

Section – IV

The Cluster Approach: Innovation in Collaboration



Executive Summary

- **Definition of Cluster**
- **Importance Clusters in SMEs**
- **Advantages of Cluster approach**
 - Marketing
 - Innovation
 - Service Delivery
 - Collaborative Production
- **Cluster Development Initiatives in India**
 - Cluster Development Policy Frame work
 - List of the Clusters taken up under Small Industry Cluster Development Programme
 - Clusters selected for development by SISIs in the first phase Under Small Industry Cluster Development Programme
- **Case Study - Tirupur Hosiery Cluster**

Authors

Knowledge Team of SPH Consultants with inputs from SICDP, O/o DCSSI, Ministry of Small Scale Industries New Delhi and UNIDO CDP.

The Cluster Approach: Innovation in Collaboration

SPHC Knowledge Team

Definition of Cluster in the Indian Context

Clusters can be defined¹ as Sectoral and geographical concentration of enterprises, in particular Small and Medium Enterprises (SME), faced with common opportunities and threats which can:

- a. Give rise to **external economies** (e.g. specialized suppliers of raw materials, components and machinery; sector specific skills etc.);
- b. Favour the emergence of **specialized technical, administrative and financial services**;
- c. Create a conducive ground for the development of inter-firm cooperation and specialization as well as of cooperation among public and private local institutions to promote local production, innovation and collective learning.

Importance of Clusters in the Indian Context

With a contribution of 40% to the country's industrial output and 35% to direct exports, the Small and Medium Industry (SME) sector has achieved significant milestones for the industrial development of India. Within this sector, an important role is played by the numerous clusters that have been in existence for decades and sometimes even for centuries.

India has the richest diversity of clusters. The clusters are categorized as:

- Artisanal Clusters
- Industrial Clusters

The products covered by artisanal clusters include textile, handlooms, handicrafts, woodcrafts, metal and stone crafts, jewellery, leather, pottery & clay, etc.

The industrial clusters include processed food, rice milling, readymade garments, terry towel, wet grinder, engineering, machine tools, handtools, foundry, brass parts, rubber and pharmaceuticals cluster.

There are more than 6500 industrial, artisan and micro enterprise clusters². These clusters represent the socio economic heritage of India, where some towns or villages are known for a specific product for decades and centuries. It is estimated that these clusters contribute 60% of the manufactured exports from India. The clusters in India are estimated to have a significantly high share in employment generation.

Innovation in Collaboration

Cluster approach brings Improvement of technological and managerial capacities as well as enhanced product quality in-groups of pioneer units for further dissemination. New business development services (BDS) can be introduced and existing ones strengthened. Both the private sector and public sector participate in local cluster governance. Improved access and linkages of the cluster with the national and international markets is achieved and environmental sustainability of the production process within the cluster is enhanced

Cluster Development Initiatives in India

Several institutions in India have taken up Cluster Projects besides various government initiatives. They have been involved in promoting Small-Scale and Cottage Industries, and Regional Cluster Development by removing policy impediments; financial support; technology, skills and quality upgrading; market support and improving links between small and large firms.

Some of the institutions working in this area are¹:

Central Government

- SICDP Cell, Development Commissioner (SSI), Ministry of Small Scale Industries
- National Small Industrial Corporation Ltd (NSIC)
- Development Commissioner (Handicrafts), Ministry of Textiles
- Department of Science & Technology, Ministry of Science & Technology
- Textiles Committee of India, Ministry of Textiles
- Khadi and Village Industries Commission (KVIC)
- Coir Board

National Support Institutions

- Small Industries Development Bank of India (SIDBI) Technology Upgradation Programme
- State Bank of India (SBI) UPTECH Programme
- National Bank for Agriculture & Rural Development (NABARD)

State Governments

The State governments, which have started cluster development initiatives are:

- Andhra Pradesh
- Gujarat
- Kerala
- Madhya Pradesh
- Tamil Nadu
- Rajasthan
- Punjab
- Orrissa
- West Bengal

International Agencies

- UNIDO
- MSME
- WASME

Other Institutions

- Grameen Development Services (GDS)
- Rajasthan Chamber of Commerce and Industry (RCCI)
- APITCO
- EDI
- MITCON
- NISIET
- Cluster Pulse (NGO)

Cluster Development Policy Frame work

The Ministry of Small Scale Industry has laid down the policy framework guidelines through Small Industry Cluster Development Programme (SICDP). The major highlights of the same are illustrated here:

Introduction

1. The Ministry of Small Scale Industries (SSI), Government of India (GoI) has adopted the cluster approach as a key strategy to, enhancing the productivity and competitiveness as well as capacity building of small enterprises (including Small scale and small scale service and business entities) and their collectives in the country. Among other things, this approach also facilitates substantial economies of scale in terms of deployment of available resources for effective implementation and more sustainable results in the medium to long term.
2. In view of the large number and dispersed locations of the small enterprise clusters and varied status of collaborative self-help capabilities of these cluster-based enterprises across the country, the success of this Programme depends not only the initiatives of the cluster-based enterprises but also on the active involvement of the State Governments and their institutions engaged in the promotion of small enterprises. The following guidelines are, therefore, issued, in super session of the existing guidelines to assist all the stakeholders in formulating proposals for financial support from the Ministry of Small Scale Industries for implementation of cluster development initiatives under the Small Industries Cluster Development Programme (SICDP).

Implementing Agencies

- 3.1 A clear legal entity with evidence of prior experience of positive collaboration among its members, whether formally or otherwise, as the applicant of the proposed cluster development initiative assures sound management Ideally, therefore, all proposals for cluster development seeking assistance under the SICDP must emanate from special purpose vehicles (SPV), consisting of the actual /Likely cluster beneficiaries/enterprises organised in any legally recognised form like a co-operative society, registered society, trust, company, etc.
- 3.2.1 Considering, however, the uneven state of development of such collaborative initiatives among small (and tiny or micro) enterprises in the country it would be permissible for a lead Government institution to be the prime mover of a proposal for cluster development in the initial stages of its conceptualisation, design, determination of technical parameters, project preparation and documentation, etc., in consultation with the cluster beneficiaries. It will, however, be necessary to constitute the SPV at the earliest possible, with clear indication of the time frame for completion of this essential requirement while submitting the proposal for Government assistance.
- 3.2.2 In short, in addition to the SPVs of cluster beneficiaries, institutions/agencies of the following categories will, therefore, be eligible to propose and implement cluster development projects under the SICDP, with financial support of the Ministry of SSI:
 - Field organisations/offices and autonomous/public sector institutions/enterprises of the Ministry of SSI, Ministry of Agro and Rural Industries (ARI) and other Ministries of the Government of India.
 - State Governments and their autonomous/public sector organisations.

- National and international institutions engaged in promotion and development of the small enterprises, including SSI, sector.
- Any other institution/agency approved by the Ministry for this purpose, keeping in view the special circumstances applicable to a State or Union Territory.

Selection of Cluster (s)

- 4 Detailed study of the features of the clusters with due care and application are essential prerequisites for selection of a cluster of the right type. The criteria may vary to some extent depending on the type of clusters and the goals sought to be achieved through the cluster development initiatives. However, broadly, the following **illustrative aspects** should be kept in view:
 - Importance of the clusters(s) in terms of number of units, employment, production, exports, etc.
 - Existence of critical gaps in technology, product quality, common facilities, skill upgradation, availability of raw material, marketing support, etc.
 - Viability of the cluster.
 - Vibrancy of local industry association and/or interest evinced by other institutions engaged in development financing and SSI promotion in development of the cluster.
 - Social and environmental considerations like gender inequalities, poverty conditions, need for employment generation, pollution scenario, etc.
- 5 Clusters of SSI units manufacturing products, which fall under the administrative purview of other Ministries of the Government of India may also be considered for financial assistance under this Programme, with the consent of the Ministry concerned.
- 6 In case the implementing agency is not the Government of the State in which the cluster is located or an organisation of that State Government, the agency will also need to necessarily consult the State Government concerned and take its views into account while selecting the cluster and drawing up the strategy and/or action plan for its development.

Illustrative Steps in Cluster Development Programme

- 7 The main steps are:
 - Selection of cluster(s)
 - Selection of Cluster Development Executive(s)
 - Trust building
 - Diagnostic study
 - Preparation of action plan
 - Approval of budget and leveraging of funds from various institutions
 - Implementation of the action plan
 - Monitoring and evaluation
 - Handing over and exit
 - Self-management phase

More details can be obtained from the O/o DC (SSI), Nirman Bhawan, New Delhi.

List of the Clusters taken up under Small Industry Cluster Development Programme

Sl. No.	Cluster	Location
1.	Tile Industry Cluster	West Coast, Kerala
2.	Forging Industry Cluster	Ludhiana and Jalandhar
3.	Bulk Drug and Formulation Industry	Hyderabad & Medak Distt. (AP)
4.	Fruit Processing Industry Cluster	Chittoor, Andhra Pradesh
5.	Foundry Industry Cluster	Hyderabad, Andhra Pradesh
6.	Pottery Industry Cluster	Khurja, U.P.
7.	Trial run on Hydrogenation Process for manufacturing of Specialty Oils & Solvents	Rajkot, Gujarat
8.	Neem and Perfumery Industry	Kannauj
9.	National Programme for the Development of Indian Toy Industry	* Delhi & Mumbai
10.	National Programme for the Development of Indian Stone Industry	*Rajasthan, Gujarat, & Karnataka
11.	National Programme for the Development of Indian Lock Industry	*Aligarh (UP) & Dindigul (TN)
12.	National Programme for the Development of Indian Machine Tool Industry	*Karnataka, Punjab & Gujarat
13-17.	Development of Clusters based on Herbal & Aromatics Plants	Jhalawar (Neem), Dholpur (Vetiver) in Rajasthan, Badaun (Mint) & Bhowali (Geranium) in UP, Ganjam (Kewra) in Orissa
18.	Auto Components Cluster Development Programme	Chennai
19.	Rubber Cluster Development Programme	Kottayam, Kerala
20.	National Programme for Promoting Energy Efficiency in Hand Tool SSI Sector.	*Jullandhar & Naguar
21.	Development of the Diesel Pump and Engineering Industry Clusters	Rajkot, Gujarat
22-23.	Development of the Brass and Poreb, Bronze Metal Utensils Cluster	Patna and Kenjekura, Bakura (West Bengal).
24.	Development of the Gun Manufacturing Industries Cluster	Munger, (Bihar)
25.	Development of the Jewellery Industry Cluster	Ranaghat, Nadia, W.B.

** These being National Programmes, the location is merely illustrative.*

**Clusters selected for development by SISIs in the first phase under
Small Industry Cluster Development Programme**

SL. NO.	STATE	SELECTED CLUSTER
1.	ANDHRA PRADESH	Fan, Hyderabad
2.	ASSAM	Brass & Bell Metal Units, Hajo
3.	BIHAR	Gun Mfg Units, Munger
4.	BIHAR	Brass & German Silver Utensils, Pareb (Patna)
5.	DELHI	Readymade Garments, New Delhi
6.	GUJARAT	Rice Flakes, Gondal
7.	GOA	Pharmaceutical, Goa
8.	HARYANA	Rice Milling, Karnal
9.	HIMACHAL PRADESH	General & Light Engg. Industry, Parwanoo
10.	JAMMU & KASHMIR	Joinery/ Furniture, Srinagar
11.	JAMMU & KASHMIR	Cricket Bat Manufacturing, Anantnag
12.	JHARKHAND	Auto Component, Jamshedpur
13.	KARNATAKA	Foundry Industries, Belgaum
14.	MADHYA PRADESH	Pharmaceutical, Indore
15.	MUMBAI	Basic Drugs, Thane, Navi Mumbai
16.	PUNJAB	Sewing Machine and Parts, Ludhiana
17.	CHENNAI	Wet Grinder, Coimbatore
18.	UTTARANCHAL	Surveying Instruments, Roorkee
19.	UTTAR PRADESH	Pottery, Chunar (Mirzapur)
20.	UTTAR PRADESH	Cotton Hosiery, Kanpur
21.	WEST BENGAL	Surgical Instruments, Baruipur

References

1. **O/o Development Commissioner (SSI), Ministry of Small Scale Industries, GOI**
<http://clusters.smallindustryindia.com>,
2. **Working together works**
Cluster case studies, Foundation for MSME clusters, New Delhi
3. **Development Commissioner (SSI), Ministry of Small Scale Industries**
URL: <http://www.smallindustryindia.com>
4. **Development Commissioner (Handicrafts), Ministry of Textiles**
URL: <http://www.texmin.nic.in/handlooms/>
5. **Textiles Committee of India, Ministry of Textiles**
URL: <http://www.textilescommittee.nic.in/npcapacity.htm>
6. **Khadi and Village Industries Commission (KVIC)**
URL: <http://www.kvic.org.in/>
7. **Andhra Pradesh Government Portal**
URL: <http://www.aponline.gov.in>
8. **Office of Textile Commission**
URL: <http://www.txcindia.com>

CASE STUDY: COTTON HOSIERY CLUSTER OF TIRUPUR

Tirupur, a small industrial town situated 60 kms away from Coimbatore in South India is one of the most successful and vibrant clusters in India. It contributes to one third of the total apparel exports from India.

The cluster comprises of very large number of small units, most of which are truly small, compared to national and international standards. There is a high degree of subcontracting relationship among producers due to the nature of the production process that easily blends itself into finely subdivided production stages (e.g.. fabrication to wet processing, processing to garmenting, etc). Industry associations were active in supporting firms by acting as fora to settle intra and inter firm disputes, assist them with procedural formalities, provide access to information and liaison with Government institutions.

The key factors behind the development of the cluster have been proactive attitude towards product marketing, adoption of the state-of-the-art technology, inter-firm division of labour and a responsive support framework.

Although Tirupur was a well-developed cluster even before UNIDO's intervention, organic linkages between the industrial associations and the support institutions were weak. Moreover, the cluster was not ready to respond to the phasing out of Multi Fibre Agreement (MFA) by end of the year 2004.

The objective of the UNIDO's cluster development programme was to prepare the cluster as a whole to face the forthcoming open market competition through stronger institutional linkages and increased capacity to jointly implement strategic initiatives. This was in line with the diagnostic study made in 1997. Based on such findings, two broad types of initiatives were taken:

- Initiatives to improve the capabilities of firms themselves, especially in the areas of quality, design, productivity, skills, waste minimisation, pollution, and
- Capacity-building initiatives of industrial associations and support institutions to foster linkages, enhance availability of Business Development Services (BDS), and promote cluster-to-cluster cooperation.

Along these lines, several pilot projects were launched. As a result, competitiveness of target firms has increased while industrial associations; support institutions and BDS providers are more proactive and have come forward to take developmental roles. Good networking among cluster actors have been established.

The cluster has graduated to handle complex issues like Brand Promotion. The cluster is more dynamic and in a much better position to face the forthcoming challenges.

This report documents the interventions undertaken, the problems faced, the methodology adopted, the lessons learned and the outcome of the UNIDO project along with suggestions for future directions.

Landmark History and Performance of the Cluster

It is said that the small dusty township of Tirupur¹ 60 kilometers off Coimbatore and part of Coimbatore district breeds millionaires. The township of Coimbatore is well known for electrical machinery & parts, metal products and other machinery products. Entire district of Coimbatore has a total of 70 Medium and Large-scale units with Rs. 532 crores worth of investment of which Tirupur has 9 of them with a capital outlay of Rs. 76 crores. The hot climate suited the bleaching and dyeing operations for the knitted cloth. With several thousand small-scale units, this industry provides direct and indirect employment to an estimated two lakh persons in all the skilled, semi-skilled and un-skilled categories although according to Apparel Export Promotion Council (AEPC) and Tirupur Exporters Association, this figure is around 3 lakhs. There are very few medium scale units since the product is reserved for manufacturing in small-scale sector. Availability of good quality cotton in the surrounding region and hundreds of cotton yarn mills around are inherent basic strengths of the industry. Direct exports from Tirupur were in the order of Rs. 1,448.76 crores (approximately US \$ 425 million) during the calendar year 1995. This accounts for 42% of India's total exports in this industrial segment.

Tirupur has been described as a 'boom town' whose growth is based upon cheap labor and, a tradition of cotton weaving and inter-firm production arrangement. During the last five years, the population of this town has more than doubled to five lakhs inclusive of the villages in its periphery. There has been a large-scale migration of people from villages and other surrounding regions and with the growth of industry the township has also outspread the nearby villages. Here, tiny and small sized firms have successfully brought about innovations and improved their efficiency.

Tirupur was the second town in India to start a unit in this industry after Calcutta. Even though knitting came to Tirupur in 1920s, progress worth mentioning took place only after 1935 when the first hand-operated hosiery firm was set up. The number of knitwear firms went on increasing. It was over 100 in 1953, 450 in 1960 and about seven thousand now. Since agriculture was not flourishing due to poor rainfall, the industry served as a source of alternate employment. The low investment required in hand operated knitting machines, easy availability of raw material and yarn from the neighboring Coimbatore town helped the entrepreneurs set up their manufacturing base, and keep on widening that.

Till the late 1960s, this industry produced mainly the grey and bleached vests (called banians²). In 1968, other items but mainly underwear began to be manufactured and in 1974 the first export consignment was shipped abroad under support from 'National Small Industries Corporation' (NSIC). From 1980 onwards, some of the entrepreneurs also began to produce T-shirts for exports. Some Mumbai and Delhi based exporters established their sub-offices at Tirupur, which led to further acceleration in exports. Some of the producers at Tirupur also developed independent contacts with foreign buyers. Meanwhile, the Tirupur producers turned also to the country's domestic market for cotton vests.

Soon need was felt for further diversification into fashion garments which required improvement in quality. With their focus on diversification & quality control and strength of direct connections with foreign buyers, entrepreneurs brought about sudden changes in the production technology, which revolutionized the industry.

¹ The word 'Tirupur' is associated with 'spinning' in Tamil language.

² Tirupur was therefore called a banian city.

It was in 1990s that along with undergarments, the manufacturers produced quality outerwear. The cluster, now into multi product cotton knitwear, produces T-shirts, cardigans, jerseys, pullovers, ladies blouses, skirts, trousers, sports wear and industrial wear. The exports increased many times reciprocated by a corresponding faster inflow of foreign exchange. With the implementation of liberalization, the awareness about new technologies and import of high technology capital equipment have taken a surge.

GROWTH OF DIRECT EXPORTS OF COTTON HOSIERY FROM INDIA AND TIRUPUR
(Quantity in Million pieces and value in Rs. crores)

YEAR	ALL INDIA		TIRUPUR (DIRECT EXPORTS)			
	PIECES	VALUE	PIECES	VALUE	% of All India value	Value/ piece (In Rs)
1984	49.54	89.22	10.42	9.69	11	9.3
1985	56.68	104.89	17.21	18.69	18	10.9
1986	80.2	159.38	28.87	37.48	24	13
1987	112.24	283.85	39.17	74.49	26	9
1988	120.95	358.19	45.91	104.24	29	22.7
1989	165.6	343.17	61.4	167.39	49	27.3
1990	222	851.24	88.87	289.85	34	32.6
1991	243	1,147.03	90.5	429.48	37	47.5
1992	303	1,894.69	133.9	773.37	41	57.8
1993	413.1	2,894.38	189.3	1,162.43	40	61.4
1994	407	3,151.37	196.4	1,318	42	67.1
1995	NA	3,580	NA	1,489	42	NA
1996	NA	4,833	NA	1,850	38	NA

Sources: 1. Direct Export figures from Apparel Export Promotion Council, Tirupur.
2. Cotton Textile Export Promotion Council

The cotton knitwear sector experienced a remarkable record of export growth during 1980s and 1990s' as the demand for cotton clothing rose in the world. Tirupur emerged as India's leading cotton knitwear export center. The growth in exports, increasing value addition and its share at All-India level is reflected in the table given as under. It is estimated that while direct exports from Tirupur are only 42% during the year 1995, actual contribution to exports including indirect exports should be almost 80% of the total.

Sketch of the SMEs and Institutions

At the center of the Tirupur hosiery cluster are the cotton knitwear garment exporters who may be either 'manufacturer exporters' or 'merchant exporters'. The non-exporting manufacturers undertake sub-contracting tasks mainly for the exporters of both the categories mentioned above and in addition they market the knitwear for domestic market. There are a number of different types of agents and traders who facilitate the marketing activity. These actors are selling agents, depot sales agents, commission agents and general merchants. In Tirupur, the marketing agents have a strong role to play. They have developed specialization in different geographical market segments, domestic and overseas, as also in product - based segments. Further specialization has developed to the extent that there are agents who market only the rejected goods and the export surplus material.

There are varying estimates for the total number of units according to different agencies. According to 'District Industries Center' there are a total of 7010 registered Small Scale industrial units at the end of the financial year 1996-97, of which 5515 of them are producing hosiery garments while another 576 produce hosiery cloth. It is estimated that almost 80 percent of the units are engaged in job work only. Besides all these, there are a large number of ancillary and supporting units that manufacture buttons, printed labels, polythene bags, plastic tapes and other packing materials.

Composition of SSIs in Tirupur

Type of units	No. of units	Percentage	Investment (Rs. Lakhs)	Employment Generation
Hosiery Garments	5515	78.67	5327	74822
Hosiery Cloth	576	8.22	3005	3945
Bleaching	70	1	187	821
Dyeing	171	2.44	852	1903
Calendering	74	1.06	334	572
Screen Printing	258	3.68	665	2829
Embroidery	12	0.17	209	92
Mercerizing/ Raising/ Curing	14	0.2	103	109
Other Allied Units	298	4.25	228	1312
Export oriented units	22	0.31	1638	316
Total	7010	100	12548	86721

In the service industry, there are both forward and backward linkages especially in relation to input supplies and distribution. According to the estimates of DIC, there are likely to be another 750 unregistered Small Scale units which do not figure into the below given table. Many of them may be in the area of bleaching and dyeing where registration due to difficulties with pollution control does not make them eligible for registration and thus other state sponsored facilities.

In terms of employment generation, the direct employment generated is estimated to be one-lakh skilled, semiskilled and unskilled workers while another one lakhs persons are estimated to be earning their livelihood due to this industry. These indirect activities relate to the forward and backward linkages within the industry such as cotton ginning, yarn spinning, specialist tailoring, calendaring, packaging and other related service activities. Among the 7010 units, it has been estimated that there are 150 integrated units with a much higher capital investment than most of the small-scale units.

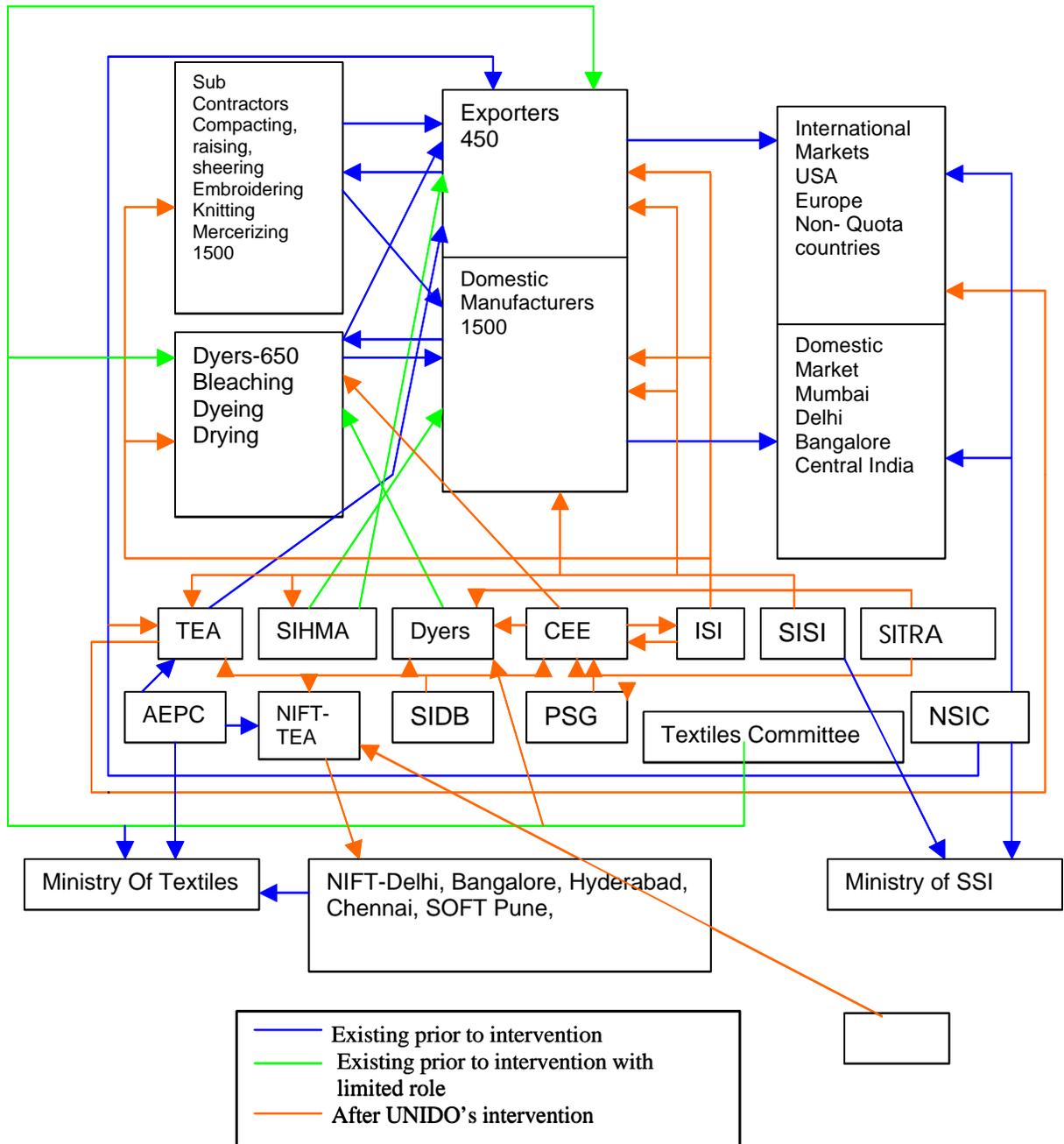
The main raw material in the form of cotton yarn of different thickness is supplied by the agents of hundreds of spinning mills located in Coimbatore, Salem, Erode and other adjoining cities. Several mills have set up their sales depots at Tirupur to provide raw material on ex-stock basis. Besides, there are also several cotton yarn merchants in Tirupur and Coimbatore. Specialty stores, selling accessories such as buttons, zips, laces and sewing threads are there in a large number in Tirupur itself. Similarly the dyes and chemicals that are manufactured mainly in Gujarat and Maharashtra are available through companies' sales depots and through merchant dealers in Tirupur, itself.

The manufacturers of the circular knitting machines and dyeing machinery are mainly located in Punjab, specifically in Ludhiana and Amritsar. With the introduction of new technology, imported machinery has been in a widespread use in Tirupur. The commission agents and dealers for both indigenous and imported machinery are based in Tirupur providing access to the latest models available worldwide. An important agent, among others providing imported machines, is 'Mehala group of companies' with total employees strength of 350 persons and a dozen individual enterprises. Besides supplying machinery, they undertake servicing of the machines, and provide training to the industry workers in machines working, servicing and maintenance.

Conducive to the need of export market, innovative service enterprises have been set up by private entrepreneurs. These services are targeted at exporters, suppliers, manufacturers, buyers, importers and the retailers that help their customers to reduce their risk, improve efficiency, provide inputs for cost control, implement and ensure compliance of the mutually agreed quality systems.

For example, the range of services provided to importers may comprise of pre-production checks of exporting enterprises, initial-production checks, during-production checks, final random inspection, status reporting, container loading supervision, damage survey, product consultancy, sourcing assistance, factory assessment and laboratory testing. This helps to bridge the gap between the manufacturer and the buyer and to create a greater degree of confidence in the marketing channel.

Cluster Map after Intervention (2001)



This article is excerpted from UNIDO's End of Project Report on "Cotton Hosiery Cluster at Tirupur" from SIDO Online at clusters.smallindustryindia.com by SPHC Knowledge Team.