TEXTILE PRINTING INDUSTRY OF JAIPUR: A SWOT ANALYSIS

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ABSTRACT

Jaipur has a history of over 250 years of exquisite block, tie and die printing on cotton and silk textiles. Hand block printing on textiles is a tradition of Bagru & Sanganer tehsils of Jaipur. Jaipur and its suburbs Sanganer and Bagru have earned fame both in the country and abroad for their block printing, screen printing, tie & dye work, readymade garments and quilting. These are strongholds of cloth dyeing and printing industry but are witnessing an unorganized development. Rajasthan has about 6000 garment fabricating units, with maximum concentration in Jaipur. They export garments/textiles worth Rs.450 crores. Besides, job work worth Rs.500 crores is also carried for other exporters located at Delhi and other cities (source: Rajasthan Consultancy Organization). The product range of Jaipur and its suburbs includes: bandhej (tie & dye work), Block printing, screen printing, embroidery work, quilting and fabrication of readymade garments for both domestic and foreign markets. Textile products sub-sector including the printing segment is witnessing an unorganized development in the state. The rural mass market of printed cloth and readymade garments is extremely price conscious. As a result, only cheaper variety of cloth and garments can be pushed in that segment. Manufacturers concentrate on lesser inputs in both raw-material and manufacturing process, whereby quality suffers. These producers cannot manufacture garments for the quality and design conscious urban and export market. Rajasthan is lacking in facilities necessary to diversify the products and designs on the basis of the life cycles of fashions. trends and styles. Bulk rejection of printed textiles and garment products by importing parties abroad is a great threat to the industry.

KEYWORDS: SWOT Analysis, Hand Block Printing, Raw-Material, Textile Printing, Secondary Data.

Introduction

Research Methodology and Scope of Present Work

The work is a micro level case study of textile printing (hand block prints and tie & die) industry of Jaipur district, it is based on field survey and collection of primary and secondary data.

Objective of Study

The main objective of study is to put forth an accurate and clear condition of textile printing industry of Jaipur as possible on the basis of sample and field survey.

Industry Analysis

Colorful blocks, tie & dye textile printing enjoys a long tradition in Jaipur, the capital of Rajasthan, where approximately 4535 small firms are engaged in exquisite block printing on cotton and silk and provide direct employment to almost 20,750 workers.

Since the 1980s exports have picked up as a consequence of the growing worldwide appreciation for ethnic design and eco- friendly dyes. Traditional block and tie& dye artisans based around the city of Jaipur, mainly in the villages of Bagru and Sanganer, failed to keep up with growing demand, especially in the 1990s, progressively giving way to locally based screen printers. The increasing competition from the screen printers has forced the tie & dye artisans to squeeze their profit margins and increase the degreeof self-exploitation.

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It is estimated that there are as many as 4535 units in this industry, each one employing on an average 4 to 5 persons, which leads to a direct employment of almost 20,000 persons. Besides, in the related business ventures and the trading activities it is estimated that another 7,000 persons are dependent for their livelihood.



Areas in Jaipur where Textile printing work is carried out at large scale Main Turning Point

This age-old printing process got disturbed with mechanization of the village economy. In the changed scenario, the supply of raw materials became conditional to monetary resources, artisans got more distanced from final consumers (having lost their local utility market), and the social safety net got eroded. In the ensuing shake out, only a few artisans emerged as successful traders or trade-cumprinters. Many were reduced to printer-job workers or marginalized to wage earners.

The loss of confidence and declining business prospects for those artisans who continued to compete unsuccessfully with mechanized printing for the utility market, led to price war within and resulted in rapid erosion of trust within the printers' community. Within the families, the younger generation, comparatively more literate, began to search for "clean" and more lucrative jobs.

In the meantime, exporters and the boutique owners were able to recapture some of the market intelligence that was lost by the artisans during the transition from local to national and international markets.

However, only a few artisans got linked with these specialized exporter/boutique owners, and got a feeling of this new age market intelligence.

Textiles Generate Substantial Exports

Exports in this sector have increased tremendously during the recent years. Handicrafts of which printed textiles are a component, grew at a rate of 33.80% during the same period with the total exports of Rs 2635 crores. The total exports of hand printed textiles were Rs 475.12 crores which grew at a rate of 34% during the same period.

USA is the most important export destination for Indian Hand Printed Textiles The other important destinations are United Kingdom and Germany with a share of 13.5 percent and with 11 percent respectively.

Positive Future Scenario

The contribution and growth of this industry in general and printing in specific is aided by the strong policy thrust towards handloom and power loom sector. Certain kind of products has in fact been reserved for manufacturing in the small-scale sector. With the government policy continuing to be in favor of the decentralized sector in this industry, the future of this sector continues to remain bright.

Marketing

The marketing organization of this industry takes under two heads i.e. Traders and the Government. The traders hold the key position. He is actually the person who controls the supply of raw materials and takes upon himself the responsibility for the sale of finished goods. The trader enters into contract with the worker for the manufacture of various varieties of tie and dye and hand block print work. He supplies the workers with the type of cloth he intends to have for dyeing. The varieties of tie and die work are also to be selected by him but the colour combination is the choice of the *Rangrez*.

The trader, at the time of placing order, also advances some money to the worker in order to enable him to meet the incidental charges. At times he charges interest on it but generally, it is not the practice. At the time when the finished products are brought to the trader, the workers is paid the wages which vary according to the type of work, cloth and colour combination. The rates of cotton cloth dyeing is less while for superior silk and georgettes they are high the rates of single colour is less, while for multiple colours they are more.

The traders also make deduction from the contracted wages of the workers for various types of faults detected by them. These are for unequal lines in *Lehriyas*, non-symmetrical dots on the surface, colour combination or similar other ones. The deductions are often exorbitant leaving the worker with insignificant wages in his hands. The payments are also not made immediately. The second agency is the Government. The Government needs goods for sale at Emporia. An estimated of 10% of only the traditionally printed fabric is marketed through the state and central government Emporia. However, the emporia do not supply the grey fabric and the investment towards this has to be made by the printer himself. Previously the purchase wasaffected through tenders and the lowest tenders were accepted. Here too the trader was the gainer. But now the government has started the system of making direct purchases. The marketing section of the Directorate of Industries has been able to provide the workers with facilities of getting loans from the Industries Department and to supply the goods to the Emporia.

Threats

Foreign competitions and similar art being practiced in other parts of the world

• **Supply Chain:** Global partners in the clothing supply chain are exchanging information electronically, thus the need for us is to spruce up the textile industry. Rajasthan Garment Industry needs to adopt IT faster. Also, overall Infrastructure are not yet developed to cater to huge exports.

Shipping a container of textile or garments from India to the USA is costlier in India than in its Asian competitors. China enjoys a 13% cost advantage in shipping garments from Shanghai to the US East Coast, and a staggering overall advantage of 37%. The huge disadvantage of India is due to delays and inefficiencies in Indian ports compared to other Asian countries. The supply chain in Rajasthan is extremely fragmented chiefly due to the government policies and lack of coordination between industry and relevant trade bodies.

The role of this sector is poised for radical changes in view of the changes in the international trading environment brought about by the rules and regulations of the WTO.

Some Suggestions are as follows

- Joint ventures and strategic alliances with leading world manufacturers should be promoted.
- Schemes with necessary Infrastructural facilities for the establishment of apparel parks and cluster should be designed with the active involvement of State Governments.
- Financial Institutions and the private sector and setting up of strong domestic retail chains to'
 ensure easy availability of branded Rajasthani products should be encouraged.
- With the objective of increasing exports to US \$ 12 million, by 2010, the thrust should be
 onestablishing a multi-disciplinary institutional mechanism to formulate policy measures and
 specific action plans, including those relating to the WTO; and closely monitoring financing
 proposals.
- Forging of strategic alliances for gaining access to technology; operating a brand equity fund exclusively for textile and apparel products, consistent with WTO norms, government should actively play the role of facilitators and professional consultants must be consulted.
- Developing infrastructure facilities in the predominantly rural areas in close co-operation with State Governments and Financial Institutions and the private sector. Thus will give a boost to small units of textile printing.
- Evolving a suitable mechanism to facilitate industry associations to deal with disputes under the various agreements of the WTO.
- Information revolution promises to bring the world closer to cohesion. In the emerging face of fast-moving information, technological transfer is bound to take place at a higher speed and is helpful for the development of this industry too.
- As the International borders blur Supply Chain Management and Information Technology take a
 crucial role in Apparel manufacturing. Global partners in the clothing supply chain are
 exchanging information electronically, thus the need for Indian Clothing Industry to spruce up.
- Further, for the benefit of exporters, there should be a state-owned cargo shipping mechanism. Several initiatives have already been taken by the government to overcome some of these concerns including rationalization of fiscal duties.

The Main Problems of Textile (hand block prints, Tie & Die) Industry

- The lack of communication among the artisans;
- The absence of an active association;
- Inadequate quality control capacity of the entrepreneurs;
- Lack of design and marketing skills as the tie & dye artisans had grown accustomed to working as sub-contractors for exporters.
- Inadequate access to credit.
 - Available secured facts
 - Available communication Channel
- Poor market linkages and knowledge of printers

Traditionally, artisans were part of the local economy and produced utilities for local usage and occasionally exquisites through local royal patronage. As mechanization made available cheaper utilities at the local level, artisans started to compete against those cheaper products by compromising on quality of raw material, labour and processing technique, thus discarding their USPs 3 - the traditional methodologies of production and usage of traditional raw material. None of these cost cutting measures helped. In an attempt to win a lost battle, the artisans dragged themselves into a vicious cycle of decreasing price, quality and standard of living.

Meanwhile the traditional market got gradually replaced by an urban clientele and also exports market. The printer got distanced from this new range of final consumers and continued producing disjoint from the needs of the new clientele. The market intelligence, which used to get reflected in the products made for the local market (in the form of appropriate choice of colour, design preferences, weather requirements, local customs, etc.) lost all relevance for the new clientele and was not replaced naturally to suit the needs of the latter. Exposure to such markets was only occasional and restricted to few artisans either registered with some developmental organizations or working as dedicated artisans to few exporters. Individual moves to bridge such information gap was expensive and beyond the scope of individual printers.

Rajasthan is lacking in facilities necessary to diversify the products and designs on the basis of the life cycles of fashions, trends and styles. There is no organized activity to adopt new technologies, methods, specifications, processes and products. Whatever little activity is seen in the direction of design and product development in textile printing and garment manufacturing, is either the result of creative and innovative efforts of individuals or of the introduction of new designs and products by orders received from outside.

For the present there is no formal institution for the training of new entrants in the textile products industry, including printing. The Manikya Lal Verma Textile Institute at Bhilwara, and the Khetan Polytechnic at Jaipur, (which has launched a textile diploma course) have changed the situation a little bit. But a close examination of the curriculum in these institutions will show that they are not of the desired level, through which manpower training in textile techniques and development of products & design could be taken up in a big way.

There is no organization to keep the sub-sectoral entrepreneurs constantly in touch with the concepts and practice of quality competitiveness, consistency in quality at low cost, minimization of wastage, recycling of rejections, maximum utilization of resources, cost effectiveness, effective monitoring systems, improving technology at competitive cost, and so on. If this situation prevails, it may lead to stagnation of the market.

Traditional hand-block printing is now a receding art, giving way to screen-printing. Both in Bagru and in Sanganer, almost 80% printing work for preparing products like bed-covers, table covers, cushions, quilts, linen-ware, etc., is carried by screen printing method.

Advanced roller-printing technology being introduced in other states, and the imitation of motifs and patterns from traditional Jaipur printing art, is posing a great problem for the existence of textile printing industry of Jaipur.

Bulk rejection of printed textiles and garment products by importing parties abroad is a great threat to the industry. Most of the foreign customers who order for bulk purchase, provide their own specifications. They insist on strict adherence to these specifications and it is seen that quite often goods are rejected on the ground that the specifications have not been strictly followed. The trade lacks new machines and technology to equip the supervisors adequately for keeping constant watch over quality, specifications and productivity.

Limited Clientele of Exporters

Majority of the exclusive exporters of hand block printed textiles joined this trade only during the last two decades. These small exporters and the few large artisans were catering to a limited range of clientele including Indian buying houses; large Jaipur based exporters (who used to export items other than hand block printed textiles) and occasional foreign contacts of exporters (because of their high-end origin). Thus their creativity was limited to the market intelligence received through indirect consumers only.

The exporters and the large artisans failed to experiment by incorporating current market intelligence into the traditional designs and ended up producing given (many times foreign) designs through block printing. These constrained their growth and through them the growth process of the cluster.

Lack of Working Capital

Majority of the artisans were facing working capital problem as they were supposed to give collateral for getting loans. This was either not available with them or were at times disproportionately higher than the amount of loan. For example, for getting a loan of Rs.50,000/- a printer might have to give his house as collateral, since that was the only available collateral which he could offer. Again, at times the artisans had lost all linkage with the banks because of some bad debts that he had developed with the bank and thus availing of any further loan was ruled out for him. The widespread mistrust between banks and artisans led to stalemate in financing working capital loan for the small printers. This acted as a barrier not only for the small artisans but also for the exporters and the large artisans who often had to play the additional role of financers for the small printers.

Inadequate Infrastructure Support

Due to the absence of proper infrastructure, the artisans often faced problems due to "pollution" related issues. Improper knowledge also added to this problem. Majority of the artisans were found not to

have any local marketing infrastructure. In view of a huge tourist clientele, this was a source of potential business. Again, the high price of land forced many artisans to run the units from their houses, within limited space. This, in turn, caused health problems and sanitation hazards, which aggravated with the increase in family size. Due to the lack of appropriate drying facilities, printed clothes were left to dry on open land, reducing product quality.

Traditional technology

The hand block, tie and dye process are time consuming, as it is mostly hand process and no mechanizations. This creates problems for the exporters to meet the time schedule demanded by the importers.

Lack of Organization Skills

A serious handicap of the units was the complete absence of pro-active enterprise support organizations. There is no demonstrative knowledge regarding benefits of such organizations. Above all, the shrinking price-quality spiral was responsible for increasing mistrust leading to an end to all cooperative frameworks in the cluster.

Screen Printing Let to Mass Production

It has now led to new ways of printing with the help of screens (sort of printing stencils), although manually operated, yet are capable of large-scale printing, several times faster than the tie and dye and hand block printing. It was estimated that on two tables it is possible to print 100 meters length per day. This has led to reduction in the cost of printing withthe same designs. The change in the lives of artisans has not only come from changes in technology related to printing per-se but also due to new chemical dyes. This type of printing has emerged only during the last one and a half decades.

Washermen Problem

Washing of the fabric at the beginning of the printing cycle and during the process is traditionally carried out by the washer men called "Dhobis". The village has community-washing areas called the "Ghats". Due to the increasing scarcity of water in the community, the washer-men have to go to the agricultural fields of the local farmers where the water from tube-wells for irrigation is used to wash and the drained water is then used for irrigation purposes.

Bleachers, Dyers and Calenderers

Similarly for bleaching, dyeing and calendaring there are a few units that have come up in the villages. However, in most cases the printers, especially the smaller ones undertake these operations themselves. Sub-contracting for such operations is carried out only when the artisans can afford or if there is an urgent order to be executed and time becomes a constraint.

The Level of Industrial Associations

Calico Printers Co-operative Society Ltd.

It is 55-year-old cooperative which in the past had been very active (i.e., by sourcing the raw material on behalf of the artisans and marketing their products) had not provided any services to its members till the last 12 years. Membership had declined from 100 to 26.

Sanganer RangaiChhapai Association

The printers, bleachers and dyers have formed their associations called 'Sanganer RangaiChhapai Association' which undertakes certain activities to lobby with the government and to organize some training workshops. The association strives to get the agricultural land where these units are based, converted into industrial land in official. records. Another important objective of the association is to fight the common legal battle against the state Pollution Control Board to avoid the closure of these units.

Traditional Artisans At Sanganer Beginning To Revive\

A new association of the traditional artisans in Sanganer is under formation. The association will undertake to provide services to its members for providing raw material and will also undertake to market the produce on co operative basis. Besides, it would provide other necessary services related to common effluent treatment plants. The social body of the traditional artisans has already some infrastructure in the form of a building where they can hold meetings. But the new initiatives are still being worked upon and modes of financing being explored.

The artisans of Bagru did not have any umbrella association. Historically, attempts to promote such an association had not yielded positive results. It was therefore, attempted, to create smaller groups/networks. of artisans at Bagru. A local NGO, the Indian Institute for Rural development (IIRD) was given the responsibility of coordinating activities in Bagru.

• Government Co-Operation

Co-operation with the Government is poor almost at all levels. The local administrative institution such as 'District Industries Centre' and the state agency for development of real estate and industrial sheds called RIICO are not in close tandem with the units in the industry.

The only facility set up by the government is the facility of an Inland container terminal at Sanganer, which is the only outlet for direct exports from this region.

Opportunity

Developing countries with both textile and clothing capacity may be able to prosper in the new competitive environment after the textile quota regime of quantitative import restrictions under the multifiber arrangement (MFA) on Tariffs and Trade came to an end on 1st January, 2005 under the World Trade Organization (WTO) Agreement on Textiles and Clothing.

As a result, the textile industry in developed countries will face intensified competition in both their export and domestic markets. However, the migration of textile capacity will be influenced by objective competitive factors and will be hampered by the presence of distorting domestic measures and weak domestic infrastructure in several developing and least developed countries.

The elimination of quota restriction will open the way for the most competitive developing countries to develop stronger clusters of textile expertise, enabling them to handle all stages of the production chain from growing natural fibers to producing finished clothing.

Countries that aspire to maintain an export-led strategy in textiles and clothing need to complement their cluster of expertise in manufacturing by developing their expertise in the higher value-added service segments of the supply chain such as design, sourcing or retail distribution. To pursue these avenues, suppliers need to place greater emphasis on education and training of services-related skills and to encourage the establishment of joint structures where domestic suppliers can share market knowledge and offer more integrated solutions to prospective buyers.

In this view the textile printing industry is very vast with over Rajasthani traditional garments export business has made great strides in the past few years and today many of the leading fashion labels, from all over the world, are known to source their products from Rajasthan. This speaks volume of Jaipur Rural as a major supplier of top-quality fashion garments.

World export of apparel, suggesting an opportunity for considerable growth in this segment. Average growth in exports has been around 15% per year, mainly because of the expansion in cotton woven apparel.

The Textile & Clothing industry will be soon faced with open competition shorn of quotas or tariffs. Thus, the need of the hour is to enlarge both manufacturing as well as the marketing base. Inculcation of a spirit of innovation by way of research and development and tapping new markets especially in South Africa, Central Africa, CIS, East European countries, Latin America and Australia is also mandatory for export growth.

The main objective of the textile policy 2000 is to provide cloth of acceptable quality at reasonable prices for the vast majority of the population of the state, to increasingly contribute to the provision of sustainable employment and the economic growth of the Rajasthan and to compete with confidence for an increasing share of the global market.

Prognosis for Development

The hand-block printing segment of Textile sub-sector has export potentials. If the opportunities are properly harnessed, it can create ample marketing avenues in high-end consumers who value traditional art offering creative aesthetic designs using eco-friendly dyes.

Such textile products have great potential of generating employment in rural areas in Rajasthan. Jaipur and its suburbs – Sanganer and Bagru have earned fame both in the country and abroad, for their block printing, tie & dye work, readymade garments and quilting. This can be extended to other suburbs in case proper promotional and marketing facilities are created.

The business environment is good and amicable. In spite of large number of Screen-printing units coming up, there is scope for hand printing units to be absorbed in profitable business, because of the growing demand of artistic prints using vegetable dyes. The domestic demand for both printed items and readymade garments has been growing and has shown trends for higher average priced products. This is a healthy trend. Rural producers largely cater to the need of lower-end market, but the demand for these low-priced readymade garments has also gone up significantly in rural market.

A large number of buyers from USA, EU and Japan visit India, and come to Jaipur for placing order for garments made of fine cotton with traditional motifs and style. The buyers abroad are more sophisticated than the domestic ones. Reliability, delivery schedules, volume of supply and quality are key parameters that the overseas buyers put maximum emphasis on. This in turn keeps the traders extremely conscious of efficiency and quality.

Quite a sizeable amount of fabric is produced within the state by handloom, power-loom and khadi units. Other consumable like dyes, chemicals and thread are easily available from local stockiest on demand at reasonable cost. The urban segment is characterized by abundant availability of raw material, i.e., fabrics (grey), chemicals and dyes, high quality of sewing and embroidery threads etc.

Textile printing and garment making is almost a family occupation in most parts of Sanganer and Bagru in Jaipur district. The skills are handed down traditionally in families involved in this work. Quite a large number of families adopt this work as a source of supplementary income, while for others it is the main occupation for earning their livelihood. Manual skills of weaving, block making and block printing are of a very high standard. Wooden blocks of traditional motifs and patterns are made by artisans with a lot of patience and concentration.

There is a large number of tradersin the printed textiles and readymade garment segments. They get their orders executed through individual or job-work producers by providing them specifications and they keep a very strict quality control so that no goods are disapproved after receipt in other countries. These traders play an important role in the induction of new designs, techniques, skills and practices into the local trade culture. When they place orders for new designs and patterns, and disseminate the methodology of executing them, the traditional worker learns innovative workmanship. Some of the entrepreneurs among these trader's flourish on their ability to get strategic market information and anticipation of fashion trends. On the basis of these information's and anticipations they develop new designs.

In a majority of cases the exporters are not direct producers. These traders function as intermediaries and have therefore both forward and backward linkages – forward linkage with large-scale purchasers in the country and abroad, and backward linkage with manufacturers, producers and workers. Printed textiles and garment units, which have adequate forward and backward linkages, are most efficient. The entry of entrepreneurs mainly for export, has brought a boost to this sub-sector and they have been responsible for taking the crafts and riches of Rajasthan textile products to the rest of the nation and the world. They have helped several dying crafts and textile products of Rajasthan to survive and prosper, with the introduction of innovations.

Several cooperative societies have come up in the textile product sub-sector. In order to avail the facility of easy availability of raw material, production facilities and subsidized inputs, some traders and producers of Jaipur have formed registered cooperative societies. These cooperatives provide all kinds of inputs to their member producers and get works executed on wage basis. The Rajasthan Rajya BunkarSahakari Sangh helps these cooperative societies to market their goods.

The working conditions for employees are tolerably good and there is generally no complaint of work or health hazards. Production processes are simple. Daily production for each worker is either defined or he works on job-basis under self-induced production targets.

Since most of the manufacturing, printing and fabricating work in the sub-sector is done on contract, job-work and wage basis, the payment to workers is generally on time.

Some special incentives and concessions are allowed to 100% export oriented, units.

Rural and Semi-urban areas of Jaipur district are preparing to take up the expanding textile industry in their encompass. Systematic development of rural clusters in textile hand printing with the active participation of regulatory and promotional bodies will help to hasten the process of generating more rural employment in the coming years.

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Hand printing of textiles has very good potentials for providing whole-time as well as supplementary employment to women both in rural and in urban areas.

Rapid changing trends in the domestic and international market in the form of color, style, texture etc., warrant quick designing and product development capability. Now that we are in an electronic and computer age, we can adopt changes more quickly provided that we have the will and technology to do so. Promotional institutions in Rajasthan, and particularly in Jaipur, where we have approximately a thousand textiles based small and micro industrial units should take advantage of the situation and establish an exclusive institute for textile research and training.

The students and faculty of the National Institute of Design (NID) have collected and compiled valuable information on traditional and latest designs and crafts, which is available in the library of the institute as "Craft Documentations". The National Institute of Fashion Technology (NIFT) and some private designers also help the industry in dissemination of fresh designs. But there has to be some coordinating agency at Jaipur to help producers and fabricators here in getting and adopting these designs and products.

The Special Schemes Organization of Government of Rajasthan is offering opportunities to rural youth and women to enter into this sub-sector by providing training as well as equipment under the TRYSEM programme.

Among most of the textile printing and garment producing countries in the Asian region, the labor cost in India is the cheapest and therefore, USA and other countries in we stem and Eastern Europe provide a tremendous market potential for exports of printed textiles and garments from India

References

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- 1. Gupta Gajanand: Investigation into Tie & Dye and Calico Printing 1967
- 2. Gupta, Motilal:Cottage Industries in Jaipur, 1975
- 3. Khosla, Devindar Nath: Cottage Industries in Rajasthan, 1962
- 4. Sharma, Poonam Chand: Cottage Industry of Jaipur, 1970
- 5. Singh, Ajit:Cottage Industry of Jaipur, 1980
- 6. http://www.woodprintblocks.com/
- 7. http://www.craftandartisans.com/hand-block-printing
- 8. http://treesouls.com/eco-living/revival-of-traditional-eco-friendly-hand-blockprinting-in-bagrurajasthan/
- 9. http://www.aiacaonline.org/pdf/block-printing-extended-documentation.pdf.