Chapter 2

REVIEW OF LITERATURE & RESEARCH DESIGN

Section-1: Review of Literature

The Indian small-scale industry sector contributes 40% to the country's industrial output and 35% to direct manufactured exports. Clusters that have been around for decades and centuries play an important role within the MSME sector. According to a UNIDO survey, there are 388 SME clusters and approximately 6,000 rural and artisan based clusters in India. These clusters together are estimated to account for 60% of the manufactured exports from India. They also contribute significantly in creating employment. There are some clusters that are small in size, but so specialized that no other craftsmen could probably match their output quality. But the downside of such clusters is that they are declining in terms of number of enterprises due to the changing consumer demands and in that factor, low level of market & technological adaptability of the cluster enterprises.

Despite several researches, knowledge of clusters, how they develop and what makes them successful or fail or what leads them to follow a particular trajectory of growth remains largely unknown. Information on clusters in developing economies like India remains rather superficial. In order to review the available literature in this area and identify the gap in research, an attempt has been made in this chapter, with utmost care to review path-breaking research studies in the arena of MSME clusters, their competitiveness, impact of liberalization and globalization, knowledge management and internationalization. In the case of handlooms and handicrafts cluster-building, the roles of UNIDO and Textiles Committee are primordial. Hence their documentation of field experiences has been predominantly reviewed for a context specific understanding. While studies by multi-lateral agencies like ILO, World Bank, UNIDO, academic institutions and articles of international journals have been reviewed for macro issues, case studies on clusters have been reviewed for understanding the micro
level cluster dynamics. Only those abridgements of studies which had direct implication for the present research have been included here.

**Studies on major textile MSME Clusters:**

Cawthorne (1993) attributes the multiplicity of Tirupur SME units working to the disadvantage of labourers. Terming the spatial and organisational fragmentation and spin-offs as the growth of ‘amoebic capitalism’, the study reveals that in such a scenario the possibility of workers coming together under trade unions and problems in controlling larger pool of labourers are avoided by the owners. The study observed that while job working enables large numbers of small capitalists to come into existence, and with it the perpetuation of a ‘petit bourgeois’ consciousness, on the other hand, an increasingly sophisticated class consciousness which has given rise to a determined struggle for improvement is noticed. This feature is observed to have increased (%) the pay levels of the workers but only at the cost of heavy labour.

UNIDO (1997) has conducted a diagnostic study of the Tirupur cotton hosiery cluster. The study attributes the factors such as extensive collaborative arrangements in production, informal sharing of information, tools and equipment, well functioning local institutions, labor markets, informal credit arrangements being the reason for dynamic expansion of the cluster. The study also identified pro-active marketing, inter-firm production arrangements, active social system as the other important factors that have led to the growth in response to the competitive environment. Major problems facing the cluster were identified to be production of low value products with limited growth prospects, poor quality products and low productivity, poor human resource base, environmental pollution, weak institutional framework, finance at high rates of interest affecting competitiveness, infrastructural problems (power shortage, improper roads and water scarcity) and rapid obsolescence of machinery due to changing fashions.

Liu et.al (1998) bring out the salient features of Township and Village Enterprises (TVEs) in China which were highly export-oriented and labour-intensive which brought them the comparative advantage over the State
Enterprises (SEs). Surveying about 46 enterprises across Shanghai and Beijing provinces TVEs were found to have acquired technology, management know-how and marketing through sub-contracts and joint ventures with SEs. The size of TVEs were found to be large with number employed ranging between 200 to 600 due to the bargaining power advantage, scarcity of rural entrepreneurs and lack of efficient marketing sector to organize small units effectively. While TVEs thrived on sub-contracting they did not establish sub-contractual relationships with smaller units due to difficulties in monitoring quality and adherence to delivery times. In addition to intermediation in business partnerships, local governments actively promoted TVEs through provision of infrastructure, support in financial management and guarantees for bank loans. Exemption Policy of JVs from income tax for the first two years and 50% reduction in the following three years is highlighted as a major step towards export-promotion. Posting of professional managers and engineers from parent company through subcontracting had immensely benefited TVEs. Moreover, TVEs have contributed to the successful rural industrialization by effective mobilization of cheap labour force in rural areas.

Ohna et.al (1998) observed that harnessing the comparative advantage in labour management of rural household industries and expansion of the relational contracting system to rural areas shall enhance the market competitiveness of the modern garment sector in Northern Thailand. The study brings out the fact that putting out contract system and advance order contract system had helped them in overcoming disadvantages in marketing. To create and foster rural entrepreneurship the study suggests establishment of modern garment factories in rural areas, furnishing information on product market to weaving entrepreneurs, preservation of dual labour standards, supply of cheap production tools and development of infrastructure and preservation of traditional weaving skills.

Altenburg et al.,(1999) point out that Latin American SME clusters suffered of three major weaknesses namely heterogeneity of development levels and lack of competitiveness, lack of innovative capabilities and low degree of inter-firm cooperation and specialization. The strategies to tackle
these lacunae differ in each typology of cluster viz. differentiated mass production clusters, clusters of transnational corporations and clusters of micro and small scale enterprises (MSEs). The study emphasizes the primordial role of policy support to the MSE segment since they are the clusters generating more jobs in developing nations. In supporting innovation, the study advocates a demand-driven approach.

Ramachandran et.al.(1999) highlights export orientation as the major reason for Chinese growth. Taking a closer look on the Chinese experiences of Export Processing zones the study lists various lessons for Tamilnadu which include, strategic targeting of specific sectors with a definitive comparative advantage for export growth; planned and rapid growth in labour-intensive manufacturing goods in terms of exports, employment and Foreign Direct Investments (FDI); price liberalisation; prominence of Township and Village Enterprises (TVEs) in manufacturing sector; mobilization of overseas Chinese funds and establishment of Overseas Chinese Investment Enterprises (OCIE); strategic inflow of foreign funds in the forms of FDIs, soft loans and commercial borrowings; favourable investment policy environment; strategic economic and cultural partnerships; open door policy encouraging SMEs to initially produce for local demand and later export labour-intensive manufactured goods through Special Economic Zones (SEZs) and decentralized economic system vesting powers with provincial governments.

Tewari (2000) stresses that it would be vital for the Government of Tamilnadu, while revitalizing the regional competitiveness, to craft policies that would widely diffuse the benefits of economic growth of the new industrial sectors among those excluded from such sectors. The study suggests a strategy to this effect by creating institutions of upward mobility that will allow the government to leverage market reforms to boost industrial dynamism, and work to simultaneously counter the regressive and polarizing impact of trade liberalization on regional industry. While stressing on the importance of building upon historical advantages to develop a dynamic, and diversified industrial base the study suggests a five-pronged approach to modernization. Apart from emphasizing cluster development and
competitiveness building, the study emphasizes innovative administrative reforms for successful performance.

The Indian garment sector is found to consist of smaller firms as compared to other exporting peripheral nations, thereby placing limits on the sector’s ability to compete on the basis of productivity observed Vijayabaskar (2002). With a lesser number of registered manufacturing exporters, incentives to improve production techniques are not forthcoming. Hence, Indian garment exports depend more on fashion changes than on any inherent competitive strength based on quality or productivity. A detailed analysis of the competitiveness of Indian garment industry in terms of comparative advantage and labour productivity as against the direct competitors like China and Indonesia has been attempted in the study. The study also pointed out that among a number of competitiveness indicators in terms of labour it is found that wage adjusted for productivity is one of the highest in India though it ranks far behind China in terms of wage levels for the given productivity. A special case study on Tirupur cluster also forms part of this literature.

Tewari et. al (2002) observed based on a survey with 42 key people across four major manufacturing sectors of the state, a wide variation, in the post-liberalisation era within and across the textile industry segments of Tamilnadu viz., handlooms, powerlooms and mills. The study also lists the strategies of successful firms in these sectors including forward integration into garments, technical upgradation, waste reduction, employing professional consultants, strengthening distribution channels, entering new markets, tapping export markets, etc. Four characteristic patterns were noticed by this study viz. smaller firms specializing in smaller product range, variations in production strategies between exporters and domestic players, reorganization of human resource practices and industrial relations, and adoption of a wide range of profit-enhancing, cost-saving and productivity related changes.

Efforts towards internationalization of SME units in Tirupur knitwear cluster were on according to the report of Gangavkar (2003). Since the dismantling of quotas in 2004 was expected to open up new markets for this
dynamic cluster, the efforts towards sensitization, exposure visits, exposing the SMEs to export procedures, quality drive, seminars on roadmap to global competitiveness were organized in the cluster. Several technical capacity building programmes to upgrade the dying units and help them in product diversification were organized by the Textiles Committee for the cluster. Though the cluster had been growing in the export front, infrastructure bottlenecks like power shortage, water scarcity, and lack of local designing initiatives scuttle the progress of the cluster. Stringent pollution norms and competition from China, Bangladesh, Pakistan and Sri Lanka have been identified as major threats in the WTO regime for the cluster by this study. Efforts towards common brand building and setting up of apparel park admeasuring 200 acres under the active involvement of Tirupur Exporters Association (TEA) is expected to boost the competitiveness of the cluster.

Nadvi et al (2004) relating clusters and poverty argue that industrial clusters affect poverty in both direct ways - in terms of employment, income and well-being for the poor and indirectly through their wider impacts on local economy - upgraded infrastructure, external linkages, etc. Clusters in rural areas and in the urban informal economy, clusters that have a preponderance of SMEs, microenterprises and homeworkers, clusters in labour intensive sectors and clusters that employ women, migrants and unskilled labour, were observed to have more direct impact on poverty. The study emphasizes that cluster development initiatives need to distinguish between incipient clusters where poverty incidence is high, and growth engine clusters that can generate incomes both directly and indirectly for the poor, and have strong local institutions that strengthen the ability of clustered actors to engage in pro-poor collective action. The paper proposes a methodology for impact assessment of poor groups within clusters drawing on a capability approach, in order to assess how the well-being of poorer groups identified in the mapping is affected.

Nikaido (2004) examining the technical efficiency of select groups of Small Scale Industries in India, applying the Stochastic-frontier model concludes that firms located in clusters were able to gain out of the spillover effects of knowledge and had easy access to skilled labour force. While the
agglomeration of firms into clusters had a positive effect on technical efficiency, the firm size had a negative effect. The effect of number of employment per unit was found negative and significant but the preference to invest in plants and machinery to employing more labourers reflected in high factor share of capital, which is contrary to the social aim of employment creation in SSI sector. While clustering of firms helps the government to reduce the unit cost of monitoring and infrastructure, the study warns that the cluster firms are vulnerable to exogenous shift in production and technology, particularly in the case of isolated or distant clusters from the market.

Singh et.al (2005) in a study of the perceptions of selected Garment exporters in Delhi and Ludhiana regions following the phase-out of Multi-Fibre Agreement (MFA) from January 2005 state that there is much of optimism among majority about gaining access to newer markets. More than 90 per cent of the respondents have categorized ‘handloom’ segment to be the third most important segment irrespective of the export turnover category. Usefulness of the Cluster program, competitive pricing, ISO certification, sales visits abroad* participation in buyer-seller meets have been felt as the important factors for better performance in post-MFA environment.

With the growing realization of the limitation of lack of professional management in SMEs, performance measurement assumes primordial importance. Garengo et.al (2005) reviewed eight performance measurement models developed over the past two decades, juxtaposing their features based on eight dimensions. They were also compared according to three typologies - vertical, balanced and horizontal. Though all the models were found to be balanced (comprehending the entire gamut of activities of the organization); only two were designed specifically for SMEs. A continuous evolution towards process-oriented performance measurement is observed. Clarity and simplicity of the model has been found as the important characteristic for application in SMEs. The study also emphasizes on more empirical research in this area and initiates numerous questions for further research.
Hashim (2005) examining the competitiveness of Indian Textile and Garment Industry in the Post-MFA scenario places the major responsibility on policy front to carry out bold structural changes for better growth opportunities. It is found that Tamilnadu tops the list by contributing highest to the output in cotton yarn (39.4%) and is second only to Delhi in the garment sector (23.4%). While the cotton yarn industry is found to have limited scope for employment, the garment industry offered better employment prospects and wages. Since the unit cost of production is perceived as a major competitive element, the study emphasizes steps to increase productivity of the sector. The study suggests strategic measures after a detailed statistical analysis of the productivity of the industry. The focus areas suggested to enhance cost competitiveness of both these sectors include opening up of garment sector to large scale players, cheaper credit, cheaper raw materials supply, promotion of better capacity utilization, proper power supply, flexible labour laws, easing out the entry-exit norms for firms, and reduction in nominal rates protection and non tariff barriers. The study appeals to focus on selected states having a comparative advantage in the industry.

**Studies on Handloom/Handicraft industry and handloom clusters:**

Analyzing the historical issue of small versus large units in the Indian textile industry scenario Mazumdar (1984) brings forth a comparison of handloom, powerloom and mill sectors in terms of policy, value addition and private/social cost-benefit analysis/profitability based on a survey conducted among the handlooms and powerlooms units of Mau Province in Uttar Pradesh. The study had also attempted to evaluate some aspects of the impact of the Indian textile policy on employment, consumption of cloth exports and technological change in the large-scale factories. The discriminatory approach, the study says, had increased production in the handloom sector but left the mill sector in a weak wicket in terms of export competitiveness. In terms of wages per adult male the study found a striking similarity between handlooms and powerlooms, but wages in the mill sector were found far higher. The switch over from handloom to powerlooms, results in additional capital cost of Rs.6948/- for the master weaver and the
internal rate of return was found to be unattractive at 46.05 per cent for an expected life of the capital stock for 25 years. The shadow wages of handloom workers has been reported to be lesser than the market wage of the counterparts. But the study suggests that the switch over from handlooms to powerlooms is socially profitable since the social rate of return is high.

SRUTI (1995) in its study on the artisans of India, highlights the plight of weavers in India. The study observed that though a large number of women were employed in the sector, very few work on the loom, except in the North-East. It reports that the basic crisis of handloom workers is the loss of their traditional markets to the industrial and powerloom sectors. This has not only affected the handloom weavers, but even more profoundly women and children involved in the pre-loom activities like spinning, carding, sizing and warping. The problems are aggravated by shortage of good quality raw materials. The study also pointed out to an important disadvantage of the industry being its inherent inability to produce cloth of standardized quality and designs, in the era of mass production. The study attributes the reduction in demand for handloom products to the higher price, inability to maintain uniform quality and design and growing preference for synthetics. The study noticing the inadequate dissemination of improved loom technologies and upgradation of pre-loom process technologies, cautions that given the other constraints, mere infusion of technology alone cannot make a difference. The notorious role of intermediaries in controlling raw materials, market and even credit has been highlighted in the study.

UNIDO-CDP (1997) in its diagnostic study of the Jaipur hand block printing cluster pointed out that the cluster was competing on the basis of low prices, usage of cheap materials and cheap labor. Lack of innovation and infighting among various actors in the industry are the other characteristics of the cluster. The units despite being dependent on each other are not united to take up issues for their long term development. The level of co-operation among the units, traders and designers is found to be poor. The trader is found to be the maximum beneficiary in the industry. With the loss of traditional market and lack of readiness to meet the requirements
of the market that values the ethnic tastes, the new generation of traditional printers seems to be at a loss. The lower cost of screen printing and selling of screen printed fabrics as block printed ones have been identified as major problems facing this industry. Mounting competitive challenges in the form of emergence of better quality printing centres in Jodhpur and Meerut at the national level and competition from other neighboring countries such as Bangladesh, Pakistan and China has affected the export prospects of this cluster.

Sasany (2000) in his study on the Applique handicrafts cluster, Pipli, Orissa observed that though the cluster is capable of producing a good number of fast moving items in the market, unfair market practices, weak linkages and lack of collective effort are found to hinder the development of the cluster. The study also suggests efforts towards product standardization, quality control, building awareness and promotion of collective action and web marketing as the major strategies for improving the competitiveness of the cluster.

Shukla (2000) observed that there is a lack of joint action, deficiency in productivity, high cost of production and lack of quality awareness in the Tussar handweaving cluster of Champa, Chattisgarh. The Weaver's Cooperatives sell 10 per cent of their produce to direct consumers and the rest is sold through Weavers Association, Cottage and Handicrafts Emporium, but delayed payments is observed to be a big menace. Although there is a Kosa Business Association existing in the cluster, its activities are limited only to social welfare. No association was formed for the purpose of business management and the entrepreneurs are mainly working with their own self-efforts. Among Kosa products, only about 30 per cent of the furnishings and dress materials have any self-designs on them. In saris, 60 per cent of the designs are traditional and 40 per cent are net or jacquard, which are either prepared by the weavers themselves or given by the Weaver's Service Centres. There is no commercial design centre in the cluster.

Neelavalli (2001) in her study on the Madurai Tie and Dye and Hand printed textile cluster pointed out that the cluster, with its inherent strengths
of locational advantages, presence of supportive agencies and active industry association, has a better scope for expansion to national and export markets, provided, product diversification and strategic brand building are prioritised. Apart from the usual threats like low quality substitutes and mill products, the study brings out lack of initiative and awareness, high cost of production and lack of supply of formal finance as the major factors ailing the competitiveness of this cluster.

Arya et al (2001) in their study on the Lucknow Chikan Embroidery cluster say that with its strong 2.5 lakh artisan base the cluster is capable of producing customized products for its customers but the production is both seasonal and time-consuming. Absence of industrial associations, limited employment of modern design tools, gap between manufacturers and artisans and absence of manufacturing linkages are found to be the major weaknesses of the cluster by the study. Apart from the printed and machine embroidery, advent of Pakistani embroidery and other such similar items is viewed as a potential threat to the prospects of the cluster.

Soundarapandian (2002) in his analysis of growth prospects of handloom sector in India, observed that the protectionist policies of the Government over the years like subsides, rebates and other schemes have led the weavers to become dependent entrepreneurs. Co-operation, though considered as the best form of organization for a decentralized industry like handloom, has not been successful in the weaving industry. Inspite of continuous efforts over the last four decades, the weavers’ co-operatives could attract only 30 percent of the total weavers in the country. Inadequate or improper financial support to these co-operatives is considered as the main reason for their failure. Supply of raw material is the other major problem.

Traditional craft knowledge, easy availability of raw material, use of natural yarn, availability of skilled labour and huge variety of cloth texture have been identified as the major strengths of Maheshwar handloom cluster by Ansari (2002). Though the saris and other dress material of this cluster are popular in major metros of India, the study pointed out the popularity of the products from Chandheri and Banaras pose a competitive threat to this
cluster. The study attributes the weakness of the cluster to the lack of promotional activities, use of age old techniques, repeated old patterns and designs, and poor dyeing. Absence of strong unions and common research and development centres, lack of joint business development efforts, lack of market research, lack of product diversification and limited access to credit facilities were found to be the other major factors ailing the cluster. The study emphasizes the necessity of the cluster members to work in co-operation with the various private sector actors and departments for the development of the cluster.

Tewari et.al (2002) pointed out the compliance with labour standard had enhanced the exports of Tamilnadu handloom industry. The study noticed a smaller subset of firms in textiles and garment sector using designer softwares for production of varieties. But the major stumbling block was the prohibitive costs of such modern tools which keeps things out of reach for SMEs. The study advocates support under Technology Upgradation Fund (TUF) for bridging the gap. The study advocates provision of microfinance for easy access to low cost funds and cluster development as effective strategies for alleviating financial and networking problems of SMEs.

Verma (2002) finds that Indian garment exports to the EU and the US, on the whole, to be export competitive. A study on buyers’ perception of India as a source country showed that while India was perceived satisfactorily on price, quality, technology, flexibility, small order quantity etc. it was perceived unfavourably on lead times, responsiveness, communication, trust, meeting contractual obligations, ethical standards etc. While advocating cluster approach for products with export potential to boost competitiveness of textile industry, the study suggests dereservation of knitwear to help bigger players to enter the scene. Placing the major responsibility of structural adjustments and infrastructure development on the government, the study also appeals to continue assisting the handlooms by way of refund the excise duty collected through existing handloom rebate schemes and other existing market assistance schemes.
Gangavkar (2003) attributes the proximity of the Pochampally handloom weaving cluster to the state capital city as a major strength of the cluster in accessing the market. The strong production base, availability of support services, strong presence of co-operatives are the other major strengths of this cluster. Though the cluster’s speciality is tie and dye silk sarees, of late, the cluster has diversified to dress materials, home furnishings and wall hangings. But, these products have failed to make a mark especially because of the poor marketing strategies and also, to some extent, due to weavers’ resistance to change. High level of ignorance about market information, market promotion strategies, brand building initiatives, absence of quality control and untapped local markets were the major weaknesses observed in the study.

Infrastructure bottlenecks and lack of professional approach are found to be the major hinderers for the development of Karur Home Textiles cluster by Gangavkar (2003). Another special feature observed in this cluster by the study is, the ISO quality certification being obtained by various units which adds to the competitiveness of the cluster. The cluster is observed to concentrate on quota items for export, but the opening up of market due to globalization is perceived to pose severe competitive threats to this cluster from products of China and Pakistan. Though various associations are found to be present in the cluster their role is limited to advocacy. The cluster also plans to have a consortium for medium size exporters and manufacturers. Unhealthy price competition paired with fluctuations in prices of raw materials and intermediate goods are factors that weaken the cluster efficiency.

Influx of imitations and competition from powerloom and Banaras products were identified to be the major threats to the handloom weaving cluster of Chandheri. UNIDO (2003) in its diagnostic study of this traditional handloom cluster pointed out that inspite of a larger number of orders and the assistance given to this industry, the weaving community, continues to remain impoverished due to the unrevised wage rates. Traders and Master Weavers have been making larger gains on account of increase in the total production of Chandheri. The majority of sales is through direct channels in
metropolitan cities, fairs, exhibitions and expositions. With the introduction of contemporary design inputs, strategic market positioning, the gearing-up of the institutional infrastructure and the support to Business Development Service (BDS) providers, the study opines that the Chanderi cluster with its unique product can face global competition by becoming competitive on account of its tremendous potential in niche markets. Absence of social security particularly amongst the average and poor weavers makes them indebted to the upper income groups such as the Master weavers and the Traders.

Nuapatna weavers who settled down to weave exclusively for Lord Jagannath, Puri temple have a marked presence through their skilled craftsmanship for the past eight centuries. Outdated production methods, poor product quality, price fluctuations, lack of product diversification and refusal to shift from archaic marketing modes were identified as the factors ailing the cluster by Gangavkar (2003). Though there are a sufficient number of weavers, absence of weaver associations/NGOs, lesser interaction with support institutions, lack of joint efforts between weavers for profit initiatives and organizations for development issues, and dearth of relevant public service providers were found to hamper the development of the cluster. These features have led to categorization of the cluster as a latent (type 3) cluster.

While the proximity to capital city is a perceived advantage for Pochampally cluster, the remote location stands as a disadvantage to Cannore cluster. The inherent strength of this cluster has been identified by the Textile committee (2003) study, as its capability to process small orders, because of its cottage industry structure; brand image with customers, eco-friendly dyeing process, adaptability and social accountability were the other major strengths of this cluster. The study also lists 20 major problems identified in the cluster, which included low labour productivity, lack of designing capabilities, absence of active industry association, dearth of common facilities and low level of awareness. The study pointed out that, efforts were on, to promote a Cluster Development and Coordination Group
for better implementation of the plans under the cluster development scheme.

Building trust and financial stability through Self Help Groups were the primary tasks initiated towards strengthening the traditional Sanganer and Bagru textile handblock printing cluster in Rajasthan. Gangavkar (2004) in the study of this cluster mentions that due to the unfair trade practices in market, the trust and relationship of players at all levels in the market were badly affected. Moreover inability to obtain SSI registration by units due to their location in agricultural lands, prevented many units from availing even basic infrastructural facilities for their units. The business being traditional is managed in-house preventing any professional intervention in this front. Hardly any research is being conducted in production or marketing of the products. Pollution and technological backwardness is also found to be a characteristic feature of this cluster. Initiatives by the Textiles Committee, under the Cluster Development Project are expected to bring out collective action to boost competitiveness of the cluster.

Gangavkar (2004) documenting the cluster development initiatives at Bhavani and Chennimalai Home-furnishings cluster, highlights the awareness creation through workshops, technology training, field visits and experience sharing as the major strategies that have addressed the felt need of lack of awareness in the cluster. Other initiatives recorded in the study include, initiation of activities to build Bhavani textile processing park for small dyeing units, formation of Cluster Development and Coordination Group, encouraging industry associations to have professional executives, advocacy among the industry associations to formulate and adopt ‘Common Minimum Programme’ to benefit the member units, setting up of common facilities like resource centres and quality clinics, promoting consortium for private sector and cooperative sector in Chennimalai, etc. A common website for industry operators to showcase their products online had been launched paving way for easy access to offshore markets.

Gangavkar (2004) presented a detailed SWOT analysis of the Panipat Home Textile cluster. Though there is a presence of an array of support institutions, the cluster due to its inherent weaknesses like unorganized units
and lack of awareness, could not harness the desired benefits. Stiff internal competition, infrastructure bottlenecks, unorganized units, price fluctuations, lack of awareness of export procedures and nuances of export marketing and absence of market study were found to be the characteristic features of this traditional weaving cluster. Many initiatives by the Textiles committee to address the felt needs of the cluster and bridge the gaps identified in the cluster are also listed in the paper which include sensitization programmes, exposure visits, buyer-seller meets, formation of export consortiums and raw material banks and facilitation to obtain ISO quality certification.

Industry specific initiatives and sustained support have helped the Salem Textile cluster in its process of internationalization observed Gangavkar (2004). Salem cluster is dominated by powerlooms numbering to 2 lakh units and also a presence of traditional handloom weaving with 25000 units under operation. Inspite of its high export potential, the cluster suffered from dearth of forward integration into garmenting, inadequate brand name and weaker associations. Specific initiatives have been undertaken by Textiles committee by promoting consortia for dyers for bulk sourcing of raw materials, consortium for tiny and job workers to help them graduate to establishment of their own units, facilitation for establishment of forward integration into garmenting by women groups, demonstrative experiments in association with the industry to reduce the communication costs by 50 per cent, initiating the establishment of Salem Exporters Association (SEA) and obtaining ‘Made in Salem’ mark by registering under Geographical Indication registry to build the brand of Salem cluster. Establishment of linkages with UK Trade Desk for sourcing latest technology and Japanese Extrenal Trade Organisations (JETRO) are identified to be the steps towards boosting technological competitiveness and internationalization of the products of this cluster.

Niranjana (2004) presenting a micro-level analysis in the cases of Chirala, Yemmiganur and Koyyalagudem/Tenali handloom weaving clusters observed that success of weaver cooperatives had not been uniform; the main reasons being, local lobbying for power, political interference, key controls held by master-weavers and sheer mismanagement. The failure of
APCO, the apex of weaver cooperatives by ways of default in payment for three years and refusal to lift fresh stocks resulting in weaver deaths has been highlighted in the study. While the case of Koyyalagudem’s reliance on exports showed that it creates instabilities in demand, production and work opportunities, the case of Tenali highlights the marketing possibilities in local contexts as well.

Sarkar Ed.(2005) recording as a case study, the UNIDO experiences of developing the Kannur Handloom cluster, pointed out that networking of 48 co-operative societies (constituting the important production segment) into 4 consortia had helped the member societies in doubling their earnings and enhancing their cost competitiveness options. Several unique interventions have been pursued by the implementing agency, Directorate of Handlooms by initiating the consortia to establish facilities like common marketing outlets, common procurement centres, availing services of national and international business development service providers, organizing fairs, providing training inputs on weaving and dyeing techniques, etc. Further strengthening of the cluster has been planned through registration under Geographical Indications (GI) Act, brand promotion with the assistance of the Indian Institute of Management (IIM, Calicut), capacity building in the area of packaging/export-import management, as also common procurement of specific raw material and dyes and chemicals are also on the anvil.

Element of doubt, lack of local contribution, problems with local cluster co-ordinator, Problems with designers, illiteracy and its compounding effect, problem in sending samples, FCRA approvals figured as the major problems in a study by Rajveer (2005) about the experiment of direct marketing of the products of four artisan clusters using internet viz., Chanderi Sarees, Saharanpur Woodcraft, Moradabad Brassware, and Firozabad Glassware. The major milestones of the methodology were established in four 6-month segments: building trust and understanding key marketing issues; getting the artisans involved, experimenting with ICTs and marketing inputs, and providing training; providing technical training, targeting ICT marketing, creating websites, and initiating catalogue-based
marketing; and collecting more market information and designing inputs, organizing dissemination and publicity, and trying out the online order system. The fact that Chanderi, which is not easily accessible even by road, has reached an international market place is a remarkable achievement. Out of the total of seventy-five general enquiries, Firozabad received the highest number of enquiries (thirty-five) and Saharanpur the lowest (six). The fact that the Saharanpur website did not have many members at the beginning may partly explain why fewer products enquiries were received. Awareness level was found to have increased from low to medium and high levels.

Textiles Committee (2006) detailing the success of cluster specific interventions in the Pochampally handloom weaving cluster had attributed sustained efforts with strategic plans and targets as the major reason for the success. The Pochampally cluster, categorized as a natural and type 3 cluster, due to the interventions has turned into a vibrant hub of handloom activity. One major achievement of this intervention is making Pochampally Ikat design, the first textile craft to obtain registration under Geographical Indications Registry, Government of India, which will help in protecting its products from ‘unfair competition and counterfeits’. As on May 2005, two consortia have been formed with 6 member/shareholders each, one for the domestic market and the other is an export consortium called ‘Ikat Art’. Selected group of SMEs are trained as prototypes in terms of modernization to participation in apparel parks. A Centre for Handlooms and Artisans Information, (CHAI), which is a marketing-cum-intelligence centre at Pochampally, is run by Sanghamitra, a local NGO and was formed with the intervention of Textiles Committee.

NCAER (2010) declares that the credit requirement of weavers was the primary and most important factor that needs immediate attention. The organized set up has predominantly supported the weavers only in the cooperative fold, which also at present is in a very precarious shape. Weavers outside the cooperative fold, however, have not received attention from the Government and the large percentage of weavers are either deprived or do not have access to institutional credit. These weavers mainly depend on the Master Weavers and traders who exploit in many ways
including charging of exorbitant rate of interest. It is, therefore, imperative that funds are made available to the weavers for accelerating growth in the handloom sector. At the same time, the cost of credit is high, which adds to the cost of handloom products and makes it uncompetitive vis-a-vis powerloom products.

**Studies on Tamilnadu based Silk handloom Cluster:**

Arterburn (1982) giving a descriptive account of, what makes co-operatives succeed, highlights the success of co-operative movement in Kanchipuram. He observed that while co-operatives in India have largely been government initiated, the co-operative movement in Kanchipuram was an outgrowth of the labour movement in the handloom industry. Describing the growth evolution of Cooperative movement in Kanchipuram, he states that the growth of cooperatives has led to greater involvement of government in the industry resulting in a larger inflow of capital, publicity and expansion of markets. He ascribes the success of the co-operatives to four factors viz., (i) inherent profitability of silk weaving, (iii) coordinated package of assistance by the government addressing the technical, capital, raw material and other needs of the weavers, (iii) structural organization of cooperatives, ensuring a balance of power between the secretary, board of directors and the members, preventing abuse of power and (iv) active participation of weavers in the affairs of cooperatives.

Babu P Remesh (2002) recording his observations on Organising and Empowering Rural labour in Kancheepuram, outlines that there had been a number of impediments and challenges in organizing rural labourers. The differing perceptions and priorities among labourers, dominance of caste feelings, gender differences preventing women from assuming key positions and leadership, political interference, apathy of government agencies and self centered motives of labour activists were identified to be the major hurdles in organizing labour in Kanchipuram district.

Bowonder et al. (2005) reported that introduction of computer based designing in Kanchipuram Silk Cluster had revived the prospects of this traditional cluster by reducing the production time, offering wider choice of design, visual simulation of design and colour combinations and increasing
the earnings of the weaver for weaving complex designs. The gaining popularity of the technology among the SME segment is another interesting feature noticed by the study. The study also attempted a SWOT analysis of the Kanchipuram Silk Cluster and discusses the critical success factor of this phenomenon.

Nandakumar (2005) observed that internationalization of the Kanchipuram Silk Cluster requires handholding, training, personal contacts and direct assistance in terms of reaching the cluster with information and communication technology (ICT) tools and management techniques. While exports were confined to traditional product lines like sarees, outer skirts in silk and churidhars, the channel is through middlemen or merchants/traders from Chennai and Bangalore, which resulted in lesser profits for the cluster. With new additions to product line like scarf, stoles, tops, upholstery, curtains, embeaded wall hangings, the possibility of export market expansion is high, says the study. While tracing the historical origins of this traditional industry, the study had also attempted mapping of stakeholders and good practices in the cluster.

Joseph et. al (2005) documenting the experiment of FOOD, a Chennai based NGO, observed that establishing an e-commerce site and developing the e-marketer concept has helped women’s co-operatives and NGOs increase their revenue and the scope of their market. The experiment featuring artisan products from four districts included Kancheepuram silk sarees, wooden handicrafts, wooden wall hangings, jute wall hangings, jute bags, copper products, paintings, curios made out of sea shells, and papier mache toys. Running this live e-commerce website enabled FOOD to experiment with the various components that go into an e-commerce store, such as site design, secure technologies for shopping, credit-card authorization, and delivery of products and supplies. From these experiences, FOOD found that the success of an e-commerce site largely depends on securing the trust of the users — who are more comfortable with “offline” shopping experiences.

In its diagnostic study report for the Tiruvannamalai Handloom Cluster Co-optex (2008) observed that availability of skilled manpower, proximity to
Kanchipuram where established production support services are available, good escort services from the Directorate of Handlooms and presence of technical institutions like Weavers Service Centre, interventions by National Institute of Design to be the major strengths of the cluster. Lack of product diversification, lack of awareness among weavers, precarious financial position of cooperatives, non availability of common service centre appear to be the major weaknesses of the cluster.

**Identification of the research gap:**

A comprehensive review of the above literature has thrown light upon various issues facing the traditional SME clusters viz., issues of competitiveness, internationalization and globalization. The studies reveal that the problems faced by traditional SME clusters in these areas are almost similar. While highlighting the critical success factors of various SME clusters in these fronts, the studies also give a comprehensive list of lessons learnt across different milieus.

The available literature has dealt in length the issues facing the SME clusters/handloom clusters in various parts of India. At the macro level there are many studies that concentrate on SME clusters and their competitiveness. There are comprehensive studies on the garment sector, handlooms and handicraft clusters across the country. It is important to note that the studies specific to traditional artisan SME clusters have been a few in number and there is an explicit dearth of studies on Arani silk weaving cluster. Thus, a gap is identified in the literature.

**Justification for the present study:**

The irony of excluding the Arani cluster which employs thousands of weaver households directly and numerous support services indirectly, strikes a note of caution. The dynamism of the cluster has made it survive successfully through ages. With such a grand historical lineage, employment potential and scope for internationalization, it becomes inevitable to carry out serious research in the cluster. A closer observation of the studies on Tamilnadu based silk handloom MSME clusters reveals that they have dealt with cooperatives, status of weavers, issues of
labourers, intervention of ICT in the cluster, lack of management inputs, etc. A comprehensive study of this Arani cluster, dealing with the aspects of mapping the cluster stakeholders, analyzing their linkages, funding options for weavers and the cluster dynamics, is not available. The present study is intended to fill this gap in research. This study aims to fill this gap by developing a comprehensive understanding of the cluster linkages, the funding pattern of the linkages of the Arani silk weaving and attempts to design a viable financial product to cater to the needs of this cluster.
Section - II: Research Design

Arani Silk MSME cluster is a traditional cluster, which has been surviving through ages with its own resilience and vulnerability, employing thousands of dexterous weavers by carving a niche for itself in the market. Though the cluster has survived for ages there is a rising threat to its future survival due to the changing trends in the business environment. With the advent of Chennai-based textile retail majors, both the production base and markets of the cluster are shifting, threatening its future survival. Still the cluster products command a special place in the minds of consumer. There is a necessity to study the competitive advantage, map the cluster stakeholders, and analyze their linkages, in order to chalk out strategies for boosting the competitive advantage of the cluster. Hence the study has been pursued with the following objectives.

Objectives of the study

The major objectives of the study were

- To identify, map and analyse the linkages of the stakeholders in the cluster
- To review the progress of select weaver cooperatives in the cluster
- To analyse the socio-economic profile of the weavers functioning in the two principal production systems in the cluster
- To perform a SWOT analysis of the cluster in terms of its markets, technology, innovation, skills and business environment
- To study the present funding options for the weavers and suggest a suitable microfinance product suiting the funding requirements of the weavers in the cluster
- To suggest suitable policy measures for strengthening the linkages among the stakeholders

Methodology

The study is descriptive and was conducted in Arani block, Tiruvannamalai district was purposively chosen for study. The study has adopted a multi-stage random sampling. The Arani silk cluster consists of both private weavers (independent and attached to master weavers) and
weavers attached to the Cooperative Societies. Though the weavers were attached to a private master weaver or cooperative society, due to lack of continuous orders, they resort to individual weaving. The weavers also entertain individual orders that they directly receive from the customers for occasions like festivals and marriage. Since weaving is a household industry, a minimum of two to three other members of the family had knowledge of weaving and were involved in the production process. So at times, in the case of weavers attached to cooperatives, when the looms are free, they were utilized by other members of the family for weaving the orders they receive from private sources.

As per the data published by Assistant Director, Handlooms (Vellore), which wields the administrative control of Arani Silk Cluster, as of 2007, there were 2342 households engaged in weaving. The draft cluster development plan for Tiruvannamalai district declares that 56% of the weavers were attached to Cooperatives and 44% worked under the private fold. Also it states that only 43% of the looms were active. Considering the above, in stage-1, the households engaged in weaving at Arani were classified into active and inactive, which resulted in a number of 1007 which formed the universe for the study. In stage-2 to form a representative sample and facilitate statistical validity about half of these households were decided to be the sample for the study, which were 504 weaver households. In stage-3, about 56% of the sample was constituted by weavers who were members of Cooperative society, which resulted in a number of 282 weavers and 44% of the sample was constituted by weavers who were under the private fold which resulted in a number of 222 weavers.

Sampling Plan:

<table>
<thead>
<tr>
<th>Particulars</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arani block - Households engaged in Handlooms</td>
<td>700</td>
</tr>
<tr>
<td>Arani west - Households engaged in Handlooms</td>
<td>530</td>
</tr>
<tr>
<td>Arani Municipality - Households engaged in Handlooms</td>
<td>1112</td>
</tr>
<tr>
<td>Total Households engaged in Handloom weaving</td>
<td>2342</td>
</tr>
<tr>
<td><strong>Stage 1: Estimated % of active looms</strong></td>
<td>43%</td>
</tr>
<tr>
<td>Households with active looms (No.)</td>
<td>1007</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>------</td>
</tr>
<tr>
<td><strong>Stage 2:</strong> 50% of the above taken as sample for the study</td>
<td>504</td>
</tr>
<tr>
<td><strong>Stage 3:</strong> Proportion for members in Cooperatives (56%)*</td>
<td>282</td>
</tr>
<tr>
<td>Proportion for respondents in private system (44%)*</td>
<td>222</td>
</tr>
</tbody>
</table>

* as per estimates of the Directorate of Handlooms

**Nature of the study and data:**

The study is descriptive. It is based on both primary and secondary data.

**Tools used for Data Collection**

An interview schedule generally contains a set of questions logically related to the problem under study. Review of literature available on handloom weavers, census of handlooms and articles from various journals and research studies were the source of information helpful for the construction of the tool. An interview schedule bearing on the objectives of the study were prepared. The first part of the schedule comprised of items for collecting the socio economic profile of the weavers - age, caste, religion, educational status, marital status, occupation, days of employment, annual income, etc. The second part contained questions relating to access to finance, cluster linkages and problems in production and marketing.

Focused Group Discussions (FGDs) were conducted with weavers, service providers, support agencies, officials of Weaver Cooperatives, government officials, researchers, technical experts, academicians, bank managers and government officials and NGOs which gave much insight, added perspectives and helped to gain deeper understanding of the field realities. The secondary data were collected from published sources like annual reports of cooperatives, government documents, gazetteers, research reports and websites.

**Pre-testing of the tool**

Pre-testing of the tool is essential to construct a valid and reliable tool. Therefore pre-testing of the tool was carried out with 50 weavers as a pilot study which enabled the investigator to find out the optimum time needed for
a respondent to react and identify those items which were ambiguous. The ambiguous items were deleted and the schedule was finalized with appropriate items after pre-test. Test-related method was used to find out the reliability of the tool.

**Methods of Data Collection**

Data were collected by interviewing the selected silk handloom weavers. The interview method was selected for the present study as interview method is the most suitable method for gathering first hand information even from the illiterates. After identifying the respondents, the investigator met them individually and explained the purpose and mode of data collection. A good rapport was built up and mutually agreeable timings were fixed with the respondents for the interview. A maximum of two hours was needed to interview the respondents.

**Variables studied:**

The present study describes the relationship between certain independent and dependent variables. The independent variables included the age of the respondents, literacy level, caste, marital status, number of looms operated, number of family members employed, number of days employed, actual output per year, loans obtained for production activity, etc. The dependent variable was the annual income earned.

**Tools for analysis**

Since the handloom industry is unorganized, except in the case of cooperatives, there is a dearth of documented data. The share of cooperatives in the Arani Silk cluster is estimated to be 56% of the whole size of the industry. The published data with the co-operatives are only indicative and does not reflect the whole feature of the industry. Hence the findings cannot be generalized. Nearly half of the industry, controlled by private players has no organized set of data. To strike a balance of both pre-dominantly qualitative tools have been utilized for analysis of the cluster.
In the case of primary data collected from respondents, the data were processed using MS-Excel and SPSS 20.0. Statistical tools like correlation, AN OVA and Multiple regression analysis have been employed for analysis of data.

For qualitative analysis, the study has adopted methodology of UNIDO Cluster Development Programme. The tools developed by UNIDO like Cluster Cooperation matrix, Cluster map, Measuring Linkages, Overall Cluster analysis, Cluster selection matrix, broad typology of cluster matrix, etc., have been utilized for the study. A SWOT analysis for the cluster has also been attempted in the study.

**Definition of the key concepts used in the study**

**Industrial and artisan clusters**

An artisan cluster is characterized by the predominance of household based enterprises. Such enterprises use personal skills of the artisans to production, rather than electrically driven machinery. They are predominantly run by the family labour both in production and management of the enterprise. An industrial cluster may also have some household enterprises but is characterised by predominance of small and medium industrial enterprises with hired labourers. Artisan clusters may generally produce either handicraft or handloom products.

**Cooperative society:**

The cooperative structure in the handloom sector is twofold: apex society and primary society. The apex society is an umbrella body for primary societies. Hence, weavers are basically members of primary societies.

**Master weavers:**

A master weaver also refers as a generic term to people who get the yarn sized, supply beams to smaller owner, get the fabric woven and get the cloth processed. This system of master weaver has evolved over years. In the past, master weavers used to advance yarn to weavers working in their own
houses. In recent years, many master weavers have set up common sheds for weaving, where hired weavers come and undertake production activities.

**Weaver household:**
A weaver household unit is defined as one that has any member of the household who operated a loom even for one day in the last one year (preceding the survey date), either within the premises of the house (classifying the household as a 'with loom household') or outside the household premises (classifying the household as 'without loom household').

**Full-/Part-time handloom workers:**
Persons who operate looms or work on allied work on a full-time basis, that is, those who engage exclusively on handloom activity should be treated as full-time workers. However, part-time handloom workers are persons engaged in occupations other than weaving or allied handloom work and who operate looms or undertake handloom allied activity only during their leisure hours or when the regular weavers/allied workers are out on lunch, tea, etc.

**Pit looms with dobbý/jacquard:**
These are fly shuttle pit looms fitted with Dobby/Jacquard. A Dobby loom is a type of pit loom that controls warp threads using a device called a Dobby, short for "draw boy" which refers to the weaver's helpers who used to control the warp thread by pulling on draw threads. The other accessory for controlling the design element in the fabric is the 'Jacquard', which operates through a series of punch cards.

**Marketing**
Marketing consists of the strategies and tactics used to identify, create and maintain satisfying relationships with customers that result in value for both the customer and the marketer.

**Market Segment**
A market segment is a sub-set of a market made up of people or organizations with one or more characteristics that cause them to demand
similar product and/or services based on qualities of those products such as price or function. A true market segment meets all of the following criteria: it is distinct from other segments (different segments have different needs), it is homogeneous within the segment (exhibits common needs); it responds similarly to a market stimulus, and it can be reached by a market intervention.

**Priority Sector Lending**

Under the concept of Priority Sector Lending certain lending norms are relaxed such that the access to credit by technologists, poor and small business people is increased. All commercial banks are mandated to achieve the target of priority sector lending at forty percent of the aggregate bank advances. Sub-targets are also specified for lending to agriculture and the weaker sections within the priority sector.

**Micro credit**

A part of the field of microfinance, microcredit is the provision of credit services to low-income entrepreneurs.

**Micro Finance**

Micro finance covers services such as lending, savings, insurance and money transfer, designed for the needs of low-income populations.

**Self Help Group**

SHG is group of rural poor who have volunteered to organise themselves into a group for eradication of poverty of the members. They agree to save regularly and convert their savings into a Common Fund known as the Group corpus. The members of the group agree to use this common fund and such other funds that they may receive as a group through a common management.

**Micro Enterprise**

A small-scale business in the informal sector. Micro enterprises often employ less than 5 people and can be based out of the home.
Microenterprise is often the sole source of family income but can also act as a supplement to other forms of income. Examples of Micro enterprises include small retail kiosks, sewing workshops, carpentry shops and market stalls.

**Rural Area**
Rural areas are large and isolated areas of an open country with low population density. Rural areas have an agricultural character.

**Semi Urban Area**
The area having the feature of both rural(a section of people depending on agriculture for their livelihood) and urban(asection of people engaged in tiny industries and business.

**SHG Bank Linkage programme**
It is a major micro-finance programme in India wherein the banks lend to the SHGs in proportion to their common fund, after the development of fund management capacity and stabilisation of their operation by SHGs.

**Backward Linkages**
Backward Linkages are the services which provide the supply of some or all the raw materials/services that are used for the production of the product or for the services of the enterprises.

**Forward Linkages**
Forward Linkages are the services which take care of distribution and marketing of the products/services.

**Business Development Services**
Business Development services are those services which help an enterprise to expand its market, improve its efficiency, and to find a solution to the business problems. The most common BDS includes business management training, business plan preparation, registration with government authorities for complying with various legal provisions, product/process development, technical assistance, market information and quality control

**Period of the study:**
The study was conducted between September 2008 and December 2011.
The analytical framework followed in the present study is given in the above figure. It has been assumed that funding options are influenced by the following factors:

- Nature of Entrepreneurs
- Market Opportunities
- Working Capital requirements
- External Factors
Market opportunities include the three main channels of cooperatives, master weavers and Chennai based larger retailers and individual buying. It is assumed that orders may be influenced by the demand generated by these three main channels.

The qualities and characteristics of the weavers have a bearing on the performance. For instance, education, age, occupation, experience, access to finance and training influence their ability to utilize market opportunities.

Besides these internal factors, external factors like constraints in access to finance, Cluster Linkages, Changing customer preferences, Competition, fluctuating cost of raw materials, Flaws of Priority Sector Lending, Government assistance, and bank support through credit facilities, competition in the market play a determining role in funding options. The study seeks to analyze these factors which influence the funding options for the handloom weavers of Arani.

Chapterisation

- Chapter 1 gives an overview of the status of handloom industry, concept of clusters, status of cluster development in India and a brief introduction of the Arani Silk Weaving Cluster.
- Chapter 2 presents the review of Indian and international literature on MSME and handloom clusters. This chapter identifies the research gap and issues for investigation. Research design has also been explained in this chapter.
- Chapter 3 examines the quantitative growth of the silk weaver cooperatives in terms of membership, production, sales, net profit, cash credit, etc.
- Chapter 4 features the socio economic profile of the weavers, their production and marketing linkages, financial sources, aspects of training, major problems faced in production and marketing, etc.
• Chapter 5 presents the statistical analysis of the factors affecting income of Arani Weavers
• Chapter 6 the existing Cluster Map which maps the stake holders and analyses the linkages using qualitative tools like Cluster Cooperation matrix, Measuring Linkages analysis, Overall Cluster analysis, Cluster selection matrix, typology of cluster matrix, etc., and a SWOT analysis of the cluster
• Chapter 7 presents the analysis of working capital cycle and funding options for the weavers.
• Chapter 8 furnishes the findings, conclusions, suggestions, proposed cluster map for cluster development in Arani.
Section III: Profile of the Study Area - Arani

Location:

Arani, a Grade I Municipality, in Tiruvannamalai district, is one of the important silk centres Tamil Nadu. It lies on the Arani -Tiruvannamalai State Highway. The town is situated 132 km from Chennai, 40 km from Vellore and 60 km from Tiruvannamalai, the district head quarter.

Arani is the headquarters of Arani Taluk and second largest town in the district of Tiruvannamalai. Arani municipality is spread over an area of 11.62 sq.km. It is geographically located at 12°39'N Latitude 79°16'E Longitude with an average elevation of the town at 151 m above MSL. The town is well connected by road with the adjoining urban centres of Ranipet, Arcot, Thiruvathipuram and Vellore. The nearest Railway Station is at Katpadi about 45 km away from Arani. Arcot, Thiruvathipuram, Cheyyar, Kanchipuram, Kaveripakkam, Melvisharam, Ranipet, Sholingur, Vellore, Thiruvalam are the neighbouring towns of Arani. The economy of the town revolves mainly around handloom textiles and agriculture.

Temperature

The climate of the town is subjected to extreme climatic conditions that is very hot during summer and very cold during winter.

Rain fall

The town gets major rainfall during the North West monsoon period. The Annual normal rainfall varies from 300 mm to 800 mm. The average annual rainfall being received in the town is 770 mm.

Nature of Soil

The major group of soils that are found in the town are black and red varieties. The red soil constitutes 90 percent while black soil only 10 percent.
Population

Table 2.1
Distribution of population in Tamil Nadu and Tiruvannamalai District

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Total Population</th>
<th>% of Urban Population with respect to District</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tamilnadu Urban</td>
<td>27483998</td>
<td>N.A.</td>
</tr>
<tr>
<td>Tiruvannamalai district</td>
<td>2186125</td>
<td>100</td>
</tr>
<tr>
<td>Tiruvannamalai district Urban</td>
<td>400761</td>
<td>18.33</td>
</tr>
<tr>
<td>Arani (M)</td>
<td>60815</td>
<td>2.78</td>
</tr>
</tbody>
</table>

Source: Primary Census Abstract of Tamil Nadu, Census of India 2001

The growth of population in the town has been consistently lower than the state average for urban population. The growth rate has been consistent between 1 to 2.5%, with an exception of 4% during 1981-1991. The details are as tabulated below:

Table 2.2
Decadal Population Growth in Arani

<table>
<thead>
<tr>
<th>Census Year</th>
<th>Population</th>
<th>Variation</th>
<th>Growth rate in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951</td>
<td>19668</td>
<td>2222</td>
<td>1.27</td>
</tr>
<tr>
<td>1961</td>
<td>24567</td>
<td>4899</td>
<td>2.49</td>
</tr>
<tr>
<td>1971</td>
<td>31351</td>
<td>6784</td>
<td>2.76</td>
</tr>
<tr>
<td>1981</td>
<td>38664</td>
<td>7313</td>
<td>2.33</td>
</tr>
<tr>
<td>1991</td>
<td>54881</td>
<td>16217</td>
<td>4.19</td>
</tr>
<tr>
<td>2001</td>
<td>60815</td>
<td>5934</td>
<td>1.08</td>
</tr>
</tbody>
</table>


Density

The population density in Arani in 1991 was 47 persons per ha which has increased to 52 persons per ha as per census 2001. The ward
population density in 2001 varies from 25 persons per ha to 110 persons per hectar.

**Literacy Rates:**

Literacy is one of the important social indicators for development. The literacy rate in the town was 80% (Census 2001), which is higher compared to Tamil Nadu average of 73%. The higher literacy rate in the town is due to availability of educational facilities in the region.

**Occupational Pattern:**

Arani has been one of the historical silk and cotton weaving centres in India. It is famous for its light weight and affordable handloom silks. Although power looms and mass production garments have infringed upon consumer preferences during the past few years, Arani silks still remains a coveted possession in traditional garments.

Agriculture, bee keeping, poultry are the other major economic activities in the town. The town is also well known for its Paddy and Rice trade. There are around 200 modern rice mills within the town limits.

According to 2001 census, the work force participation rate in Arani municipality was 35%, which is in line with the State urban (38%) and District urban (35%). The percentage of main workers and marginal workers account for 95% and 5% of the total workforce.

Out of the main workforce about 0.60% of population are cultivators, 2.44% are agricultural labourers and 19.17% of workers are engaged in household industries. The remaining 77.80% workers are included in ‘other workers’ category.
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