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**CLUSTER DEVELOPMENT AND BDS PROMOTION:
UNIDO'S EXPERIENCE IN INDIA**

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Abstract

This paper presents the experience of the UNIDO Cluster Development Program in India. The peculiarity of this program is that it targets existing clusters of small-scale enterprises (large groups of firms operating in the same industry and localized in the same geographical area). This is done by fostering small-scale enterprises (SSEs) collective efficiency and by improving their support system so that they can exploit the opportunities available in their national market as well as in the global one. The paper introduces the rationale of the UNIDO approach (centered around vision- and capacity-building at the cluster level) and it articulates the methodology which is being followed in India.

In line with the topic of the conference, the paper provides a handful of case studies drawn from the UNIDO experience in BDS-related activities in India. Emphasis is placed upon the procedures followed a) to articulate entrepreneurs' demand, b) to undertake pilot project development, and c) to strengthen systemic interactions. These complementary measures share a common purpose, namely articulating fragmented knowledge and strengthening the degree of trust among cluster actors.

The paper offers evidence to assess the current impact of the program as well as its future sustainability. Attention is also paid to a range of still unsettled issues and particularly to the relationship between the cluster approach and the development of competitive BDS markets.

There appears to be a great deal of synergy between this approach and initiatives aimed at building competitive BDS markets. This is because the mobilization of fragmented knowledge, the identification of a strategy for the cluster as a whole, the creation of trust among the cluster actors are all essential prerequisite for the development of a vibrant local economy characterized by a receptive environment, within which BDS are likely to thrive.

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CHAPTER 1: INTRODUCTION

There is ample evidence that small-scale enterprises (SSEs) operating in the same or in related industrial sectors tend to cluster close to one another (Sengenberger, Loveman & Piore 1990). This tendency to bunch in well-defined areas, often called clusters¹ or industrial districts, has been observed in different environments in both developed and developing countries, and in different historical periods (Sabel 1989, Marshall 1990, UNIDO 1995). There are sound economic reasons for this phenomenon (Krugman 1991). SSEs operating in such clusters derive a clear competitive advantage from:

- the proximity to sources of raw inputs,
- the availability of suitably customised business development services (BDS),
- the abundance of clients attracted by the cluster tradition in that industry, and
- the presence of a skilled labour force.

Not all SSE clusters are characterized by the same dynamism, however, or indeed by the same economic success. The literature on the so-called Italian industrial districts (Piore and Sabel 1984, Best 1990, Porter 1990) describes SSE clusters that have reached high levels of growth and leadership in profitable niches of world markets (e.g. leather goods, textile, jewelry, ceramic tiles, and spectacle frames). Similar accounts exist from other developed countries such as Germany (Semlinger 1993), the USA (Saxenian 1989), Japan (Friedman 1988), and increasingly from low-income countries (Schmitz 1995, World Development 1999). However, in many other clusters, SSEs do not achieve the same high-growth trajectory. On the contrary, they often struggle for bare survival within increasingly open and globalized markets.

The UNIDO Cluster Development Programme² was started in 1995 to strengthen the competitive advantage of under-achieving SSE clusters. The programme draws lessons from the experience of successful clusters and implements them through technical cooperation projects in various developing countries³. The strategy adopted is to identify the collective competitive advantage of particular clusters, and to build up local capabilities to realize it by supporting the broadest spectrum of cluster actors, such as SSE owners, producers' associations, BDS providers, local policy makers, etc.

The UNIDO project in India is expected to contribute to the promotion of a sustainable national cluster development programme. Such a project is particularly appropriate in India, since the SSE sector, and in particular SSE clusters, play a crucial role in the country's economy. In fact, more than 85% of manufacturing employment is accounted for by small-scale (registered and unregistered) enterprises. The contribution of SSEs to the economy is also significant in terms of output, since they account for some 40% of industrial production. The sector has exhibited remarkable growth rates over the past two decades, surging from under 875,000 registered small enterprises in 1980 to over 28 million in 1996. Within the industrial sector, SSE clusters are a widespread phenomenon. From a UNIDO survey of the largest Indian clusters conducted in 1996 (UNIDO 1997)⁴ it emerges that the majority of them comprise small-scale enterprises which perform the entire production process in-

¹ UNIDO defines a cluster as a sectoral and geographical concentration of enterprises, in particular small scale enterprises (SSEs), faced with common opportunities and threats which can:

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

² The term programme here indicates a technical cooperation framework implemented through country projects.

³ An account of the UNIDO experience in Latin America is provided in UNIDO, PSD Discussion Paper No.2, 1999.

⁴ The UNIDO Survey identified 350 SSE clusters. This figure does not include the craft-based clusters the total number of which is of approximately 2,000 (UNIDO 1997).

house, and that sub-contracting (to other small, medium or to large-scale firms) is relatively less frequent. In terms of output, numerous clusters have been found to operate in the machinery, textile, food processing and chemical sectors. It is estimated that over 60% of the Indian manufacturing exports are generated by clusters (UNIDO 1997).

Over the current decade, the increasing liberalization of the Indian economy has had a severe impact on many SSE clusters. The loss of the protection that had been traditionally granted by the Indian government to the SSE sector is increasingly being felt. Despite this mounting challenge, India still lacks a coherent support policy for SSE clusters. Awareness of this issue has been growing over the past five years, however, and in January 1997 a high profile expert group (the Abid Hussain 'Expert Committee on Small Enterprises' constituted by the Government of India in December 1995) explicitly endorsed cluster support initiatives as also recommended in the UNIDO clusters survey⁵. At the end of 1996, following a national workshop during which the results of the UNIDO survey were presented, UNIDO was requested by the Indian Ministry of Industry to promote pilot projects in selected clusters⁶, and to help the Ministry formulate a national cluster development programme. With initial funding provided by the Italian Ministry of Foreign Affairs, UNIDO prepared a comprehensive project aimed at developing sustainable capabilities at both the local and the national levels to promote SSE networking and cluster development. The initial project had a proposed duration of four years but was recently extended to seven years (1997-2002) thanks to a contribution from the Swiss Agency for Development and Cooperation.

The paper starts with an introduction to the cluster approach, explaining its rationale and methodology in Chapter 2. Chapter 3 explores some initiatives undertaken to upgrade the BDS framework in various Indian clusters. Chapter 4 presents the efforts made to promote a national cluster development programme. Chapters 5 and 6 reflect upon the synergy between the cluster development programme and initiatives aimed at strengthening BDS markets. This relation is considered both in light of the enhanced effectiveness of a BDS market development initiative if it becomes a component of a cluster development programme and of the open issues, which remain to be addressed by such type of programmes. Annex 1 offers an overview of the activities and achievements of the Jaipur and Ludhiana clusters according to the framework presented in the paper. Annex 2 provides additional information on the four Indian clusters on the basis of selected BDS performance indicators such as scale, outreach, impact, and sustainability.

⁵ The report stated: "Focus on clusters is the centre-piece of the new approach in an increasing public private partnership in setting up support systems for small scale enterprises. Such public-private partnership would thrive particularly in clusters of small scale enterprises...The Expert Group therefore recommends that state governments identify the existing SSE clusters and then promote new types of organisations which are joint ventures between the state governments or local authorities and business associations in these clusters". (Hussain, 1997).

⁶ The clusters of Tirupur (cotton knitwear), Pune (food-processing), Jaipur (textile-printing) and Ludhiana (knitwear), have been jointly selected by the Ministry of Industry and UNIDO on the basis of a set of criteria including their contribution to the local economy (number of firms, employment, output, etc); their market potential; socio-environment considerations; location (urban/ rural); linkages to other sectors and potential for dissemination of results.

CHAPTER 2: THE CLUSTER APPROACH

Before reflecting on the UNIDO experience in BDS-related initiatives within the Indian cluster development project, the approach is explained in detail. This chapter introduces the reader to the rationale behind the approach in section 2.1, and presents a brief introduction to the methodology implemented in various Indian clusters in section 2.2.

2.1 Rationale

SSE clusters constitute ideal targets for a SSE support agency (Mead & Liedholm 1998, OECD 1998). The concentration of largely homogenous enterprises within a relatively limited geographical area **facilitates the intervention** because of the similarity of needs and support requirements, **speeds up the dissemination of best practices** because of the pervasiveness of demonstration effect, and allows for a **distribution of the fixed costs of interventions** among a large number of beneficiaries. This is true for under-achieving clusters as well as for the best performing ones.

However, underachieving clusters are characterized by environments where information does not flow easily and where the various actors are not accustomed to talking with one another. In stark contrast with their counterparts in well-performing clusters, especially in developed countries, entrepreneurs in under-performing clusters rarely if ever meet one another, do not usually have ongoing relationships with BDS providers and are not accustomed to presenting articulated calls for actions to the local policy makers. On the contrary, these clusters are often characterized by extremely fragmented knowledge, latent conflicts, and an absence of discussion fora. The SSEs in these clusters therefore have very poor perceptions about the feasibility of joint actions.

The cluster approach has been developed to address knowledge fragmentation, lack of co-ordination and joint action. It is based upon the realization that the lack of communication among the various cluster actors and their skepticism towards joint endeavors are deeply entrenched within traditional business practices and that the latter cannot be replaced without the investment of significant resources. The private sector (SSE, BDS providers) is unlikely to provide these resources because of the public nature of the goods and services needed to overcome knowledge fragmentation and poor co-ordination. Awareness- and trust-building initiatives, the dissemination of best practices within an audience of scarcely motivated SSE owners, the creation of suitable discussion fora and ultimately of a governance framework for the cluster as a whole are all activities whose outcome is not only subject to a high degree of uncertainty but are also largely indivisible and non-excludable (i.e. once provided are available to all). As a result, profit-motivated agents should not be expected to invest a great deal of their resources for the realization of such activities.

The cluster approach aims to achieve these outcomes by helping the various cluster actors to develop a consensus-based vision for the cluster as a whole and by strengthening their capacity to act upon such a vision. The first component is aimed mainly at reducing the fragmentation of knowledge, but also provides an extremely valuable opportunity to draw attention to a common and often very innovative agenda, so that each cluster actor (and above all SSE owners) has an opportunity to test the reliability and trust-worthiness of its partners on a “fresh” ground. The second component of the approach aims at enabling the various cluster actors to overcome traditional practices and put in place a sustainable, autonomous governance framework which will keep dynamising the local economy long after UNIDO will have withdrawn from the cluster.

2.2 The methodology

The methodology implemented in India addresses both the vision- and capacity building objectives discussed in the previous section. This section emphasizes the three phases which each cluster project is expected to undergo over the lifetime of the UNIDO support initiative, namely:

- Preparation of a diagnostic study and formulation of a cluster action plan;
- Implementation of pilot and strategic projects; and
- The self-management phase.

It must be stressed, however, that the boundaries between the various phases are not strictly defined and that all phases contribute to vision- and capacity building.

The implementation of the three phases centers on a Focal Point based in Delhi, currently comprising of four national consultants. These consultants have been trained by UNIDO in the principles of clustering and networking. They are responsible for the implementation of these phases, for encouraging the exchange of experiences among clusters, and for supporting the Indian Government in its efforts to promote a national cluster development programme.

At the cluster level, the Focal Point forges working partnerships with one or more institutions (NGOs, producers' consortia/associations, BDS providers) not only to facilitate the implementation of the various initiatives, but also to pass on the skills and competence acquired as a result of the UNIDO training and the hands-on experience gained in the pilot cluster.

A key tool for cluster development is the **diagnostic study**. This study gathers previously dispersed and fragmented knowledge about the economic and social conditions of the cluster and its development potential, as well as the state of inter-firm relationships and the existing institutional support mechanisms. The diagnostic study also provides a valuable opportunity to enforce awareness about the approach and to promote trust among the cluster actors. Moreover, it helps to identify potential leaders from within the cluster and, more generally, the suitable counterparts to assist implementation. The diagnostic phase ends with the preparation of a broad **action plan** for the cluster. This document is drafted by the Focal Point together with key cluster representatives and offers a vision around which to gather the support and collaboration of the various cluster actors. The preparation of such a plan is the essential first step in developing long-term local capacities for responding to evolving economic and technical circumstances, rather than as a once-for-all prescription. The first draft of the cluster action plan is thus a working document which must be revised as more information about the cluster is disclosed and on the basis of the results of the initial interventions. Nevertheless, it is expected that the information gained as a result of the diagnostic study and the joint preparation of the action plan (especially concerning the competitive position of the cluster in the national and international market) will suffice to identify the **potentialities of the cluster** as well as the **key obstacles** which prevent it from taking up the opportunities provided by the globalization of the Indian economy. As these obstacles are identified, a key task of the Focal Point is to help the partners institutions to prioritize them (both in terms of their importance and of the capacity of the cluster actors to jointly tackle them) and to identify the initiatives which can relieve them including the **utilization of existing BDS and the development of new ones**.

The elaboration of an action plan is meant as the initial step to the development of **pilot projects** where groups of firms sharing similar constraints (networks⁷) are formed and specific initiatives are formulated and implemented. During this phase, co-operation starts bearing concrete results to the participating enterprises. The initiatives are generally of a commercial and/or promotional kind (e.g. joint participation in fairs, joint purchase of raw materials, design of a collective catalogue). The idea is to generate visible results (although of a short-term nature) to engender optimism and trust. At the same time, the pilot projects consolidate willingness of the networks and associations to undertake long-term strategic initiatives around an increasingly shared vision for the

⁷ The term **network** refers to a group of firms that co-operate on a joint development project, complementing each other and specialising in order to overcome common problems, achieve collective efficiency and conquer markets beyond their individual reach.

cluster as a whole. These projects generally entail an increase in the degree of specialization by process and/or by product of the firms involved (e.g. restructuring or creation of common service facilities, new product lines, common brands). It is at this stage that the involvement of both technical and financial institutions becomes essential and that the initiatives are meant to contribute more directly to the creation of capacities at the cluster level. UNIDO therefore ensures that the networks/associations supported by the projects can draw assistance from the available institutions. As will be emphasized in Chapter 3, this task often implies upgrading the capacity of BDS providers or even initiating their establishment, especially in clusters characterized by a relatively weak support framework.

Finally the intervention gives way to a **self-management phase**, as the networks/associations gain greater autonomy from UNIDO's assistance and the capacity to undertake further joint activities independently. It is during this phase that it becomes possible to test whether the earlier investment on vision- and capacity building has delivered the expected results and if the cluster approach has won the endorsement of the various cluster actors. Self-management is not always easily achieved. Often the networks/associations tend to lean on UNIDO's assistance for a longer time than initially envisaged. In order to avoid dependency the workplan established by the network members and the Focal Point must have a specific time frame. The cluster actors thus know from the beginning that they can count on assistance only for a limited period of time. As the various networks/associations develop, UNIDO's intervention shifts towards softer co-ordination and a progressive transfer of responsibilities to the cluster actors is ensured.

BOX 1 - UNIDO cluster intervention in Jaipur

Colorful hand-block printing enjoys a long tradition in Jaipur, the capital of Rajasthan, where approximately 550 small firms engaged in both hand-block and screen printing provide employment to almost 10,000 workers. Since the 1980s exports have picked up as a consequence of the growing worldwide appreciation for ethnic design and eco-friendly dyes. Traditional hand-block printers based around the city of Jaipur, mainly in the villages of Bagru and Sanganer, failed to keep up with growing demand, especially in the 1990s, progressively giving way to locally based screen printers. The latter not only enjoy lower production costs, but they have been able to take advantage of the industry's reputation by picking up the same designs while doing away with vegetable dyes in favor of synthetic ones (even though the textiles are marketed as having been printed with natural dyes). The increasing competition from the screen printers has forced the block printers to squeeze their profit margins and increase the degree of self-exploitation.

The diagnostic study conducted in 1997 identified an unexploited capacity for the traditional artisans in the cluster to target profitable national and world markets. The vision and action plan developed for the cluster envisaged the reevaluation of the traditional form of production and the improvement of the living standards of the artisans by:

- Reducing the cluster disarticulation (i.e. lack of linkages among the different cluster actors);
- Enhancing the design, production and marketing capacity of the firms;
- Developing a product image (including a common brand) in line with current market demand; and
- Improving and increasing the types of BDS available in the cluster.

The most significant obstacles preventing the realization of such a vision included:

- The lack of communication among the artisans;
- The absence of an active association;
- Inadequate quality control capacity of the entrepreneurs;
- Lack of design and marketing skills as the hand-block printers had grown accustomed to working as sub-contractors for exporters; and
- Inadequate access to credit.

As a result of the UNIDO intervention the dormant artisan association, Calico Printers Co-operative Society (CALICO), has been revitalized, with its membership increasing from 26 artisans to 120, and a common show room has been created. In addition, several networks have been promoted and an export consortium, Consortium of Textile Exporters (COTEX), has been formed. New products and designs have been introduced with the assistance of the National Institute of Fashion Technology (NIFT) and a common brand image has been promoted. This has been accompanied by the provision of courses in marketing and the establishment of linkages

with national and international markets through joint participation in trade fairs. A credit scheme has been promoted with the assistance of the Small Industries Development Bank of India (SIDBI). Finally, an NGO active at the cluster level, the Indian Institute for Rural Development (IIRD), is increasingly playing the role of the cluster development agent.

CHAPTER 3: BDS-RELATED INITIATIVES WITHIN THE CLUSTER APPROACH

As emphasized in section 2.1, the rationale behind the cluster development program is to strengthen the capacity of the various cluster actors to develop a collective vision of the opportunities they face, and to seize these opportunities through coordinated collective initiatives. In line with the topic of this conference, the aim of this section is to provide examples of BDS-related initiatives.

The interaction between UNIDO and the key cluster actors has shown that the structural problems faced by the clusters are not primarily related to the inefficiency (i.e. lack of competition) of the **existing BDS markets** (e.g. vocational training, book-keeping, technology transfer, etc.) On the contrary, the inability to seize upon a more ambitious vision for the cluster as a whole is generally related to the **absence of certain types of BDS markets**, for example in the fields of export consultancy, internet technology, bulk purchasing, and joint product marketing, although they would be the most beneficial. These are areas where potential suppliers are often unwilling to customize their services to the requirements of SSEs, while potential customers are unclear about the need for such services. **In other words, the absence of this type of BDS stems from the lack of an effective demand as well as of a suitably customized supply.** As pointed out in section 2.1, bridging such a gap requires the provision of a variety of public goods that are not spontaneously forthcoming either from the BDS suppliers or from the SSEs within the cluster. The UNIDO approach towards BDS-related initiatives involves a simultaneous effort on the demand side (through the articulation of the demand by the SSE owners for BDS presently unavailable in the clusters) and on the supply side (through the design of BDS customized to the needs of the cluster SSEs and in line with the emerging vision for the cluster as a whole).

On the same issue, it needs to be emphasized that capacity building cannot be confined to a once-and-for-all initiative such as the identification/provision of a BDS previously unavailable to the cluster SSEs. On the contrary, the aim is to enable the various cluster actors to tackle new challenges and to seize upon more ambitious visions on a sustainable basis. Such an objective involves, for example, strengthening the capacity of the SSE owners to convey their requests to the BDS providers, lowering the risk perceived by BDS providers in doing business with SSEs, enabling BDS providers and SSE owners to identify institutional partners able and willing to co-finance the development of new BDS, and identifying more effective procedures to assess BDS impact.

Lastly, it is important to stress that UNIDO has tried to avoid, to the extent possible, the subsidization of BDS costs out of the conviction that the various cluster actors will not fail to perceive the economic viability of commercial BDS provision if they have been sufficiently sensitized to the value of such services. When subsidies were provided, they were aimed at start-ups providing innovative BDS (e.g. access to new technology cum training, quality management). On the contrary, significantly less support was available for BDS strengthening the commercial capacities of the SSEs or, more generally, to initiatives with an immediate impact upon the profitability of the latter (e.g. participation in fairs, product design). Over time, UNIDO subsidies for one activity are reduced to avoid dependence. The following table gives an indication of the principles behind subsidization with reference to the support provided to the CALICO consortium in Jaipur.

Supporting Participation in National Fairs organized by Calico

Time	Event	Contribution in percentage			Type of support
		Participants and Calico	UNIDO	Support Institutions	
03/1998	First fair at Jaipur	35	50	14	Advertisement, Space, Organizational
10/1999	Second fair at Jaipur	23	38	38	Advertisement, Space, Organizational
03/1999	First fair at Delhi	42	26	32	Advertisement, Organizational
10/1999	Second fair at Delhi	64	7	20	Advertisement

As a rule of thumb, subsidies are granted to the BDS providers rather than directly to the SSEs. The opposite strategy has indeed delivered disappointing results, as for one of the earliest initiatives by one of the export consortium in Jaipur. In the hope to boost the SSEs' confidence about the export markets, UNIDO agreed to subsidize the participation of one of the consortium members to a major Italian fair. It was expected that this exporter would discuss his impressions and disseminate his findings to his peers upon returning from the trip, thus dynamising the association. However, the results were not in line with the expectations: not only did the exporter fail to share his experience, but a great deal of conflict also broke up within the consortium as all other members felt discriminated against.

Section 3.1 reflects on articulation of SSE demand for BDS, and also provides an introduction to the obstacles to vision building in a particularly unresponsive environment. Section 3.2 dwells more specifically on the development of new BDS. Section 3.3 reflects upon the need to build systemic capacities for the whole cluster.

3.1 Articulation of demand

As mentioned in section 2.1, underachieving SSE clusters are often characterized by extreme fragmentation of knowledge and lack of trust. This feature can be so pervasive that the various cluster actors fail even to perceive their inter-dependence, and therefore the scope for mutual collaboration and interaction. Largely as a result of the lack of mutual trust and of suitable fora, cluster actors hold wholly incompatible perceptions of how the cluster operates and what its potential might be. This is the reason why the diagnostic study discussed in Section 2.2 cannot consist merely of a simple collection of accounts from the different cluster actors. On the contrary, this preliminary study must provide an opportunity to combine information and to compare incompatible or scarcely overlapping pictures. Ultimately, the diagnostic study must enable the cluster actors to come up with a new vision for the cluster as a whole, a task which inevitably requires all of them to be willing and able to re-interpret their visions in light of the knowledge disclosed by the other cluster actors. The experience of UNIDO indicates that it only becomes possible to identify the real needs of the cluster SSEs and to act upon them (for example through the provision of previously unavailable BDS), as a result of this exercise.

It is clear that this exercise can only be undertaken if the entrepreneurs trust one another. Box 2 provides an account of how a more cooperative climate is brought about within a relatively unresponsive environment. Success in such an exercise crucially depends upon the capacity to overcome in-built resistance and to revive a dialogue that had long been lost. The impartiality, vision, and legitimacy displayed by the Focal Point were all severely tested over the early life of the project. As emphasized in the following boxes, these consultants have been approachable and ready to visit cluster actors repeatedly to earn their trust. They proved capable to steer face-to-face meetings and to mediate latent conflicts. It has been their responsibility to ensure that all the participating actors were adequately aware of the initiatives undertaken and that any feeling of dissatisfaction or exploitation was voiced as soon as it emerged.

BOX 2 - Strengthening co-operation among the block-printers of Bagru

Creating an environment of mutual trust among competing SSEs rarely proved as hard as in the case of the block printers of Bagru, a village near Jaipur. The diagnostic study disclosed that an attempt to co-operate had failed some twenty years before and that no further move had been made ever since. The reluctance of the firms to participate even in an introductory meeting indicated that 20 years of bitter competition had made any trust-building initiative remarkably difficult.

The Focal Point therefore shifted the focus of awareness-building towards the artisans' sons (themselves block printers) hoping that they may not yet share the same mutual mistrust and that their superior education would equip them with a longer-term approach to business. A series of one-to-one interviews were conducted to identify the needs and priorities of these young artisans. It thus emerged that they shared a keen interest in strengthening marketing skills, and that they would contribute to a suitably designed training course. In conjunction with a locally operating NGO and with the support of the Small Industries Development Bank of India (SIDBI), a market orientation training programme was organized in Bagru for 23 young artisans with an average age of 21. Besides class teaching on marketing promotion, quality testing, product development, advertising and distribution, the programme included a visit to Delhi (to showrooms and representatives of artisan support agencies) and to Jaipur (to the larger block-printers as well as trading houses).

The reaction of the young artisans was enthusiastic. These young people emerged more confident about their marketing skills. They also reported a greater deal of interest towards various existing artisan support schemes (about which they admitted they had not known anything before the programme) as well as their surprise regarding the profit margins that show rooms earned from products bought at Bagru. Their enthusiasm rapidly spread to their parents who started to show up at the following meetings (often the very same people that had declined to participate earlier on and had actually displayed a great deal of aggressiveness). As a result, 16 hand-block printers voluntarily took part in a UNIDO/SIDBI supported pilot project whereby an external designer was hired to pool together the block design of the various printers and to develop new designs which would appeal to foreign buyers. Subsequently, a common brand was created which distinguishes original Bagru products. On the basis of this brand, the same printers have been able to participate jointly in major textile fairs in India, thus significantly broadening their markets.

Simply bringing SSE owners to the same table so that they can share their visions and worries is a necessary but not a sufficient step behind the identification of the structural needs of a cluster, and thus of the BDS that can address such needs. As emphasized in the next box, an important task that UNIDO has often been called to perform is to help the cluster entrepreneurs look beyond their most pressing needs at the determinants of their structural weaknesses. It is only when a more detailed and comprehensive vision emerges about what the cluster is and what its potential might be that it becomes possible to identify the services that are most likely to alleviate the structural deficiencies of the SSE owners.

BOX 3 - Articulating demand in the cluster of Pune

The diagnostic study revealed that the vast majority of the food-processing entrepreneurs in the cluster of Pune identified the stringency of the 1954 Food Adulteration Act as the greatest obstacle to their growth. Their initial request was for UNIDO to act at the most senior level to relax this legislation. In collaboration with a leading figure from the cluster (himself the owner of the only local private testing facility), UNIDO undertook a long-term awareness-building initiative lasting over four months in the attempt to help the cluster entrepreneurs re-focus this request. Bilateral as well as group meetings were organized to identify in greater detail the reasons behind their inability to meet regulations.

As a result of these initiatives, the great majority of cluster entrepreneurs admitted their ignorance about the law and their inability to keep up with its continuous amendments. As this issue was further discussed with the producers, their requests increasingly shifted towards the need for an information point within the cluster where all the relevant legislation could be rapidly looked up. Furthermore, it emerged that the cluster producers lacked any opportunity of dialogue with the food regulation agency at the federal level because of the intense fragmentation of their representative associations. As a result, the demand was increasingly raised for the establishment of an 'umbrella' organization with sufficient critical mass and representativeness to liaise directly with New Delhi. The bilateral meetings also disclosed that the lack of sufficiently reliable and independent testing facilities reduced the capacity of the local producers to monitor their compliance. This realization led to a broader demand for the creation of a technical centre in Pune. It also helped introduce the producers to the more general issue of quality control. Finally the importance of acquiring new skills also became apparent to the majority of the cluster producers.

At a joint meeting of the various cluster actors held towards the end of this awareness-building phase, it therefore proved relatively easy to identify a set of pilot projects (including the creation of an umbrella organization, of a dedicated info-point about food legislation, and of a feasibility study for a technical centre). These projects have been enthusiastically taken up by a significant number of cluster entrepreneurs who are slowly becoming accustomed to collaborating intensively with one another.

3.2 Pilot product development

Helping the SSEs of a cluster to articulate their needs more effectively is a necessary but not a sufficient component of a BDS-related initiative, which must also address the issue of the conflict-rich relationships between SSEs and BDS providers. A great deal of work is needed to ensure that one or more BDS providers respond to these newly-identified demands and use their skills and competence to provide services in accordance with the needs and expectations of the SSE owners. Initially, this responsibility has been taken up by UNIDO with the intention to handing it over to a local cluster agent as soon as the gap between BDS providers and potential clients is bridged and as soon as the feasibility of such an approach to pilot BDS development is publicly understood. As already pointed out the intervention of an external agent is required because of the public nature of this type of initiative.

Once a consensus emerges among the SSE owners, pilot product development takes place as a result of a dialogue between the provider and the customers. UNIDO and subsequently the local cluster development agent play a major role in promoting such dialogue as the catalysts that facilitate discussion.

BOX 4 - The introduction of IT in the cluster of Ludhiana

The diagnostic study showed that the adoption of Information Technology (IT) in the hosiery cluster of Ludhiana was limited prior to intervention, while Internet access was prohibitively expensive due to the lack of a point of presence (POP) in the area. Since the cluster action plan gave high priority to exploiting the opportunities offered by IT, UNIDO organized a workshop in Ludhiana where a well-known IT consultant from Delhi introduced the principles of electronic mail, web browsing and e-commerce to the cluster entrepreneurs. From there onwards, however, all responsibilities have been transferred to the Ludhiana partner institution, Knitwear Development Group (KNIDGRO), an association representing 12 cluster SSEs created in March 1998 with the support of UNIDO (very much as described in Box 2). In April 1998, the director of KNIDGRO was hosted in Delhi where UNIDO co-financed his participation to an *ad hoc* training course on IT. After a series of awareness-building initiatives and training courses organized by KNIDGRO in which over 30 Ludhiana firms took part, and after a joint request from KNIDGRO had led to local access availability of internet thus determining a drastic reduction in Internet connection costs, KNIDGRO embarked on an ambitious attempt to bridge the gap between the cluster entrepreneurs and the local providers of IT-related services.

KNIDGRO contacted the local IT-related service providers with a request for greater customization in line with the expectation and capacities of SSEs. Thanks to the expertise acquired at the Delhi training course and to the in-depth knowledge about its association's members, the director of KNIDGRO was able to devise a suitable syllabus and to put it forward to all the training institutions operating in Ludhiana. Having identified the one institution providing the best offer in terms of facilities, quality as well as price, and with the full endorsement of its members, KNIDGRO signed a contract on behalf of 17 of its members. A very similar strategy was implemented the following month, when a dozen KNIDGRO members came up with a request for an on-line outlet site for e-commerce. Once again, KNIDGRO brokered a deal with the most experienced Internet provider from Ludhiana.

As some of the association's members expressed an interest in ERP (Enterprise Resource Planning) technology and their dissatisfaction with the inability of the local software providers to come up with such an integrated and robust package, KNIDGRO contacted one of the larger private software providers operating in India. Considering that the cost of developing such a tailor-made product would have made it unbearably expensive for an SSE, KNIDGRO called a meeting with all interested entrepreneurs where it emerged that a further 20 SSEs would be ready to purchase the software if it was successfully tested by someone operating in the cluster. Furthermore, it emerged that up to 500 Ludhiana entrepreneurs would have been in a position to purchase such a product. Supported by this evidence, the software provider agreed to undertake pilot product development in association with two local producers (who would ultimately receive the software at a very subsidized price) and signed a contract accordingly.

As a result of this initiative (which lasted approximately one and a half years) the use of IT in the Ludhiana cluster has increased dramatically. In particular, there has been a spectacular increase in the use of e-mail (as an instrument for entrepreneurs to get in touch with one another, to share ideas and projects, and to identify and implement new and more ambitious action plans) and of the Internet (as a source of information and a marketing opportunity through e-commerce). IT penetration in the textile industry appears to be higher than anywhere else in Ludhiana, in spite of the technological backwardness normally characterizing the industry.

3.3 Strengthening systemic interactions

As the needs of the cluster SSEs are increasingly articulated around a cluster-wide vision and as BDS providers are convinced about the feasibility of customizing services to the demands of SSEs, the task of UNIDO is to ensure that the entire environment which surrounds the cluster SSEs is adequately sensitized and responsive to the cluster approach. Capacity-building needs therefore to include as many cluster actors as possible, including local policy makers, regional branches of SSE support institutions, locally operating NGOs, banks and higher education institutions, producers' associations, etc.

The Indian experience shows that the initiatives aimed at creating BDS markets are valuable opportunities to draw different cluster actors to the same table and to identify a common platform for their joint action. Thus, cluster entrepreneurs are attracted by the prospect to increase the profitability

of their businesses, BDS providers by the opportunity to broaden the market for their services and explore new types of services, and local government and NGOs by the expectation of revitalizing the local economy. This type of initiative therefore provides an excellent mechanism to strengthen the dialogue and mutual understanding among groups of cluster actors which otherwise may not perceive the scope for mutual help. If successful, initiatives such as those discussed in the two previous sections are likely to augment the endowment of the so-called “social capital” at the cluster level, and to spark within it the virtuous cycle of self-reinforcing trust which characterizes the well-performing clusters in developed countries.

Box 5 - Promoting a responsive support framework in the cluster of Jaipur

Initially the local support institutions displayed much less interest and commitment than the entrepreneurs. The first cluster-wide meeting called in January 1998 had limited results. In spite of the proposals coming from the Calico Printers Co-operative Society (CALICO) and the Consortium of Textile Exporters (COTEX) and of the previous sensitization by UNIDO, the local institutions failed to pick up any of the projects identified, thus contributing to a further worsening of the relationships between the local producers and support institutions.

UNIDO thus opted for a more time-consuming sensitization of the support institutions both at the local level and through their headquarters, whereby the main thrust of the cluster approach was repeatedly presented, the initiatives identified by the artisans were introduced and financial support was requested. This strategy finally started to pay off as the National Bank for Agriculture and Rural Development (NABARD) agreed to make a ‘token’ contribution (little more than 15% of the total costs) for the participation of the cluster artisans in a fair at Jaipur city. Since this ice-breaking initiative, collaboration within the cluster improved considerably. Moreover in an attempt to secure the emergence of a partner institution within the cluster, UNIDO started to collaborate more and more closely with an NGO active locally, the Indian Institute for Rural Development (IIRD) which was invited to participate and contribute to all cluster initiatives.

Numerous other nation-wide SSE support institutions were increasingly roped in, including the Small Industries Development Bank of India (SIDBI), the State Bank of India (SBI), various Development Commissioners and the Chamber of Commerce. By the end of 1999 their financial contribution to cluster related activities reached an average of 20%. Furthermore, it is now common for the local branch officers of these institutions to get in touch directly with CALICO, COTEX and the IIRS to learn about upcoming initiatives and to enquire about the possibility of co-financing them.

Strengthening the business system also envisaged the improvement of the relationships between SSE and commercial banks, which had effectively ceased since a serious flood had hit the village in 1991 depriving the SSEs of their collateral. Initial meetings between members of CALICO and the bank managers were stormy. The decision by the Focal Point to chair these meetings helped all participants to agree on a common platform and to assign individual responsibilities. One of the major outcomes was that the president of CALICO (one of the largest and most respected businessmen of Sanganer) could ease loan disbursement by providing collateral on behalf of the consortium’s other members and by screening applications in light of his knowledge of the local firms. 15 loans applications were signed between the local banks and CALICO members within few months after the agreement was reached. At the moment, the supply of loans has increased so dramatically that it has become common for bank managers to contact CALICO directly to ask if any other loan application has been handed in and a credit guarantee scheme is being developed with the assistance of SIDBI.

CHAPTER 4: DEVELOPING A SUSTAINABLE NATIONAL SSE CLUSTER PROGRAMME

With reference to the issue of sustainability it is important to clearly differentiate between the sustainability of: a) the support institutions and networks promoted by the programme, b) the cluster approach, and c) the Focal Point.

The sustainability of the various institutions/networks supported by the programme (newly-created or revived consortia like COTEX, CALICO or KNIDGRO, self-help groups like in Bagru, umbrella organizations like COFIT) and of the services they provide can only be fully ascertained after the end of the program. What can be said at the moment is that these institutions are largely self-sustainable (well in excess of 50% on average and nearly 100% in the most dynamic clusters) and that UNIDO subsidies are being provided to these institutions only to undertake new activities. Table 2 provides evidence on the sustainability of the BDS being made available. In the two most dynamic clusters (Tirupur and Ludhiana) cost recovery exceeds 80%. Keeping in mind the relative backwardness of the Jaipur cluster (characterized by a large number of micro-scale artisan producers), a figure above 50% provides encouraging evidence. The low cost-recovery level of the Pune cluster (22%) is biased by a significant infrastructural investment in the early stages of the programme. Currently, however, such level is getting in line with that of the other clusters and it should reach 50% in the year 2000.

The sustainability of the approach at the cluster level can be gauged by the capacity of the various clusters' actors to interact with one another with the aim of developing a common vision and to respond to the cluster challenges. While it is too early to evaluate if this target has been realized, promising indications can be gained from the growing capacity of the various cluster actors to interact with one another and to develop joint initiatives (i.e. without the support of the Focal Point). In this respect it can only be pointed out that during the programme the Focal Point has worked intensively to pass along to the cluster actors as much competence and insight as possible. This has been done a) through on-the-job-training whereby motivated staff members from the most dynamic partner institutions are involved in the main activities of the Focal Point at the cluster level (as reflected in the conclusion of Box 4 and 5) and b) by exposing these very same partners to 'best practices' drawn from the experience of the other Indian clusters participating in the Programme, but also from other UNIDO projects from around the world. Since the overwhelming majority of these individuals operate within sustainable cluster institutions, this transfer of responsibility is likely to prove sustainable in the long run.

Moreover the sustainability of the approach requires that cluster development become an integral component of the overall SSE support policy in India. It is precisely to ensure such an outcome that the task of UNIDO is progressively shifting towards the support to the Indian Government in developing a sustainable SSE cluster programme (as discussed in the following box). This requires the extension of the interventions to other clusters by involving state directors of industry and a closer association to the programme of key national SSE support institutions and development banks.

Box 6 – Establishing an institutional mechanism to promote and coordinate cluster development.

In November 1998 the Department of Small Scale Industries (DSSI) of the Ministry of Industry and UNIDO organized a national workshop on “Evolving a Cluster Development Programme” in Mysore. The objective of the workshop was to discuss the results of UNIDO cluster activities as well as the experience in this field of other institutions such as the Small Industries Development Bank of India (SIDBI), the State Bank of India (SBI) and the National Small Industries Corporation (NSIC), and on this basis to develop a sustainable national cluster development programme.

As an outcome the role and responsibilities of national, state and cluster actors were defined. Three tiers were identified and the following recommendations were made:

- A National Advisory Committee, incorporating the private and public institutions relevant for cluster promotion activities, will be responsible for the overall coordination of the programme and for defining, together with the DSSI, the resources to be allocated to it. The Committee will also be responsible for promoting the exchange of experiences from initiatives undertaken in the different states, and to reorient the services of national institutions when needed.
- The states, through their Directors of Industries, will organize a comprehensive assessment of the needs of their clusters, promote the creation of local committees at the cluster level, and support the cluster action plans by providing financial assistance as well as by improving the regulatory framework.
- The Local Committees at the cluster level composed of representatives of the private and public sector will play a catalytic role in developing a cluster action plan and in supporting and monitoring its implementation.

As a follow-up to this workshop a National Advisory Committee has been created, and awareness seminars and workshops on cluster development have been organized at the national and state level. Training courses on how to conduct cluster diagnostic studies, and to prepare, implement and monitor cluster development action plans, are being organized. Sharing of cluster development experiences and benchmarking between clusters have also been promoted. Finally a certain number of states (e.g. Andhra Pradesh, Madhya Pradesh, Karnatka, Rajasthan, and Gujarat) are organizing a comprehensive assessment of the needs of their clusters through their Director of Industries and with the support of UNIDO, as well as promoting the creation of local committees at the cluster level, supporting cluster action plans by providing financial assistance, and improving the regulatory framework.

As the goal of developing a sustainable national SSE cluster programme is increasingly being realized, the need for an independent Focal Point is reduced. As it has been the case in other UNIDO cluster projects, several options for the future of the Focal Point are currently examined.

These options include:

- Absorption by an existing national institution;
- Conversion in an autonomous foundation operated by a coalition of players from the private and public sector, and
- Complete dismantling.

Before entering into the discussion of a number of open issues, Table 1 provides a summary account of the Cluster Development Project in India in terms of scale, outreach, impact and sustainability. In total, close to 800 enterprises have benefited from various types of BDS delivered under the Project

Table 1 - Selected BDS Performance Indicators (Period of Evaluation: Jan 1997- Dec 1999)

	Ludhiana (12/97 onw.) knitwear	Tirupur cotton hosiery	Jaipur textile printing	Pune food processing
SCALE⁸	130	150	155	360
OUT-REACH⁹	Nil	20%	100%	75%
IMPACT				
Strengthening existing BDS	Nil	Product design & development	Organization of fairs for the domestic market	Legal consultancy, Market counseling
Creation of new BDS	Training on Internet & IT, vocational training for women workers, technology benchmarking.	ISO certification, consultancy on WTO regulation.	Product design, marketing/technical training, access to market information, participation in international fairs.	Technical training on product packaging, food hygiene and preservation techniques.
SUSTAINABILITY				
Cost Recovery by BDS Supplier	82%	92%	55%	22%
Leverage ¹⁰ of UNIDO funds	5.5	11.5	3.5	11
SOURCES OF FINANCIAL SUPPORT (USD and % share of total)				
Private Sector	58,244 (82%)	80,953 (93%)	58,199 (56%)	5,440 (22%)
Support Institutions	-	-	16,166 (16%)	17,320 (69%)
UNIDO	12,999 (18%)	5,860 (7%)	29,606 (28%)	2,194 (9%)

⁸ Number of firms served at least once during the program

⁹ Access to under-served groups(%) - Measured for firms that are either micro or do not have any mechanized means of production usually employing less than 20 persons or relatively very small firms in the cluster hitherto not being served through regular services

¹⁰ Ratio of total expenditure on cluster related activities for every USD expended by UNIDO - No. of times

CHAPTER 5: OPEN ISSUES

The previous chapters have highlighted UNIDO's involvement with BDS-related initiatives in various Indian clusters. In all the cases described, the contribution made by UNIDO has been to encourage the establishment of greater collaboration among the various cluster actors, including SSEs, BDS providers, local government, and NGOs. This chapter aims to reflect upon some of the possible implications and open issues of such an approach, especially for the development of BDS markets.

- **Reducing competition among SSEs?**

There is no doubt that UNIDO helps the cluster entrepreneurs to share information about:

- Their production capacities and their relationships with various providers of semi-manufactured goods (and therefore on production costs);
- The price they obtain from various clients (and therefore about the demand curve); and
- Their efforts with respect to regulatory agencies (thereby facilitating joint lobbying efforts).

It is often with the creation of networks that the benefits of closer cooperation are demonstrated to SSEs. By the same token, the creation of consortia, the drafting of joint strategic projects, or the definitions of bulk purchase agreements are the most common outcomes of UNIDO efforts. One might therefore argue that this kind of intervention could reduce the extent of competition within the cluster.

One point needs to be stressed before any such conclusion is reached. For a start, the emphasis of all these initiatives is not to reduce the extent of competition *per se* but rather to change its nature. Very often the competition among the SSEs of a cluster is so fierce that it deprives them of the resources to improve quality standards. In this context, it is merely the self-exploitation of the entrepreneur that prevents the SSE from going out of business. UNIDO tries to free SSEs from such a condition and to win them over to quality-based competition so that greater importance is given to product innovation, the employment of skilled labour, and product marketing. Very often, a prerequisite for the achievement of this objective is the creation of a common platform (such as the endorsement of cluster-wide quality guarantee certificate or the introduction of new production or marketing techniques). As a matter of fact, UNIDO's experience shows that one of the most cost-effective way for SSEs to improve their competitiveness is through joint initiatives. All in all, it therefore appears that these attempts to change the nature of competition among the producers of a cluster help to re-address an existing imbalance rather than distorting efficiently operating markets.

- **Limiting the benefits of cooperation?**

In theory it is certainly possible that the establishment of a common platform among a selected number of cluster SSE might become an obstacle to the inclusion of a larger number of partners into the cluster development approach. In fact, however, it is not uncommon for UNIDO to begin its involvement in a cluster from a relatively small group of highly motivated and visionary SSEs (in order to produce visible results and eventually to earn the support of more SSEs). Such a strategy clearly runs the risk of splitting the constituency of SSE owners into 'leaders' and 'laggards' and to pave the way for the establishment of a latent conflict between these sub-groups, which might even worsen as UNIDO gets increasingly disengaged from the cluster. In reality, however, counterbalancing forces appear to be in operation. In the majority of cases, this type of resistance has so far failed to surface. On the contrary, the 'leaders' normally do not fail to realize that greater results can only be achieved by gathering an ever larger consensus behind ever more ambitious joint initiatives.

- **Distorting the BDS market?**

Criticism might also be leveled against the selection of a single partner for pilot product development on the grounds that it might later reduce competition and therefore distort the future BDS market. Before discussing the relevance of this observation, it is important to gain a better understanding of what prevents the spontaneous collaboration between SSEs and a variety of BDS providers.

Very often, the uncertainty surrounding product development costs and the size of effective demand reduces the number of BDS providers able and willing to take an active part in pilot product development. Chapters 2 and 3 have stressed that UNIDO reduces such uncertainty by facilitating the emergence of a shared vision among the SSEs and by facilitating the dialogue among the latter and the BDS developer. As a matter of fact, pilot product development is rarely left entirely in the hands of the BDS provider. On the contrary, the SSE owners themselves (or their representatives) are led to liaise continuously with the BDS provider and to gain an in-depth understanding of the service. This is not only intended to facilitate further service customization, but also to build the capacity of SSEs to generate additional demand, thus encouraging new providers to enter the market¹¹.

In other cases, it is the sheer cost of BDS provision (as opposed to development) which prevents a large number of BDS providers from participating in pilot product development. Although state-of-the-art BDS are often available even in developing countries, they are mostly targeted at the needs and capacities of large-scale enterprises. Customizing such services to the needs of SSEs is not only expensive but also often possible only for a handful of BDS providers. In these cases, the active participation of the SSEs or their representatives in pilot product development enhances their bargaining power and thus may reduce the level of market distortions.

For sake of clarity, let us draw from the example presented in Box 4. The experience of Ludhiana shows that the availability of BDS providers ready to compete against one another depends on the technology to be customized. While the number of such providers is large in the case of designing and managing a web site, it is smaller in the case of ERP technology. Therefore the market for Internet-related services is much more likely to prove efficient than the market for ERP-related services. It is worth stressing, however, that the involvement of KNIDGRO as an intermediary between the ERP software provider and the 12 cluster manufacturers ensured that the latter could purchase the software at a significant discount below the market price. This feature indicates that it remains possible to alleviate the impact on SSEs of possible BDS market distortions through joint purchase agreements.

CHAPTER 6: CONCLUSION

This paper has presented the experience of the UNIDO Cluster Development Program in India. Before summarizing its main findings, it needs however be mentioned that the very same Programme has been successfully introduced in many other industrializing countries (UNIDO 1999). In all such instances, one of the key features of the Programme has been to target clusters which had spontaneously come into being prior to UNIDO intervention (rather than to exogenously 'engineer' their creation). This has been done out of the conviction that the existence of these clusters is in itself a powerful indicator of a competitive advantage, which may need to be strengthened but which is nevertheless present. Given the abundance of clusters around the world (as emphasized by much of the literature quoted in the introduction), the lessons learned from such experiences appear to be highly relevant.

In line with the topic of this conference, an attempt has been made to reflect upon the implications of the UNIDO approach for business development services. It has been emphasized that the key objective of the Programme is to strengthen the capability of presently under-achieving SSE clusters to take up the manifold opportunities provided by the increasing liberalization of the Indian

¹¹ While the need has so far not emerged, it might be certainly envisaged that in the future property rights will need to be assigned over the key findings of pilot project development (for instance in the form of copyrights) to ensure their dissemination and to prevent the creation of barriers to entry.

economy. The methodology implemented in India emphasizes vision- and capacity building as the key instruments to achieve this long-term objective. BDS providers have often been important partners, alongside numerous other cluster players such as SSE owners, local policy makers, representatives from SSE support institutions, producers' associations, NGOs, etc. In each of these cases, the prime objective of the program has been to expand the availability of BDS and to bridge the communication gap between BDS providers and clients. In practice, this objective is achieved through a combined emphasis on the demand side (helping the cluster SSE to better articulate their requests) and on the supply side (through pilot product development in collaboration with BDS providers). It has also been emphasized that these initiatives need to be reinforced by strengthening the systemic institutional interactions to ensure the long-term sustainability not only of the BDS thus identified but also of the approach as a whole.

The paper has also identified a clear synergy between the cluster development programme and the promotion of BDS markets. On the one hand, bridging the communication gap between BDS providers and consumers, reducing the extent of uncertainty, strengthening the endowment of social capital at the cluster level, disseminating best practices and building awareness about the value of BDS are all fundamental pre-requisites behind the establishment of a functioning BDS market. On the other hand, BDS market development (as many other SSE support initiatives) can be greatly facilitated if embedded within a cluster development program. It has been emphasized that SSE support institutions can operate more easily within a cluster because of the proximity of homogeneous firms. Cluster development projects can greatly enhance these advantages by:

- Gathering consensus behind a shared vision for the cluster as a whole;
- Strengthening trust among the various cluster actors;
- Pooling and framing dispersed knowledge;
- Augmenting the availability of social capital, and
- Investing on capacity building.

As a result of this approach, it becomes easier to maximize not only the outreach, but also the effectiveness and long-term sustainability of a vast array of SSE support initiatives, including those in the field of BDS.

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ANNEX I

Overview of the activities and achievements of the Jaipur and Ludhiana clusters

This annex presents some data on two clusters, namely Jaipur (textile hand-printing) and Ludhiana (hosiery), out of the four pilot Indian clusters where the UNIDO project has been implemented, to provide a better idea on the kind of impact that the programme has achieved at the cluster level. Assessing the impact of a cluster initiative is a complex task. This is because cluster development interventions place great emphasis upon long-term changes in the way SSEs conduct their businesses and interact with various providers of support (such as BDS suppliers but also support institutions). These changes are hard to monitor in the short term because they take time to sink in and to be assimilated by the various cluster actors. Furthermore, impact assessment must take into account the 'demonstration effects' whose impact will only be felt in the very long term.

This assessment of the Indian cluster development project is framed along the principles presented in the paper (and more precisely in sections 2.1 and 2.2). In particular the annex focuses on those activities that have been undertaken by UNIDO together with its various partners for the purpose of capacity- and awareness-building. Among these initiatives, the annex differentiates between those targeted at institutions (e.g. revitalising dormant producers' associations, creating self-help groups, strengthening consortia and facilitating dialogue between various cluster actors) and those targeted at enterprises (e.g. training, support to joint purchase/marketing, fostering inter-firm cooperation, introduction of new technologies). It is worth remembering that these interventions are framed from the beginning within a Cluster Action Plan (section 2.2). It is ultimately only in terms of the realisation of this Plan that the various achievements of the program must be evaluated.

EXPLANATORY NOTES

Number of firms involved:

This includes all firms which have been involved in at least one of the project's cluster activities such as: training, participation in fairs, workshops/seminars, study tours, etc.

Composition of sources of financial support:

UNIDO expenditures do not include the salary of the UNIDO focal point consultants (as the consultants are involved in many clusters as well as at the national level and it would therefore be difficult to allocate a portion of their salary to each cluster).

HAND BLOCK PRINTED TEXTILE CLUSTER OF JAIPUR

Cluster description

See Box 1

Vision for the cluster

Revalue the traditional form of production and improve the living standards of artisans by:

- Reducing the cluster disarticulation (i.e. lack of linkages among the different cluster actors);
- Developing a product image in line with current market demand;
- Enhancing the design, production and marketing capacity of firms;
- Improving the support system.

Activities undertaken by UNIDO:

Institutional support activities

- Revitalising institutions and promoting new private sector-led associations/ networks:
 - * Revamping Calico Printers Co-operative Society Ltd., Sanganer (membership increased from 26 to 120 artisans);
 - * Creation of 2 women's networks in Sanganer (27 members);
 - * Formation of Consortium of Textile Exporters-COTEX (16 exporter members);
 - * Creation of 2 networks (20 members), one women's network (15 members) and 4 informal networks (16 members) at (Bagru);
 - * Creation of a printers' association in Bagru with 250 members.
- Strengthening partnership with local and national support institutions such as the:
 - * Small Industries Development Bank of India (SIDBI), which has sponsored 5 cluster initiatives related to export/marketing; established a 'Mutual Credit Guarantee Fund' (30 artisans involved) and will extensively contribute to the cluster work plan for the year 2000;
 - * National Bank for Agriculture and Rural Development (NABARD), which has sponsored 2 training initiatives;
 - * Development Commissioner (Handicrafts), which has prepared a plan for infrastructural development and established a state level co-ordination committee;
 - * Development Commissioner (Handlooms), which has sponsored two major exhibitions;
 - * National Institute of Design, which has conducted a technical survey, and organised training courses;
 - * Directorate of Industries (Govt. of Rajasthan), which has organised two training courses on cluster development for state government officers;
 - * Rajasthan Small Industries Corporation (RSIC), which has provided registration to artisans as well as insurance facilities.
- Capacity building provided to the Indian Institute for Rural Development – (IIRD) to take up the role of cluster development agent.

Support to SSE joint projects through UNIDO promoted/strengthened institutions

- Calico Printers Co-operative
 - * rebuilding of a common showroom,
 - * organisation of technical & marketing training,
 - * organisation of 6 national fairs
 - * participation in 2 international fairs
- Women networks of Sanganer
 - * training in basic skill up-gradation,
 - * training in value-added product diversification.
- COTEX
 - * participation in 2 international fairs,
 - * training in visual merchandising,
 - * development & hosting of common web-site,
 - * training workshops on computer-aided design,
 - * training on internet usage,
 - * creation of a web-site.
- Bagru self help groups
 - * development of 100 new designs,
 - * organisation of marketing and technical training,
 - * creation of a common brand,
 - * participation in 3 national fairs

Data on SSEs involved in project activities

155 firms involved. Of these, 40 have enhanced capacity utilisation; 20 have been exposed to international markets; 25 have improved designing capacities; 80 have been registered with various institutions to provide regular market linkages; 15 got bank credit; 22 trained in visual merchandising; 55 trained in marketing and entrepreneurship.

Composition of sources of financial support (by year and type) - in USD^a

	1997-1999 Total
Private Sector	58,199 (55%)
Public Sector incl. Development Banks	16,166 (15%)
UNIDO	31,039 (30%)
Total	103,971

^a Calculated at the current exchange rate of Rs. 43.3 per USD in December 1999.

KNITWEAR INDUSTRY CLUSTER OF LUDHIANA

Cluster description:

Ludhiana has a 100-year-old history in the production of knitwear. The city hosts nearly 10,000 small, medium and big units in the hosiery sector. The industry employs 200,000 persons directly and indirectly and produces around USD 625 million worth of winter knitwear items. The cluster, which until recently has operated in a protected market, is increasingly challenged by foreign imports because of the entering into force of WTO regulations.

Vision for the cluster:

Promote the cluster's international competitiveness by:

- Building a local knowledge base of international trading practices;
- Establishing export oriented associations;
- Improving the technology level of the cluster;
- Upgrading the technical skills of workers.

Activities undertaken by UNIDO:

Institutional support activities

- Promoting new private sector-led associations/networks:
 - * Creation of Apparel Exporters' Association of Ludhiana (APPEAL) including 80 members;
 - * Creation of Knitwear Development Group (KNIDGRO) including 12 high-end domestic manufacturers.
- Strengthening partnerships with national and international institutions such as the:
 - * Small Industries Development Bank of India (SIDBI) which has provided financial assistance for development of industry specific software;
 - * Directorate of Technical Education, Punjab Govt., which through technical institutes has organised skill up-gradation training of workers;
 - * Small Industries Service Institute which has provided training on ISO 9000;
 - * National Institute of Fashion Technology (NIFT), Ministry of Textiles, Govt. of India.

Support to SSE joint projects through UNIDO promoted/strengthened institutions through

- APPEAL
 - * Organisation of "Buyer-Seller" meet and participation in International Fair in New Delhi;
 - * Building knowledge base through organisation of workshops on quality management, brand building, cost management, creation of "in-house" journal, etc;
 - * Skill development for the industry through specialised training of workers and job creation for women workers;
 - * Feasibility study for a common industrial zone;
 - * Promotion of exchange of experiences and benchmarking with the cotton knitwear cluster of Tirupur;
 - * Feasibility study on trade fair complex, resource centre, knitwear zone.

- **KNIDGRO**
 - * Organised exposure visit to 7 European countries;
 - * Developed linkages with Italian resource institutes of CITER and Polimoda leading to proposal for setting up a resource centre in Ludhiana;
 - * Training on fashion design and forecasting of fashion trends;
 - * Introduction of information technology and hosting a common web-site for the industry;
 - * organisation of various technical workshops;
 - * Benchmarking of technology status of 2 firms for group learning

Data on SSEs involved in project activities

- * 130 firms involved. Of these, 30 have undergone computerisation and started using IT applications, 12 have undertaken product development and new designs, 2 have modernised their production system, 10 firms have trained their executives and workers. 100 firms to benefit in medium and long term through benchmarking, exposure visits, technical expertise and design inputs.

Sources of financial support (by year and type) - in USD ^a

Ludhiana	Total
Private Sector	58,244 (82%)
UNIDO	12,999 (18%)
Total	71,243 (100%)

^a Calculated at the current exchange rate of Rs. 43.3 per USD in December 1999.