshops to solicit all theinformation related to the craft and to know the reality before taking further steps.

It was found that the block makers in Farukhabad were mainly making blocks for the printers in Ahmedabad and job work given by the wood block makers in Pethapur. It was disheartening to know at first sight that the craft of block making had gradually been taken over by this migrated group of wood block makers. The carving technique of the Farukhabadi block makers was quite different from that of the Pethapur wood block makers. The differences found in the wood blocks were the carving depth and carving technique, although the craftsmen of Pethapur had explained and instructed about their carving technique and specifications to be followed for their wood blocks.

Findings:

- The block makers from Farukhabad were more productive than the Pethapur block makers, as most of the block makers reside alone and their families live in Farukhabad, so they could work more effectively. (Pate:4.57, 4.58)
- They work faster, and their working duration was found to be longer than that of Pethapur craftsmen.

- They worked on low wages, and the hired workers also paid low wage rates.
- These block makers made blocks for the printers who used to print with reactive dyes, so the quality of the carving didn't matter much as printers demand new blocks frequently. Although they made the blocks for Pethapur craftsmen as per the instructions and specifications given to them by the craftsmen of Pethapur.
- The younger generation of these block makers also started learning and pursuing the craft.
- It was found that they earn more by working more, but with a lower profit margin.

Plate 4.57: Block makers migrated from Farukhabad, Workshop in Ahmedabad

Plate 4.58: Metal blocks (Left) and Wood blocks (Right) prepared by block makers of Farukhabad, Ahmedabad workshop

4.1.3 Documentation of the process of chisel making

During the literature review and the researcher's earlier study, it was found that the chisel tool used for carving was traditionally made by the craftsmen themselves. And there were no records of this process found in any literature. In addition to this, only a few experienced craftsmen had knowledge of the chisel-making process. The process of chisel making was demonstrated by senior and experienced craftsmen, Shri Govindbhai Prajapati. The detailed process has been described below, supported by photographs for better understanding.

Plate 4.59: Different types of chisels used in carving

4.1.3.1 Step-by-step process of chisel-making:

Material used for making chisel: Traditionally, a rib of umbrella and the thick rods found inside electricity beams were used to make chisel. Finer chisels were made using the rod of an old umbrella, and a broader one was made from the thick rods.

Equipment used for making chisels: The equipment used was very similar to that of a blacksmith. A Stove, a hammer, an envil and twisting tools

Specification of rods for making chisels: The ribs of the umbrella were made of steel and had a gauge of 16. (Gauge means: sizes; numbers that indicate the thickness of a piece of sheet metal, with a higher number referring to a thinner sheet.). For making dies or punches (*edi*), an iron rod was used (Plate 4.60).

Plate 4.60: Umbrella ribs of different gauges used in making chisels
Source: https://www.indiamart.com/

Step 1: The ribs of umbrellas were used to cut into 4" long pieces using a triangular file. Whenever the craftsmen found an old or broken umbrella, they used to cut and retain the required ribs and keep them for making chisels. The umbrella rib was first fixed on a wood for better grip and for safety purpose. (Plate 4.61) after switching on the stove.


Plate 4.61: Step 1 - Turning on the stove and fixing the rib into the wood

Step 2: The umbrella rib used to first heat on stove to make it flat from the circular end. It was done by heating and then tapping using hammer. This process was repeated three four times till the rib would get flat. This process was called forging (Plate 4.62).


Plate 4.62: Step 2 - Heating the umbrella rib and making it flat by hammering

Step 3: After flattening the rod, the filing process began. It was done by rubbing each side to achieve the desired shape, which might be flat, curved, or rounded (Plate 4.63) Filing was completed by correctly keeping the centre. It was critical to grip the chisel tightly with one hand to ensure it would not shake.


Plate 4.63: Step 3-Filing was done to acquire desired shape of chisel

Step 4: After the desired shape was achieved, the chisel was heated to such a high temperature that it turned red. After that, it was directly cooled down by dipping it in water in order to make it hard enough, maintain its shape, and avoid deformation. (Plate 4.64)

Plate 4.64: Step 4 - Heat up the chisel on a high temperature till it turned red and cold down immediately

Locally craftsmen used to call this process "*aane pani pivdavu pade.,,Dhar paki karva mate...pani pivdavo etle steel mathi carbon steel bani jay."*

Step 5: The next and final step was to sharpen the chisel by rubbing it on the emery stone. It was rubbed in such a manner that each side of it was finished and sharpened appropriately from every side (Plate:4.65 and 4.46).

Plate 4.65: Step 5- Sharpening the chisel using emery stone

Plate 4.66: Prepared straight chisel

This was the traditional method followed for making a chisel using an umbrella rib. This was a traditional process. It was noted that it took a minimum of thirty minutes to make a chisel manually.

Process of making chisels using machines

This was done using an electric pedestal grinding machine. As the rod was thicker than the umbrella rib, the machine was used to minimise the labour and physical strain. The process followed for making chisels remained the same. The chiselled was sharpened with the help of the machine by dipping it in water in between to reduce heating (Plate 4.67). The use of water would reduce the friction on the tool and make the process faster. After that, for sharpening purposes, it was rubbed against the emery stone.

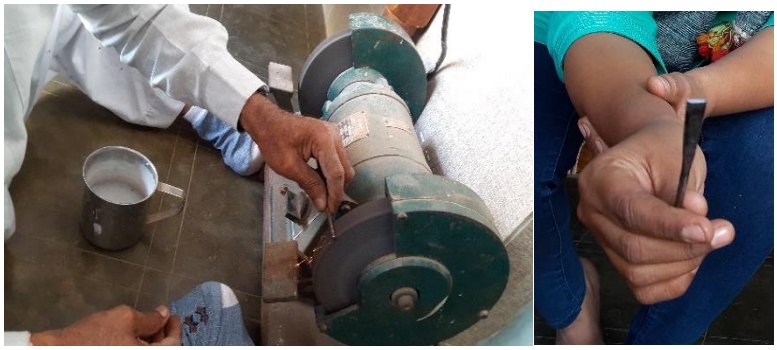

Plate 4.67: Making chisel using electric pedestal grinding machine (Left) and the ready chisel (Right)

Plate 4.68: Chisels made using machine by the craftsman

Total four chisels were developed amongst one was made using machine (Plate 4.68). At present, there was not a need created for developing tools such as chisels as less number of craftsmen practicing the craft. Therefore, the tools developed earlier were enough for them to perform work and if required craftsmen used to go to local blacksmith and a carpenter to make it for them. It was possible to develop such tools could be developed through machine and by outsourcing in present times. By owing the knowledge of such skills craftsmen could create the chisels as per the need of the design whenever required.

Here it could be added that, the documentation of chisel making process showed the indigenous skills of the craftsmen and the amount of knowledge of various areas other than block making.

4.1.4 Socio-economic status of the craftsmen of Pethapur

This section focuses on the personal and social characteristics of the respondents, including their age, sex, marital status, caste, religion, educational qualifications, occupation, professional and non-professional status, joint and nuclear family dwellers, monthly income, size of household, regular expenses, and savings. The aim of this chapter is to describe the socio-economic background of the craftsmen of Pethapur. In social science research, analysing the socio-economic background of respondents is crucial to understanding their social and economic conditions, as well as their personality patterns. Without a clear understanding of the social background of the respondents, it is difficult to interpret their problems, as social and economic structures are closely related. The majority of social problems are created by social and economic structures, and the problems faced by craftsmen are no exception. An individual's personality and behaviour are shaped by the culture and society in which they are born and raised (Tamuli, 2021). Therefore, when interpreting the problems of a group of craftsmen or a craft cluster, it is essential to examine their socio-economic background to understand their problems accurately. This chapter elaborates on the data obtained through the interview schedule.

The data collected for the socio-economic status of 15 respondents (N=n) were by the interview method and analyzed using tables on the basis of age, gender, educational qualifications, family type and size, monthly income, assets owned, and number of craftsmen and family members involved and awareness on various beneficiary schemes.

As the sample size was small the results were presented in a table form and analyzed.

4.1.4.1 Social Condition

Demographic details and family composition

The table shows the results of a survey conducted among 15 respondents in which they were asked questions related to their age, gender, education, community, type of family, and family size. The survey results indicated that all of the fifteen craftsmen were male and most of them were from the Prajapati community i.e. fourteen. The age of the respondents was distributed equally, five craftsmen from each among three categories: 31-40, 41-50, and 51 & above. The education level of the respondents varied from illiterate to graduate, by nine of them were having completed secondary

education. The type of family was divided into two categories: nuclear and joint. Seven respondents were having nuclear family and eight from joint family. The family size was divided into three categories: small (up to 3), medium (4-6), and large (above 6), with seven of the respondents having a medium-sized family.

Based on the results it can be concluded that wood block making craft was male dominated. The majority of the craftsmen were from same community i.e. Prajapati community. Most of the craftsmen were literate and studied till secondary school.

Table 4.1: Demographic details and family composition of the craftsmen

S. No.	**Demographic variables**	**Category**	**No. of respondents (N=15)**
1.	Age	31-40	5
		41-50	5
		51 & above	5
2.	Gender	Male	15
		Female	-
3.	Education	Illiterate	1
		Primary	4
		Secondary	9
		Graduate	1
4.	Community	Carpenter (Gajjar)	1
		Potter (Prajapati)	13
		Other	1
5.	Type of family	Nuclear	7
		Joint	8
6.	Family Size	Small (Upto 3)	4
		Medium (4-6)	7
		Large (Above 6)	4

4.1.4.2 Economic condition

I) Income and expense

The table 4.2 provides information about the number of earning members in the family, monthly income, other sources of income, and expenses of the respondents. Based on the table, it inferred that, out of the 15 respondents, eight had up to two earning members in their family, while four had more than two earning members. The majority of the respondents; nine had a monthly income between 15,000 and 20,000 rupees, while six of them had an income above 20,000 rupees. Only four respondents had another source of income apart from block making, with office boy, delivery agent, real estate agent, and clothing shop being the specified sources. The monthly expenses of the respondents were distributed across three categories, with majority of the respondents having expenses between 10,000 and 12,000 rupees.

From the above results, it can be said that those who were staying in a joint family had more earning members. The majority of the craftsmen (nine) had a monthly income of between 12,000 and 15,000 rupees. Simultaneously, the monthly expenses of nine artisans ranged between 10,000 and 12,000 rupees. This meant that the craftsmen could hardly live and struggled to save their wages. It also showed that only two respondents had to pay the rent; hence, the rest of them must have their own house. Four craftsmen had to depend on another source of income in order to earn more to fulfil their basic needs.

Table 4.2: Income and expense

No.	Questions	Category	No. of respondents (N=15)
1	No. of earning members of the family	Only one	3
		Up to 2	8
		Above 2	4
2	Monthly income of the family	10,000-15,000	-
		15,000-20,000	9
		Above 20,000	6
3	Do you have any other source of income than block making?	Yes	4
		No	11
		If yes, specify	Office boy, Delivery agent, real estate agent, Clothing shop
4	**Expenses:**		
	Monthly expenses (Grocery, bills, children education)	8,000-10,000	
		10,000-12,000	9
		12,000 & above	6
	Loan	Yes	1
		No	-
	Rent	Yes	2
		No	13
	Insurance	Yes	15
		No	-

II) Savings

According to the table 4.3 the information on savings of the craftsmen showed that all of the fifteen respondents were aware about the basic saving schemes. From which thirteen of them utilized the various schemes of postal and Life Insurance Corporation. Only two of them were having health insurance of their own and family members.

As per the results it meant that the craftsmen were aware about the importance of savings and spend according to their income on suitable scheme

Table 4.3: Details of savings

S. No.	Questions	Category	No. of respondents (N=15)
1	Do you aware about different methods or schemes for saving? (PPF, PLI, FD etc)	Yes	15
		No	-
2	How do you save money?	FD	-
		PPF	-
		PLI/LIC	13
		LIC+PLI+FD	2
3	Do you have health insurance of your own and each family member?	Yes	2
		No	13

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According to table 4.3 the information on savings of the craftsmen showed that all of the fifteen respondents were aware about the basic saving schemes. From which thirteen of them utilized the various schemes of postal and Life Insurance Corporation. Only two of them were having health insurance of their own and family members.

As per the results it meant that the craftsmen were aware about the importance of savings and spending according to their income on suitable schemes.

III) Standard of living

Table 4.4: Assets owned/ Standard of living

S. No.	Questions		Category	No. of respondents (N=15)
1	Type of house		Own	13
			Rented	2
2	Assets owned	Vehicle	Bicycle	1
			Motorcycle	7
			Car and motorcycle	3
		Electronic item	Refrigerator	15
			Television	15
			Washing machine	7

From table 4.4, the information about the living condition of the craftsmen. The result showed that from the fifteen craftsmen thirteen craftsmen were having their own house except two were on rent. From the total respondents seven were having motorcycles and three of owning both cars as well as motorcycles. All of them had a television and refrigerator whereas seven of them had washing machines as well.

It was found that the craftsmen were living in a pakka house. It was observed (Plate: 4.68A) that the houses of the craftsmen were found basic but tidy housing condition. The walls were painted and there was not any major damage or disrepair visible. The flooring appears to be made of a smooth concrete or a similar substance. The houses observed were well-maintained. The houses were well equipped with all basic needs such as light connection, gas connection, and water facility.

Details of craft skills and other information were presented through case studies of each craftsman.

Plate 4.68A: Observations around households of the craftsmen of Pethapur

4.2 Case study

Case studies were done to gain detailed information about an individual group so that the information could be generalized to many others.

Plate 4.69: Shri Dahyabhai Prajapati

Workshop 1

Case 1: DAHYABHAI PRAJAPATI

Age: 82 Years

Craft experience: 65 years of experience

Family background:

He has two sons and a daughter. His younger son Chetanbhai Prajapti has learned the craft and is assisting him in his work. He is from the Potter community and follows the Swaminarayan religion. Both his son and his daughter are married and have children. His wife, Manguben Prajapati passed away in 2019.

Craft skills:

His grandfather, Shri Vanmalidas Prajapati, used to do the finishing and leveling of wood pieces at block-making workshops. His uncle Shri Amtharam and his son Shri Natubhai Prajapati (Dahyabhai's cousin) were block makers. Dahyabhai is the second generation in his family to pursue this craft. Dahyabhai started learning the craft of block making at the age of twelve in 1952 from his cousin Natubhai Prajapati.

In 1955, he started practicing the craft as a profession. Since 1956, he has worked for a printer based in Mumbai for thirteen years at a salary of Rs. 45 per month.

Craft as business:

In 1972, he started his own workshop in Pethapur at a rented place called "Ramji Mandir". In 1995, he shifted the workshop to his house. At that time, 15 karigars were working at his workshop.

Dahyabhai is a master at drawing and tracing designs, making an outline block. After coming back from Bombay, he used to draw designs in his free time at night. He learned all kinds of work while working in Bombay. He has sketched 1000 designs by himself, and each design and imprint of a block was kept as a reference in a transparent folder or between the pages of an old magazine. At the age of 82, he assisted his son in tracing and drawing designs, modifying designs, billing, etc.

He faced a financial crisis during 1992–1995, when the printers in Kachchh had stopped printing for two years and hence block makers didn't receive orders. During that period, he started a grocery shop as another source of income.

Clients:

The main customers were from Kachchh, Mumbai, Jetpur, Rajkot, Surat, Vadodara, and Ahmedabad. Apart from this, he has made blocks for customers from Delhi, Banaras, Ujjain, Bhopal, Kolkata, and Bengaluru.

Contribution towards spread of the craft

- He was also a treasurer of a block making co-operative society
- 2017: Exhibition at national institute of Design, NIFT, Gandhinagar (Duration: 2 days)
- 2019: Invited for taking workshop at Science City, Ahmedabad (Duration: 1 day)
- 2022: Invited to exhibit and demonstrate craft at GIFT, Gandhinagar (Duration: 3 days)
- Dahya kaka and Chetanbhai's work has been documented and published by **India Guide**,in a guide book titled **"101 ways to experience Ahmedabad" (Plate:4.70**)and A handbook entitled "**into the life of a BLOCK-MAKER**", by Heer Mandalia, a Visual Communication student from the **United world Institute of design**, Ahmedabad.(Plate:4.71)

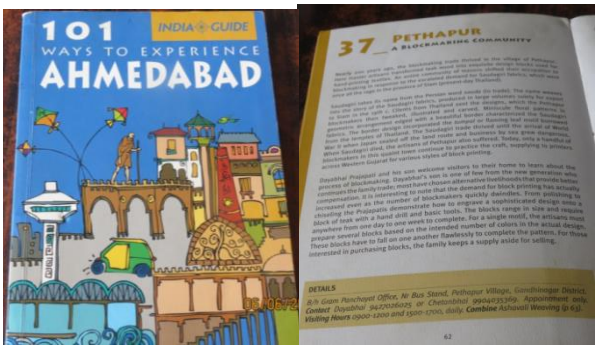

Plate 4.70 A guide book by : Anjali Desai, Published by India Guide Publications, Ahmedabad, 2016

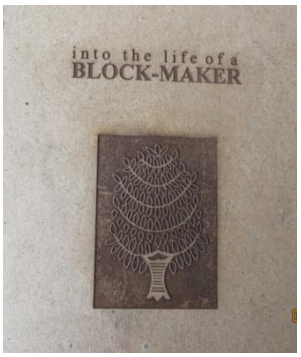

Plate: 4.71 A handbook, Published by a Visual Communication student from the United world Institute of Design, Ahmedabad, as a part of Design Project, 2016

Visitors at his place: Many visitors have visited his workshop every year from India and all over the globe.

Problems faced:

- Higher wood cost
- Benefit of government schemes
- Lack of manpower
- Lack of awareness on Government scheme

Future of craft:

He shared that "*atyare to kaam ghanu saru chale che pan karigar nathi. Aavi rite chalse to biba nu kam cahku rehse pan badha kaigaro e mehanat karvi padse."*
According to him, it was a good time for the craft, as they were getting enough orders; if this continued, and then the craft would survive. He also mentioned that the new generation of block makers needs to work hard.

Case 2: CHETANBHAI PRAJAPATI (S/o Dahyabhai Prajapati)

Age: 39 years

Craft experience: 20 years

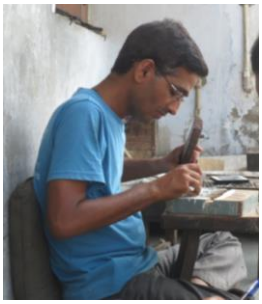

Plate 4.72: Chetanbhai Prajapati

Family composition:

Chetanbhai is the younger son of Dahyabhai. He studied till S.S.C. and started learning the craft. He is married and has three children: a daughter and two sons. His wife, Rinalben Prajapati, is also working as *aasha* worker. All his children were studying at a government-granted school in Pethapur. They lived in a joint family.

Craft skills:

He never wanted to pursue the craft. Thus, after S.S.C., he worked for a company in Gandhinagar for a year and then decided to learn the craft. He learned this craft from his father. He started learning this craft at the age of fourteen. It took him three years to learn this craft. He started practicing crafts at 19 years of age. At present, he is the only one to work at his workshop. His father is 82 years old. He can do all types of work-related carving but is lacking in drawing skills.

Craft as business:

Earlier, his father was working in the workshop. Since the last three years, he has been handling the workshop on his own. He found it challenging to work alone as he could not complete the target orders. He has also taught this craft to his nephew, Pratik. He has never felt any work-related crisis to date. Now he manages the whole inventory on his own.

Contribution towards spread of the craft:

He has always accompanied his father and given his contribution to the spread of the craft. He is always ready to share his knowledge and skills with any visitor who comes to his place. Dahyabhai and Chetanbhai were both often invited to NIFT Gandhinagar and Science City Ahmedabad to conduct workshops.

He is ready to undergo training for the upgrade and is also ready to impart training to the new group under block making.

Problems faced:

- Higher wood costs affect the profit margin.
- No benefit from government schemes
- Less number of craftsmen
- Not aware of government schemes
- Lack of drawing skill

Future of craft:

As asked about the future of the craft, he said, "*Karigaro ochha thai gay ache. jo aavu thase to Pethapur nu naam j nahi reh*." A smaller number of craftsmen were there, and they depended on outsourcing. So if this continues, then it will be difficult for survival.

Workshop 2

Case 3: GOVINDBHAI PRAJAPATI (*Govindkaka*)

Age: 75 Years

Craft Experience: 63 years

Plate 4.73: Shri Govindbhai Prajapati

Family composition:

Govindbhai is the first one in his family to practice this craft. His father was doing the finishing of wood pieces in

block-making workshops. He has two sons and two daughters. He trained both his sons in block-making. His younger son has passed away due to some disease. His elder son, Satishbhai, is practicing the craft in a separate workshop. Govind Bhai studied to the second standard only but learned many things from the experience. Both his daughters and elder son are married and live separately in Pethapur. Govindakaka and his wife, Shakuben, live alone in the house.

Craft skills:

Govindkaka is experienced, and his skills in block making are excellent. His ability to carve is outstanding. At this age, he did his work accurately and with great passion. His blocks stand out among others and were finely and perfectly carved. He still follows the traditional method of block making and does not use it.

In those days, block making was practiced in full fledge in Pethapur. There were around 300 karigars involved in the craft. It was a good time. That inspired him to learn this craft, and it was the only good option for him, he felt. In 1960, he started learning the craft from Shri Harilal Gangaram Gajjar (the grandfather of Shri Ghanshyambhai Gajjar). It took him five years to perfectly learn the skill. In 1966, he worked for three years at his mentor's workshop. In 1969, he moved to Baroda and worked with Shri Damodar Gajjar.

Craft as business:

From 1972 to 1986, he worked for Jitendra & Brothers, Mumbai. In 1973, he started working independently. Since 1988, he has been making wood blocks only for Bagh printers. He has mastered all the skills of bock-making. He had four workers hired in his workshop for 40 years. For the last twenty years, he has worked without workers. The cost of his blocks was much higher than that of other block makers in Pethapur. His blocks were well appreciated by Bagh printers, and they paid him the cost too. He has maintained a book of the imprints of blocks he made over the years. He used to keep 200–300 imprints together and then get them bound in a book to preserve them for longer and for future references. By observing his workshop and work pattern, it was found that he is better organized, systematic, and particular in his work than other block makers.He never made small blocks from the left-over wood to sell. He used to give away the waste wood in the neighbourhoods to be used as fuel.

Clients:

The main buyers of his blocks were initially from Bombay, Vadodara, and Ahmedabad. Then, since 1988, he has been making blocks for Bagh prints. Apart from this, many individual designers and brands have ordered blocks from Govindbhai from various places in India.

Contribution towards the spread of the craft:

He was invited at various places for conducting Workshop and Training.

- September 2006 to May 2007: Bagh Cluster Club, Jilla Gramodhyog, Dhar, Madhya Pradesh (Duration: 9 months)
- September 2015: National Institute of Fashion Technology, Gandhinagar (Duration: 1 day)
- December 2016: Aditya Birla Foundation at Hotel Taj, Bangalore (Duration: 3 days)
- May 2017: Kerala Institute of Design (Duration: 7 days)

Many visitors visited his place including Government officials, educational institutes, local and international tourists and students.

Problems faced:

- Financial assistance for the purchase of wood

Future of the craft:

"*Aa kam to chlavanu, kyarey bandh nai thay..jya sudhi hand printing che tay sudhi aa kam cahltu rehse*."- According to Govindbhai, the future of the craft is good, and it will be continued until hand block printing is in practice.

Workshop 3

Case 4: SATISHBHAI PRAJAPATI

Age: 49 Years

Craft Experience: 29 Years

Plate 4.74: Satishbhai Prajapati

Family composition:

Satishbhai is the elder son of Govindbhai Prajapati. He works independently in a separate workshop. He has two children: a son and a daughter. Both were studying in college and perusing engineering. His wife, Naynaben Prajapati, is a housewife, and she also doing hand stitching for a local tailor's shop at home in her free time.

Craft Skills:

Satishbhai is the elder son of Govindbhai Prajapati. He learned the craft from his father. It took him two years to learn the craft. He was able to do all kinds of work in block making.

In 1993, he started learning the craft at the age of 20. In 1995, he started working independently. His workshop is solely handled by himself. In his learning stage, he was also doing other jobs like newspaper distribution and working in a cloth shop, and at night he used to draw designs.

Craft as business:

He has started working independently in the year 1995. He works in a separate corner of a hall in his house. Like his father, he prefers to use new wood, not the wood used in an old house. He purchases the wood and keeps it in a box for seasoning. It is also quite reasonable compared to the seasoned wood of an old house. Only that one could not use this wood directly without seasoning. He has maintained a file for keeping the imprints of deigns. He used to make small blocks to sell to visitors at his workshops from the surplus wood pieces. He maintained a bill book for the record of sales and purchases. At present, buyers make online payments. For three years, he has reduced his practice of block making and joined the business of real estate in order to make more money, and he has also lost interest in practicing the craft for several reasons.

Clients: His clients were mainly from Mundra, Bhujpur, Mandavi, and Bhuj in the Kachchh region.

Visitors from abroad and the fashion institute have visited his workshop.

Contribution towards the spread of the craft:

- He was invited at Venus college, Kalol, Gandhinagar for conducting workshop (Duration- 3 days)
- He has also conducted a workshop at National Institute of Design, Ahmedabad
- He is ready to undergo various training for upgradation and interested in training of new group.

Problems faced:

- Needed assistance un purchasing wood so that a wood can be purchased for a whole year together and it would be economical, and quality of wood also be maintained.
- Less knowledge of various Government schemes
- Seek guidance for the application of National Award

Future of the craft: "*30-35 varsh sudhi to pethapur ma chalse j kem ke aatla loko che haji"*

Satishbhai described that craft will survive in Pethapur till 30-35 years.

Workshop 4

Case 5: **KANUBHAI M. PRAJAPATI (*Kanukaka*)**

Age: 58 Years

Craft Experience: 48 years

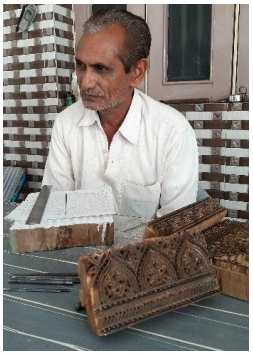

Plate 4.75: Shri Kanubhai Prajapati

Craft skills:

Kanubhai was an experienced block maker. He had learned the craft from different craftsmen. Initially, he learned from his brother Bhikhabhai. He had learned drawing skills from Dahyabhai Prajapati. He had also learned from Kishorbhai Gajjar. He has also trained his elder son, Chetan Prajapati, in block-making. He practices the craft along with him.

In 1973, he started learning the craft at the age of 8 from his brother, Bhikhabhai Prajapati. It had taken him five years to perfectly learn the skill. In 1978, he started practicing the craft. In 1988, he started his own workshop on the porch of his house.

Craft as business:

Since 1988, he has started his own workshop. He can do all kinds of work in block making and has the ability to draw designs. Before twenty years, four workers were hired at his workshop. He used to keep records of sales and purchases in a diary as well as maintain a bill book. At present, all buyers pay via online mode. Throughout his professional life, he faced an economic crisis for three years between 1992 and 1995. After an earthquake, the workflow has increased as demand for hand block printing has increased. He first discusses the cost with buyers and then takes orders.

He also makes small blocks to sell at various exhibitions and to visitors from the surplus wood.

Clients:

His clients mainly are form Dhamdka and Ajrakhpur, Kachchhh and for some years he worked for bagh printers. The buyers remained same form the beginning.

Contribution towards the spread of the craft:

He has been invited by Indext C for a craft demonstration at a Vibrant Summit for the last four years.

He is ready to train new people in the craft to overcome the problem of manpower and to explore technology for further advancement.

Problems faced:

- Availability, quality and cost of wood
- Pension scheme for artisan
- School to train new group
- Not aware of Government schemes

Future of the craft: "*karigar hase to kaam to chhe j..*"- He shared that if craftsmen are there to practice the craft, there is enough work. A worry is observed in his words that if the craftsmen are reduced or leave the craft, the name of Pethapur will be erased.

Case 6: CHETANBHAI PRAJAPATI

Age: 23 Years

Craft Experience: 7 Years

Plate 4.76: Chetanbhai Prajapati

Family Composition:

Chetan bhai is the elder son of Kanubhai Prajapati. He is married and has two sons. His wife is a housewife. He was working with the Gujarat Electricity Board and doing the job of collecting bills on a contract basis.

Craft Skills:

He was not interested in learning the craft, as initially he was told by someone that if he practices the craft of block making, no one will marry him. He learned the craft from his father. It took two years to learn the basics of craft. He was making only filling blocks, but gradually he has learned the fine art of carving. He was working for

the Gujarat Electricity Board on a contract basis to collect bills. He learned the craft of block-making while working.

He started learning the craft at the age of fourteen. In 2016, he started practicing the craft and assisting his father and left the job.

During the day, he practices the craft, and in the evening, from 6.30 to 11 p.m., he works for online food delivery. As he works with his father, he only focuses on carving-related work. He is lacking with drawing skills.

He is ready to undergo training for upgrading.

Problems faced:

- Training of craftsmen for technology upgradation
- Subsidy for purchase of wood

Workshop 5

Case 7: GHANSHYAMBHAI GAJJAR

Age: 55

Craft experience: 35 years

Plate 4.77: Shri Ghanshyambhai Gajjar

Family Composition:

Ghanshyambhai has two sons and a daughter. His daughter and elder son are married. His children are well educated and working at a good firm. We all lived together. Both his sons trained in block making, but they didn't practice the craft. Ghanshmbhai's brother Kishorbhai Gajjar was also practicing the craft, but he left the craft after ten years and started doing carpentry work. He passed away after two years.

Craft skills:

Ghanshyambhai is the only craftsman left from the Gajjar community who practiced this craft. He is the third generation of his family to practice this craft. He has learned block making skill from his father Late Shri Popatlal Gajjar. He had expertise in all kinds of work and had good drawing skills. He has also imparted training to both of his sons under block making. Due to their education and good earnings in job, they were not practicing the craft. In 1980, he learned the skill of screen printing at Mumbai. In 1981, he learned drawing and sketching at Ahmedabad for two years. In

1985, he started learning block making skill at the age of 20. In 1990, he started practicing the craft as a profession and joined his father's workshop. In 1995, at the age of 30, he lost his father and started working independently.

Craft as business:

Since 1995, he has been working independently. His workshop is separate from his house on rent. He is paying a rent of Rs. 5,000 per month. He had hired four workers before ten years. Only one worker was working in the workshop, Prahladbhai Prajapati. He has been there for four years, and presently he is only working. He maintained all his accounts and kept all the imprints of blocks for future references and records. At present, designs have been sent by the clients, so there is no need to draw new designs. There is no need for marketing to sell their products, as their clients remain the same over a longer period. He uses the faulty or surplus wood to make small wood blocks for selling at exhibitions and to visitors.

Clients:

The main clients of Ghanshyambhai are from Bhuj of the Kachchh region as well as Vadodara, Ahmedabad, Indore, Ujjain, and Chennai.

Visitors at his place: He has a number of visitors coming regularly to his workshop from the various fashion institutes (NID, NIFT). Sometimes he took charges from international visitors. He has not maintained a visitor book.

Contribution towards the spread of the craft:

He has been invited to conduct workshops and exhibitions at various places in India and abroad.

2003: Indext-C, Kolkata (Duration: 15 days)

2004: Pragati Maidan, New Delhi (duration: one month)

2010: Hastkala Niketan, Kukshi, Bagh, and Madhyapradesh (duration: 1 month)

2012 and 2015: National Institute of Design (NID), Ahmedabad (duration: 2 days)

2014: National Institute of Fashion Technology (NIFT), Gandhinagar (1 week)

2016: Trained a group of 25 women at Pethapur who came from Pipalia, Madhya Pradesh (duration: 1 month)

2015: Karyashala, Bhopal, and Madyapradesh (duration: 1 month)

2018: Amsterdam, Europe (Duration: 15 days)

2019: Kanoria Centre for Arts (Duration: 1 day) 2022: Participated in the exhibition "Geographic Indication GI Craft Fair 2022" from April 16th to April 30th, 2022 (duration: 15 days).

2023: Participated in a workshop on "Capacity building workshop for GI artisans of Gujarat" organized at Gujarat National Law University (GNLU), Gandhinagar (duration: 1 day).

Gahnshyambhai is ready to impart training to the new group under block making as there are fewer karigars.

He is not much aware of various government schemes for the craft, but he is aware of some schemes available for financial support, such as Jandhan Yojna.

Problems faced:

- Less earnings against laborious work
- Difficult to handle whole work single handedly.
- Higher wood cost

Future of the craft: "*printing chalu che tya sudhi to chalhe j..."*- He believes that block making will be continued until hand printing is practiced.

Workshop 6

Case 8: KAMLESHBHAI PRAJAPATI
Age: 50 Years
Craft experience: 35 years of experience

Plate 4.78: Kamleshbhai Prajapati

Family Composition:

Kamleshbhai is the second generation of his family practicing block making. He has two sons, and both were working for a firm at the time of the field study. His two sons

are married and live together. His wife, Daxaben Prajapati, also helped him with the work earlier.

Craft Skills

In 1989, Kamleshbhai started learning the craft of block making at the age of 15 from his father, Shri Bhikhabhai Prajapati. It took him three years of training to learn the craft. In 1993, he started practicing the craft and joined his father's workshop. Kamleshbhai Prajapati has good skills in drawing and carving. He had trained two of his sons and a nephew in the blockmaking craft. All three of them practiced the craft and worked in a separate workshop outside Pethapur. They had joined the workshop recently. He started working independently in 1997.

Craft as business:

Since 1997, he has been working independently. At that time, two workers were hired at his workshop. Both were 80 years old, and the other was 75 years old. At present, there are no assistants working in his workshop. He used to give job work to the block makers residing in Ahmedabad who migrated from Farukhabad to complete his orders. He believes in less profit and more selling. He maintained a bill book for the record of all his earnings and spending. At present, everything with regards to orders until dispatch is done through WhatsApp. Payments are also done through various online payment gateways. He is also earning from the ready-made garment shop in Gandhinagar.

Clients:

Major clients are from the Kachchh and Vadodara regions. Vadoadra's famous printers like Kamlesbhai Bhavsar (Baroda Prints), Khadi Gramodyog (Raopura), Devendra Shroff (Sejal Handicrafts), Kanubhai Bhavsar (Orient Print), and Ojasbhai have been clients of Kamleshbhai since his father's time. Apart from this, his blocks were sent to Akola (Rajasthan), the Trust at Pondicherry, and also sold online.

Many visitors had visited his workshop, mainly students. Today, visitors have decreased.

Contribution towards the spread of the craft:

He is regularly invited by the NIFT, Gandhinagar, to conduct workshops.

2007: Invited by a trust at Pondicherry for a training cum workshop, Duration: 15 days; participants: 30 men and women, both

2014: Invited for workshop at NIFT, Duration: 15 days

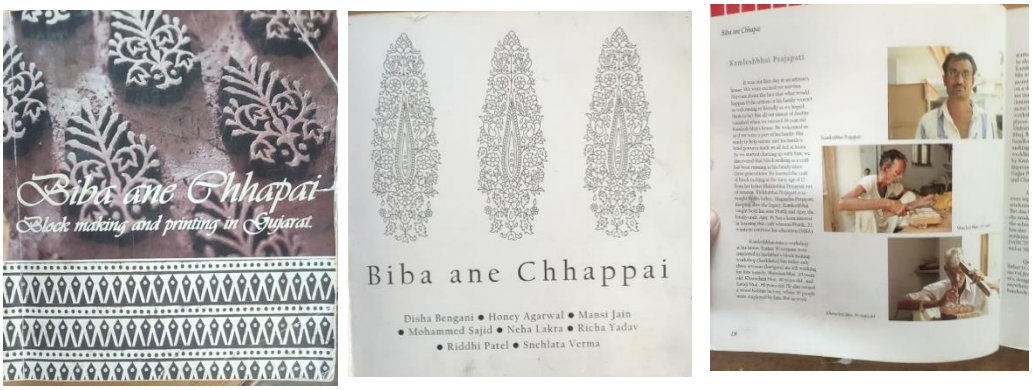

Plate 4.79: Booklet on "*Biba ane Chhapai- Block making and printing in Gujarat"*, created by the students of NIFT as part of project

Workshop :7

Case 9: MUKESHBHAI PRAJAPATI

Age: 58 Years

Craft experience: 40 years of experience

Plate 4.80: Mukeshbhai Prajapati

Family Composition:

Mukeshbhai is the first one in his family to learn and pursue the craft of block making. He was from Unava, a nearby village in Pethapur. He learned the craft and settled here in Pethapur. He has two sons. Both are married and learned the craft of making blocks. His wife, Meenaben, is a housewife. Both of his sons live separately.

Craft skills:

Mukeshbhai Prajapati has learned the craft initially from Shri Govindbhai Prajapati and then Shri Bhikhabhai Prajapati. He had expertise in drawing and carving and had trained two of his sons and a nephew in the block making craft. All three of them had been practicing the craft and assisting him at his workshop.

In 1979, Mukeshbhai started learning the craft of block making at the age of 15. In 1981, he had learned the craft and started working at Bhikhabhai's workshop. In 1992, he started his own workshop in his own house. In 2000, he had constructed a separate floor for the workshop. In 2015, his progress had continued, and both his son and a

nephew had joined him. His block-making skills are excellent. One can differentiate his work. That has improved his image among the printers.

Craft as business:

He started his own workshop in 1992 in his rented house. He has worked for ten years at Bhikhabhai Prajapati's workshop. He has hired many workers in his workshop. He used to maintain a record book and a bill book to record all account details. At present, records are also kept on WhatsApp. He manages the orders on the basis of urgency, and if orders come together from different buyers, then the order would be divided in half and he would work on both orders. He keeps all of the designs and imprints and has them bound into a book together. He doesn't make small blocks from surplus wood as he taking out time for a long order list.

Clients:

Mukeshbhai's clients are as special as his work. His buyers are mostly from Kachchh, Vadoadra, and Ahmedabad. He makes blocks for Jabbar Bhai, Sufiyanbhai, Aurangzeb, Zafarbhai from Kachchh and Mala, Pradeep Sinha (Bodhi), and Vadoadara. Apart from this, independent designers and boutique owners from various places ordered blocks from his place.

Achievements:

March 2018: Mukeshbhai received a 'Vastrashilpi Samman' by Hon'ble Padamshree Gushan Nandaji for his excellence in "wood block making for textile printing," organized by Delhi Craft Council.

March 2018: Felicitated by Craft Design Society (CDS), Ahmedabad

Contribution towards the spread of the craft:

He is invited to take workshops at various places. Mostly, he sent his sons and nephews to the places.

Bhaveshbhai, Avadheshbhai, and Pragneshbhai were invited from different places to conduct a block-making workshop. According to the workload in the workshop, one of them represents their work, or they go alternatively.

2015-2019: Invited to conduct a workshop on block making at Maharaja Ranjitsingh Gaekwad Institute of Design (MRID), Vadodara (duration: 10 days, continuously for four years in the month of March)

2022: Invited to P.P. Savani University, Ankleshwar, for a workshop (duration: 3 days)

2023: Participated in a workshop on "Capacity Building for GI Artists of Gujarat" organized at Gujarat National Law University (GNLU), Gandhinagar (Duration: 1 day).

Problems faced:

- Rise in wood cost
- Problem of men power
- Lack of awareness of government scheme

Future of craft: *"Atyare to block nu kam toch par che pachi pan maang vadhse pan karigaro occha che ena lidhe pethapur ne asar thase."*

Mukeshbhai believes that at present, craft is at its peak. In the future, demand will also increase, but the lack of craftsmen will affect the craft of block making in Pethapur.

Case 10: AVADHESH PRAJAPATI

Age: 36 years

Craft experience: 16 years

Plate 4.81: Avadhesh Prajapati

Family composition:

Avdheshbhai is the elder son of Mukeshbhai. He is married and having two children- a daughter and a son. His wife Sonalben is also working in a pharma company in Gandhinagar.

Craft skill:

Avadheshbhai is the elder son of Mukeshbhai. He learned this craft from his father. He started learning this craft at the age of 17. It took him two years to learn this craft. He started practicing the craft at 19 years of age. His work at workshops is to deal with all the preparatory processes, including the carving of filling blocks and the finishing process of block making. He is lacking in drawing skills. He would like to undergo training to learn computer skills.

Case 11: BHAVESH PRAJAPATI

Age: 36 years

Craft experience: 16 years

Plate 4.82: Bhaveshbhai Prajapati

Family composition:

He is living in a joint family with his wife, daughter, parents, and brother. He comes from Unava village to learn the crafts of block making, as he was inspired by Mukeshbhai. Noe and his whole family are settled in Pethapur.

Craft skills:

Bhaveshbhai is the nephew of Mukesh Bhai. He learned this craft from Mukeshbhai. He started learning this craft at the age of 20. It took him two years to learn this craft. He started practicing the craft at 22 years of age. He knew all kinds of work and had expertise in carving an outline block.

Case 12: PRAGNESH PRAJAPATI Age: 32 years

Craft experience: 10 years

Plate 4.83: Pragnesh Prajapati

Family Composition:

Pragneshbhai is the younger son of Mukeshbhai. He is married and has a son. His wife, Geetaben Prajapati, is also working. He lives separately in a rented house.

Craft skills:

Pragneshbhai was the younger son of Mukeshbhai. He learned this craft from his father. He started learning this craft at the age of 17 while studying. It took him only a year to learn this craft. He started practicing the craft at 18 years of age while studying in college. He was good at drawing and carving fine outline. He had good communication skills, so he dealt with buyers and communicated with them with regards to orders.

Workshop 8:

Case: 13 PRAKASHBHAI HARIBHAI PRAJAPATI

Age: 45 Years

Craft experience: 27 years of experience

Plate 4.84: Prakashbhai Prajapati

Family composition:

Prakashbhai is the second generation of his family to take up this craft forward. His brother is also assisting him in the workshop. He has two sons and is studying in school. His wife, Chetnaben Prajapati, is a housewife.

Craft Skills:

Prakashbhai's father, Haribhai, was also a block maker. His father worked as an assistant at different workshops. Earlier, Prakashbhai was working for the Electricity Board (GEB), and after that, he worked in the steel industry for 7 years before learning the craft. In 1995, Prakashbhai started learning the craft of block making at the age of 18 from Govindbhai Prajapati. It took him four years to learn the craft, and he continued working at Govindbhai's workshop. In 2010, he started his own workshop in his own house. In 2015, he renovated the house and workshop. From 2015 till date, he has made good progress with hard work and after a lot of struggles. He has also trained his younger brother Bharatbhai in block-making. He also has an assistant, Amaratbhai Prajapati, working in his workshop.

Craft as business

Prakashbhai can do all kinds of work in block making. but due to the long list of orders, he has to give it to the other block makers in Ahmedabad. He maintains a register to keep records of the daily work done by his assistants. The bill book is also maintained. He gives salaries to the workers on a monthly basis. Now-a-days, he also keeps all the records on the phone. The profit margin kept is 20–30%. He used to make small blocks from surplus wood to sell to visitors.

Clients: Most of the clients are from Ajrakhpur, and Dhamadka is from the Kachchh region.

Contribution towards the spread of craft

He has accompanied other craftsmen like Govindbhai and Satishbhai at various workshops and demonstrations.

He would like to undergo training for upgrading.

He is also interested in training new people in the craft.

Problems faced:

Higher wood costs and wood quality

Financial assistance for electronic tools is important as it saves time and increases production.

Future of the craft: *"Ame chhie tya sudhi karisu. Karigaro nai rahe tyar pachi pethapur nu naam nai rahe."*

According to Prakashbhai, existing craftsmen who are practicing the craft will survive in Pethapur.

Case 14: AMARATBHAI PRAJAPATI

Age: 49 years

Craft experience: 26 years

Plate 4.85: Amratbhai Prajapati

Craft skills:

Amaratbhai has learned the craft from Dahyabhai Prajapati. He worked for ten years at Dahyabhai's workshop. Then he started doing job work. He used to work at different workshops according to the requirements. His job at the workshop is finishing wood pieces and carving filling blocks. Since 2014, he has worked at Prakashbhai's workshop. He also brought some work home. Amratbhai also works at other places.

Case 15: BHARATBHAI PRAJAPATI

Age: 42 years

Craft experience: 7 years

Plate 4.86: Bharatbhai Prajapati

Craft skills:

Bharatbhai is a brother of Prakashbhai. He learned this craft from Prakashbhai. He started learning this craft at the age of 35 after losing the job. It took him two years to learn this craft. He started practicing the craft at 37 years of age. His role at the workshop is the preparatory process, carving filling blocks, background blocks, and tracing of designs.

Analysis from Case study:

After collecting information through a case study, generalizations made were:

- The craftsmen were not open to each other and did not share information with other craftsmen.
- A lack of leadership qualities was found among the craftsmen.
- Outsourcing: Due to a smaller number of craftsmen and karigars, mostly all the block makers had started outsourcing. The wood piece and design were provided to the block makers of Ahmedabad (who migrated from Farrukhabad) to create blocks for them.
- The demand for work is good, and there is a constant flow of orders.
- The use of electric tools like grinders, trimmers, and hand drills has made the work easier and faster by saving time and maintaining quality.
- The wood purchased by the craftsmen individually and the seasoned wood of old houses is sold at a higher price.
- The profit margin kept by block makers was 20% to 30%.
- Challenges faced:

    Higher wood costs.

    Quality and availability of wood

    The younger artisan was lacking in drawing skills.

    Less number of craftsmen

    Financial assistance for the purchase of electric tools

    Awareness of various government schemes

4.3 Promotion of the woodblock makers

In the realm of chosen craft, the promotion of craftsmen played a pivotal role in ensuring the sustainability and growth of this traditional craft of wood block making. The upcoming section and sub-sections focused on the multifaceted aspects of promoting the wood block maker, probing into approaches which were aimed at enhancing both the individual craftsman and the craft itself. Through ergonomic analysis, the physical and occupational parameters of the wood block maker's work pattern and environment were examined, addressing issues of comfort, safety, and overall well-being. This section also explored the capacity building initiatives designed to empower craftsmen, including the integration of technology through CNC machines and the dissemination of knowledge regarding relevant government schemes. Additionally, the promotion of the craft took center stage, featuring initiatives such as the development of Do-It-Yourself kits, creation of informative websites, and opportunities for showcasing the craft at various platforms. The results presented here offer insights into the comprehensive efforts undertaken to uplift and promote the wood block maker, recognizing their invaluable role in preserving and advancing this traditional art form.

4.3.1 **Ergonomic analysis of the work pattern and workplace of the craftsmen**

Ergonomic analysis was done to analyze the ergonomic risk factors faced by the craftsmen through study and analysis of their work patterns and workplaces. Ergonomic analysis will play a crucial role in optimizing the craftsman’s performance, well-being, and safety in his work environment. The results of the ergonomic analysis are divided into six sections.

4.3.1.1 Demographics and body composition

4.3.1.2 Daily practices

4.3.1.3 Health Implications

4.3.1.4 Postural Analysis

- 4.3.1.4.1 Rapid upper limb assessment (RULA)
- 4.3.1.4.2 Working position

4.3.1.5 Workspace Analysis

- 4.3.1.5.1 Work area and Arrangement of tools and equipment
- 4.3.1.5.2 Work pattern

4.3.1.5.3 Ergonomic analysis of tables used for block making

4.3.1.6 Recommended Remedies

4.3.1.1 Demographics and body composition

Knowing the demographics and body composition of craftsmen was essential for creating effective and targeted ergonomic solutions that could contribute in promoting a healthy and productive work environment. Table 4.5 delineates the demographic details of the total population of wood block makers engaged in the craft of wood block making at the time of data collection.

Table 4.5: Demographics and body composition of wood block makers of Pethapur

(N=15)

S. No.	Items of study	Category	No. of respondents
1	Age (in years)	31 – 40 years	5
		41 – 50 years	5
		51 years and above	5
2	Education levels	Illiterate	1
		Primary	4
		Secondary	9
		Graduate	1
3	Experience of Wood block making (in years)	5 - 20 years	7
		21 - 40 years	4
		41 years and above	4
4	Body Mass Index (BMI) (in Kg/m^2)	Less than 18.5 (Underweight)	1
		18.5 – 24.9 (Normal / Healthy)	10
		25.0 – 29.9 (Overweight)	4
		30 or more than 30 (Obese)	0

Of the 15 craftsmen an equal number of craftsmen i.e. five each were under the age of 40; between the ages of 41 and 50; and above the age of 50. The distribution of wood block makers based on their age suggests the diversity in group with a balanced representation across the different age brackets. This diversity in age groups could be significant in understanding how ergonomic considerations might vary or align across

different stages of a craftsman's career. It also provides insights into the potential impact of age-related factors on ergonomic needs and preferences within the context of the wood block making craft.

It was observed that 60 per cent of the craftsmen had received education up to the secondary level and about 27 per cent of wood block makers had undergone primary education. There were a negligible per cent of wood block makers visible at the extreme ends of the education spectrum i.e. illiterate and graduate. The distribution of respondents across different education levels highlights the diversity within the wood block making community in Pethapur. The majority of respondents had received at least primary or secondary education which, indicated that a potential blend of traditional skills and formal education existed within the craft. This diversity in educational backgrounds suggested that they can have implications for how craftsmen approach their work, adapt to technological changes, and engage with modern design concepts. It also underscored the importance of considering varied perspectives when implementing ergonomic interventions and capacity-building initiatives within the community.

From Table 4.5, it is observed that there were at least seven of fifteen craftsmen who have an experience of 5-20 years in wood block making. The moderate level of experience that individuals have accumulated indicated that they had a substantial amount of hands-on experience, a level of proficiency and familiarity with the craft. Four craftsmen each in category of 21- 40 years, and more than 40 years of experience suggested that an equal percentage of craftsmen possessed a significant and extensive experience ranging from two decades to four decades in wood block making and even beyond. These together formed 53 per cent of the population as seasoned craftsmen; who have witnessed the evolution of the craft over a substantial period, potentially offering a deep understanding of its nuances. These individuals would likely bring a wealth of knowledge and historical perspective of the wood block making craft, having dedicated a substantial portion of their lives to its practice. The distribution of craftsmen with diverse levels of experience can give a comprehensive understanding of how ergonomic factors may impact individuals at different stages of their careers in wood block making. Insights gained from three groups with varied experience levels can contribute to tailored ergonomic interventions that address the specific needs and challenges faced by craftsmen across the spectrum of their careers.

Body Mass Index (BMI) of all the craftsmen was calculated by dividing the weight of individual in kilograms by square of their height in metres. It is observed from the Table 4.5 that 10 out of 15 craftsmen fall under the normal BMI range, 4 under higher and one falls under lower BMI range. The results indicated that the Body Mass Index of most of the craftsmen was found normal i.e with a BMI ranging between 18.5 to 24.9 Kg/m^2. The findings suggested that a significant portion of the craftsmen maintain a weight that is considered within a healthy range relative to their height. The normal BMI range is often associated with reduced risks of certain health issues, and individuals within this range are generally considered to have a balanced body composition.

Additionally, four craftsmen fall under the higher BMI range, which implies that they have a higher proportion of body weight relative to their height. Higher BMI values can be associated with an increased risk of certain health conditions, and ergonomically tailored interventions may be particularly relevant for individuals in this category.

Furthermore, one craftsman is under the lower BMI range. A lower BMI suggested that this individual has a lower body weight relative to his height. It may be essential to conduct a comprehensive ergonomic analysis to understand the specific needs and challenges faced by this craftsman, especially those related to physical strength, endurance, and overall well-being. Customized support and tools that facilitate ease of work can be considered.

4.3.1.1 Daily practices

There were a total of eight workshops in Pethapur. The results covered under daily practices revealed a combination of traditional craftsmanship and modern practices among wood block makers in Pethapur. It is indicated from Table 4.2 that he majority of wood block makers, comprising 13 individuals, worked for eight hours per day. This standard working duration was in line with common practices in various professions. However, it becomes essential to note that the nature of the craft involved intricate and detailed work, potentially impacting the craftsmen's physical well-being over extended periods. Two craftsmen worked for a longer duration, with a daily schedule of 10 hours. This suggested a variation in work intensity or specific project requirements that demanded additional time. The weekly workload thus was 56 - 70 hours, including 14 hours of rest considering seven working days. No holiday was taken into consideration. As a cottage industry, their workspace was a section of their living area that was designated specifically for their craft work.

Table 4.6: Daily practices of wood block makers of Pethapur in their work place

(N=15)

S. No.	Items of study	Category options	No. of respondents
1.	Working hours (hours per day)	08	13
		10	2
2.	Breaks (number of times)	2-5 time	8
		> 5 time	7
3.	Resting time (in hours)	1 hour	0
		2 hour	15
4.	Working pattern	Alone	6
		with Assistant	9
5.	Carry your monthly work at same workplace	Yes	15
		No	0
6.	Work rotation with colleagues	Yes	8
		No	7
7.	Repetitive work	Yes	9
		No	6
8.	Workshop having sufficient space for movement	Yes	9
		No	6
9.	Enough sunlight and proper ventilation	Yes	13
		No	2
10.	Use of any mechanized tools	Yes	13
		No	2
11.	Environmental or other factors that affects production	Temperature	3
		Humidity	15
		Noise	0
		Other (please specify)	0
12.	Use of back rest	Yes	6
		No	9
13.	Use of cushion while working on floor	Yes	15
		No	0
14.	Job tasks	Finishing of wood piece	8
		Transferring design on to wood piece	8
		Carving process	9
		Finishing of carved wooden block	10

It is evident from the above Table 4.6 that eight wood block makers took breaks 2 to 5 times during their workday, indicating a moderate frequency of pauses. Breaks are crucial for preventing fatigue, maintaining focus, and ensuring overall well-being. Seven of the total 15 craftsmen took breaks more than 5 times per day. A higher

frequency of breaks probably indicated of a work pattern that necessitates short interval breaks or a preference for brief rests to rejuvenate. Apart from short breaks all the craftsmen reported opting for a 2-hour of rest during their workday. This further reinforces that adequate resting time was essential for preventing physical and mental fatigue, particularly in a craft that required precision and attention to detail.

Out of a total of eight workshops, four had assistants helping the owners. Rest four workshop owners operated the workshop single handedly. As observed and the data from given Table 4.6, it was noted that four workshop owners worked single handedly and had to complete all the tasks without assistance. This resulted in work-related fatigue and affected their work efficiency. Those four who worked with assistants (a total of seven) served with the advantage for tasks that required teamwork, efficiency at the time of work load especially when attending to larger-scale projects. Having assistants potentially increased productivity and allowed for the division of labour.

Considering the work environment of the craftsmen in terms of its regular usage, rotation of work, repetitive work, workshop space and the sunlight and air ventilation in it, it was found that all 15 wood block makers worked at the same workplace on regular basis month on month, indicating stability and continuity in their work settings. Nine of fifteen craftsmen reported to be engaged in repetitive and continuous work which, is actually intrinsic to the craft of wood block making. This emphasizes the need for ergonomic considerations to prevent associated musculoskeletal issues as well as pain and discomfort. There was no significant problem with eyesight observed among the participants, as they preferred to work in the sunlight and their workshops as affirmed by thirteen respondents had enough sunlight and proper ventilation contributing to a conducive work environment. Nine respondents stated that their workshops have sufficient space for easy movement.

A significant majority, 13 respondents, reported using mechanized tools to reduce physical activity. This aligns with modernization trends in traditional crafts for efficiency and productivity. Considering the specific environmental factors that would affect production, respondents identified humidity as the primary factor affecting work production (15 responses), highlighting the sensitivity of the craft to climate conditions. While temperature and humidity were prominent, no responses were recorded for noise as a factor affecting work production. It was reported that during the monsoon season, work efficiency is affected due to less sunlight, and wood gets

affected by the moisture, so it becomes tricky for the craftsmen to remove wood dust from the drilled part because when wood is moist, wood dust clumps together and forms an impermeable barrier that does not allow air or heat to pass through.

It was reported that 13 out of 15 craftsmen used mechanized tools such as trimmer, grinder, and hand drill for the preparatory process and making filling blocks. As a result, time and energy were saved, and production increased while retaining quality. Despite that, it was observed that the quantity of wood dust produced during grinding operations poses a number of health hazards since the dust has a tendency to impact the respiratory system. It was reported that many of the craftsmen faced the problem of breathing. A study (Mahmood, W. et al, 2021) reported that the wood dust produced from grinding applications may cause a range of health hazards since grinding dust tends to affect the respiratory system as well as spread throughout the work area and environment quickly. This needs to be rectified immediately in order to solve the wood dust and lighting problems. Among the fifteen craftspeople, six reported having trouble using trimmers.

The craft was practiced by continuously sitting on the floor in the same posture. All of them used cushions for sitting emphasizing the significance of comfort during the intricate process of wood block making. However, nine craftsmen worked without back support indicating a lack of awareness of ergonomics and the importance of proper seating.

Job tasks were diversified among respondents, with different craftsmen engaged in finishing wood pieces, transferring designs, carving processes, and finishing carved wooden blocks. The process of making blocks was divided into four different tasks. All the craftsmen engaged in multiple tasks. It was noted that eight craftsmen were engaged in the finishing of wood pieces, which is the preliminary step of block making. Eight of them were engaged in sketching designs, which requires good drawing abilities and geometry understanding. The master at the workshop was primarily responsible for this responsibility. Nine of them were in engaged in carving, and ten of the fifteen were engaged in the final finishing stage of block making. Among all the other operations, carving is the most tedious and time-consuming task. It takes at least three days to carve an outline block.

It was in totality revealed that the majority of respondents prioritized a consistent work environment, utilized mechanized tools, and were conscious of importance of comfort in their workspace. Environmental factors, particularly humidity, emerged as critical considerations impacting production. The diverse distribution of job tasks underscored the specialized nature of wood block making, with craftsman contributing to different stages of the intricate process. These findings provided valuable insights for implementing targeted interventions, improving working conditions, and preserving the rich tradition of wood block making in Pethapur. Simultaneous qualitative approach to the topic of study and interacting with each craftsman enhanced the researcher's understanding of their responses to the structured questions.

4.3.1.1 Health Implications

As the craftsmen had to engage in repetitive tasks for prolonged durations while maintaining a seated position, it led to discomfort in various parts of their bodies. A 10-point Body Part Discomfort Scale (BDS), as described in the methodology, was used for measuring the level of pain experienced by the craftsmen and determine the degree of severity of the pain in different body parts. The most affected body areas were evaluated according to the three age groups of craftsmen as shown in Table 4.7. The findings from the BDS indicated that the younger craftsmen, whose age ranged between 31–40 and 41–50 experienced no discomfort (ND) or light discomfort (LD) in different body parts including problem in vision and breathing. It was also reported during the interview that the amount of disorder and pain increases in the young generation at times of severe work load. It is observed from the table that the lower back, lower leg, and knee were the areas where moderate discomfort (MD) to strong discomfort (SD) was reported by at least fifty percent of craftsmen those above 50 years of age (senior) experienced this type of discomfort on a regular basis. The light (LD) to moderate (MD) pain in neck was reported amongst the nine craftsmen. There was a light discomfort reported in breathing amongst five craftsmen while using trimmers and grinders. Longer use of these tools would have an impact on the respiratory system, thus it was imperative to consider them, while planning intervention.

Table 4.7: Level of Body Part Discomfort (BDS) as experienced by wood block makers

Craftsman Age range	Most affected body parts	Level of discomfort experienced by number of craftsmen					
		ND (n)	LD (n)	MD (n)	SD (n)	DD (n)	UBD (n)
31-40 (n=5)	neck	-	4	-	-	-	-
	lower back	2	3	-	-	-	-
	lower leg	4	1	-	-	-	-
	knee	3	2	-	-	-	-
	vision	5	-	-	-	-	-
	breathing problem	3	1	-	-	1	-
41-50 (n=5)	neck	-	-	3	-	-	-
	lower back	3	2	-	-	-	-
	lower leg	4	2	-	-	-	-
	knee	3	2	-	-	-	-
	vision	4	1	-	-	-	-
	breathing problem	3	2	-	-	-	-
Above 50 (n=5)	neck	-	-	2	-	-	-
	lower back	1	2	1	1	-	-
	lower leg	2	1	1	1	-	-
	knee	1	-	2	2	-	-
	vision	3	2	-	-	-	-
	breathing problem	3	2	-	-	-	-

*(n)= No. of respondents facing discomfort, ND- No Discomfort, LD- Light Discomfort, MD- Moderate Discomfort, SD- Strong Discomfort, DD- Disruptive Discomfort

4.3.4.1 Postural Analysis

The amount of pain increased with exertion at work as well as with growing age. Hence, there might be an association between age and work exertion and musculoskeletal disorders (MSDs). Keeping this assumption on fore, postural analysis was done; using RULA assessment sheet.

The postures maintained for the long duration were considered for analysis. Postures of upper arm, lower arm, fore arm and wrist were scored as Posture A. Force load scores were calculated. Neck, back and legs postures were observed and scored as Posture B (Figure 3.4). All the scores were then added to get the final score which determined the ergonomic risk associated with that posture.

4.3.4.1.1 Rapid Upper Limb Assessment (RULA)

Following the computation of the final scores for sections A and B, it was determined from Table 4.4 that, out of the fifteen craftsmen, no respondents reported having an acceptable posture according to RULA (Score 1-2). This could indicate that, based on the assessment, none of the respondents were found to have a posture considered acceptable by RULA standards. It suggested that improvements in posture are needed for all respondents. Majority i.e. nine of them scored between three and four, and six of them had RULA scores between five and six. For most participants, as indicated by the RULA score there are ergonomic concerns that require further investigation. The RULA score of 3-4 suggested that changes may be necessary to address the identified issues with the upper limb posture. It is a moderate level of concern, and actions should be taken to investigate and potentially make changes to improve ergonomics. A RULA score of 5-6 for the six craftsmen, indicated a higher level of concern than the previous category. This suggested that there is a need for more immediate attention and changes to address the ergonomic issues related to upper limb posture. The urgency is emphasized by the "Change Soon" descriptor. Based on the assessment, no respondents were categorized under a RULA score of 7, which suggested that, there were no extreme cases requiring immediate investigation and implementation of changes. This is

a positive indication that the upper limb postures of the respondents are not in the highest risk category according to RULA.

Table 4.8: Frequency distribution of Exposure to ergonomic risk factors in woodblock makers RULA Score

RULA Score	Statement	No. of respondents(n)
1-2	Acceptable posture	0
3-4	Further investigation and change may be needed	9
5-6	Further investigation, change soon	6
7	Investigate and implement change	0

According to the results of the RULA evaluation (Table:4.8) and the BDS questionnaire (Nordic questionnaire, Table 4.7), the neck, lower back, lower leg, and knee were the body parts most impacted by pain.

Further investigation was done by studying the working postures of the craftsmen and the work space arrangement and analysing them. The results for the same are described below and supported with photographs.

4.3.4.1.2 Working position

There are four stages of wood block making: a) finishing of the wood piece; b) transferring design to the wood piece; c) actual carving; including handle attachment; and e) finishing of the carved woodblock. The postures differed according to the process or stage of block-making. The process of finishing a rough wood piece would take immense physical exertion and time. The process of carving is tedious, and craftsmen had to sit continuously in the same posture for hours. It usually would take a minimum of three days to carve a typical outline block. The body parts involved and affected in the process of block making were the eyes, neck, lower back, hand, and arm, and the craftsmen were led to work in the same static position while carving.

Hence, the working posture was studied, and the stress associated with this position was examined. The majority of craftsmen were found to work and sit without back support. It was observed that craftspeople would change their seating arrangements to

suit their comfort levels (Plate 4.87 and 4.88).There were different working positions recorded and classified as working positions A and B.

Position A: It was observed from the image Plate 4.1, that some craftsmen used to sit in a folded-leg posture. Due to this, pain in the lower leg and knee has been reported.

Position B: A craftsman used to sit on his paws, as illustrated in Plate 4.2, while the other two people sat with one leg folded and the other folded from the knee such that the elbows and arms received support on the knee and the arm remained in the rest posture.

Plate: 4.87: Craftsmen at work - working position A

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Plate 4.88: Working position B- craftsmen set to work in one leg folded and one folded on knee and arm rested on it

Plate 4.89: Mallet - A tool used to tap on chisel while carving

As shown in Plates 4.87 and 4.88, the craftsmen were holding a mallet in one hand and a chisel in the other. A mallet was used to tap on the chisel repetitively. Mallets used were of two types. One is heavier, with a weight of 800 grams used for tearing the wood piece. The lighter one, with a weight of 500 grams, was used for tracing and

carving. The length of a mallet used was 12"–13"; that is nearly one foot. So that it could be easily grasped by the craftsmen. (Plate: 4.89).

Workspace Analysis

Conducting a workspace analysis for wood block makers with a focus on ergonomics was essential for promoting the health and well-being of these craftsmen and enhancing productivity. It was an investment in both the short-term and long-term success of the craft and the satisfaction of the craftsmen. All the eight workshops were visited, and each workshop was observed and analyzed on the basis of ergonomic principles to suggest interventions that were needed to be implemented.

4.3.1.5.1 Work area and Arrangement of tools and equipment

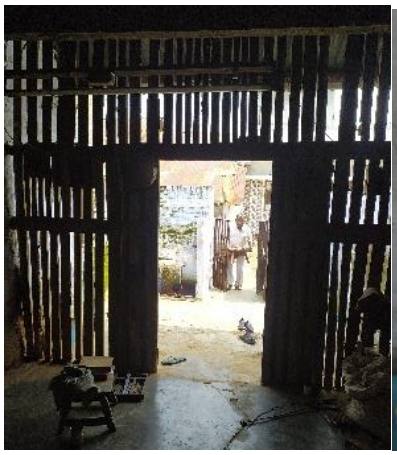
Most of the workshops were attached to their dwellings, such as the *verandah* or balcony, or on a separate floor or a separate room used for the workshops, except for one that was rented and a mile away from the residence. Due to this, craftsmen had to manage the limited space and arrange all required stuff, right from the storage of wood pieces, tools, and equipment, to finished wood blocks within that space by leaving enough space for themselves to perform work (Plate: 4.90 a, b, d, e). It was observed that in three amongst eight workshops a wooden box or a metal trunk was used to keep tools and other material. In addition to this, it was noticed that limited workspace affected the productivity of the craftsmen indirectly as craftsmen had to place things aside, then take out their tools and equipment, and rearrange the table when they returned to their jobs. Time and energy consumed on such repetitive tasks led to work-related fatigue and decreased concentration, focus and interest.

Enough sunlight and ventilation in the five workshops was observed. Amongst the rest three workshops, craftsmen had to work outside the workshop, in *verandah* or in a gallery of their houses. One workshop was found with a lack of sunlight inside the workshop (Plate 4.90(c)). Limited work space and less sunlight found inside the house were the reasons for another two workshops, which forced the craftsmen to sit and work in *verandah* or in the galleries of their houses. This resulted in work hindrance in various weather conditions during the summer (extreme heat), the monsoon, and also in the winter, as the sun sets early during these days. (Plate: 4.90 d, e, f). Environmental factors thus, affected the work efficiency of the craftsmen, as they used to work in an open area. Apart from this it was also reported that as work areas were

attached to part of their dwellings the craftsmen had to do some household work and also attend guests which caused disturbance and would also break the continuity of work.

a. Arrangement of wood piece, tools and equipment in limited space

b. A metal trunk or wooden box used to keep tools and equipment



c. During Less sunlight observed in the workshop, craftsman would work outside the workshop

d. Craftsman sit and work in a corner of balcony

e. Craftsman sit and work in a ve*randah*

f. Children playing around while craftsman at work

Plate 4.90: Work area and workshop arrangement

It was observed that four out of eight workshops were well maintained and in good condition. The rest of the four workshops needed improvement by reorganizing the tools and other stuff to create a better working area and avoid interruptions during

work. It was observed that most of the craftsmen used to mount the cutting and finishing tools with hooks on the wall. The small tools, such as chisels, punches, and dies, were put in a drawer of table, sides of the table or in a separate box. Although all the craftsmen used to keep the required tools within their reach, it would save time and energy and reduce physical activity during work.

Thomas J. (2012) wrote in his article that "workplace design has a profound impact on the productivity of workers. Making the best use of space through optimum placement of equipment, integrating human factors into workplace design, and effectively aligning the workplace with the surrounding environment are important aspects of ergonomics". Therefore, it was determined that rearranging the workspace while keeping in mind the ergonomic principles would aid in increasing work efficiency.

4.3.1.5.2 Work pattern

In the first segment, information pertaining to routines and job tasks was covered (Table 4.1). This section focused in particular on work patterns that have helped craftsmen in various ways, resulting in decreased labour costs and greater output. Such as electronic tools and manpower at workshops. This was studied in detail and analyzed the ergonomic risk factors associated with it.

There are four stages of wood block making: a) finishing of the wood piece; b) transferring design to the wood piece; c) actual carving; and handle attachment; e) finishing of the carved woodblock. The process of finishing a rough wood piece would take immense physical exertion and time. It took minimum of an hour to finish and level a rough wood piece by hand. At the same time, with the help of mechanized tools, five such wood pieces could be finished within an hour by saving time, energy and increasing productivity.

Electric drills, trimmers, and grinders were among the automated tools that craftsmen have been using for the past ten years. The wood piece was polished with a grinder (Plate 4.91 a) before carving. Previously, this process was done by hand using a variety of hand tools and files. It took an hour or more to finish a piece of wood by hand. With the use of the grinder, the duration was reduced to fifteen to twenty minutes. Trimmers were used to create filling (*datala / datta*)) blocks. A filling block required less carving than an outline block. Trimmers were thus used to remove excess wood (Plate 4.92 c).

a. Different Grinders

b. Craftsmen using trimmer and amount of wood dust produced

c. Electric hand drill

d. Drill machine

Plate 4.91: Different types of electric tools used by the craftsmen and amount of the wood dust produced while using such tools

Drilling air holes at the sides of wood blocks used to be a tedious job when done by hand. Electric drills (Plate 4.91 b) made this procedure faster with less physical labour. By enhancing productivity, these gadgets resulted in saving time and energy involved in these procedures. However, it was reported the amount of wood dust produced while using such instruments caused damage to their eyes and respiratory system. Plate 4.91 (c) shows the amount of wood dust produced while using a trimmer.

Based on observations and interviews, it was found that in four of the eight workshops, there were either one, two or three craftsmen working as assistants. The other craftsmen all worked on their own, without help. As a result, the craftsmen's workload increased, and they were unable to meet the deadline. Despite the fact that using mechanized equipment had decreased workload by conserving energy and time,

there were still other tedious tasks to be taken into consideration (starting from procuring wood to packaging and shipping woodblocks). Therefore, it was important to educate the craftsmen about an organized workspace and systematic working patterns.

It was discovered that most craftsmen were forced to work at random due to the limited workspace, low shortage of labour, and large order list. This resulted in fatigue and reduced work efficiency. Hence, it can be said that the use of electric tools has helped and upgraded craftsmen, but at the same time, prolonged use would affect the health of the craftsmen as wood dust has a tendency to spread quickly around the environment and is harmful for the respiratory system, eyes, and skin. Another challenge reported was manpower which needed attention, and immediate action. Thus, preventing ergonomic risk and enhancing the capacity of the existing craftsmen was considered as an initial solution within the constraints of the resources available to maximize their potential and that of the space before a much needed collaborative long term intervention is explored which would involve economies of scale and size.

4.3.1.5.3 Ergonomic analysis of tables used for block making

It was important to study and analyze the tables used by the craftsmen in block making as it is an essential equipment to perform majority of block making tasks on this tables. It is implicit that tables used would directly impact the health, productivity, and overall well-being of the craftsmen.

Two different types of tables were used by craftsmen: one had three legs and was known as *tarbaiyo* (4.92 a) in the local dialect, and the other was a desk known as *mej* (Plate 4.92 b). The table below displays the specifications of the table that was used. The specification of the table used is shown in the table below. It was observed that the tables used by the craftsmen were in different sizes, with minor variations.

b. Table with three inclined legs (*Tarbaiyo*)

a. Desk (*Mej*)

Plate 4.92: Tables used in wood block making

Desk (*Mej*): Desk with extended platform and two or three drawers to keep the drawing tools within reach, was used for drawing or tracing the design. The base of a desk had a flat surface and was used for drawing. Some of the craftsmen were found to be comfortable using a desk to perform all types of work, including drawing, tracing, and carving. It was observed that a master craftsman or workshop owner used to work on a desk (Plate 4.93 a)

- Drawers made the tools easily accessible, such as different chisels, dies, and drawing tools such as rulers, compass, colour pencils, paint, mallets, and design papers within reach of the craftsmen.
- There was a limited amount of space for comfortable leg movement because of the drawers

A table with three inclined legs (*Tarbaiyo*): This type of table was used mainly for carving. It has been used by the craftsmen for many years since the origin of the woodblock-making craft. By observation and interview, it could be said that *Tarbaiyo* has been designed keeping in mind the following details:

- Due to its three inclined legs, it does not move while carving.
- Three legs allowed easy movement of the leg.
- The board (surface of the table) could withstand weight or pressure exerted with a mallet since it is sturdy and thick enough.
- To keep the dies and chisels steady and from collapsing off the table, one side of the table featured 1cm-high edges (See marked area Plate 4.93b).

Specifications of table used in block making

At each workshop, the length, width, height, and thickness of both types of tables were measured. A very negligible variation was noted between dimensions of the tables that each craftsman utilized in various workshops. As indicated in Table 4.9 the average dimensions of the three-legged (*Tarbaiyo*) table was 14.5" x 17.5" x 11" (L x B x H), and the average size of a desk was 11.5" x 14.5" x 13.5" (L x B x H).

The investigation and information gathered about the table with three inclined legs (*Tarbaiyo*) revealed that it was created with ergonomic principles in earlier times. The block-making tables still in use today are the same as they have always been. With the

exception of the repairs, there have been no adjustments or modifications made in the size or design of the table (Plate 4.93a).

Table 4.9: Specifications of table used in wood block making

Specifications	**Desk (*Mez*)**			**Three legged table (*Tarbaiyo*)**		
Dimension	L	B	H	L	B	H
Average dimension	11.5”	14”	13.5”	14.5”	17.5”	11”
Thickness of board/base	1”			1.5”		
Material used	Teakwood			Teakwood		
Drawers	Yes, two or three			No		
Legs	Four			Three		
Use	Used in drawing and tracing of design			Used in carving process		
Limitations	No drawers			Less possibility for leg movement		

It was noted during the interview that the height of the tables was adjusted in accordance with the user's height; craftsmen would either place a wood piece on the surface of the table to increase height or keep a stone or wood piece under the table leg to adjust the height of the table (Plate 4.94). Since doing otherwise might affect work posture and raise the risk of ergonomic hazards, it can be said that the height of the table should be proportionate to the height of the craftsman.

Plate 4.93: Table heights was increased by inserting either a small wood piece under the leg of the table or a piece of stone or wood placed on the base of table

The results of ergonomic analysis were supported with related literature. The study by Mahmood et al., found that upper extremity musculoskeletal disorders and ergonomic

risk exposure among Pakistani handicraft workers, particularly the neck and shoulder, necessitated changes in working conditions. Musculoskeletal problems were identified as a serious issue among craftsmen by Mrunalini and Logeshwari in their review, which emphasized the necessity for corrective actions to decrease ergonomic risks. A study found that workers in saw mills face moderate to high risk of musculoskeletal disorders due to manual work and lack of awareness about ergonomics and proper postures. Small scale industries and handicraft sectors were lacking in the awareness about ergonomics, good work environment, and right postures etc. According to the study conducted by Caballer M. on school desk suggested that school desks should be adjustable in height to accommodate students of varying heights, ensuring comfort and ease of use.

4.3.1.6 Recommended remedies

Significant ergonomic risks and hazards have been identified after an ergonomic assessment. These were classified in order of urgency (immediate action required), and possible solutions were given to overcome the ergonomic risks and increase productivity. The proposed suggestive measures were derived from research on related issues that applied and assessed ergonomic principles. The ergonomic risks associated with the craft and its possible solutions have been discussed in detail below in Table 4.10 and supported by the related literature.

Table 4.10: Remedies recommended to overcome ergonomic risks associated with different aspects of woodblock making.

Factors identified: Natural light provision and use of artificial lighting	
• Some workshops were found to have less sunlight hence craftsmen had to work outside the workshop	• Skylights can be incorporated to get maximum amount of sunlight
• During monsoon season, odue to cloudy weather less sunlight observed and that creates work hinderance	• Appropriate artificial lighting and lamps with efficient light output such as T5 tube-light or LED lighting systems can be used with less maintenance and do not produce any glare.[1]

Factors identified: Exposure to wood dust	
• wood dust produced from grinding applications may cause a range of health hazards since grinding dust tends to affect the respiratory system	• OSHA (Occupational Safety and Health Administration) recommends an eight-hour exposure limit of 5 mg/m^3 for hard wood and soft wood. • Wearing masks and apron can minimize the risk [6] • Suction devices must be used to keep dust and shavings from accumulating in the workspace. Shavings should always be vacuumed up at the source[16]
Factors identified: Height of a desk (Adjustable desk)	
Desk/table used for carving	
• Craftsmen need to do adjustment in the existing table to adjust height • Need to overcome the limitations of both kind of tables.	• By maintaining the traditional design of the table with adjustable height, side drawers or panels to store tools, and additional space, it is possible to remodel it in accordance with ergonomic principles and the necessary specifications.
Factors identified: Awareness	
• The craftsmen were not aware of ergonomic risks and occupational health hazards.	• There is a need to familiarize young craftsmen by means of training with the term ‘ergonomics’ and impart knowledge of some physical exercises to reduce the level of pain and for relaxation.
Factors identified: Policy planning	
• Handicraft sectors given least attention to ergonomic work place and its risk factors	• The government needs to take initiatives to develop ergonomic workplaces in the craft sector by providing financial support or subsidies to develop ergonomic infrastructure • Create and implement policies governing the ergonomic risks associated with craft industries to help craftsmen [14].

Factors identified: Work pattern	
• It was observed that craftsmen used to take one long break of two hours in noon and working hours were 8 in the morning to 6 in the evening (Table 4.1)	• The two-hour lunch break could be split up into two or three shorter ones. One hour of relaxing and one hour of lunch break, for instance, can be split up into little intervals of fifteen or thirty minutes each. It might save time, and additional time could be spent on bodily relaxation by increasing work efficiency. • Increasing the number of working hours per day and modifying work schedules have been recommended to increase productivity. • Dividing work according to the environment would benefit the craftsmen by boosting output and eliminating fatigue. For example, intricate work like drawing and carving should be done during daylight, while attaching handles and packaging can be done in the evening.
Factors identified: Work area and work space	
• Less manpower, pending orders, and limited work space resulted in work fatigue and affected the work efficiency. • Most of the workshops were located in the residence or were part of the dwellings. The interruptions faced during work were due to family members, household work, attending guests, children playing around, etc.	• **Rearranging the workspace:** Arranging tools and equipment in a more systematic manner will help the workplace overcome fatigue and increase productivity. • **Workstation design:** Create a workspace or a corner where craftsmen can focus better and work without distractions. • A floor chair can be used to sit on the floor which provides cushioning as well as back support and also used for relaxation while working.

4.4 Capacity Building of the Craftsmen

4.4.1 Integration of technology in wood block making craft

4.4.1.1 Exploration: Development of wood block using technology

4.4.1.2 Comparison and analysis of CNC wood block with the hand carved block

4.4.1.3 Suggestion and possible ways of technology up gradation

4.4.2 Imparting knowledge of various Government Schemes

4.4.2.1Data base of appropriate schemes for the craft and craftsmen

4.4.2.2 Impart knowledge of relevant schemes

4.4.2.3 Feedback and Analysis

4.4 Capacity Building of the Craftsmen

Capacity building encompasses the development of skills, knowledge, and resources necessary for the craftsmen to thrive in their craft. Capacity building of the craftsmen would ensure the sustainability of the craft by equipping craftsmen with modern techniques, and insights of schemes available for their market and skill development.

4.4.1 Integration of technology in wood block making craft

To overcome the shortage of manpower, building capacities of the existing workforce was acted upon. The purpose of the exploration of the CNC machine was to analyze the best possibility of using technology that helped the craftsmen by assisting them in the carving process, increasing production, and reducing labour by saving their time and energy without eliminating the identity of traditional wood block making.

4.4.1.1 Exploration: Development of wood block using technology

An exposure visit to the Computer Numeric Control (CNC) unit was arranged by the researcher for the craftsmen, to understand the functioning and possibilities of developing a wood block using CNC technology.

Four block makers visited SHUBHAM WIRECUT, Phase-1, Vatva, GIDC, Ahmedabad (Plate 4.94) accompanied with the researcher.

Plate 4.94: CNC workshop, 'Shubham Wirecut', GIDC, Vatva, Ahmedabad

An exploration was done by making a woodblock on the CNC machine. After that, it was compared with a hand-carved wooden block, and analysis was done.

For the present study, a vertical milling machine (VMC), a type of CNC machine, was employed to develop a sample woodblock following CNC milling processes. As the name suggests, the machines have vertically oriented tooling. This was specifically used for drilling and plunge cuts; and is the best instruments for die-sink (https://www.ardelengineering.com/cnc-vertical-milling-machines).

As suggested by engineer Mr. Paresh Soni, a design was sent to him prior to visit for job preparation in CAD. The steps followed for developing wood block on CNC machine is described below.

Step 1: Designing (Job making)

A geometric design having size of 3 cm x 3 cm was selected for making a wood block on CNC machine. The geometric design which had different variations of organic (curved) and angular lines was purposively selected (Plate: 4.95) , since it is the basis of all design shapes; which would cover a broad spectrum of designs. A copy of selected design was fist sent to the developer. This step was called Job making. It was done through Computer-Aided Design (CAD) software (Plate: 4.96). At the time of job making each aspect of final design was discussed carefully. Such as size of the design, thickness of line, space between the objects of design.

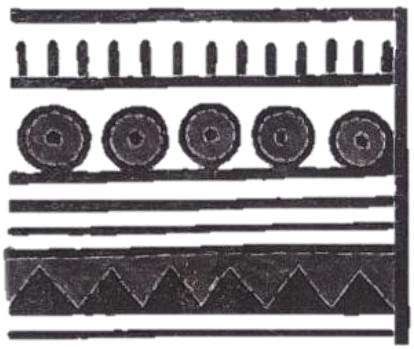


Plate 4.95: Selected geometric design for preparing wood block on CNC m/c

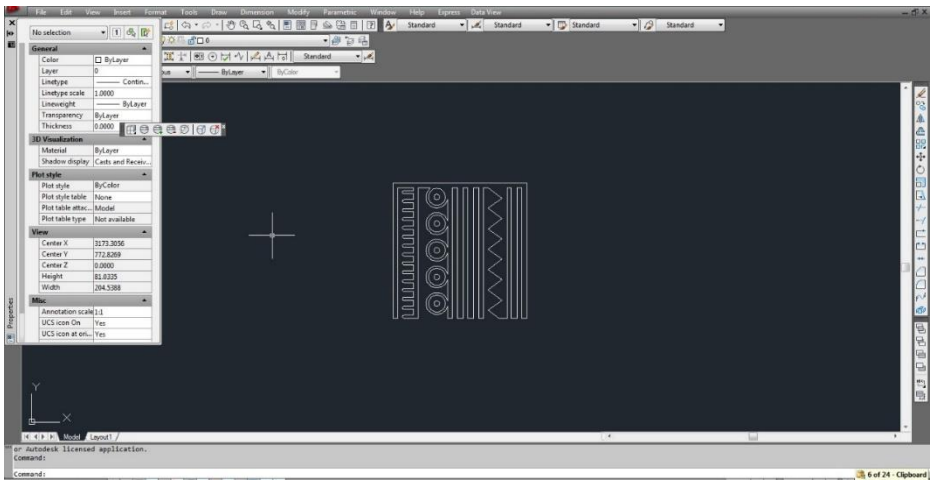


Plate 4.96: Design making using CAD software

Step 2: Conversion of design

The next step was the design conversion. Following the completion of the job-making process, the computer-aided design (CAD) file was turned into an operational CNC programme using CAM (computer-aided manufacturing) software. The CAD file and original files were extracted using CAM software, and the design was decoded into a CNC-friendly programming language. It was known as G-code. (Plate 4.97)

Plate 4.97: Programme generated in CNC friendly programming language (G-code)

Step 3: Setting up CNC machine

A finished wood piece was chosen for machine carving. The wood piece was secured in a clamp to set up the machine (Plate 4.99). The relevant machinery, including drilling instruments known as drill bits and cutting tools (cutters), were then fitted in accordance with the CNC Programme (Plate 4.98). The programme directed the installation of the tools in the correct order. The computer was used to feed the modified design, in the form of a Programme, into the machine. The programme that needed to run was selected from the control panel by the operator.

Plate 4.98: Front view of Vertical Milling Centre (VMC)

Plate 4.99: Parts of VMC machine

Step 4: Implementing programmed operation

After setting up the machine, the cycle of the machine was started by pressing the CYCLE START button from the control panel. During the operation, programme precisely controlled the motion of machine tooling.

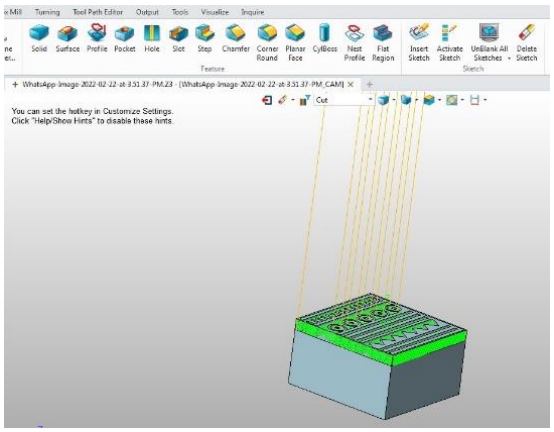


Plate 4.100a: A screenshot of computer screen showing completed job work

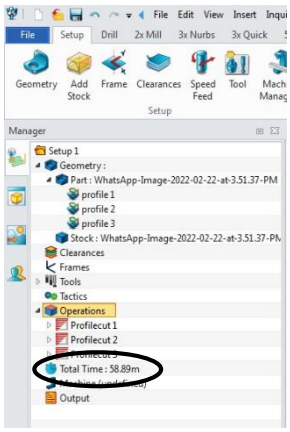


Plate 4.100b: Interface showing the time calculated for the complete cycle as highlighted

Plate 4.101: Carving process done by VMC machine

The cycle start time and end time and other details were recorded (Table 4.11). Then the wood block developed on CNC was compared with the hand-carved wood block. (Table 2)

Table 4.11: Details of a wood block carved by CNC machine following CAD operations

Item	Details
Size of the block:	3 cm x 3 cm
Design configuration:	Geometric (circle and triangle)
Lines used:	Straight and angular
Design fineness:	Intricate
Cycle start time:	11.30 am
Cycle end time:	12:30 pm
Total time taken for carving:	60 minutes (1 hour)

4.4.1.2 Comparison and analysis of CNC wood block with the hand carved block

For both types of wood blocks, the time spent sketching the design, carving time, carving accuracy, carving depth, and cost were measured and compared. The developed block was shown to the craftsmen as well as a CNC developer, and discussed its limitations and possibilities of upgrading with technology. Both the wood blocks were evaluated by the craftsmen in Pethapur, and their feedback on the created wood block in comparison to the hand-carved wooden block was gathered.

Plate 4.102: Hand carved wooden block

Plate 4.103: Wooden block developed on machine

Table 4.12: Comparison between hand carved wood block and developed wood block on CNC machine

Parameters		**Hand carved**	**Machine made**
Block Size		3 cm x 3 cm	3 cm x 3 cm
Drawing Process		Done manually using tools like scale, stylus, chisels, dies and gouges used in drawing of designs	Known as Job making done using Computer Aided Design software
Drawing Time		120 minutes	120 minutes
Drawing Cost		200 INR	600 INR
Carving Process		Skilled craftsmen. It was done using various hand drills and chisels	Automatic but process handled by trained operator.
Carving Time		90 minutes	60 minutes
Quality of Carving	**accuracy (Evenness, fineness)**	Quite unevenness in carved line was observed	Even and uniform lines and shapes observed
	Sharpness	Fine Sharpness in corners and fine carving achieved	Sharpness of corners and lines not achieved
	Carving depth	12.5 mm	5 mm
Carving Cost		500 INR	500 INR

Carving Time: Table 4.12 shows a comparison of hand-carved and machine-produced blocks depending on a range of criteria such as block size, equipment utilized and technique employed, carving time, carving quality, and cost. The dimension for both the samples was kept same, which was 3cm square. As indicated in table above, the time required to create a design (job making or drawing) for both procedures was calculated to be the same, which was 90 minutes. The manual carving process took 90 minutes, and the CNC machine took 60 minutes. It was lesser time recorded than hand carving. However, the cost for carving a hand block and machine block was same but the considerations of other factors as mentioned below revealed the quality aspect of their outcomes.

Carving accuracy included evenness, fineness, sharpness, and carving depth which were evaluated as listed below to assess carving quality.

Evenness: The consistency of the carved lines and curves determined evenness.

Fineness: The exquisite and minute design elements created by carving

Sharpness: The precision with which each design shape, line, and corner is carved.

It was observed from the end results of a hand-carved wooden block that every single detail was meticulously crafted (Plate 4.102), although slight unevenness in the carving was observed. The sharpness of triangles and lines was accurately carved out, although the lines carved out were uneven. In terms of evenness and fineness, an even and fine carving was observed when compared to Plate 4.103 which is an image of a machine-carved wood block. Machines, however, did not achieve precision in shapes such as triangles and lines. Plate 4.103 demonstrated that the CNC - carved block was unable to achieve flawless triangle and line corners on the block's left side. It was carved out with rounded edges.

Depth of carving: A hand-carved wood block had a carving depth of 12.5 mm(0.75”), whereas a machine-made wood block had a carving depth of 5 mm(0.19”). A hand-carved block was discovered to have more depth than a block developed on CNC machine.

It was found that the block created on the machine was partially carved. Sharp corners, as well as carving depth, need to be corrected. Observing the results of CNC developed woodblock, craftsmen, Mr. Mukeshbhai Prajapati opined that carving, could not be produced as ours by machines. The craftsmen were sure and said that machines cannot replace our craftsmanship. He described ("*Aama to amaru kaam vadhi jay…,*”) that it only adds to our work since it is not carved to our requirement and we have to rework on the machine made block for its accuracy and depth.

The descriptions for the comparison are discussed below in detail and supported with related studies.

Making of design (Drawing)

The table showed that the time spent making drawings, both manually and using CAD, was the same. Printers delivered the drawings for producing wood blocks to the block makers with their requests and specifications, such as size, colour, and adjustments to be made. Block makers adapt or create new designs based on the client's specifications by hand illustrating, photocopying, and / or using tracing paper. They used to archive all records of the designs they created for future use.

Every design sent by the buyer / designer / printer for making a block was unique. Each order necessitated a fresh drawing. The case study revealed that the younger generation of craftsmen lacked drawing skills. As mentioned in the steps of creating wood blocks on a CNC machine, design making (job making) was essential as well. It was created with the design software AutoCAD. Software created designs can be preserved and modified in the future with minimal effort. It would serve as an assistant to the person immaterial of their skills in drawing. As a result, the young generation of craftsmen can be equipped with drawing abilities through mastering design software. It would save their time and increase work efficiency.

According to the study conducted by Shokorova et al., any person intending to adopt modern woodcarving technologies must possess carving skills and know how to operate modern carving machines, and be able to use computer software such as Adobe Illustrator (Shokorova and Turlyun, 2013). An understanding of computer software was thus, a must which can aid in creating sculptures and drawing the designs that the carver intends to construct (Weikop 2008) as also reinforced by this study.

The results of this study concurred with the findings of another study conducted by (Lupupa, 2019)**,** that the design process takes more time; hence, knowledge of design software should be introduced.

Carving process:

The carving time by hand was 90 minutes, while the carving time by machine was 60 minutes, which was less than the carving by hand. As previously stated, the machine-carved woodblock was moderately carved to the satisfaction of the craftsmen, whereas the hand-carved block was perfectly and accurately carved in 90 minutes. It was discovered that machine-carved blocks need to be revised by the craftsmen to make it right for printing. As a result, although the CNC machine required less time to carve, the carved piece was incomplete. In the words of operator roughing was done in the given time, which actually meant that this was only the initial stage of carving without finishing and hence, the cost and time would be doubled in carving if it has to be further done by machine or the craftsman to achieve desired results.

Both the blocks were shown to an expert having 15 years of experience in the CNC tool room and discussed about the limitations and possibilities of CNC machine in wood block making. As per the view of an expert stating the limitations of the machine he opined, it would be impossible to achieve precise angles and shapes with a CNC machine (Plate 4.103). Moreover, the highest carving depth achieved by machine can

be 8 mm due to the strength of the tool (drill bit), as greater depth could lead to tool breaking. The maximum fineness of carving achieved by CNC machines was limited to 5 mm, whereas in hand carving, a hair-like thin line is possible too, even with a 12.7 mm carving depth. The unevenness observed in the carving of lines in a hand-carved block is the beauty of hand carving, which could not be achieved by machine.

The study done by (**Lupupa, 2019**), on CNC machine for wood carving, also stated that formation of more angles in the object would slow down the speed of the machine, which meant more complicated the design slower the machine speed and increased carving time .

Costing:

The hand-carved block was less expensive than the machine-made block. The cost here was evaluated only for the drawing and carving phase (Table 4.12). Job making in CAD was the more costly aspect of machine-made blocks. A CNC machine cost between 8,00,000 and 10,00,000 INR. Machine operation and maintenance need to be considered, since they necessitate adequate training. The craftsmen could not afford to work with CNC machines due to limited workspace and financial resources.

A study (Tobergte and Curtis, 2013) revealed that wood carvers were not able to employ other people to assist them in carving their products and they were not able to modernize the industry since they lacked capital to purchase modern machines and carving tools, hence stuck to the manual carving methods.

The study done by Lotti et al., (2019), mentioned the limitations of the CNC machine. 'The operation and control of CNC machine is quite complex and it needs a trained operator.' Another study state that the carvers should start integrating traditional woodcarving skills with modern technology to save on their time and energy spent in carving a single object and produce fully value-added products which are of high quality (Muthini, 2017). However, researcher deliberated this and a consideration of generating funds for them was an issue at present and required government intervention and organized structure to purchase manage and maintain the machine.

From the above discussion the limitations analyzed are listed below.

Limitations:

- Lack of capital to purchase and maintain the machine
- Only roughing (partial carving) was possible
- Training required
- Job making (design making) need to be done before programming
- Lack of enough workspace

4.4.1.3 Suggestion and possible ways of technology up gradation

Based on the above listed limitation identified, following are the suggestions that can serve as solutions for integrating technology in wood block making.

- Training in design software such as AutoCAD, InDesign, Adobe illustrator, Adobe Photoshop for the young craftsmen would be the possible way which would make the design process faster by saving time. Craftsmen can also practice the designing part after their working hours even otherwise, if engaged in other occupation.

  Gaining proficiency in design software for by the younger craftsmen especially can have several benefits, such as improved productivity, accuracy, versatility, and independently driven skill advancement. The aforementioned benefits help to create a more creative and efficient design process, which in turn enhances the quality of finished goods.
- Further research can be done to explore different designs on CNC machines with using different drills and cutters and carving accuracy, carving depth and carving time.

  This research study can help maximize the accuracy of the carving, comprehend the limitations of the carving depth, increase the efficiency of the carving time, customize processes for wood block making and tailor solutions to include particular materials, improve tool life, and advance CNC technology for its broader applications
- If roughing can be done for the craftsmen through CNC machine, then craftsmen need to work only on finishing part such as to achieve right carving depth and work on sharp angles, without eliminating the beauty of hand carving.

  When using CNC machines for roughing in handicraft, the first stages of carving can be completed with more efficiency, uniformity, and accuracy. As a result, during the finishing stage, artisans are free to then concentrate on the beautiful and minute details, which raise the overall quality of the handcrafted wood block.
- In future, a common CNC machine could be set up amongst the whole craftsmen and everyone can use it according to their requirement under the Government subsidy.

  CNC machines can be expensive to purchase and maintain. By having a common machine, the initial investment and ongoing operational costs can be shared among multiple craftsmen, making it more affordable for individual craftsman that too under government subsidy. Sharing a CNC machine would facilitate the efficient use of

resources like energy and space by collectively managing and maintaining the usually expensive affair. This can contribute to collaborative and community skill development, empowering craftsmen to stay relevant in a technology-driven market, and earn more profits together and sustain the craft too. Craftsmen can produce more items in less time, allowing them to meet market demands more effectively.

As witnessed, due to the limitations of the CNC machine craftsmen were not able to work with it in present situation. Therefore, for the present study it was analysed that learning of design software would be the best possible way for up gradation and capacity building for the craftsmen. Gradually, owning a common CNC machine under government subsidy can contribute to the economic development of craftsmen by providing access to advanced technology, fostering collaboration, and improving overall efficiency and productivity in the craft industry.

4.4.2 Imparting knowledge of various Government Schemes

4.4.2.1 List of appropriate schemes for the craft and craftsmen

4.4.2.2 Impart knowledge of relevant schemes

4.4.2.3 Feedback and analysis

It was analyzed from the pilot study that there was a need to aware craftsmen about the various schemes developed by the Government for the benefit of the craft and the craftsmen. The steps followed to fulfil the particular aim described below.

4.4.2.1 List of appropriate schemes for the craft and craftsmen

The information about different schemes was collected through various sources.

There were numerous schemes developed by the government for craft and craftsmen of each region. The researcher had acquired the knowledge of such schemes from the official websites, literature survey and also by visiting the government offices namely Udyog Bhavan, Sachivalay, Office of District Commissioner at Gandhinagar, Gujarat and Office of Development Commissioner Handicraft (DCH), Ahmedabad. Visits were also made to get information on how to avail particular scheme. After that the appropriate schemes for wood block making craft were identified and listed out as follows.

I) Schemes by Development Commissioner Handicraft (DHC)

- **National Handicrafts Development Programme (NHDP):**

Launched by the Ministry of Textiles, NHDP aimed to provide comprehensive support for the development of handicrafts in India. It included various components such as design and technology up gradation, marketing support, infrastructure development, and artisanal training. (https://handicrafts.nic.in/schemes)

- **Comprehensive Handicrafts Cluster Development Scheme (CHCDS):**

This scheme focused on the holistic development of handicraft clusters by providing support for infrastructure, technology, and skill development. It aimed to enhance the overall competitiveness of handicraft artisans. (https://ministryoftextiles.gov.in/sites/default/files/11d_Guidelines_of_development_of_mega_cluster_scheme_Handicrafts_nmcc_cs_20090312.pdf)

- **Marketing Support and Services Scheme:**

Aimed at promoting the marketing of handicraft products, this scheme provided support for organizing exhibitions, fairs, and workshops, as well as participation in national and international trade events. (https://msme.gov.in/1-marketing-promotion-schemes)

- **Design and Technology Up gradation Scheme:**

This scheme focused on improving the design and technological aspects of traditional handicrafts. It provided support for the development of innovative designs and the adoption of modern technology by artisans. (https://msme.gov.in/technology-upgradation-and-quality-certification)

- **Integrated Handicrafts Development Scheme (IHDS):**

IHDS aimed to address various aspects of the handicrafts sector, including skill development, design intervention, infrastructure development, and market linkages. It has been designed to benefit artisans across different regions. (http://www.himbunkar.co.in/kangra/ihds.pdf)

- **Scheme for Marketing of Handicrafts**:

This scheme focused on promoting handicraft products in both domestic and international markets. It included support for marketing infrastructure, organizing buyer-seller meets, and participation in trade events. (https://www.handicrafts.nic.in/pdf/Scheme.pdf)

- **Credit Guarantee Fund Scheme for Micro and Small Enterprises (CGTMSE):**

These schemes were part of broader efforts by the Indian government to support and uplift the handicrafts sector. There were also schemes developed by State Government i.e. Government of Gujarat State handicraft development schemes

II) Various schemes by State Government (Government of Gujarat)

- **Mukhyamantri Gramodaya Yojana:**

The Mukhyamantri Gramodaya Yojana is a comprehensive rural development scheme in Gujarat. It included provisions for the development of traditional arts and crafts in rural areas, promoting the economic well-being of artisans. (https://cmegp.data-center.co.in/)

- **Mukhyamantri Gram Vyavsay Yojana:**

This scheme focused on promoting village industries, including traditional handicrafts. It provided financial assistance and support for skill development to rural artisans. (https://www.yuvasathi.in/schemes-detail/chief-minister-village-industries-employment-scheme)

- **Mukhyamantri Mahila Kalyan Yojana:**

While not specifically for handicrafts, this scheme aimed at the overall welfare and development of women. It included provisions for supporting women artisans involved in traditional crafts. (https://mmuy.gujarat.gov.in/)

- **District Rural Development Agency (DRDA) Initiatives:**

DRDAs in various districts of Gujarat implemented specific programs and initiatives to support handicrafts and artisans at the local level. (https://ruraldev.gujarat.gov.in/drda-officers.htm)

- **Khadi Gramodyog Vikas Yojana:**

This scheme focused on the development of Khadi and village industries. It included support for traditional crafts and artisans in rural areas. (https://www.nimsme.org/about-scheme/khadi-gramodyog-vikas-yojana---umbrella-scheme)

- **Gujarat State Handloom and Handicrafts Development Corporation Ltd.:**

  The state corporation had its own initiatives and schemes to promote and develop handicrafts. This included skill development, market linkages, and infrastructure support for artisans. (https://gurjari.gujarat.gov.in/)

It was found that the schemes from Government of Gujarat were majorly for the financial assistance and marketing support.

There were a number of schemes available, and the criteria for each scheme were different. Many of the schemes were for clusters above twenty craftsmen, and as the craftsmen of Pethapur were working separately and not as a cluster, it was difficult to choose the appropriate schemes. Many schemes were employed or availed through the institution or an organization. Therefore, the list has been prepared, and the knowledge of such schemes was imparted through the workshop. After collaborating with the Hastkala Setu Yojna (EDI), it was decided that it was better to connect the craftsmen with one such agency and then work towards the other benefits. List of the appropriate schemes described below. It was divided in five different categories. Most of the schemes developed by DHC were covered under this as all the other institutes, organizations and implementing agencies were also implement the benefits on the basis of this schemes.

- **Hastkala Setu Yojana (HSY):**

  The Hastkala Setu Yojana is an initiative of the Government of Gujarat through the Commissioner of Cottage and Rural Industry. It aimed to reach out to artisans and aspiring entrepreneurs across each district of Gujarat. The program acts as a bridge between artisans and building entrepreneurs through value chain enhancement. It has been designed to provide entrepreneurs with opportunities for their livelihood as well as sustainable development. The program engages with craft clusters in different parts of the state to achieve its goals. Creating incubation facilities to link them to potential markets, the project approach was a two-pronged model. It strengthens and hones the skills of the existing artisans, while developing a value chain to nurture the budding ones. At the same time, it revives lost crafts of the region.

  Entrepreneurship Development Institute of India has been appointed the knowledge and implementation partner by the Commissioner of Cottage and

Rural Industry to implement the Hastkala Setu Yojana across all the districts of Gujarat. The new initiatives of HSY (Hastkala Setu Yojna), are enhancement of GI registered crafts of Gujarat state and also promoting the "One District One Product (ODOP)" scheme, an initiative of Indian Railways.

An extensive list of various schemes was prepared and amongst them schemes suitable for wood block making craft were categorized as per State and Central Level. The appropriate schemes identified on the basis of the challenges identified of wood block making craft such as:

- Awareness on various beneficiary schemes and imparting its knowledge,
- Training new as well as existing craftsmen,
- Financial assistance for sourcing raw materials.

There were a number of schemes found appropriate, but the requirements and eligibility criteria varied. For that purpose, researcher visited various government offices to get guidance on the same. It was found during a visit to Udyog Bhavan, *Hastkala Setu Yojna,* various schemes were covered, and they provided guidance to the craftsmen. Hence, by collaborating with *Hastkala Setu Yojna* and its implementing agency, Entrepreneurship Development Institute, awareness workshops were organized.

4.4.2.2 Impart knowledge of relevant schemes

Providing information on pertinent programmes was essential for promoting development of the wood block makers, warranting that government funds reach to the people for whom it is meant, and helping the community become more empowered and aware to take their own decisions.

An awareness workshop was organized by collaborating with Entrepreneurship Development Institute (EDI), Ahmedabad under *Hastkala Setu Yojna* for the craftsmen, to disseminate the knowledge of relevant schemes for the community, at the Pethapur village itself. The workshop was facilitated by the researcher and mobilized in two stages at the interval of two months.

Workshop 1 Awareness workshop (*Hastkala Setu Yojna)*

Stage 1: An introductory workshop cum meeting with the craftsmen

It was the first meeting workshop organized at Satishbhai Prajapati's workshop (as it was having enough space and he volunteered for it.), by the district level officer Mr. Jignesh Kumar and researcher on October 8, 2022, 2.00 p.m. – 4.00 p.m. All those who could join were welcomed to attend. (Plate 4.104)

Plate 4.104: Craftsmen of Pethapur attending workshop and discussion with district level

Objectives of the workshop:

- To educate craftsmen about Hastkala Setu Yojna (HSY) and its advantages.
- To sign up craftsmen for the programme so they benefit from it.

Invitation to the Participants:

Each craftsman was informed and invited to participate. All were informed on WhatsApp group created by the researcher. A voice message in local language was sent on the group. Among the fifteen, ten craftsmen were able to come and attend the workshop. Some of the female family members also joined under the influence of researchers' motivation provided, for them to be learning the craft skill. The group was created to circulate and share all useful information related to crafts, government schemes, and get updates from all the craftsmen.

Highlights of the workshop:

- Information of Hastkala Setu Yojna, about the implementing agency Entrepreneurship Development Institute (EDI), Ahmedabad.
- Enrolment procedure
- Problems faced by the craftsmen and their present situation
- Planning of second workshop with state level team

The resource person oriented the craftsmen about HSY and EDI clearly articulating its' core value and how it directly can benefit them. The resource persons came were listed below:

- Mr. Hetal Pathak
- Mr. Vivek Jaju, Marketing support team
- Mr. Bhautik Pethani, Monitary officer for credit/ loan

- The researcher and the resource person made comfortable the craftsmen to share their day to day problems connected to the development of their craft and themselves. The resource persons (Mr. Hetal Pathak, Mr. Vivek Jaju, Marketing support team, Mr. Bhautik Pethani, (Monitary officer for credit) carefully listened to their issues and taken notes of these. He promised them that they would be forwarded to the appropriate person. A smaller number of participants attending the workshop were observed; as a result, they were encouraged and informed that as many individuals other than craftsmen also can attend the subsequent workshop.

Stage 2: Both district and state level team with the officers were invited as resource persons in order to get comprehensive knowledge and make the craftsmen familiar with entrepreneurship development scheme which covered government schemes relevant to the Hastkala Setu Yojna. It was organized on December 14, 2022 at Ramji Mandir, 2:00 p.m. to 6:00 p.m.

Objectives of the workshop:

- To make craftsmen aware of entrepreneurship development scheme.
- To focus on collaborative work with EDI for their up gradation.

Participants: Participants from the entire eight workshops had participated. The total fifteen participants attended the workshop 13 craftsmen and two women family members.

Highlights of the workshop:

It began with the distribution of a small kit and a brief introduction. The complete process for availing of the scheme, including the documentation required, benefits of the scheme, and its policy, was explained. Mr. Hetal Pathak Sir, the state-level team's resource person, shed light on "craftsman to entrepreneur." It was taught using numerous real-life examples and shared success stories of other artisans (Plate: 4.107) who enrolled with Hastkala Setu Yojna.

Mr. Vivek Jaju, the marketing head of the state-level team, explained the various ways of marketing the wood blocks as well as the support of Hastkala Setu Yojna in marketing. He had also suggested developing new useful products of wood blocks other than small wood blocks to expand the market (Plate 4.107). Mr. Bhautik Pethani. Monitary officer for credit/loan system of Hastkala Setu Yojna had given information on financial support and subsidies given to the craft cluster such as infrastructure development, sourcing raw material, tools and training of new craftsmen. The researcher had an opportunity to interact with the government and craftsmen on the same platform. The difficulties and current condition were communicated to the team, and the researcher explained the areas where the craftspeople required assistance based on her research (Plate 4.108)

Plate 4.105: District head of HSY Mr. Jignesh Kumar briefing about the workshop to the craftsmen

Plate 4.106: Team members Ms. Anita Rathod, Mr. Purvesh Patel, Mr. Bhautik Pethani. Mr. Hetal Pathak, Mr. Vivek Jaju, Mr. Jignesh Kumar (from left to right)

Plate 4.107: State team head Mr. Hetal Pathak explaining about Hastkala Setu Yojna and Mr. Vivek Jaju throwing light on marketing

Plate 4.108: Researcher in conversation with the team about her work for promotion of the craft

All of the craftspeople took part and interacted with the resource people. They had also discussed the issues and were able to clear up any doubts. Each of them expressed their opinions and requested help from the government, including the use of the artisan card, financial assistance for acquiring wood and the pension scheme.

Feedback of the participants:

The feedback of the participants collected on a feedback form developed by the researcher (Appendix 4). The feedback form was precise and having minimum questions so that it would be convenient for the participant to fill, who were less than twenty. It was in Gujarati language and the results of feedback are presented in English in Table 4.13.

According to the table, all of the fifteen participants were satisfied with the workshop. After this training, ten of the participants reported that their expectations were met on average. Nine of the fifteen participants thought the resource persons' approach of presenting information was excellent. According to the table, all participants seek assistance with each sort of need specified in the feedback form for the development of the craft.

Plate 4.109: Glimpses of Awareness workshop on "Entrepreneurship Development Scheme" at Ramji Mandir, Pethapur

Workshop 2: One-day workshop on "Capacity building workshop for GI artisans of Gujarat" organized by Gujarat National Law University (GNLU)

With a collaborative effort of EDI and researcher, the craftsmen from each workshop in Pethapur were encouraged to participate in one-day workshop on "Capacity building workshop for GI artisans of Gujarat" organized by Gujarat National Law University (GNLU), Koba, Gandhinagar on March 28, 2023, from 10:00 am to 4:00 pm.

Objectives of the workshop:

The workshop was specially designed for the GI registered craft and craftsmen in Gujarat: Pethapur printing Blocks and Mata-ni-pacchedi. It was aimed

- To make aware craftsmen about the use and importance of Geographical Indication (GI) tag and logo
- To impart knowledge of digital marketing and its procedure, branding, and Intellectual Property Rights (IPR)

Participants:

Eight craftsmen along with researcher participated in the workshop. The institute had provided all the transportation facilities to all the participants.

Highlights of the workshop:

Topics covered:

Digital marketing and branding: Mr. Parth Khanna and Mr. Ankur Sanghavi, resource persons had covered the topics of digital marketing and its advantages on various platforms Government as well as commercial websites such as MSME portal, Amazon, and focused mainly on WhatsApp marketing. The detailed explanations was given for creating business account and keep tracking of sales and increase market by connecting with larger audience. (Plate:4.110). The information was also provided on marketing through social media accounts Facebook, Instagram and YouTube.

GI awareness: Resource person Mr. Anil Pandey focused on usage of GI tag as marketing tool and urged everyone to register more GI products. Each craftsman was insisted to use GI logo and tag, promote their own craft by making identity of them. Monetization process of GI was also explained and guidance provided on how to use GI tag and its prerequisites.

Plate 4.110: Resource persons with senior craftsmen of GI registered craft

Plate 4.111: Senior craftsmen Shri Govindbhai Prajapati honored with memento

Plate 4.112: All the participant craftsmen and resource persons with organizers and resource persons

4.4.2.3 Evaluation and analysis of the Workshop 1:

The evaluation was done through observations during workshops, conversations, and discussions amongst the resource persons, participants, and researchers. It has been described below.

- Learning outcome: information provided for availing schemes for such clusters (less than twenty craftsmen), guidance for further needs, and assistance.
- Challenges: It was the first kind of workshop ever organized in Pethapur for the craftsmen. The participation of the craftsmen was less than expected. It was challenging to convince the craftsmen and unite them at the same time and place. But it was good, as it was made possible by the efforts of researcher for the first time ever.
- Improvement: It was noticed that craftsmen were lacking in interest in the workshop when informed to attend. Leadership quality was also lacking among the majority of them. This could be improved by constant motivation and the organization of more such workshops.

Table 4.13: Feedback of the participants' entrepreneurship awareness workshop

Sr. No.	Question	Category	No. of Participants (n=15)
1.	How did you find the organized workshop?	Excellent	
		Very Good	15
		Good	
		Average	
		Not good at all	
2.	How much of your expectations were fulfilled with this workshop?	Totally fulfilled	
		Average	10
		Not fulfilled	5
3.	Projection technique of providing information of a resource person	Excellent	9
		Very Good	6
		Good	
		Average	
		Not good at all	
4.	Usefulness of workshop	Excellent	
		Very good	
		Good	15
		Average	
		Not good at all	
5.	Which type of assistance do you need to upgrade your business?	Need to boost confidence and seeking inspiration to expand business	10
		Information of various Government Schemes	15
		Upgrade technical skills	15
		Financial assistance to purchase raw materials and tools	15
		Acquire Loan	
		Build up linkage with supplier or wholesaler	15
		Marketing Support	9

Evaluation and analysis of Workshop 2:

- **Learning outcome:**
- Participants gained knowledge of various digital marketing platforms both free and paid. Craftsmen learned particularly for the craft of block making as it is B2B (Brand to brand) business.
- It was very much interactive and craftsman and re had raised many questions and got the clarity on usage of GI tag and increase its effectiveness

- **Solutions:**
- The researcher was invited to participate as representative of the craftsmen and it was a good opportunity to gain information from experts.

- As wood blocks were not the end product it was difficult to use GI logo and tag. The solution towards this was craftsmen should put the GI logo on their bills, visiting cards and on packaging,
- Craftsmen should strongly insist the printers or their clients to put the GI logo of Pethapur Printing Blocks on their end products so that it shows that the particular product/ fabric printed using Pethapur wood blocks. This way craft would be promoted and awareness generated amongst the users.
- Craftsmen need to check and register themselves first as authorized GI users to use GI logo and tag.

4.5 Promotion of the craft using various promotional methods

4.5.1 Increase visibility

4.5.1.1 Details of developed Do-It-Yourself kit

4.5.1.2 Craft demonstrations

4.5.2 Creating digital identity

4.5.2.1 Development of informative website

4.5.2.2 Development of commercial cards

4.5.3 Opportunity of promoting craft at various platform

4.6 Analysis of feedback of the respondents about the promotional material

4.5.1 Increase visibility

As discussed in methodology, to make craft more noticeable to the target audience and demonstrate knowledge of craft skills to a larger audience, a craft demonstration was done, and a DIY hand block printing kit was developed. The results for the same were described below with the required details and supported with pictures.

4.5.1.1 Do-it-yourself Hand Block Printing Kit

i) **Survey**: The survey of various brands was done to understand the contents of the kit, the number of blocks included, the number of paints given, the various products given for printing, and the cost of the kits (Table 4.14).

It was found from the survey that all the kits were available online and sold in various craft exhibitions and stores, like Crossword. The cost of the kit ranges from 500 to 2000 INR, according to the contents of the kit. The kits were lacking with detailed information on the crafts and craftsmen.

The instructional material was found mostly in English language. In present study an effort was made by developing an informative booklet in Hindi and English language with the details of craft and craftsmen with picture.

Table 4.14: Survey of available DIY hand block printing kit

Sr. No	Brand Name	Skill level	Age group	No. of blocks	Product for printing	Cost	Instructional Language	Year of launch
1.	Amoha	Learning by doing	K ids and adults	3 blocks	Multiple product backpack, torans, napkins, tote bag	1100-2000 INR	English	2019
2.	Paper Me	-Educational, fulfilled and interactive	Kids	4 small size blocks	Envelopes and handkerchief	899 INR	English	
3.	Shumee Wooden Toys	-Learn with creativity, self-expression & fine motor skills.	Kids (3+ and 8+ years)	6 blocks	Book and a pouch	914 INR	English	2017
4.	IDIE didacts	Educational, fun -filled and interactive	8+ years	1 block	Tablemat	480 INR	English	
5.	Active hands	Builds spatial skills, precision, attention span, hand eye coordination and creative thinking. Craft knowledge	Kids to adult	2-3 blocks	Tote bag	1000 INR	English	2018
6.	CocoMoco kids	Build imagination and creativity with this fun diy kit for kids. Improve fine motor skills, focus and patience.	3-8 years	3 blocks	Greeting cards and Pouch	427 INR	English	2023
7.	Potli Wide range available FTF- Fair Trade Forum member	Encourages non-digital and tactile play, stimulate creative thinking and imaginative play while sharing the rich cultural heritage of India, Spend quality time with family and friends. Support Artisans	4 years to adults of any age	3 blocks	Various products available. Napkin, T-shirt, Dupatta, Storybook etc	500-800 INR	English	2021
8.	Paper me	Design unique patterns and unleash an artistic side and Experiment with different colors	3-8 years	4 blocks	5 Napkins	899 INR	English	
9.	Kitsters	Creativity, Family involvement, gift		3 blocks		849 INR	English	

ii) Preparation of the kit:

Wood block: Wood block was the 'key element" of the kit as it was developed to promote the craft of wood block making.

Size and design of wood blocks: As discussed in methodology, the designs made for making wood blocks were divided into six different categories. Five designs from each category were selected. Wood blocks of size 1.5 inches to 3 inches from each workshop were made. A total of 30 wood blocks were developed in eight workshops. 50 motifs were created, of which 30 were selected. The motif selection was based on the minimal time consumed for carving; designs attract kids and can be used on various products (4.113).

Plate 4.113: Selected motifs

Block making: The selected motifs were then sent to the block makers at Pethapur for carving. The motifs distributed in such a way that the craftsmen from each workshop get a chance and everyone could be involved (Plate: 4.114).

Plate 4.114: Blocks prepaed by the craftsmen

An informative and instructional guide in the form of a booklet was developed to spread knowledge of craft and craftsmen and steps to perform printing. It was developed in two languages: English and Hindi. The following steps were adopted for developing a booklet: It was designed using Canva software.

iii) Size of a booklet and number of pages: The size of the booklet was kept A5 as it was found convenient for reading and packaging on the box. The total pages were 20 in number.

- Content writing: It was developed in two languages: English and Hindi. The sequence of content was followed as below: (Plate 4.115, 4.116, 4.117)
    - About the kit
    - About the craft
    - About Master craftsman Shri Maneklal Gajjar and GUJCOST
    - Craftsmen of Pethapur
    - Process of block making
    - Contents of Kit
    - Instructions for printing
    - Ideas for repeat patterns

Plate 4.115 : Images of developed booklet (Page 1 to 9)

Plate 4.116 : Images of developed booklet (Page 10 to 19)

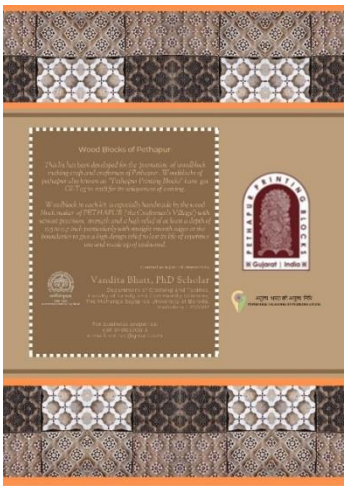


Plate 4.117: Image of a last page of developed booklet

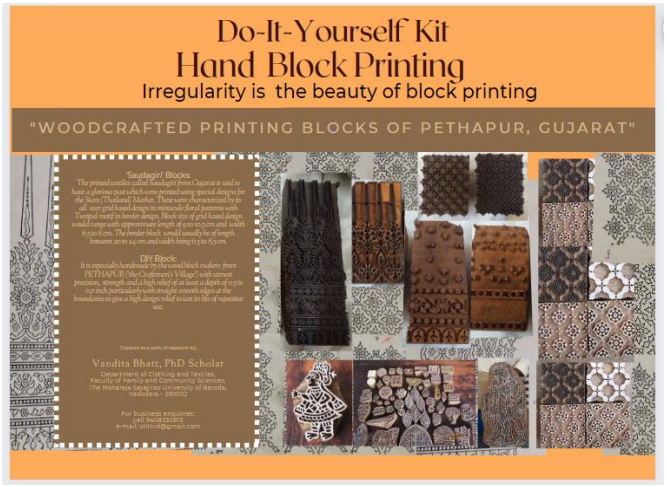


Plate 4.118: Sticker for the front side of a box

Selection of theme and placement of content and pictures:

The booklet was designed using the Canva application, which was easy to use. The theme selected for the whole kit and booklet was keeping in mind the traditional motifs of *Saudagiri* Print, and the colours were selected on the basis of the texture of the wood.

Content was placed as per the decided sequence to impart knowledge of craft to craftsmen, along with an instructional manual. After a market survey, it was found that the designed kits had information about crafts but were lacking in information about wood block making and introducing craftsmen.

- Suitable pictures were selected from the data collection of the researcher during the study. After that, editing and printing were done at CANN Digital Centre, Vadodara.
- Assembling the kit with supplementary elements
- Including the booklet, the following were the supplementary elements included in the kit.
- Ink for printing: Fevicryl fabric colour was selected for printing as it is easy to use, has availability and quality, and people are aware of these colours.
- Paint brush: A smaller flat paint brush with a wooden handle was selected to take out colour.
- A piece of sponge: A piece of sponge is required to be added to the kit for the purpose of padding the block. It served the purpose of printing colour trays.

- An imprint of block on paper: An imprint of block on paper was added to the kit for the reference of the user.
- Selection of products to be included in the kit for printing
- Products selected for printing were multipurpose pouches, tote bags, sling bags, and table mats. The selection of products was done keeping in mind the target group and their multiple uses. Muslin fabric was selected to construct various products because of its absorbent property, availability and user friendly. It was washed and ironed prior to develop products. The five different products were selected based on their multiple uses by anyone. The products created were multipurpose pouches (10), tote bags (2), sling bags (2), table mats (1 set of 6 table mats), a back pack (1), and a stole (2). The kits with multipurpose pouches were developed more than others, as these kits were distributed to each workshop of block making so that the craftsmen showed them to the visitors who came to their place.
- Packaging: A 3-ply brown corrugated packing box with a flap with a size of 10 inches, a width of 7 inches, and a height of 3.5 inches was selected to assemble the kit.
- Pricing: The pricing of the kit was calculated taking into consideration all elements of the kit, such as the box, booklet, wood block, and other elements.

iv) Display of developed DIY- Kit

Developed kits were distributed amongst craftsmen as well as displayed at various workshops organised at various places such as GNLU (Plate: 119), Gandhinagar, Navjivan Trust, Ahmedabad, and Indubhai Parekh School of Architecture (IPSA), Rajkot (Plate:4.120), and feedback from the people was collected in the form of notes written by the visitors.

Plate 4.119: Display of kit at Gujarat National law University, Gandhinagar

Plate 4.120: Display and demonstration of DIY-KIT at Indulal Parekh School of Architecture (IPSA), Rajkot

The researcher got the opportunity to collaborate with various organizations and arrange the display of the developed DIY hand block printing. The display and demonstration of the craft were first done at the Gujarat National Law University (GNLU), Gandhinagar, on March 28, 2023 (Plate 4.119). The feedback and suggestions from the experts in digital marketing and GI and IPR laws were incorporated. The effort put into developing KIT was appreciated. As per the guidance and suggestions, a GI logo and tag were incorporated on the front sticker of the KIT by following the appropriate procedure of obtaining permission from the authorised agency, the Gujarat Council of Science and Technology (GUJCOST).

Through the collaborative efforts of the Aadhar Trust and the Navjivan Trust in Ahmedabad, researchers got the opportunity to display their developed kit and craft demonstration on May 21, 2023 (Plate 4.121). It was a great experience, as many art and craft enthusiasts had visited. The audience was totally different, despite the similar field and background of the researcher. It was a good response, and the idea of promoting the craft was well appreciated.

The researcher was invited to take up the craft elective on “block printing” for a four-day workshop at the Indubhai Parekh School of Architecture (IPSA), Rajkot, from December 4 to 7, 2023 (Plate 4.120). On the last two days, a display of DIY kits was arranged for the students and faculties. It was an overwhelming experience, as 100 students from four different schools and institutes in Rajkot city also made a visit and witnessed a display of DIY hand block printing kits. The researcher also got the chance to share knowledge of the wood block-making craft and its importance in printing with the students. The students were from secondary and higher secondary classes. It was also another kind of group to interact with.

Plate 4.121: Display and demonstration craft at Navjivan Trust, Ahmedabad

B) Craft Demonstration

In order to promote the craft of wood block making and increase its visibility, the craft demonstration method was employed. It was done through collaboration with various organizations.

The location for the craft demonstration was selected in Ahmedabad as a large number of people from various backgrounds could make a visit and it was convenient for the artisan to travel from Pethapur.A craft demonstration was arranged at the Navjivan Trust, Ahmedabad, in collaboration with the Aadhar Trust, Ahmedabad, on May 21, 2023. Sunday, 6:00 p.m. onwards. The chosen location was a historical place since it

was established by our Father of the Nation, Shri Mahatma Gandhi, in 1929. It was an old building of the Navjivan Press. Many such programmes were organized on a regular basis, particularly on Sundays, at this place. Ms. Avani Varia, founder of the Aadhar Trust, provided her support in spreading the information about the event through various social media platforms so that a larger audience could make it possible and take part in the live demonstration. A poster was prepared for the event and is shown below (Plate 4.122). A craftsman, Pragneshbhai Prajapati, was invited for the craft demonstration.

Visitors: It was observed from the visitor notes that a good number of people from various backgrounds and ages visited and witnessed the live demonstration. It was found that many of the audience members were from similar backgrounds in the fields of art, craft, and design. It was an immense pleasure that an eminent personality and kathak artist, Ms. Mallika Sarabhai, graced the event by making her presence at the event (Plate 4.123).

Plate 4.122: Poster created for the event

Plate 4.123: Eminent personality and artist Ms. Mallika Sarabhai

Plate 4.124: Visitor in conversation with craftsman

Plate 4.125: Visitors tried their hands by holding hand drill and to understand the craft skill

Remarkable Feedback and suggestions:

The event successfully took place, and the imitative was appreciated. People were actually not aware of wood block making as an important element for hand block printing. Many people suggested organising such events frequently, at regular intervals, at various places. Remarkable feedback as motivation was received through comments on the Instagram account of Mr.Pankaj Shah connected with Aadhar Trust by Shri Jaya Jaitley ji(Plate: 4.126). Ms. Mallika Sarabhai has also personally messaged and given an open invitation to conduct such workshops at Darpan Academy, Ahmedabad (Plate:4.127).

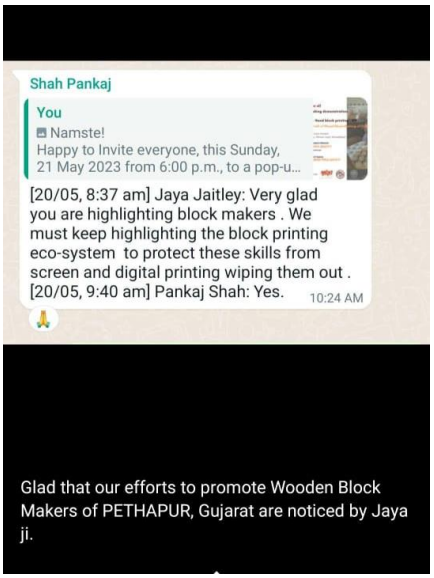


Plate 4.126: A motivational comments by Ms. Jaya Jaitly, an eminent personality, activist and curator of Indian Handicrafts
Credit: Ms. Avni Varia, aadhar Trust

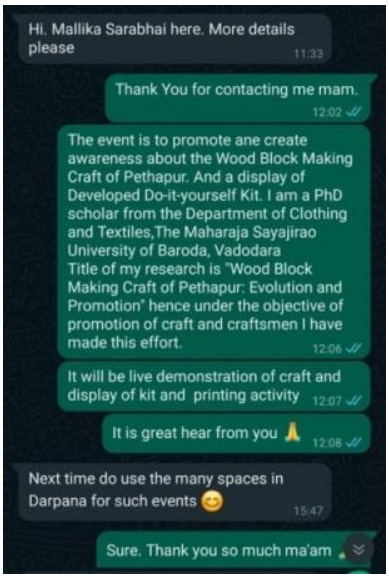


Plate 4.127: A screenshot of message received by eminent personality and artist Ms. Mallika Sarabhai

4.5.2 Create Digital Identity

4.5.2.1 Development of commercial cards (Near field communication (NFC) Tag)

4.5.2.2 Development of informative website

Promotion of the craft was done in two parts, one by increasing visibility through physically reach out to audience and the other way was to create digital identity. Digital identity of the craftsmen was done by creating Commercial cards and website development.

4.5.2.1 Development of commercial cards:

A digital identity for the promotion of a craft was done by designing a comprehensive and visually appealing representation by highlighting the craftsperson's skills and uniqueness. For each workshop a unique visiting card was re-designed by adding the following elements into the card and adding NFC feature to it. From the review and during the development of business card with QR code researcher came to know the Near Field Communication (NFC) business cards. The benefits of NFC business cards were also studied. Keeping in mind the benefits of NFC tags along with the regular cards NFC business cards were developed.

The designs and layout for both type of business cards was kept same.

Designing of card: Existing visiting cards of each workshop were studied and taken into consideration for designing new visiting card that incorporates the essence of the craft. They were recreated using high-quality visuals, relevant color schemes, and fonts that resonate with the craft's aesthetics.

Craftsmen Portfolios: An individual portfolio for each craftsman, showcasing a diverse range of their work images, descriptions, and extended activities done in the field was prepared. (Plate 4.49) For each craftsmen portfolio was prepared including following details:

- Image and name of the Artisan
- Work experience
- Brief write up
- Images of the workshop
- Glimpses of their work

- Visitors at their place
- Extended activities
- Contact information with address and location

QR Code Integration: Each card was embedded with QR code and it was linked to the respective craftsmen's portfolios. Which would allow potential clients or enthusiasts to easily access detailed information by viewing the portfolio and connect with the craftsmen digitally.

GI Logo: Geographical Indication (GI) logo was included on the visiting card as it signifies the unique qualities and origin of the craft and adds authenticity and value. It was placed in such a way that it was visible prominently and gave the craft recognition.

Contact Information: Contact information was clearly displayed and easily readable to the clients and visitors to reach out for inquiries, purchase, and visits.

Social Media Integration: It was done by adding icon of social media account of the craftsmen. So that if a person or client needs to follow the craftsmen for updates and new creation.

Each card was designed by incorporating all described elements. This not only promotes the craft but also establishes a strong and memorable presence. Images of each card are shown below (Plate 4. 128).

After scanning QR code one would be directed to artisan's profile. One example has been shown in Plate 4.129

Plate 4.128: Images of designed Commercial cards incorporated with QR Code and GI logo for each workshop

Plate 4.129: Images of craftsman's profile after scanning QR code

4.5.2.2 Development of website:

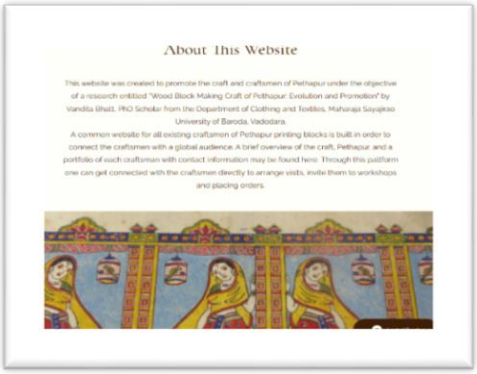
The second method used to promote the craft of wood block making by developing an informative website. It contained information of all the existing workshops and artisans. From the review it was found that several websites were there providing information on block making and the craftsmen of Pethapur. The website containing information on craft as well as details of all the existing craftsmen was hard to find. Therefore, a common informative website was designed dedicated to Wood block making craft and the craftsmen of Pethapur. The developed website was created by incorporating following elements:

- Registered Domain for the website: **pethapurprintingblocks**
- The domain name selected for the website was kept the same as the craft registered under Geographical Indication (GI), which would provide benefit in promoting the craft. Logo of registered GI of Pethapur Printing Blocks was used as website logo by taking permissions from the authority (Plate: 4.130).
- URL: www.pethapurprintingblock.com
- Date of Publishing: The URL was live from 25th of May, 2023. The actual launch of website was on 27th July.

Plate 4.130: GI Logo, used as logo of the website
Credit: GI Applicant, Gujarat Council of Science and Technology (GUJCOST)

- **Content of website**: The website was contained with fourteen pages and in English language. - The details of each page has been listed below with the screenshot of pages. See plate 4.131.4.132

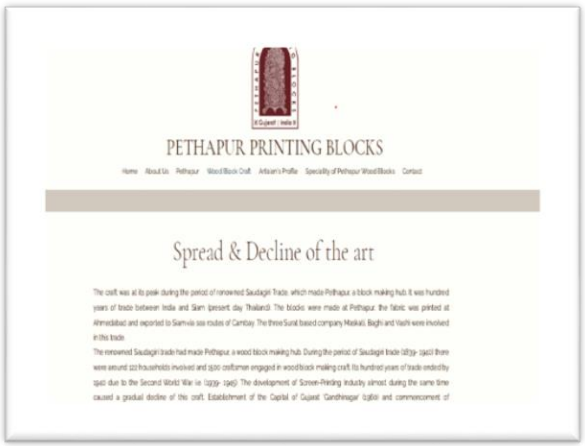
a. Home page



b. About the website

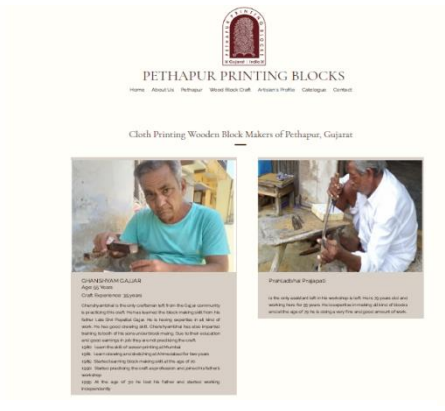
c. : About Pethapur

d. About block making craft

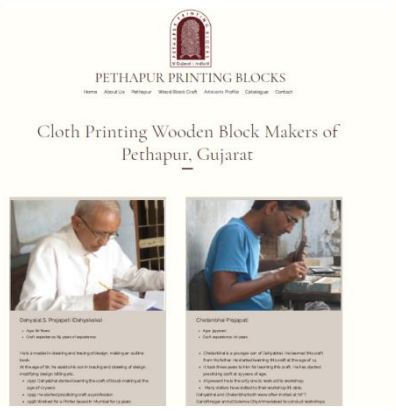


e. Spread and decline of art

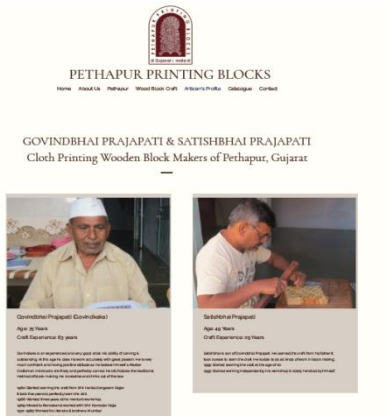
Plate 4.131: Images of website pages (1 to 6)



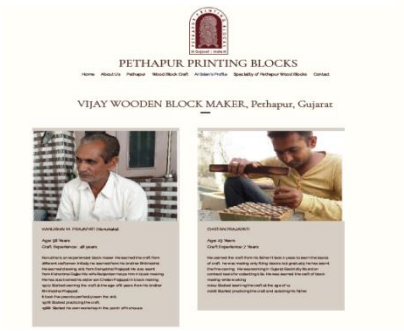
a. Ghanshyambhai Gajjar



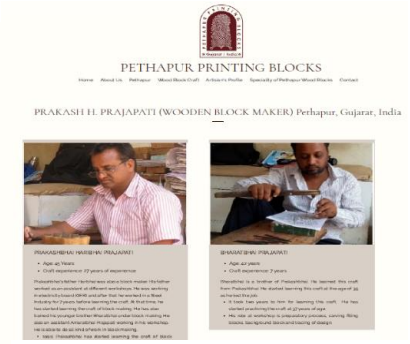
b. Dayabhai and Chetanbhai Prajapati



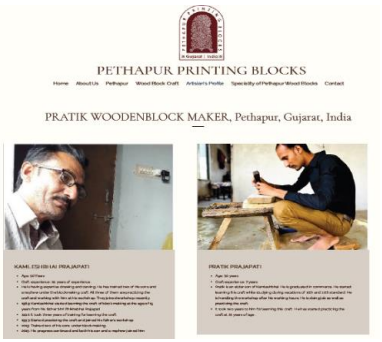
c. Govindbhai and Satishbhai Prajapati



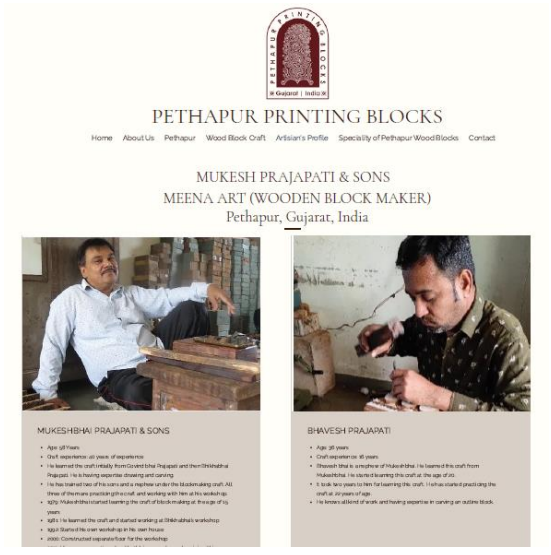
d. Kanubhai Prajapati



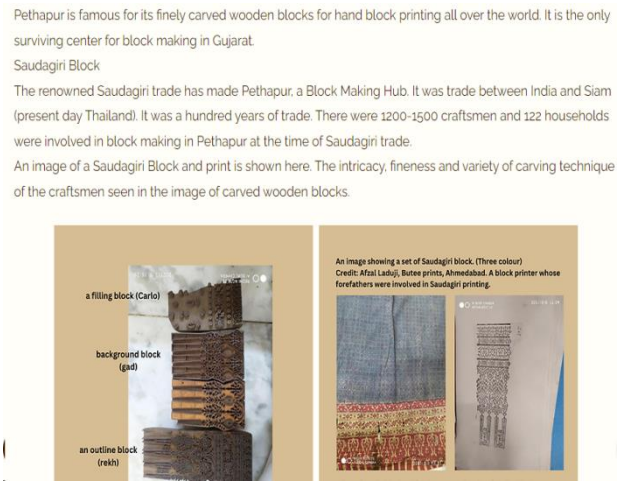
e. Prakashbhai Prajapati



f. Kamleshbhai Prajapati



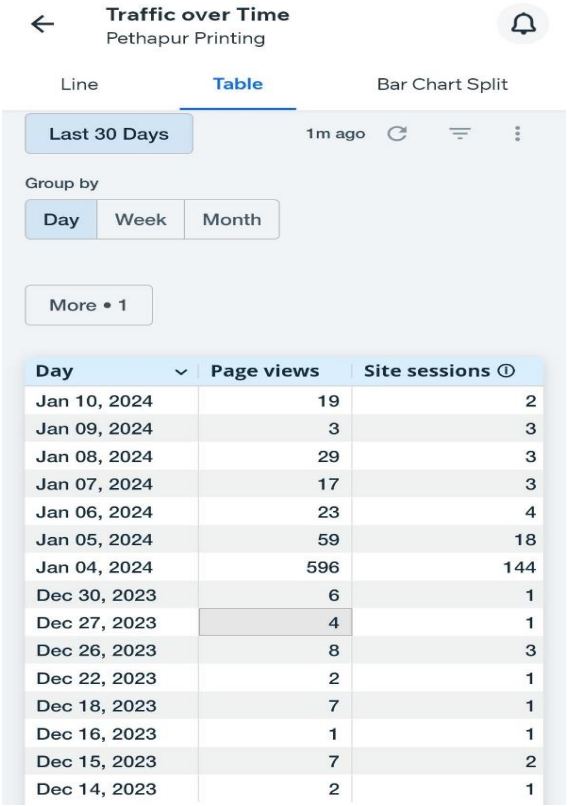
g. Mukeshbhai Prajapati



h. Specialty of Pethapur wood blocks

Plate 4.132: Images of website pages (7 to 15)

The URL was shared through various social media platforms sending among WhatsApp groups, Insta stories, Facebook post to reach out to maximum number of people and the website traffic was measured



Day	Page views	Site sessions
Jan 10, 2024	19	2
Jan 09, 2024	3	3
Jan 08, 2024	29	3
Jan 07, 2024	17	3
Jan 06, 2024	23	4
Jan 05, 2024	59	18
Jan 04, 2024	596	144
Dec 30, 2023	6	1
Dec 27, 2023	4	1
Dec 26, 2023	8	3
Dec 22, 2023	2	1
Dec 18, 2023	7	1
Dec 16, 2023	1	1
Dec 15, 2023	7	2
Dec 14, 2023	2	1

Plate 4.133: An image showing Traffic on website in 30 days (December 14th, 2023 to January10th, 2024)

Analysis of developed website

Report traces all the details of matrix including traffic overview no of visitor unique visitors, site sessions average sessions duration, page view was measured on daily monthly and weekly basis generated by the Software. The traffic report of period of one month (December ’14, 2023 to Janyuary’10, 2024) presented here. (Plate 4.64: Traffic on website in 30 days). The details of the report are in the figures mentioned below. Page view: 232, Unique visitors: 122, Site session: 158

Analysis: The result shows that the website had 232 page views and 122 unique visitors. It also had 158 site sessions.

Page views are the number of times a page on a website has been viewed by a user. Unique visitors are the number of distinct individuals who have visited the website.

Site sessions are the number of times a user has visited the website and performed some activity on it.

These metrics are used to identify trends and patterns in the website's traffic. The number of unique visitors is increasing over time, indicating that the website is gaining popularity.

Feedback and suggestions: Website URL was circulated amongst through people various social media platforms WhatsApp, Facebook it was suggested by a website developer and visitor that to add details on the web page on the official web site of various Government Organization such as Gujarat Tourism Board, Heritage Gujarat, Industrial Extension Cottage (Indext-C) etc. to promote the craft effectively.

4.5.3 Opportunity of promoting craft at various platform

On the basis of the researcher's Masters' dissertation on the life history of Shri Maneklal Gajjar, she was invited as a resource person for the talk organised on "Maneklal Gajjar—I Knew" and the exhibition on "In His Own Rights," on the life and work of master craftsman Mr. Maneklal Gajjar, organised by Mala Sinha and Suchitra Balasubramanyam at Bodhi, Makarpura GIDC, February 23–27, 2023 (Plate 4.133).

The researcher had volunteered throughout, guiding the tour of the exhibition to the various groups of visitors and explaining the workmanship of master wood block maker Shri Maneklal Gajjar (Plate:4.135). She was also a part of the talk, which turned out to be an appropriate platform for presenting her research on a similar topic of promoting the wood block-making craft (Plate: 4.134). It was a great opportunity for the researcher to spread knowledge of the craft to the students from various fashion institutes, eminent artists, dignitaries, and experienced senior faculties in the fields of textile design, art, and craft.

Plate 4.133: Images of invitation of an exhibition and a talk

Plate 4.134: Images from a conversation held on February 25, 2023

Plate 4.135: Images of guiding the tour of an exhibition with group of students

From this, it could be said that the efforts made to promote the craft were sensible enough and appreciated by the audience. It could also be added here that promotion of the craft was done in an effective way using various platforms.