Chapter – 1
Evolution of Panipat Textile Cluster

The Indian textile industry has a significant presence in the economy as well as in the international textile economy. Its contribution to the Indian economy is manifested in terms of its contribution to the industrial production, employment generation and foreign exchange earnings. It contributes 20 percent of industrial production, 9 percent of excise collections, and 18 percent of employment in the industrial sector, nearly 20 percent to the country’s total export earning and 4 percent to the Gross Domestic Product (GDP). In human history, past and present can never ignore the importance of textile in a civilization decisively affecting its destinies, effectively changing its social scenario.

1.1 HISTORY OF TEXTILE IN INDIA

History of textiles in India is, perhaps, as old as Indian civilization. For over a period of five thousand years, cotton has been an idiosyncratic product providing exceptional continuity to its history and tradition; coalescing divergent culture and regions. The earliest evidence of cotton fabric comes from Harappan civilization, 25th century B.C. It was dyed cotton with the use of mordant technique. Bronze Age civilization (3300 – 1300 B.C) or Indus Valley civilization excavations also evidenced the presence of cotton. Kundu (2007) assert that the ascendancy of Indian cotton continued even after the fall of Indus Valley civilization and it becomes integral part of Aryan way of life that Priest wore scared cotton threads; and warriors wore cotton “cummerbunds”; and common folk wore the plain weave cloth “dhoti” that had just originated.

Further, “Uttarakhand Open University (2012) study note on Indian Culture: Perspective for India–Handicrafts: Continuity and Change deciphered that Rig Veda (1500 - 1000 B.C) refers to golden woven fabric hiranyadrapī; Epic literature (Mahabharata and Ramayana, 1000 - 600 B.C.) mentions pearl-fringed fabric manichira; while Jain Bhandaras provide ample examples of Indian patto silk. Greek records are also full of references on gorgeous paithani fabric from Paithan - the ancient Pratishthan. The author of the Periplus of the Erythrean Sea (A.D. 60 - 100) mentions the presence of Indian dyed cotton in Rome. The Roman word carbasina for cotton is derived from Sanskrit karpasa. Kautilya refers to the superintendents (adhyakshas) of weaving during
the Mauryan period (300 B.C.)”. King Assurbaniphal of Assyria described the cotton plan of India as the wool-bearing tree. It is also believed that Indian cottons were used to warp the Egyptian mummies. The aristocrats and women of ancient Rome were so enamored by Indian cotton that they were willing to pay any price for it. It was the Lament of Rome that India’s fine cottons were the real reason for its depleted funds.

Indian cotton were famed the world over not only for their elegance, but also for magnificent beautiful designs. This is a skill that has been passed down to generations and even today Indian cottons are embellished by the most attractive designs. Natural dyes were invented in India; and for centuries natural indigo was exported from India. Block printing, tie and dye, and ‘Kalamkari’ printing are the ancient styles of fabric design, are also perpetual in their attraction. After the advent of the ‘Turks’ and ‘Mughals’, many new distinctive features were introduced in the field of textile production with the blending of new culture and technology. Turks exposed Indian weavers to spinning wheel. Earlier craftsmen used to spin the cotton with single spindle (Talkali). With the introduction of spinning wheel not only the productivity increased many fold; but also possible to brings many new varieties during period. Arab geographer, Ibn Khurdazbah (A. D. 826-912) provides some earliest references about the presence of velvet fabric in India. It appears that velvet fabric were first introduced in western India by the Arabs through Tiraz factories, but the art reached its climax under the Mughals. The rich tradition of Kashmiri shawls (Pasmina) with its twill-tapestry weaving seems to have introduced in India by central Asian weavers during the reign of Zain-ul-Abidin (A.D. 1420-70).

Further, “Uttarakhand Open University (2012) study note on Indian Culture: Perspective for India–Handicrafts: Continuity and Change deciphered that Carpet weaving also reached new heights under the Mughals. It was Mughal Emperor Akbar who brought Persian carpet weavers from Persia to India and set up the royal workshop (karkhana). This gave birth to the art of pile carpet weaving in silk and wool in India. Soon Indian carpet Industry picked up so well that Abul Fazl records that, "The carpets of Iran and Turan are no more thought of. All kinds of carpet weavers are settled here and drive a flourishing trade. These are found in every town but especially in Agra, Fatehpur and Lahore". By 1615 Surat became the chief centre of carpet export to Central Asia and Europe. Russian carpet weavers also settled in Masulipatnam. Later they moved to Eluru in the mid-16th century.
Afterward chronological evolution of Indian textile industry as:

1818: The first modern cotton mill was established at Fort Gloaster near Calcutta, albeit this mill was a failure.

1854: KGN Daber made a successful attempt who established the mill named “Bombay Spinning and Weaving Company” at Bombay (now Mumbai). This mill lay down the foundation of modern cotton textile industry in India.

1858-1947: During this period Britishers influx low priced machine made English cotton and consequently Indian textile industry suffered a lot. The Industrial revolution had captured Manchester to the world’s premier centre of cotton textile production. India was reduced to being a mare consumer of the products of textile mills in Manchester, Birmingham, and Lancashire. The handloom weavers in India faced devastation. Consequently, various movements like Anti-Bengal Partition (1905), Non-co-operation Movement (1920) created a wave of boycotting foreign clothes and propagate the Swadeshi clothes, which helped a lot in the development of industry in India. Gandhiji rallied the country around with a call to dump English cotton fabric and revert to ‘Khadi’ (hand woven cloth from hand spun cloth).

1947: Khadi becomes the metaphor for the freedom and a symbol of India’s self-sufficiency. Kundu (2007) state that, first foundation of India’s ascendance in cotton textile production has been laid down. But the ‘partition’ had adversely affected the industry in India. Most of Muslim weaver migrated to Pakistan and the industry got divided into two parts. Before partition, there were 394 cotton textile mills in India out of which, 14 mills came in the territory of Pakistan and remaining 380 continued operating in India. Furthermore, Dhingra (2001) and Texprocil (2004) asserts that 40 percent of cotton producing area becomes the part of Pakistan and only 60 percent of cotton growing are remained with India. Consequently, India was compelled to import raw cotton to meet the input requirements of its 380 mills.

1951-1970: India’s five year plans proved a boom to cotton textile industry of the country. A number of cotton mills come into existence in the planning era and some of them were leading successfully at the global level. In absolute figures at the end of 1970 there were 664 cotton textile mills (Indian cotton Mills Federation, New Delhi, 2006) operating in India. Products like curtains, kitchen linen, terry towels flooded the international market during the era.
1970-1980: The 1980’s saw mushrooming of powerloom sector at various places like Bhiwandi, Malegeon, Ichalkaranji, Erode, and Karur. This coincided with tremendous increase in the export of the cotton yarn of counts 1 to 40’s. In fact, this increase was so dramatic that the government had to impose restrictions to protect the rapidly growing powerloom and traditional handloom sector.

1980-1990: This period was the decade of diversification of the textile industry. Ludhiana and Tripura becomes the centres for hosiery; Panipat for carpet, Madurai and Karur for napkins; Sholapur for terry towels; and Jaipur and Jetpur for Khadi, batik and dye. This period also saw in exports of heavy weight fabrics like ‘duck’ and ‘canvas’ as well as finer counts such as ‘mulls’ and ‘cambric’

1990 onward: The wheels of modernization drove the cotton industry into the generation of jeans and baby boomers fuelled a denim revolution, and Indian exporters who were not even peripheral players in denim until then got into denim in a big war. Leading companies invested in creating capabilities, which helped India to become a major player in lucrative finished fabric business.

1.2 HISTORY OF TEXTILE CLUSTER AT PANIPAT

The textile history of Panipat started after the partition of India and Pakistan, when the weaver's community that was displaced from Hyderabad, a state in Pakistan was facilitated to settle in Panipat by the Government of Punjab, on the directions of Mahatma Gandhi. The following chronology presents the milestones of growth of the textile industry since then:

1947: During the partition, a large number of professional weavers from Sind, Jhang and Multan, (now in Pakistan) migrated to India. As chance would have it, they were allotted land around Panipat to settle down. The weavers lost no time in setting up looms and getting down to their ancestral craft. Initially they were working with Frame Loom of two treadles. They were manufacturing Khes and Durries of coarse hand spun cotton yarn and selling their fabrics in Assam, Bihar and Bengal etc

1948: The National Textiles and the General Company of Panipat purchased Jacquard from Joan Harlekar and for the first time introduced it in the Panipat industry.

1960-70: New designs were developed for exports by the master weavers like Mr. Amrit Lal Batra and Mr. D.C. Bhatia. But it was only in 1970 that products entered the export
markets through the initiatives of Shri Jaipuriya from Jaipur. During the same period, the hand knotted carpet business was started initially for the domestic market and later for exports. The carpet business was evolved as a result of yarn dyeing of woolens in 1970.

1975-80: Curtains were being made at Panipat by the copying the designs from the Delhi cloth mills. Then table-mats were introduced here in 1980 by Mr. D.C. Bhatia with the inspiration from a Hungarian lady Mrs. B.K Nehru. This lady was an adviser of M/s Central Cottage Industries Corporation of India.

1985-86: The old second hand power looms were introduced by the machine manufacturers of handloom for making bed covers, curtains and other upholstery clothes. In 1985, M/s Mahajan Overseas introduced Chinddi Durries under the guidance of Mr. D.C Bhatia.

1984-90: The Shoddy Industry introduced blankets manufacturing in Panipat. From the period of 1984-1990, when terrorist activities were at their peak in Punjab, many of the manufacturers in Panipat started manufacturing blankets. The business of blankets expanded very fast and in due course Panipat became famous for blanket market. A good quantity of blanket was even exported to Japan but later the market of Japan was closed due to a devastating earthquake in 1997.

1990-91: The throws of different designs were manufactured in power-loom. And the hand tufted carpets and handloom carpets were introduced. The shuttle-less looms were introduced by Paliwal export then Mr. Kaluram of Liberty Velvets and Mr. Om Bhatia of Loom Drape used them for manufacturing upholstery clothes.

1998: Paper printing began at Panipat and now there are around 20 units in this sector

1999: New kinds of Made ups i.e. with embroidery and embellishments were introduced. This has led to evolution of new products, which is going strong even today.

1.3 MAJOR ACTIVITIES OF PANIPAT TEXTILE CLUSTER

Panipat Textile Cluster comprises of eight following segments (Boruah, 2001):

(i) Handloom  (ii) Powerloom
(iii) Carpet  (iv) Woolen & Shoddy Yarn Spinning
(v) Cotton Yarn Spinning  (vi) Woolen Blanket
(vii) Cotton Wet Processing  (viii) Woolen Wet Processing
Handloom: Panipat is known as City of ‘Handlooms’ in the Northern Region of textile Industry in India. More than 50000 handlooms (pit looms & Frame Looms) are working in Panipat under the owner ship of about 4200 different units. This Industry is providing employment to more than 90000 persons directly or indirectly. Most of the items produced on these Looms are meant for exports. The total exports from this Industry are estimated to be more than 1200 Cores. Panipat Handloom Products Exports are as follows:

There are mainly three types of Handlooms that are being used in Panipat

- Pit Loom --- mainly used for weaving Durries of Cotton/Chenille/Chindi.
- Frame Loom --- Ordinary Frame Loom with Jacquard mainly used for producing woven designed fabrics. Ordinary Frame Loom without Jacquard mainly used for producing plain/stripes/check fabrics.
- Panja Loom --- for making heavy structured Durries with complicated designs.

Powerloom: Power Loom Industry is also one of the main Textile Industries in Panipat catering to the needs of export as well as domestic markets. Its main contribution lies in maximum share in the total turnover of Panipat Textile Business. Powerloom Industry is also rapidly growing in Panipat. There are about 1500 units having 25000 ordinary powerlooms with / without Jacquard attachments and 60 units having 1100 Shuttleless Looms. This Industry is providing the employment for about 30000 persons. Most of the domestic market items like jacquard designed bed covers, curtain cloths, and upholstery being manufactured with the raw materials as Cotton, Art Silk, Polyester, Acrylic, and Polypropylene. Some of the Units are engaged in the Woolen Blankets manufacturing with the Shoddy Woolen Yarn as its raw materials. Exportable items like Table Linen, Kitchen Linen, Bed covers, Quilt Fabrics are also manufactured on Power Looms.

Carpet: Panipat Carpet Industry plays vital role in the Panipat Textile Industry with its uniqueness in Quality and Pricing comparing with other Carpet Industry towns like Bhadohi, Mirzapur, Banaras, and And Agra (UP) in the Northern Region. Panipat Hand Tufted Carpets are being priced about 50 percent less than those Hand Knotted Carpets manufactured in the aforesaid mentioned towns. About 400 small and medium units are situated in and around Panipat Town giving employment to about 60000 persons. The raw material for this industry is comes from Bikaner, Jodhpur and from local suppliers. About 2-3% of the raw material is imported for this industry. More than 90 percent of the
Carpets manufactured are meant for export and about 10 percent of the production is for the domestic markets. The total Turnover of this Industry is estimated to be more than 150 Crores. As far as Panipat variety is concerned, mainly two types of Carpets are produced:

- **Hand Tufted Carpets** -- Almost all the Floral/geometrical/motif designed carpets are being produced by Hand Tufting Process as the name implies.
- **Handloom Carpets** -- Most of the single/multi colored plain carpets are produced on the broad width Frame Looms with multi beams warping for piles.

**Woolen & Shoddy Yarn Spinning:** There are about 350 Woolen & Shoddy Yarn Spinning Units in Panipat catering to the needs of Amritsar, Bikaner, and Bhadohi and to the local market of Panipat for the use of Blanket & Hosiery & Carpet manufacturing. This Industry is providing an employment to about 30000 persons. The raw material for this industry is imported rags from European Countries at cheaper rates. These rags are garneted and spun into Shoddy yarn.

**Cotton Yarn Spinning:** There are about 45 Open End Cotton Spinning units and five Ring Frame Cotton Spinning Mills, generating an employment to about 25000 people of Panipat. The raw material for open-end units constitutes 85 percent of waste cotton from the ring frame units are being sourced from South India. For ring frame units their raw material Cotton comes from the neighboring towns of Sirsa, Hissar, Jind, Fatehabad, Uklana, Adampur and neighboring states of Punjab, Rajasthan, UP, Himachal Pradesh. These units can produce yarn counts from 0.5 to 30s counts of yarns. Out of the total production, 75 percent is consumed for Panipat Handloom Industry and 25 percent is sold to the other states. In the same way, 25 percent of the raw material for this industry comes from other states.

**Woolen Blanket:** Panipat is known for its woolen blankets, lohi, shawls after Amritsar in the Northern India. There are about 400 units in Panipat and this Industry is providing an employment to about 25000 persons contributing a turnover of about 250 Crores to the Panipat Textile Industry. 70 percent of the Blankets produced here are for the Government supplies only.

**Cotton Wet Processing:** Cotton wet processing industry has about 350 dye houses, 75 printing units catering its services to the Panipat textile industry under different following heads:
- Yarn Dyeing Units
- Hank Dyeing Units by machines
- Hank Dyeing Units by manual
- Fabric Dyeing Units
- Jigger Dyeing units by mechanized motors
- Yarn Dyeing Units
- Block Printing
- Transfer Printing Units
- Jigger Dyeing units by mechanized motors
- Jigger Dyeing by manual
- Bleaching Units
- Fabric Bleaching by Jiggers
- Chindi Bleaching in Tanks
- Printing Units
- Screen Printing on Tables

**Woolen Processing:** There are about 100 Blanket Finishing Units in the Panipat to meet the requirement of woolen blanket finishing of the Panipat woolen industry.

### 1.4 PROCESS FLOW CHART OF LINKAGES OF ACTIVITIES

![Process Flow Chart](image)

*Source: SIDO online, Ministry of MSME, Govt. of India

Figure 1.1*
1.5 SUPPORT INSTITUTIONS AT PANIPAT TEXTILE CLUSTER AND THEIR LINKAGE

Following service providers are rendering their services to the cluster. Respective services of each institution are analyzed so as to strengthen their linkages with the industry.

Textiles Committee: The Services imparted by regional office of Textiles Committee, Panipat, a statutory body under Ministry of Textiles are as under:

- Inspection of Handloom Goods meant for exports for issuance of certificates under various Bilateral Agreements.
- ISO-9000, ISO-14000, SA-8000, OHSAS-18000, CSM-2000 consultancy services
- Training of Textile and Clothing Industrial Personnel
- Quality Appraisal of Textiles
- Market Survey and
- Acts as collection center for testing of all kinds of tests of textiles and its various ultramodern laboratories.

Weavers Service Center:

- Development of Textile Designs on paper by hand and on CAD/CAM system by qualified and experienced Designers for Export and domestic market as per the trend prevailing.
- Development of woven samples of variety of textures using treadles, Dobby, and Jacquards on handlooms for Export as well as Domestic market.
- Providing Technical Assistance in Weaving, Dyeing/ Printing and Designing, giving Technical Advice to solve their problems.
- Providing Short Term Training (in house) in Weaving, Dyeing/ Printing and Designing.
- Conducting Decentralized Training Programmes for weavers of Handlooms coop. Societies in Weaving, dyeing and designing at their doorsteps.
- Conducting number of Design Exhibitions cum Dyeing/ Printing workshops at different places, showing Latest Trends in designs and Color Forecast, New Dyeing Techniques and Eco Friendly Dyeing.
Monitoring and Training of handloom weavers on different govt. schemes sponsored by Development Commissioner for handlooms.

Development of shade cards carrying dyed yarn strips along with detailed information regarding dyes, dyeing methods, Pantone Shade Numbers, Fastness Properties etc. that is widely used by the handloom/textile industry.

Inspection of powerlooms for violation against the handloom reservation act and giving awareness towards the same to the industry.

Documentation of specific, traditional, innovative designs, fabrics and photographs. Furnishing few of good designs to NCTD New Delhi for display on their website: www.designdiary.com. It is providing four month training in Handloom Weaving, Designing, Dyeing and Printing. The number of seats is 60 (sixty). During last year, 323 persons have been given training. It provides Designing to the Exporters on commercial basis.

**Northern India Textile Research Association (NITRA):** Different services provided by Powerloom Service Centre of NITRA for the Powerloom Industry in particular and as a whole for the Textile Industry in Panipat are as under:

**Trainings on**

- Unskilled Weavers Training (Three Months Duration)
- Upgrading skills of operators/jobbers/supervisors (2 months)
- Designing of Jacquard / dobby & different weaves (3 months)
- Computer Aided Designing (3 months)
- Physical Testing for Fibers, yarns, fabrics/carpets (3 months)
- Chemical Testing of Yarn, Fabric, Dyes, Chemicals & Auxiliary (3 months)

**Testing**

- Physical Testing’s – Fibers, Fabrics, Yarn & Carpets
- Chemical Testing – Yarn, Fabric, Dyes, Chemicals & Auxiliary
- Eco-Testing – Heavy metals, Azo-free, formaldehyde, Pesticides and others

**Consultancy**

- Developing New Designs in Jacquard, Dobby (Graph, Card punching, Swatches)
• ISO-9000
• Energy Conservation
• Effluent Treatment Plant
• In the areas of Spinning/Weaving/Processing.

The number of seats available is 40 to 50 per annum. Till now approx. 400 persons have been given training. They also provide various

**The Joint Director, Foreign Trade:** Regional office of the Director General of Foreign Trade (DGFT) headed by joint director, foreign trade (Government of India, Ministry of Commerce) is also functioning in the Panipat. The main objective of the office is as under:

• To issue export-import code number for clearance of goods at customs on permanent basis until it is cancelled or surrounded.
• Issuing of duty credit passbook on the exports as per entitlement on the basis of description of goods exported for which rates are announced by the DGFT, Ministry of Commerce (Government of India).
• To issue advance license to the exporters against export order under duty exemption scheme.
• To issue a special import license against physical exports as well as on the basis of foreign exchange earned to the exporters holding export house/trading house/star trading house etc.
• Issue of licenses of capital goods machinery for import on the basis of recommendation by DGFT.
• Issue of licenses for the negative list on the recommendation by DGFT.
• Issue of registration cum membership certificate for the commodities not cover under prescribed Export Promotion Council.
• Issue of export house/trading house certificate on the basis of export earnings made during the year/preceding years

**Quality Marking Center for Textile Goods:** This is one of the oldest Testing Laboratory established by the State Government, which provide some textile testing facilities with limited and conventional instruments. The Quality Marking Center run by
Industries Department, Haryana, is engaged in Testing of Textile Fibers, Yarn, Fabrics and other products.

**National Handloom Development Corporation (NHDC):** The main functions of the NHDC is to supply the raw materials like yarn, dyes and chemicals to the handloom cooperative societies, Handloom exporters and even to weavers at the mill gate prices. For the exporters, Handloom Export Promotion Council (HEPC) should recommend the quantity of their consumption as per the export of their handloom Production. In case of handloom weavers, their production/sales are to be registered with DIC/Govt. office so as to make the judgment/recommend their yarn consumption. In the last budget the exemption of excise duty on the hank yarn for both cross reel and plain reel has helped the handloom industry. This has helped industry to save the excise duty to the extent of 8 percent on the raw material cost and this enables the entrepreneurs to compete with international prices.

**Inland Container Depot (ICD):** Though the Inland Container Depot (ICD) established for the benefit of the Panipat Exporters to send their shipments through local ICD, but the present situation is something different. 50-60 containers are being shipped from out of the 800 containers dispatched from Panipat. The services of the ICD are neglected by many of the exporters saying that they take more time to deliver the goods to port. Sometimes, the required shipping line containers are not able to arrange by them. As such their shipments are being delayed. So, exporters prefer to send their shipments either through New Delhi ICD or directly to Mumbai ports. Only full container & Drawback shipments can be sent through the local ICD. If the drawback amount is more than Rs One Lakh, then that file is to be signed by the DC, Central Excise & Customs, who is stationed at Sonepat. So, one has to specially go to Sonepat to get the shipment cleared. For all these problems, the local ICD services are not fully utilized by the industry.

**District Industries Center (DIC):** The Services imparted by the office of the District Industries Centre are as under:

- Issuance of SSI registration
- Enforcement of Handloom Reservation Act
• Helping for Prime Minister *Rojgar Yojana*
• Recommend for early phone/Elec., connections to new units
• Recommend for duty exemption for electricity for five years
• Recommend the Weavers Societies to State/Central Government for availing the Deen Dayal Hathkargha Protsahan Youana & DEPM

**Other Training Institute:** There are three Industrial training institutes in the Panipat district. These institutes provide technical and vocational trainings in diverse occupations such as, electrician, fitter, mechanist, welder, carpenter, carpet weaving, cutting and tailoring etc.

**S.G.S India:** An international inspection, testing, and consultancy agency, which has their ISO consultancy and sample collection center in Panipat.

**CATD Centers:** There are as many as 12 to 15 CATD centers existing in Panipat, which develop and supply designs to the manufacturers of jacquard and dobby weaving units. However, most of them have not been able to perform satisfactorily due to reasons like non-secrecy maintenance in designs and low knowledge of customer's taste and market trends.

1.6 **INTER-SECTORAL LINKAGES**

There are three tiers of Core Cluster activities in the cluster.

• Manufacturer Exporter
• Merchant Exporter
• Manufacturers

Manufacturer Exporters do produce different varieties of fabrics and also outsource the balance quantities from the manufacturers by way of job work basis or outright purchase. Merchant Exporters totally depends on the outsourcing of all the items and dispatch in their name. The other category is manufacturers who supply the manufactured material to the exporters on the conversion basis by taking the raw material and getting the conversion charges. Sometimes they sell the material on piece rate/square meter basis.
1.7 CLUSTER MAP OF PANIPAT MADE-UP ENTERPRISES

Figure 1.2

Composite Units

Source: SIDO online, Ministry of MSME, Govt. of India
Table 1.1: Linkages among Cluster Members

<table>
<thead>
<tr>
<th>Backward Linkages</th>
<th>Key Actors</th>
<th>Forward Linkages</th>
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<tbody>
<tr>
<td>Yarn suppliers</td>
<td>Spinning Mills, Traders</td>
<td>Container Depot</td>
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<tr>
<td>Handloom and other accessories</td>
<td>Fabric Manufactures</td>
<td>Market Brokers, Merchants</td>
</tr>
<tr>
<td>Wet Processing m/c, inspection</td>
<td>Dyers and finishers</td>
<td>Effluents treatment</td>
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<tr>
<td>Embroidery machines, Sewing</td>
<td>Sub Contractors</td>
<td>Retailers, wholesalers,</td>
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<tr>
<td>machine and accessories suppliers</td>
<td></td>
<td>and distributors</td>
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<td>Computer, bar code reader,</td>
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<td>wash care instructions, packing</td>
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<tr>
<td>materials suppliers e.g. bags, cartoons, jute bags</td>
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<td>Building Construction materials suppliers</td>
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<td>Construction</td>
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<td>Transportation</td>
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<td>Other service providers i.e.</td>
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<tr>
<td>Textile committee, Weaver</td>
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<tr>
<td>service centre, NITRA, DIC etc.</td>
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<tr>
<td>Labour, repairers</td>
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The linkages among these cluster members are strong in terms of business operations. If the orders are less to the exporters, then the manufactures also do not get any work from the exporters as the exporters try to engage there in house capacity.

The backward linkages with the yarn suppliers, dyers and other accessories suppliers are always strong. The forward linkages are also strong in terms of business operations.
1.8 REFERENCES


