CHAPTER – 2

LITERATURE REVIEW

The literature review pertains to the aspects like origin of clusters, importance of clustering, dimensions of clusters, characteristics of clustering in developed countries, clustering in developing countries, co-operative strategies in India, and status of Industrial Clusters. Research studies conducted abroad and in India, reports of multilaterally funded agencies and governmental agencies find mention. Certain case studies have also been incorporated.

2.1 Origin Of Clusters

The concept of cluster is derived from the concept of Industrial District, which owes its genesis to the successful functioning of Italian Industrial districts. The concept of Industrial district is age old. Alfred Marshall (1919) mentioned regarding successfully functioning textile and metal working regions of UK, Germany and France during the latter half of the 19th century. Marshal stated that SMEs can experience economic gains when clustered in terms of geographic concentration and performing a typical industrial activity. This can be gained through inter-firm division of labour. Economic gains are reinforced through the evolution of a common set of cultural and social values, which may be termed as the “local industrial atmosphere” ( Marshal: 1974)

The literature on industrial districts has also pioneered the thought process of looking into success stories of small firms from an organizational viewpoint. While industrial districts and clusters are not synonymous, the current concept of clusters is largely derived from the prevailing concept of industrial district.

Industrial districts have been defined as “….geographically defined productive systems characterized by a large number of firms that are involved at various stages, and in various ways, in the production of a homogeneous product…..” (Pyke et al 1992).

Industrial districts have been conceptualized as a social and economic entity and their success has been envisaged as a function of economic, social and institutional aspects as a whole. Industrial districts have created sensations of success in Europe. A case in point is the “Third Italy”. The concept of “Third Italy” was coined by Amaldo Bagnasco in the late 1970s. The Third Italy – North – East and Central Italy out-paced the growth in the non-firm sector of the poor South (Second Italy) and traditionally rich North North-west or First Italy ( Humphrey and Schmitz: 1995)
2.2 Importance of Clustering

It has been argued that "smallness" or "bigness" of a firm though not irrelevant, is not the decisive criterion of performance. What is crucial is the organizational and institutional context in which small firms as well as large firms operate. Small firms can achieve the characteristic of estimated success parameters of large firms through collective organization and concerted action. Thus, links and networks are of paramount importance to small firm for their success. The study of successful clusters of small firms across the globe emphasizes this. A small firm's success is conditioned, amongst others, by one over-riding critical organizational prerequisite, namely a horizontal type organization or a system of lateral linkages among small firms. The industrial districts of Italy are, but the most conspicuous type of such small firm communities.

The rapid globalization and easy availability of information have created a thought process that probably location and hence clustering does not play a significant role in development of firms. Some feel that now a firm situated anywhere can avail the information and source the resource required from any place.

But then be it capital, technology raw material or most importantly human input; these are not linear concepts but are multidimensional. To cite an example, if a raw material X is used to produce an output Y, as an entrepreneur one also needs to study the following issues before X is actually used to produce Y:

1. What proportion of X is to be used for a typical Y, which satisfies the customer?
2. What sort of machinery is ideal to process the available quality of X for producing the typical Y?
3. Which brand of X gives best results?
4. Which brand of machinery is commonly used?
5. While producing Y from X some companies have excelled, others have not. Does the answer lie in the quality of the human resource?
6. What sort of consumers mostly prefers Y?

This is an unending series and can keep an enterprise guessing on all fronts if it is operating in a place, isolated from the mainstream production centre. In contrast, the very presence of a firm in the mainstream production centre and the economies of operative knowledge gathered thereby through interaction with fellow enterprises,
machinery and raw material suppliers, stockist and traders; provide critical information which can guide an enterprise's entire production, technology and marketing technique in a typically symbiotic relationship (Schmitz: 1999).

Thus, advantage of location is all-pervasive. In fact, what has de-facto occurred is that the contours of 'Competitiveness' have undergone a paradigm shift. Thus local availability of raw material, cheap labour, lack of capital or 'technology' no more rules the roost of 'competitiveness' (Porter: 1998). The answer really lies in the business environment exogenous to the firms or even outside its industry, residing instead in the location of business units (Porter: 1998).

This exogenous factor is a typical dynamics of activities and information conditioned by the relationship between firms. This is a wealth created by virtue of interaction of firms producing similar or related products and are interdependent of each other due to (a) their incapability of complete vertical integration for any final product (from the view point of the end-user) (b) their flexibility in specializing in producing a part of the final product (simultaneously being) ensured by firms specializing in complementary activities for product completion. The relationship between firms, their raw material suppliers, traders, service providers, financiers, and national and international policy issues also conditions development. These dynamics are called the cluster dynamics and the geographic concentration of these actors is termed a cluster in a static framework.

That is perhaps the reason that the chances of finding a world-class mutual fund company in Boston or a high fashioned woolen hosiery firm in Prato are much higher than finding them outside Boston or Prato respectively. This defines an important role that a group of firms and its support mechanism (clusters) together can play even in this information era of a 'globalize village'. Thus, even at the prevailing age of communication technologies, these groups of firms are preferably geographically concentrated, they compete and also cooperate. This sets the stage for a broader understanding of this specialized phenomenon of creation of social wealth and its implication for collective as well as individual business growth.

2.3 Dimensions of Cluster

Thus a cluster is not merely a physical existence of a group of firms but it is the chemistry of their relationship that characterizes the difference. A cluster has several
dimensions (Enright: 1998). *Working' clusters* (Enright: 1998) or type-1 clusters are those in which a critical mass of local knowledge, expertise, personnel, and resources create agglomeration economies that are used by firms to their advantage in competing with those outside the cluster. Working clusters tend to have dense patterns of interactions among local firms that differ quantitatively and qualitatively from the interactions that the firms have with those not located in the cluster. Working clusters often have complex patterns of competition and co-operation and often are able to attract mobile resources and key personnel from other locations. Even if participants do not call themselves a 'cluster' there tends to be knowledge of the interdependence of local competitors, suppliers, customers, and institutions. Italy's industrial districts, Silicon Valley, Sinos Valley shoe cluster of Brazil would be prime examples. Such clusters have also been referred to as *'Overachievers'* (Rosenfeld: 1996)

'Latent' clusters (Enright : 1998) or type-2 clusters are underachievers have a critical mass of firms in related industries sufficient to reap the benefits of clustering, but have not developed the level of interaction and information flows necessary to truly benefit from co-location. This can be lack of knowledge of other local firms, a lack of interaction among firms and individuals, a lack of a common enough vision of their future, or a lack of the requisite level of trust for firms to explore and exploit common interests. In any case, such groups of firms do not think of themselves as clusters and, as a result, do not think of exploring the potential benefits of closer relationships with other local organizations. It has also been referred to as an 'Under achiever' (Rosenfeld: 1996). The case study of Hand Block Printed textile Cluster of Jaipur is an example of an underachieving cluster. Some underachieving clusters have also started bettering their examples with enhanced interaction among the cluster actors at various levels. Arizona's optics cluster, for example, consisted of a group of firms that operated without knowledge of each other until a cluster development initiative brought them together. Today, there is an active industry association, joint selling of bundled products, and numerous other industry activities. New Zealand's wine industry also went from a latent cluster, with limited interaction, to an industry that has been able to develop and jointly market New Zealand wines as high quality wines in major markets.

'Potential' clusters (Enright: 1998) or type-3 clusters are also underachievers that have some of the elements necessary for the development of successful clusters, but where these elements must be deepened and broadened in order to benefit from the impact of
agglomeration. Often there are important gaps in the inputs, services, or information flows that support cluster development. Like latent clusters, they lack the interaction and self-awareness of working clusters. New York is showing signs of the emergence of a multimedia cluster, but it has a long way to go to become like the multimedia clusters in Los Angeles and San Francisco.

'Wishful thinking' clusters (Enright: 1998) are those chosen by governments for support, but which lack a critical mass of firms or favorable conditions for organic development. Many of the electronics and biotechnology 'clusters' found in government programme fall into this category. Other 'wishful thinking' clusters are those such as 'manufacturing' or 'high technology' that are far too broad to act meaningfully as clusters. Sometimes such entities are called Policy driven clusters' because they rely on government rather than market forces for development. The table below summarizes cluster typologies:

<table>
<thead>
<tr>
<th>PARAMETERS</th>
<th>OVERACHIEVERS</th>
<th>UNDERACHIEVERS</th>
<th>WISHFUL THINKERS</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Type 1</td>
<td>Type 2</td>
<td>Type 3</td>
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<tr>
<td>1. Sufficient no. of principal firms</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>2. Existence of relevant related enterprises</td>
<td>H</td>
<td>H/M</td>
<td>M/L</td>
</tr>
<tr>
<td>3. Interaction among firms &amp; institution</td>
<td>H</td>
<td>M/L</td>
<td>L/-</td>
</tr>
<tr>
<td>4. Joint efforts between firms for profit initiatives</td>
<td>H</td>
<td>M/L</td>
<td>-</td>
</tr>
<tr>
<td>5. Existence of relevant private &amp; public service providers</td>
<td>H</td>
<td>H/M</td>
<td>L/-</td>
</tr>
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\[H=\text{High}, \quad M=\text{Medium}, \quad L=\text{Low}, \quad (-)=\text{Nil}\]

Knowledge of the state of development of clusters is extremely useful in determining where to focus the details of cluster promotion policies. For working clusters, policy emphasis should be placed on helping them to further their growth
potential, which at times reaches a stage of stagnation. For latent clusters, emphasis should be on helping them reach a level of self-realization that will allow for development of inter firm linkages, institution building, and information generation. For potential clusters, emphasis should be on helping develop or attract a sufficient critical mass of economic activity to become working cluster. For wishful thinking cluster, emphasis should be on either more creative approaches of exclusion from resource-constrained programme.

There are several easy-to-monitor parameters to discriminate dynamic or working from under achieving clusters, Dynamic clusters are characterized by:

- a critical mass of similar, and related, private enterprises.
- Specialized services and infrastructure operators (both public as well as private and possible competing against one another)
- reliable means of information exchange. These may be formal as well as informal.
- private and public institutions catering to knowledge diffusion (traineeship practices, formal vocational training).
- a skilled workforce
- quality and innovation-based competition among cluster firms
- high rates of new business formation
- high levels of trust to facilitate co-operative and joint endeavors
- effective linkages among various cluster institutions and
- a vision encompassing the cluster as a whole.

2.4 Clustering In Developed Countries

The concept of cluster is derived from the industrial districts. Various models of development of industrial districts have been explored (Nomisma: 1996). Several variables that explain the differences among the district vary. The size of the firms within the districts and the relationship among the firms also vary. The relationships with enterprises outside the district also vary. Based on the above mentioned criterion, the districts have been grouped into three types: embryonic, consolidated and mature. Often these categories reflect the age of the cluster, but there are exceptions. Locations of the productive systems also vary. SMEs are found in the peripheral rural settings, in medium-sized towns and large towns. Often the peripheral rural systems are characterized by production of a single line production since they tend to lack qualified services and human resources.

In medium sized towns the production activities are more diversified within the same technological range and target markets. At times there are different items which are
being produced in the same areas. In larger towns, besides product diversifications, there is also presence of service activities, universities and research centers, and crucial infrastructure.

Interestingly, the phenomenal performance of SMEs in Third Italy was witnessed in traditional clusters like leather products, knitwear, furniture, tiles, processed foods etc. In a traditional industry like shoes, SMEs clusters were able to expand production and exports at a time when large enterprises in U.K and Germany were on the decline (Rabelloti; 1995). This success has been co-related with the concentration of firms in particular sectors or localities. The growth pattern of SME clusters has two distinct phases – an initial phase of natural growth and a later phase of guided growth. Thus policies adopted in European Industrial Districts were aimed towards enhanced growth of already performing clusters by responding to new challenges.

Such naturally grown clusters are witnessed in various other developed countries including U.K, North America and Portugal. The success factor has been scientifically analyzed in terms of “Triple C” approach that explains performance by means of customer- oriented, collective and cumulative approach (Humphrey and Schmitz: 1995). Customer Orientation tackles the bottom line of success and successful policy interventions guide the SMEs to know the needs of the customer and also provide technical support to achieve the same. Collective approach lowers transaction cost, induces knowledge sharing and mutual learning. These in turn work towards building the cumulative capacity of the firms to upgrade and become less dependent on external support. This creates the capacity to remain competitive in changing environments.

2.4.1 Characteristics Of Clustering In Developed Countries

The ceramic tile industry of the Sassuolo area in Emilia- Romagana, Italy, in 1987 accounted for about 30 percent of world production and almost 60 percent of world exports. The industry is said to have developed from 14 tile companies in 1955 to 102 by 1962 and to several hundred by the 1980s. The world dominance of Sassuolo is well known in the trade, and the ceramics manufacturers in other countries buy the most up-to-date equipment from Sassuolo in order to try and catch up with it. But these machines are a product of constant updating through collaboration with Sassuolo users so that, by the time international competitions buy the latest technology, the
Sassuolo ceramics industry is already working on the next generation and is always liable to be one step ahead (Enright and Tenti, 1990; Porter, 1990). There are many reasons for the economic development of this region. First of all, there is the **entrepreneurial and initiative taking spirit** of the firms of the region. It should be borne in mind that there are thousands, not just hundreds, of these firms. A second important factor is that whole population of this region is influenced by this **creativity and entrepreneurial spirit**.

**European** machine tool producers are renowned for their ability to compete, despite their relatively small average size (of 120 employees on an average) (Baxter, 1991). On the basis of **customization** and **responsiveness** to customers’ needs, they make the most of their **advantageous economics of scope**. The machine tool industries of Germany and Italy are good examples.

ILO report on small firm promotion describes networking activities in **Dominican Republic** where the formation of small groups of enterprises are being encouraged to “borrow together, work together and repay loan together”.

The demise of the **North London furniture firms** provides a lesson on how not to respond to the **new competition**. Faced with shrinking sales, the North London firms tried to maintain market share by cutting prices and costs. The result was worsening of labour relations, slimmer margins and eventually, insufficient financial capacity to survive. Unfortunately the North London furniture manufacturers **failed to identify** the **root of the problem** until it was too late. They perceived the problem in terms of excessive wages and the competition from their neighbour in the same or nearby industrial estates. So they reacted to the perceived excessive wage rates by hiring less skilled workers, increasing the intensity of work and substituting machines for labour. And they reacted against their perceived competition by cutting prices in order to drive them out of the business, after which they could pick up their order books. In fact, both responses left the North London firms less able to respond to the real problem. The **real problem** was neither their labour force nor their local competitors but the **emergence of foreign competitors** organized around new principles”. By 1987, 25 North London firms had been reduced to just one, and the furniture industry that employed 16,000 in the 1960s had only about 550 employees left (**Best, 1987**). Homogeneous value system clearly helps to bind a region or sector to a common goal, helping to reduce potential conflicts, and also promotes communication, co-operation.
and trust. The importance of common values in promoting sectoral development has been particularly highlighted in the cases of Italian Small firm industries in the industrial districts of North and North-East, where the role of Catholic Church is said to have been particularly significant in the “White” areas and the Communist Party in the “Red” areas (Trigilia, 1989, 1990).

2.5 Clustering In Developing Countries

Sufficient Information is now available on the presence of clustering in developing countries. A study by Nadvi and Schmitz (1994) provides ample case illustrations confirming the importance of clusters of SMEs in developing countries. Many of these clusters are located in India. These include metal working and textiles industries of Ludhiana; the cotton Knitwear cluster of Tirupur; the diamond industry of Surat; the engineering and electronics cluster of Bangalore; the footwear cluster of Agra, the Sinos Valley Shoe cluster of Brazil, Trujillo in Peru and Leon and Guadalajara in Mexico; the Korean textiles cluster in Daegu, Sports goods and surgical equipment in Sialkot, Curtley in Wazirabad and electronic fans in Pakistan. Of these some clusters have gained significance and also excelled due to the role played by the concentration of specialized suppliers (including Business Development Services or BDS suppliers) and support institutions.

At times, the latter were institutions, which were already present in the cluster and reoriented their activity in line with the requirements of the cluster and at other times; the activities were supported by creation of new support institutions and the advent of BDS providers.

2.5.1 Characteristics Of Clustering In Developing Countries

- On a broad framework it is found that clusters grew mostly as competing firms in the areas where entry barriers are low. At times they grew around one single large firm like the motor related parts cluster at Pusan (South Korea) where 1940 firms grew around the single Hyundai automobile firm at Pusan.

- At times the large firm that created the cluster does not exist anymore, like the metal parts cluster of Bargachia, Howrah. Here the lock factory that used to supply locks to various government department units has thinned out and instead a cluster of motor parts that were subcontractors to the lock factory has come up
as a relatively large cottage level metal part industry supplying range of items to 
low level as well as sophisticated buyers.

- The surgical instrument cluster of Baruiipur (West Bengal) was created after the 
establishment of a production-cum-process development center set up by the state 
government.

- Sometimes in the attempt of a cluster to spread activities across specialized units, 
clusters of specialized units have also come up, e.g. the textiles machinery 
cluster of Daegu, South Korea that come around the textile cluster of Daegu.

- Most of these traditional clusters do have a long history. Like the growth of the 
drugs and pharmaceutical cluster at Ahmedabad.

- Some conclusions emerge from the review by Nadvi and Schmitz (1994):
  - The growth experience of industrial clusters in developing countries is found 
to be diverse. Some clusters in Latin America and Asia were identified as 
having greater depth.
  - In African Clusters, the inter-firm division of labour and institutional 
support was found to be less developed.
  - While primarily an urban phenomenon, clustering was also found to be a 
feature of rural industrialization. However, in an era of intense competition, 
co-operation was found to be not necessarily absent within a cluster. The 
degree and nature of cooperation was however found to vary.
  - In low performing clusters vertical subcontracting and specialized division 
of labour was observed to varying degree in most small firm clusters. In some 
cases process specialization was at early stage, entailing, at best, the 
provision of specialized services by a few individual units to others in the 
cluster. Where manufacturing processes were technically more sophisticated, 
inter-firm relations based on vertical division of labour among small firms 
was often an important aspect of production organization.

- The uniqueness of cluster dynamics- the real relationship phenomenon between a 
number of business entities- leads to dissemination of technical information. 
The dynamics leads to accelerated technical learning. This has been witnessed as 
a “reverse engineering” phenomenon in the Ludhiana Knitwear cluster. 
Cooperation interaction and technical information sharing brought about by 
vertical inter-firm relations among specialized units leads to high level of
technologically innovative adaptive capacity in the tool manufacturing cluster of Suame (Ghana). Such phenomenon has also been witnessed at the Peruvian capital goods promotion consortium.

- The growth factor behind clusters in developed countries and stagnancy of clusters in developing countries has been explained as a “high road” phenomenon (Sengenberger and Pyke: 1992)
  - “High Road” is characterized by high quality, operational flexibility, innovation etc., whereas
  - “Low road” represents firms in clusters caught in a shrinking “Price-quality” spiral backed by cheap labour.

- In a span of little over two and half decades, the Sinos Valley shoe cluster of Brazil transformed itself from a cluster of small enterprises producing mainly for internal markets to a combination of 500 small and handful of large exporters, exporting 70 percent of their output. Brazil’s world share of leather shoes increases from 0.5% to 12.3% during this period. Interestingly the Shoe manufacturers were not alone in this journey and were backed up by 1000 suppliers of specialized inputs and services providers including tanneries (specializing in the finishing stages), the full range of necessary components market, machinery producers and transport companies. Also came into prominence various producers’ associations and organizers of international trade fairs. FENAC, a professional trade fair organization and ACI/NH (local business associations) spearheading those fairs.

- The Surgical instruments cluster of Sialkot, Pakistan also excelled with 300 manufacturers accounting for about 20 percent of world export and it is second largest exporter of surgical instruments in the world, next to Germany. These manufacturers are backed by 1500 small enterprises specializing in typical areas of the production process. Besides, there are 200 input suppliers and 800 units providing various types of services. These successes have been identified as the Cluster’s quality of demand driven ness.

- Interestingly the Sialkot cluster also faced a tough phase due to globalization in the form of a “non tariff barrier” with rising demand for quality standards as imposed by the major buyers in the USA (where it used to export 80% of its total export). The Sinos valley cluster also face the constraint of price war by
cheaper imports, again leading to a major cut in its export market - the USA. There was a collective action of horizontal co-operation in both the clusters. But while there was relative “Collective Success” in Sialkot, there was a relative “collective Failure” at the horizontal level in Sinos Valley. There are some other issues of importance. Sialkot crisis boiled down to lack of business development services (BDS) where output can be visualized and then can be equi-divisible among the firms. The Sinos Valley cluster issue was a little complex one. It necessitated a collective vision to be practiced by a diverse range of producers’ associations that had conflicting business interests. Even the vision of the shoe manufacturers was not unified regarding the road map & end results. Interestingly “5 large firms were not interested in the succeeding various elements” of the Shoes from Brazil Programme” that included design upgradation, developing collective image and a brand of Brazilian Shoes etc.” ---- While not boycotting it openly, their (the big firms”) Lack of Support and in some instances obstructions, led to its (Shoe from Brazil Programme) demise”. Later instead of horizontal co-operation, it was vertical co-operation that occurred between various individual firms within the value chain in the cluster.

✓ In the past ten years, growth in the number of small of small firms entering the Faisalabad textile cluster in Pakistan has been dramatic, particularly in weaving. In this sector, small firms typically own 1-20 shuttles-less looms, medium firms up to 50, and large firms over 50. The cluster consists of a vertically chain of textile activities. Over the past three decades the weaving capacity of large textiles units has decreased while the number of looms in the small sector has increased. The small scale producers were encouraged by regulatory laws of Pakistan, as there was no excise tax on units with less than four looms. Having no labour unions they managed to avoid the stringent labour laws and consequently has access to cheaper man power. Lower fixed costs also contributed to their profitability. Due to their small size they were more flexible in operations and adaptable to changing trends. The overhead costs of operating small units, with fewer administrative, security & maintenance staff, were much lower. Hence it made more financial sense to operate shuttle less loom in a small set-up, rather than huge textile units that required a larger workforce for peripheral jobs. To control cost & quality, some large weavers changed their production plant
organization by separating 40 looms in five sheds instead of all 200 looms under a single roof.

The success of the Faisalabad weaving cluster is dependent on the multitude of small–scale players and all the strong linkages they have their specialized suppliers, upstream and downstream industries. The collaboration between these industries, the trust in financial transactions, the flexibility to experiment together, the local competition driven by strong rivalry, the cost-effective business and infrastructure environment, all make the cluster a center for innovative activity. Most of the supporting and related businesses have fairly high standards and competitive internationally. They work closely with weavers to deliver quality at a reasonable cost and end up exchanging new technology information and knowledge, which is beneficial to all members of textile cluster. If one of those related industries improves or innovative, they demand the same from their upstream businesses, thus, making the whole Faisalabad textile clusters a dynamic place for innovation and growth. The cluster plays a key role in facilitating entrepreneurship and technological innovation by reducing the risks of failure and encouraging the diffusion of new technologies. Specialized suppliers in the cluster assume part of the risk of innovation. New technologies are diffused through the cluster, encouraged by close proximity, trust together with rivalry, and extensive outsourcing arrangements.

The study by Weijiland of cottage industries in Indonesia found that the clustering phenomenon has positive effect on growth aspects, as the major problem of such clusters (especially textiles and garments) was not the small size of firms but their isolation. Clustering helped to widen markets, specialize and eventually led to industrial development. The role of traders was also found to be useful.

- Japan, is renowned for its hugely successful machine tool industry that has succeeded on a basis of utilizing economic of scale to produce standardized machines at (relatively) low prices.

- In Philippines, where the Development Academy Of Philippines has formed associations of fishermen and farmers, encouraging them to share common facilities such as ice plants and to establish common marketing arrangements (ILO, 1986, page No 30).
✓ The passing of Information is crucial to Industrial organization based on Small firms. Griffiths points out that as far as small – firm dominated Japanese manufacturing industry is concerned, “the environment is one of the literate cultures dominated by small companies operating in close proximity to each other and where information exchange is often fostered through local industrial societies”. This information effect he says “acts as an important cornerstone for the continued success of Japan’s manufacturing sector” (Griffiths, 1988, P.20).

✓ Friedman describes the extremely successful small–firm conglomeration of Sakaki in Japan. This town, he says, specializes predominantly in the engineering & metal manufacturing sector, including the production of a variety of types of machinery. Friedman reports very strong competition between the competitions in Sakaki but he also underlines the importance of co-operation in the form of sharing equipment: “To expand the business, a firm bids for work that it may not have the capacity or even the technical ability to produce. By relying on neighbour firms, the bidding company can confidently accept an order. If meeting a deadline is a problem, the firm can satisfy its contractual obligations by borrowing a neighbour’s lathe or mill. Or if new products require new techniques, a neighbour’s tooling and expertise may solve the problem….Large firms outside the region have come to realize that an order with one of the Sakaki’s manufacturers is in effect guaranteed by the whole regional network of factories”. These co-operative production arrangements, according to Friedman, “are essential to Sakaki’s survival” (Friedman,1998, Page No 197-198)

✓ The Mexican Shoe Industry provides an interesting contrast to Brazilian Sinos Valley Shoe Cluster. As in Brazil, shoe making in Mexico is locally concentrated. There are three specialized clusters each producing distinct types of shoes. There are Leon with 51% of all Mexican shoes, manufacturing mainly men’s & children’s shoes; Guadalajara with 22% producing mainly women’s shoes and Mexico city with 12% producing mainly synthetic & Textiles shoes( Rabelloitt :1995). Mexican Small firms are predominantly small, family, run enterprises with artisan tradition. Large firms however account for the bulk of the value added in the Mexican clusters. In contrast to Brazil, the Mexican shoe industry is largely inward oriented, operated under protected market conditions and catering primarily to the domestic demand. Despite the advantage of being closer to the
US market and operating to the sectorally specialized clusters has not been as competitive as Brazil. Despite their scales and their long history in shoe making, both clusters fare poorly in terms of backward linkages with technically well developed supply industry producing components and machineries used in shoe making. In certain backward linkages neither clusters is well served.

According to Rabellotti, half the firms in both the Leo and Guadalajara buy accessories from elsewhere in Mexico or from abroad. More over unlike the Sinos Valley neither the Guadalajara nor Leo has a significant concentration of machine tools manufacturers.

As in Sinos valley, however both Leo and Guadalajara have a number of active institutions which provide technical, financial & managerial services. These include credit unions and technology centers providing specialists support services. The local trade unions (the “Camera del Calzado”) have been influential in providing institutional support to the Industry.

Marketing and commercialization is also weak in the Mexican shoe clusters-again for reasons similar to those cited for poor backward linkages. A protected domestic market stunted the development of collaborative or quality enhancing forward ties. Links with buyers revolved around price competition.

2.6 Support System and Co-operative Strategies In India

While the broad objectives of the SSI policy (unit level protectionist approach, with across the board supply side initiatives) continued unchanged, during the mid-eighties cluster level support initiatives were introduced by some SSI related institutions. This was followed up in the late nineties, after the introduction of the Abid Hussain Committee Report and the popularity gained by “Cluster Approach” by introduction of cluster related SSI development scheme by some central and some state Governments and agencies thereof.

Following new policies were evolved :-

- There was a policy recognition regarding concentrating on clusters of SMEs
- The nature of support included business related issues common for a group of similar firms situated at a particular geographic location- a cluster.
✓ The areas where the joint initiatives were encouraged included mainly technological development, creation of infrastructure, quality upgradation and also support for marketing related issues- all developmental initiatives.

A major departure in this respect is the cluster development policy of Development Commissioner (Handicrafts) which is a step by step approach to look into the ground realities of a cluster and recommend policy prescriptions. The scheme targets cluster as the centerpiece in letter and sprit in its objective and implementation methodology. The programme aims at a preparation of a “…………need based intervention strategy in the form of an integrated project to develop the craft clusters in an integrated & self sustainable mode and its implementation…………” [Development Commissioner (Handicrafts): 2000]. It also speaks of artisan (or cluster actor) growth along with capacity building of cluster actors to understand such development. In other major significant departure from traditional schemes, it explicitly recognizes the need & importance of networking with various related institutions and departments for a successful intervention mechanism [Development Commissioner (Handicrafts) :2000]

But these policy announcements are very recent (1998-2000) and the impact of the operation of such policies is yet to be felt.

A summary of the on-going programmes in identified clusters show that the results of all the clusters are technology related. At the lock cluster at Aligarh (Uttar Pradesh) the focus was on preparation of unit specific modernization plans, establishing a modern facility center for quality upgradation and conducting skill upgradation programmes. Cost benefit analysis of 15 units, which have implemented modernization schemes, indicates that on an average the profitability has doubled and the payback period for investment is 22 months.

At textile processing Industry at Pali, Balotra, Jaipur and Jodhpur (Rajasthan), SIDBI invited Appropriate Technology International (ATI), Washington, USA to study the problem and suggest technical remedial measures. For Bicycle/ bicycle parts industry at Ludhiana (Punjab) and unit specific modernization proposals have been prepared for 70 units registered under the programme. Out of these 18 units have so far been sanctioned assistance by banks and term lending institutions while another 16 cases under active consideration. The story continued for another 22 cluster all over India where SIDBI has initiated development. Thus the emphasis is on technology and the benefit is unit specific.
2.6.1 Cluster Development Initiatives by UNIDO

In both industrialized and developing countries, there is increasing evidence that clustering and networking can help small and medium enterprise boost their competitiveness. Small Scale Enterprise clusters are environments to effectively implement support initiatives aimed at enlarging the production base, conquering market niches, accessing export markets, triggering growth, offering employment opportunities and redressing regional imbalances.

For this reason, the United Nations Industrial Development Organization (UNIDO) has developed since 1993 an approach to help the public and private sector co-operate in the design and implementation of the programmes to revitalize the underachieving SSE clusters.

The programme draws lessons from the experience of successful clusters, which are implemented through technical co-operation projects in various developing countries. Since 1996, India is one of the countries where this innovative programme has been implemented by the Government of Italy and Later by the Swiss Agency for Development and co-operation.

2.6.1.1 Aim of UNIDO Cluster Development programme in India

The aim of the UNIDO Cluster development programme in India is to contribute to the overall performance and collective efficiency of the small and medium enterprise clusters for sustainable development by assisting selected local communities of firms and associated institutions in the clusters. This entails the implementation of cluster support initiative in selected pilot clusters as well as assistance to a national programme of small enterprise cluster modernization and restructuring.

2.6.2 Cluster Development Initiatives by Government

Several government institutions have undertaken Cluster Development Approach as a model for development of Tiny, Small & Medium Scale Industries. Among, them, Textiles Committee, Ministry Of Textiles, small industries Development Organization (SIDO), Ministry of Small Industries, Khadi & village industries Commission (KVIC), Development Commissioner (Handicrafts), Development Commissioner (Handlooms), Ministry of Rural Development are noteworthy. Various state Governments like Gujarat, Madhya Pradesh, West Bengal, Andhra Pradesh etc. also adopted Cluster based approach.
2.7 Status of Industrial Clusters

2.7.1 China’s textile and clothing industries have transitioned from a planned economic system to a market economic system. The major textile and clothing production and trading centers nowadays are located along the East Coast of China. Different formats of textile and clothing enterprises have gone through different transitional processes. Most of these companies today face three challenges: the instability of the trading environment, changing currency exchange rates, and an increasing energy price. New strategies have been developed, such as focusing on quality rather than quantity, developing Chinese brands, and moving facilities to other countries to avoid safeguards and restraints (Dong Shen: 2008).

2.7.2 Firms in industrial clusters outsource extensively. Factors influencing outsourcing decisions are reviewed in the context of industrial clusters, characterized by high levels of specialization, low transaction costs, and technology diffusion. A framework for making outsourcing decisions is developed and illustrated using a case study of outsourcing practices in the Gujarat fan cluster. Core competencies, together with outsourcing practices, were found to vary according to the size of the manufacturing firm. Given the extremely low cost of conducting transactions and the presence of highly specialized and efficient vendors, the decision that core activities should be retained and developed in-house is the key to survival in clusters (Arif Iqbal Rana & Jawaid Abdul Ghani: 2004).

2.7.3 Technologically dynamic industrial regions are characterized by the spatial clustering of small firms into flexible production networks that have the ability to quickly respond to changing global markets. Case studies generally have been limited to high-tech manufacturing clusters, even though mature industrial regions have demonstrated similar traits. A case study of the plastics industry in north central Massachusetts gained a formative perspective on a mature industrial cluster and an appreciable understanding of the Correlation between the industry’s spatial concentration and organization of production. The case study findings have clear implications for regional economic development. Planning for industrial development will need to rely more on “grounded” contextual analysis, give greater focus to local capacity building,
2.7.4 Elisa Giuliani (2010) has identified a firm-centred interpretation of why some industrial clusters forge ahead and others lag behind and argues that the *dynamic growth of a cluster* depends on its absorptive capacity and therefore on the capacity of firms to absorb external knowledge and diffuse it into the intra-cluster knowledge system. She also speculates on the relationship existing between the heterogeneity of firms’ knowledge bases with both intra- and extra cluster knowledge systems. It concludes by illustrating that a conceptual link exists between firm-level knowledge bases, the cluster absorptive capacity and its potential for growth.

2.7.5 Donna L. Doane (2010) had identified *the trends regarding job loss and the informalization and casualization of women’s work* in the garments and other labor-intensive industries in the ‘higher’ wage countries of Southeast Asia (focusing in particular on the Philippines and Thailand). Using the Philippines and other cases as well as new openings in the wake of the collapse of the Cancun WTO meetings as a means to think through new possibilities, She argued that in some countries, the specificity of context may offer new opportunities to tie the goal of providing social protection to more general technology and industrial/sectoral policies—as well as related educational and science policies—in ways that can benefit and help stabilize incomes in the ‘people’s sector.’

2.7.6 Victoria Hanna & Kathryn Walsh (2008) evaluated *inter firm cooperation among small manufacturing firms*. Networks of small firms work together on numerous activities such as marketing, procurement or manufacturing; however, are certain ‘enablers’ necessary for successful cooperation? To answer this question networking activities among small manufacturers were investigated over the course of 12 months 23 in-depth interviews were conducted: 7 with network brokers (network brokers identify Opportunities, bring small firms together and facilitate cooperation), 2 with small firm business associations with an acknowledged stance on the benefits of small firm cooperation and 14 with small firms engaged in inter firm cooperation. These semi-structured discussions explored the key characteristics of successful networks, the
motives for initiating a cooperative relationship, how firms managed appropriation concerns and how they coordinated tasks. The findings indicate a clear demarcation between networking activities that are led by brokers and those that are created by the participating firms’ own volition.

2.7.7 The industrial districts of the north-east and centre of Italy are an acknowledged example of successful interfirm cooperation (Cooke and Morgan, 1991). Small firms have joined together to build strong market positions in traditional industries such as mechanical engineering, ceramics and knitwear. The clusters consist not only of manufacturers, but trade associations and membership service centres that provide expert assistance in areas such as training, access to capital and R&D. Competition between firms with similar competencies is intense and cooperation tends to occur at different stages of the manufacturing process (Brusco, 1992). A typical example of a successful network is four independent small firms collaborating to deliver a single contract as an integrated team with a Demo Centre acting as a hub to provide shared resources in design, technology and IT. The districts support innovation and the application of advanced technology in all firms, and while networks are promoted, they form and dissipate on demand. Though these districts are successful, their ability to become novel innovators is still questioned, as is their ability to innovate out of mature industries into more profitable sectors (Cooke, 1996). Government policies to specifically address this issue have been developed, but evaluation of their success has been mixed (Alfonso-Gil et al., 2003).

2.7.8 Industrial Clusters (Shridharan & Mathew J Manimala: 1999) have evolved the world over primarily as a response of entrepreneurs to an unstable and uncertain market. In recent years, the success of industrial clusters in 'Third Italy' (Central and Northeastern parts of Italy) with concentration of SMEs (Small and Medium Enterprises) has brought this phenomenon into focus as a viable alternative approach to industrialization. The 'Third Italy' comprises of the districts of Bologna, Florence, Ancona and Venice. These districts are characterized by clusters of textiles, knitwear, shoes, leather products, furniture, tiles, musical instruments, food processing, mechanical-engineering products etc. Nonagricultural employment and value added in this region grew faster in 1960s and 1970s than in the rest of the country. In terms of
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per capita income, the region overtook the industrialized 'First Italy' in the 1980s, reversing the earlier migratory trends in population. The clusters in the region developed export and niche markets, establishing a strong position in the global market. Though there are variations in experiences, clusters are an important feature of other countries too. For instance, the West Jutland region of Denmark specializes in garments and furniture, Baden-Wurttemberg in Germany specializes in metal works and mechanical engineering, and south-west Flanders in Belgium specialises in carpet weaving, upholstery, clipboards and frozen vegetables. Prominent Asian cases include Ohta (auto parts), Fukui-Ishikawa (synthetic textiles) and Tsubane (silverware) in Japan, and Ulsan-Pusan (auto parts), Taegu region (textiles) and Seoul (electronic parts) in Korea. In the case of India, Gulati has identified 138 clusters. The major characteristics of industrial districts can be summed up as follows:

~ Geographical proximity: A large number of predominantly small- and medium-sized firms are located in a geographically-bounded space.
~ Sectoral specialisation: The cluster as a whole specialises in a specific industrial sector. Besides, there is significant intra-sectoral division of work, whereby different units within the cluster specialise in specific processes.
~ Close inter-firm collaboration: Close inter-firm linkages substitute for vertical integration of all activities within a firm.
~ Inter-firm competition: Competition among firms is essentially based on innovation rather than lowering wages.
~ Social embedded ness: A socio-cultural identity which facilitates trust, reciprocity and social sanction.
~ State support: Very supportive regional and municipal governments complement the work of active self-help organisations.

Cristina Chaminade and Jan Vang (2008) pointed out that how clusters can facilitate interactive learning and thus the move from being a dependent subcontractor, competing on low costs, towards becoming an innovator in the global value chain, competing on the basis of the provision of knowledge. In other words, the move from the ‘low road’ of competitiveness, typical of small firms in developing countries (Kaplinsky 2000; Kaplinsky et al. 2002), to the ‘high road’, that is, with upgrading (Giuliani et al. 2005b; Humphrey and Schmitz 2000; Kaplinsky and Readman
Upgrading is defined as the ability of the firm to make better products, make them more efficiently, or move to more skilled activities in the value chain (Pietrobelli and Rabellotti 2006). In this sense, upgrading is linked to the innovative capacity of the firm. Humphrey and Schmitz (2000) distinguish between four types of upgrading:

1. **Process upgrading**: Introducing changes in the Organization of production, that is, producing the same goods or services but more efficiently.

2. **Product upgrading**: Introducing changes in the end product. Product upgrading can be of radical or incremental nature. It can also be new to the firm, the market or the world.

3. **Functional upgrading**: Acquiring new or superior functions in the value chain. That is, moving up to activities of higher added value.

4. **Intersectoral upgrading**: Diversifying to a different sector based on competences acquiring in a specific activity.

**References**

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