

CASE STUDIES

Regional Industrialization and SME Cluster Development in Ethiopia

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“Program for Country Partnership”
(PCP) for Ethiopia
(SAP Project 150037)

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LIST OF ACRONYMS

BMO:	Business Membership Organization (Association)
CCI:	Chamber of Commerce & Industry
CDP:	Cluster Development Program
CFC:	Common Facilities Centre
CSIR:	Council of Scientific & Industrial Research, India
CLRI:	Central Leather Research Institute, India
CIBIL:	Credit Information Bureau of India Limited
CRISIL:	Credit Rating Information Services of India Limited
CGTSME:	Credit Guarantee fund Trust for Micro and Small Enterprises, India
DI:	Development Institutions
EDP:	Entrepreneurship Development Programs
EDB:	Ethiopian Development Bank
LMEs:	Large and Medium Enterprises
FeSMMIDA:	Federation of Small and Medium Manufacturing Industry Development Agency
FDI:	Foreign Direct Investment
IPDC:	Industrial Park Development Corporation
ILO:	International Labor Organization
LC:	Letter of Credit
OHS:	Occupational Health and Safety
QMS:	Quality Management Systems
GDP:	Gross Domestic Product
GTP:	Growth and Transformation Plan
RMG:	Ready Made Garments
TEV:	Techno Economic Viability Studies
ISM:	Industrial Sewing machine
MDP:	Management Development Program
MoE:	Ministry of Education
MIS:	Management Information System
MFI:	Micro Finance Institutions
MSME:	Micro Small & Medium Enterprises
NIMSME:	National Institute of Micro Small and Medium Enterprises, India
NMCP:	National Manufacturing Competitiveness Program
NSIC:	National Small Industries Corporation, India
PPEs:	Personal Protective Equipment
SME:	Small & Medium Enterprises
SSNP:	Southern Nations, Nationalities, and People's Region
TI:	Technical Institutions
TVET:	Technical and Vocational Education Training



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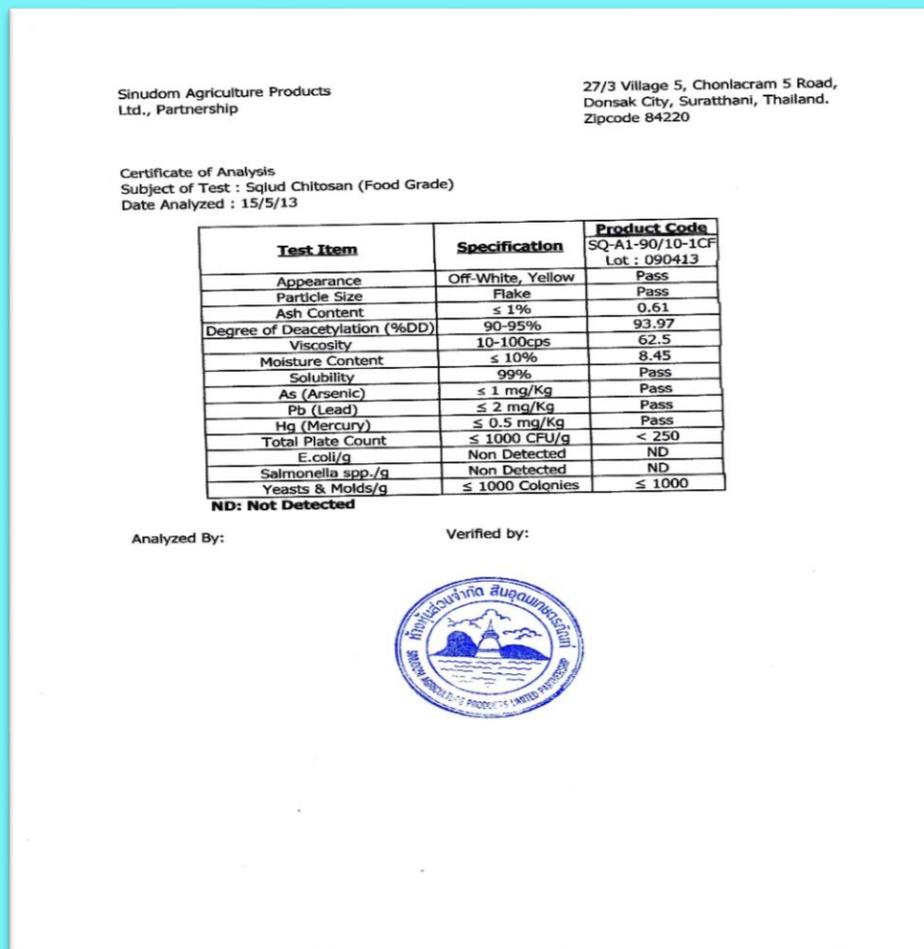
Case Study 1

<p>Name of the Cluster</p>	<p>1. Western GAP Cluster, Thailand</p> 
<p>Cluster Size (Turnover) in USD</p>	<p>12 million (as on 2015)</p>
<p>Employment</p>	<p>12000</p>
<p>Major Products</p>	<p>Asparagus, chili, baby corn and okra</p>
<p>Age of cluster (< 10 yrs; 11-20 yrs; >20 yrs)</p>	<p>>20yrs</p>
<p>No. and Type of enterprises</p>	<p>600 farmers, 120 processors, 15 cooperative societies</p>
<p>Production process (Traditional manual, semi-automated, automated.)</p>	<p>Traditional Manual</p>
<p>Major value chain players</p>	<p>Vegetable farmers, farm leaders, processors, aggregators, traders, retail chains, restaurants</p>
<p>Markets (Domestic local/ national or Exports with</p>	<p>70% domestic market and 30% exports to EU Countries</p>

destinations.)

Key challenges
faced prior to
major
interventions in
recent past

- The established measures based on international standards affected fruit and vegetable production chain in the western area, especially for the exporter. The well-known requirements were EUREPGAP certification, HACCP, GMP and risk analysis. It is the big challenge for exporters to be pioneer to cope this challenge.
- Raising pesticide and microbial contamination compelled notification issuance by the Department of Agriculture (on 18 August 2005) required that vegetables export to EU countries must bear certificate of analysis of E. coli and Salmonella spp. Local Cluster Stakeholders not aware of such certification.



(Modal Certificate of analysis)

- Annual production volume is rather uncertain since local agricultural practice still relies very much on climatic conditions.
- Modern technology is certainly lacking to provide sufficient water for irrigation, and to ensure quality control, especially in harvesting activities.



- The roots of the coordinated cluster action can be found in concerns over the future of cluster agricultural and agro-industrial exports. A) lack of stringent supervision controlling agricultural production, there was concern that cluster agricultural exports were suffering because of an apparent failure in relation to international health standards. B) additional concern was to promote the spread of new technologies in farming and post harvest practices.

At growers level

- Insufficient awareness about safety, environmental and social impacts of agricultural practices
- Lack of knowledge and low education
- Poor understanding of GAP requirements.
- Poor record keeping.
- Low motivation and incentives to implement GAP.
- Unhygienic practices in production and food processing.
- No direct links with markets.
- Small number of large export companies.
- Insufficient organization of small growers in producers associations.
- Inappropriately using pesticides
- Shortage of skill labor

**Main
Interventions
taken**

The objective of cluster GAP is to produce good quality and safety vegetable for export and to domestic market. Cluster intends to promote Good Agriculture Practice among farmers in the western region.

To serve this objective, cluster set up policy;

- Develop acceptable and practicable GAP for crops in western region
- Establish database of farming area, production, sales etc.
- Knowledge distribution to agricultural stakeholder, especially farmer and community leader, government officer and agricultural professor and specialist
- Build up food safety and quality awareness to farmer and consumer through various means e.g., printed media, executive interview, radio, news etc.
- To be center of food safety and quality by supporting information about farmer, trader, agricultural production and marketing situation, new agriculture regulation and requirement to export and others.

First Ministry of Agriculture published GAP for range of commodities.

The farmers were brought together by the cluster so that there could be common learning about their normal practices and the constraints they faced in trying to meet the GAP of the Ministry of Agriculture and GlobalGAP.

- A common cluster GAP was produced in the Thai language within three months. The

GAP itself was made as accessible to the relevant parties as possible.

- Acting as a cluster aided the whole process, allowing exchange of information between the different actors (farmers, exporters, distributors, research institutes,
- While the production of a common GAP was a key step in raising the quality levels of the cluster's produce, other action was clearly necessary to ensure that it was understood and kept to. The cluster has a GAP assessment and checking system that includes farm advisors, government officials, farm leaders, trained internal auditors and various other cluster stakeholders.
- Training courses were developed on GAP, relevant to each area. The module of training stakeholder was established. Identification the group of producers as, farmer, farm leader, farm advisor, farm inspector. GAP of EUROPGAP was again adapted to checklist.



(Expert advice to cluster farmers port training)

- Four Program were developed to synergize and focus GAP activities and put policy into practice at provincial and local levels:
 - Agriculture chemical – Green Shop
 - Training Program
 - Auditing : Inspection Program
 - Public Relation & Communication
 - The cluster has taken on many other related tasks. It is now committed, inter alia, to providing training to all parts of the cluster and promoting public-private dialogue.
 - It also launched a symbol for products that achieve the GAP requirements.
- Data Records of GAP for Okra are given as Annexure – 1



**Major outputs/
impacts of
interventions**

- The yield per acre increased by 30 to 40%. The vegetable area in the cluster region increased from 32500 hectares in 2004 to 46000 hectares by 2015. 90% of farmers and farmer collectives are following Thai GAP and 40% are following GlobalGap. The Exports to EU and US markets reached to 15 Million, with aggregate cluster turnover to 30 million USD.
- Overall, the cluster’s work appears to have been largely successful in promoting GAP in the region.
- Indeed, the approach taken in this cluster is being extended to areas in the rest of Thailand. This extension (called ThaiGAP) is being driven by a PPP.
- The main actors are the Thai Chamber of Commerce and the agricultural department of Kasetsart University. It aims to build on the Western GAP cluster’s work in improving agricultural practice, and also raise the profile of Thai agricultural exports internationally (Chuenprayoth, 2007).
- Importantly, despite being a national initiative, this new action still has a cluster-based approach at its core. The scheme focuses upon acting in eight key clusters around the country. Similar to the Western GAP cluster, it hopes to use the dynamics of collective action by supply chain members and support institutions to promote SMEs in these areas
- The ThaiGAPs standard is now overseen in cluster by Thai Chamber of Commerce and Board of Trade of Thailand. Certification provides permission for products to have a “Q”(for quality) logo on their packaging. The Q Mark is legally registered certification mark that provides assurance that the produce is of high quality and safe for consumers. A 20 digit code appears below the Q Mark that enable the produce to be tracked back to a particular farm.



Learnings

- While the Western GAP cluster has had much success in raising the quality and health standards of the cluster's produce, there are questions over its sustainability. In particular these questions arise because of the necessity of outside sources of funding for many of initiatives.
- Once the lesson learned about sustainability, Government of Thailand undertaken various initiatives. For instance, the ThaiGAP initiative now has funding from the Office of Small and Medium Enterprises Promotion, the Thai Chamber of Commerce and the Thai Fruit and Vegetable Producers' Association (GTZ, 2008). The Government ensured that as the cluster develops, the dependence on external actors may decline as the capabilities of the cluster members were increased.
- Even now the cluster project overlaps with some donor backed initiatives. For example, GTZ has an active programme in Thailand aiming to enhance the competitiveness of



SMEs in certain fruit and vegetable subsectors through the promotion of technological advisory services. Through cooperation with institutions such as the Thai Chamber of Commerce and the National Technical Working Group, GTZ has also explicitly aided and supported the development of ThaiGAP in the cluster.

- The major lesson learned was that no cluster can grow on its own without the support of Institutions and BDS providers. GTZ, Kasetstart Agricultural University have provided all the technical inputs and capacity building programs. Thai Fruits & Vegetable Producers association, office of Small and Micro Enterprise Promotion provided financial support. Thai Chamber of Commerce & Industry helped cluster stakeholders in export marketing. The 11th National Plan for Agriculture in Thailand is:

The 11th National Plan in Agriculture



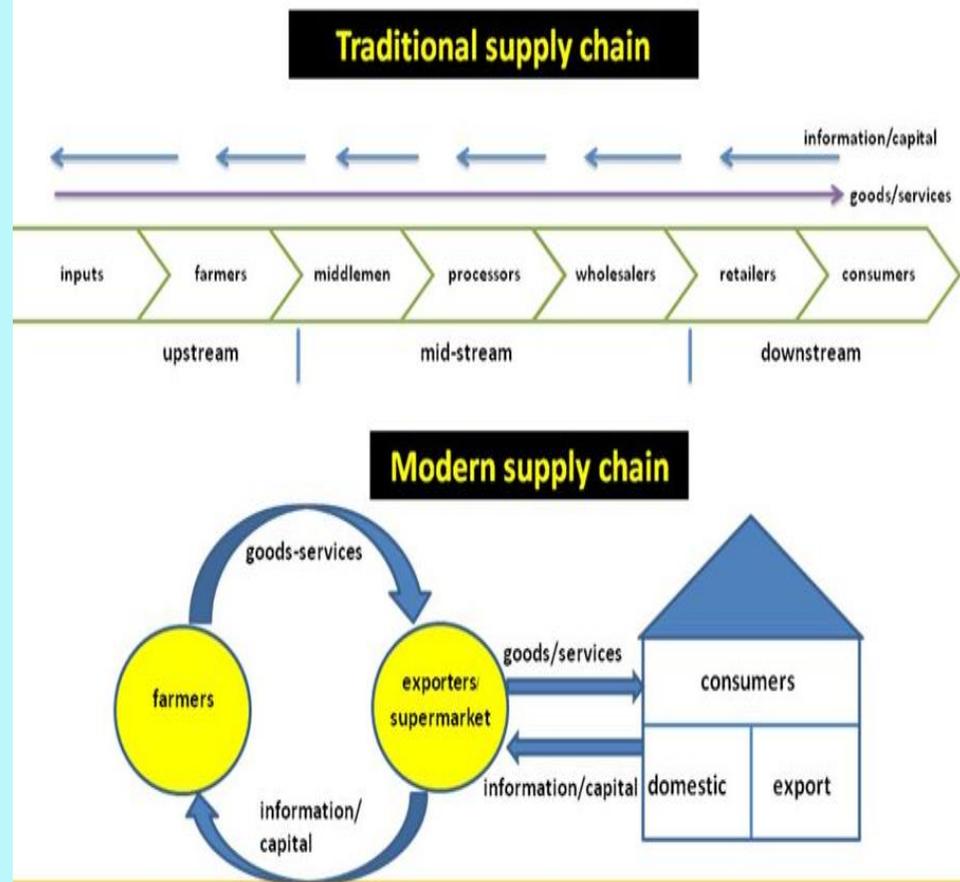
Strategy for Strengthening of agricultural sector , food & energy security (3)

3. Creating value added for agricultural products throughout the supply chain

- Support communities to increase value in food and energy production and services in economic development on biodiversity and local wisdom to create uniqueness
- Develop cash aquacultures , production technology to reduce production cost, and improve and develop qualified breeds / increase the value of livestock production
- Strengthen the central market and agricultural future exchange market by providing incentives
- Promote the private sector and local communities to play a role in agricultural product and food management by cooperating with agricultural institutions
- Promote logistic management and productivity development for the agricultural sector that can connect to the whole supply chain

20

- Cluster concepts have really broke barriers of traditional supply chains and end entered in to moder supply chain with export markets as major objective and traditional V/s Moder Supply Chain of Thailand Agriculture system is given as below:



**Reference docs/
websites**

Report on Agro based clusters in Asia by FAO,
Article on “Experience of Compliance to GAP; Initiative of Cluster of Western GAP in Thailand” Dr. Roongnapa Korpraditskul Deputy Director of GAP Cluster Kasetsart University.
An article “Development of Good Agricultural Practices (GAP) for Fruit and Vegetables in Thailand” By Wibulwan Wannamolee
Case Studies of GAPs of Farmers of Thailand by Khin Yadanar, Kasetsart University:
http://ap.fftc.agnet.org/ap_db.php?id=654

Appendix A, Example

Data Record Form for Pest Survey and Control Measures

Planting Plot Owner's Name, Mr./Mrs./Miss.....Family Name.....

Planting Plot Owner's Registration No. or Farmer's ID NO.

Planting Plot Serial No. Planted

Crop.....Variety..... Planting Plot No.....Planting Area.....Rai Average.....Rai No. of Plants..... Year of Operation.....

Harvesting Period (range)

Production Step	Pest Survey			Pesticide Application				Amount of Pesticide Applied/Planting Plot (kg)	Other Control Measures (Specify)	Name of Operating person
	Survey	Survey Result		Applied	Pesticide Names	% ai and Applied Formula	Rate (ml/20l)			
		Date	Pest List							
Preharvest										
Period										
Harvest										
Period										



Fertilizer Application Data

Date	Kind of Fertilizer	Applied Amount	Application Method	Planting Period ^{2/}

^{2/} Planting period includes fertilizer application period prior to planting, and when the plant is 20 days old period or etc.



Case Study 2

Name of the Cluster	2. Bo Trach Rubber Cluster, Vietnam
Cluster Size (Turnover) in Million USD	1.40
Employment	7000
Major Products	Liquid and water extracted condensed rubber, block rubber. 
Age of cluster (< 10 yrs; 11-20 yrs; >20 yrs)	Though rubber production is going on since more than a century, however firms came together in cluster mode in early 2000's. So the age of cluster is 11-20 years.
No. and Type of enterprises	1100 out of this 700 have rubber at production stage. All the firms are micro in nature with investment range from 5000 to 8000 USD and employees less than 5 persons. Other than the above there are 6 processing factories which fall under medium category with more than 80000 USD investment and employing more than 100 workers each.
Production process (Traditional manual, semi-automated, automated.)	For rubber farmers production process is semi-automated and for processors it is automated.
Major value chain players	Fertiliser and rubber clone suppliers, rubber farmers, traders/ collectors, processors, tyre and spare part manufacturers, exporters are major value chain partners. Industrial & trade departments, agriculture University, extension departments are the major support institutions.
Markets (Domestic local/ national or Exports with	60% domestic, mainly purchased by tyre, spare part and hardware manufacturers and remaining 40% is exported to Thailand, Laos, Malaysia, and China.



destinations.)	
Key challenges faced prior to major interventions in recent past	<ul style="list-style-type: none"> Increased crowding in the value chain caused stiff competition for raw material. Only one third of rubber trees in the whole area yielding latex at the moment, the rest will turn to yield stage incrementally in the years onwards. Meanwhile, the value chain is attracting more and more workers, traders and some new rubber processors who over-anticipate the business potential by the rapid expansion of new rubber plantations, yet not fully aware that only a limited proportion of the rubber trees planted have so far turned to the yielding stage (after 8 years). The market, in consequence, is crowded with traders who are engaged in different supply chains for some competing processing factories. This structures the entire value chain into a typically supply-driven pattern with a strong influence at the upstream end. Premature harvest takes place quite commonly in the agglomeration, raising concerns amongst agricultural extension staff and local authorities about the sub-sector's lower productivity. The productivity of local rubber smallholders in the cluster is only 1,01 ton rubber/ha/year as compared to the South of Vietnam, where productivity is about 1,6 to 1,8 t/ha. Poor harvesting methods. The recommended method is one day latex collection, one day off, namely S/2 d/2, or even one day collection, two days off S/2 d/3. However many rubber smallholders, due to their shortage of cash money, practice S/2 d method, meaning latex tapping takes every day. Over exploitation of rubber would extremely harm the physical growth of rubber barks, thus substantially reducing the productive life span of the rubber tree from 30 years to less than 15 years besides effecting the quality.



(Typical cut tree barks)

- Due to premature and inappropriate harvesting methods, together with farmers' tricky mixing of other substances to the raw latex further increases have been observed in the water proportion of the raw latex which has adversely affected the average quality of raw latex. In the case of rubber, low quality latex can only produce low end category of rubber blocks, i.e. SVR10, which gives very low returns.
- Processing of low quality raw latex entails a much longer (double) processing time, thus longer use of machinery, and higher expenses for electricity, water, labour and notably, environmental cost for rubber waste.

**Main Interventions
taken (and Best
Practices followed)**

Municipal authority has carefully planned and controlled the expansion of smallholder rubber plantations in 5 communes of the cluster. The sub-sector planning has been persistently pursued through the separated land use planning for rubber and land allocation to selected households that are capable in terms of technical know-how, human resource and a certain degree of specialization for rubber plantation. For example, in order to become entitled for a rubber plantation, farmers had to apply for rubber plantation up to a specific number of hectares to the district authority, then the district panel screened the capacity of applied households in terms of labour, current cultivated crops and family income. Only then the household was allocated land for rubber plantation with a Red Book in which the total area and other details clearly mentioned. The district Administration's active involvement right from beginning has produced positive impacts on the reasonable use of land resources as well as income structure of household economics.

With the help of GTZ, Municipal Authorities implemented advanced liquid latex collection system strategy. The strategy to upgrade the processing of condensed latex to liquid latex and to organize the liquid latex collection system is to bring higher premium benefits to rubber value chain actors, to initiate a sustainable win-win partnership between rubber smallholders with trading and processing agribusinesses, and ultimately to increase the competitiveness of the local value chain. Over the entire area of smallholder rubber plantation in 5 communes of the cluster, there are now 5 collection points set up at the heart of each of 5 communal rubber plantation areas. Each collection point is run by a commune-based trader who is selected by the company as a reliable supply agent and be willing to engage in this collection system. Since each trader normally maintains a supply base from 40-50 rubber smallholders, targets for traders engaged in this new collection system is 60-80 rubber smallholders as a permanent supply base.



In order to set up collection points, facilitating the fast logistics activities required for liquid latex, actors in each collection point are made aware of their roles in pushing up the entire collection chain from farm places to collection points to the processing plant. Each actor needs to fulfil his/her task within a set time window, say, 4 hours for rubber stallholders to tap and transport latex to the collection point, 2 hours for collection agents to collect all latex and bring it to the larger tank assigned to the collection point, and finally 2 hour for truck transport by big latex tanks to the factory.



(Common liquid latex collection points)

Each of the 60 to 80 smallholders in one collection point are equipped with an off-road motorbike for safe transport of liquid latex regardless of weather conditions. Collection points were given medium-size trucks and suitable tanks (3 tons) to contain liquid latex. At each processing factory, the production line of liquid latex and measuring tools for checking liquid latex quality, one truck and large tanks collecting liquid latex from nearby households were provided.



(Trucks to carry liquid latex)



(Big liquid latex storage tanks given to communes)

GTZ along with municipal authorities thus provided the entire collection point set up one in each commune with a cost of USD5,65,597 under Public Private Partnership mode.



The major intervention of liquid latex collection strategy was done in 3 phases:

- **Preparation Phase**
 - Sensitization workshop were conducted on the upgrading strategy: liquid latex collection system, with main actors;
 - Elect promotion board at each commune, consisting of processing factory, cooperative traders, key farmers and extension workers;
 - Promotion board to present the specifics and benefits of the liquid latex collection system to the rest of communal rubber smallholders;
 - Rubber smallholders to register membership to the commune-based collection point, and to finalize lists of farmers members.
- **Implementation Phase:**
 - Implementation workshop to agree on the organization issues, commitments, and financial contribution;
 - At each commune, the promotion board prepared the application of collaborating group establishment with the registered farmers members;
 - Prepared a Memo of Understanding for the new built-up partnership, and cooperation contract between partners;
 - Procure assets and each actor prepare detailed work plan to fulfill his role in the collection system.
- **Monitoring Phase**
 - GTZ Set up set of monitoring criteria : time indicator, collected volume, cost efficiency, No. of incoming and outgoing farmers and flow of information, feedbacks, etc.
 - Monitoring the timely fulfilment of each actors at each commune;
 - Monitoring the collected volume of liquid latex and condensed latex;
 - Monitoring the number of incoming and outgoing farmers to each of communal collection systems;
 - Monitoring cost, efficiency and degree of information & feedback flows along the operating system



(Monitoring of collected volume)

**Major outputs/
impacts of
interventions**

- Income per hectare for liquid latex increased from 31 Million Vietnamese Dongs to 33 Million, an increase of 6.4% for rubber small holders. For traders income from 1 ton of condensed latex increased from 1.5 million VND to 2 million VND, a 33% increase. For processing factories the increase in income per ton of condensed latex is from 0.67 Million VND to 1.23 million VND, which is 85% growth.
- Increased competitiveness of the value chain: As the liquid latex collection system started operations in 5 communes of the cluster, all actors benefitted with improved profits and reduced losses related to the collection, trading and processing of raw latex, contributing to increased productivity and the improved competitive position of the entire value chain.
- By the cooperation of large numbers of rubber smallholders into a joint collection project, it overcame the weakness of small-scale rubber plantations and established a network infrastructure for pro-poor growth of the value chain, since the young rubber area will turn more and more to the yielding stage over the next 20 years.
- **Fostering commercially-viable linkages within the value chain:** One indication of a competitive value chain is the visibility of linkages amongst its actors and between value chain actors with supporting institutions and embedded service providers, which was achieved with



	<p>interventions of local governorate and GTZ.</p> <ul style="list-style-type: none">• Environmental advantages of the liquid latex collection system: introduction of the liquid latex collection and processing, made a major impact on reduction of environmental pollution associate with collection and processing of condensed latex. Since raw latex in liquid form is not transformed with chemical substances to other forms but run all the way to the processing of block rubber, no waste is incurred with this new system. Also, the short time duration obligatorily for the processing of liquid latex means shorter time for handling the raw latex amongst actors' places, thus lower the environmental effects to adjacent areas. <p>(Modal of liquid latex collection system in Bo Trach Rubber Cluster)</p>
Learnings	<ul style="list-style-type: none">• The cluster stake holders and State Governorate understood the importance of developing linkages across the value chain to not only reduce cost of production but also improve quality. Value chain partners like farmers, traders, processors cannot work in isolation as all of them are totally interdependent.• Once the liquid latex collection system was introduced and implemented successfully, the cluster firms understood to consider other collective initiatives on maintenance, renewal and exploitation of small holder rubber plantations, which are equally important for survival of rubber industry and now started working towards it.• Overall the value chain partners understood that concept of clustering and establishment of CFCs in the form of common collection systems are very important for industry growth and same is now replicated in various rubber clusters of South Vietnam.• Vertical linkages along the value chain can have a domino effects on rubber farmers and middleman because they channel the market information flow backwards to the actors upstream and force them to react promptly to market demand.• Horizontal linkages amongst rubber farmers are critical to the processing firms and manufacturers of rubber products to achieve their supply chain policies with mass out growers. More important on the side of smallholders is to get out of isolated production perspective and to achieve a stronger negotiation power versus other actors in pursuing common goals and a common strategy of their network



Table 4-1: Master Plan (2016-20)

<p>Strategic 1: Improve production efficiency</p> <p>1.1 The number of replanting areas that used to plant higher quality types of rubber trees instead of type RRIM 600 must be more than 50%/year of the replanting target.</p> <p>1.2 The number of replanting areas compared with the target number must be not less than 90%.</p>	<p>Strategic 4: Improve earnings and implement efficiencies in organisations</p> <p>Rubber exports that are tariffed must be not less than 60% of total rubber exports.</p> <p>Strategic 5: Improve rubber farmers and rubber agricultural institutions</p> <p>Develop rubber farmers, rubber agricultural institutions, and rubber entrepreneurs.</p>
<p>Strategic 2: Research and develop supporting production efficiency and value creation</p> <p>Strategic 3: Improve market and logistic efficiency</p> <p>3.1 Develop and increase market potential.</p> <p>3.2 Improve potential in logistic management and supply chain.</p>	<p>Strategic 6: Efficiencies in organisational management</p> <p>6.1 Individual development plans.</p> <p>6.2 Information system management plan.</p> <p>6.3 Efficiency improvements in administration.</p> <p>Strategic 7: Supporting government policies</p> <p>7.1 Making rubber system development plan.</p> <p>7.2 Follow the policies assigned by government.</p>

(Master Plan for Rubber Industry by Agriculture Ministry, Government of Thailand)

**Reference docs/
websites**

- I. Discussion paper on “Upgrading Strategy for the Rubber Value Chain of Smallholders in Bo Trach District, Quang Binh Province” by Hoang Thi Thanh Nga
[/file:///C:/Users/ASK%20Sharma/Desktop/0806_Upgraing_Strategy_for_Rubber_Value_Chain-Eng.pdf](file:///C:/Users/ASK%20Sharma/Desktop/0806_Upgraing_Strategy_for_Rubber_Value_Chain-Eng.pdf)
- II. Sustainable Management of natural resources in Central Vietnam an article published by SMNR-CV
http://www.smnr-cv.org/publications/smnr_vietnam_mandatory_eng_3416657.html
- III. Mission report on “Promotion of Pepper and Rubber Value Chains in



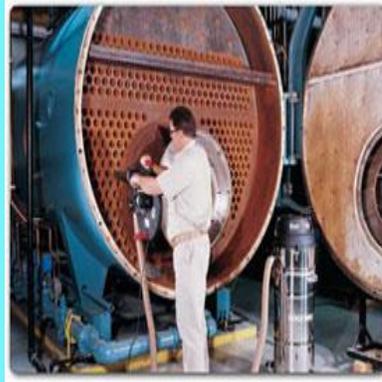
Quang Binh province and Upgrading Strategy” by Sigrid Giencke of GTZ
[http://www.smnr-cv.org/downloads/webdownloads/558908/0803-Giencke-Value Chain Upgrading Strategies for Pepper and Rubber-Eng.pdf](http://www.smnr-cv.org/downloads/webdownloads/558908/0803-Giencke-Value_Chain_Upgrading_Strategies_for_Pepper_and_Rubber-Eng.pdf)

- IV. Agricultural Policy for Natural Rubber Farmers in Thailand’, ERIA Research Project Report 2015-12, Jakarta
http://www.eria.org/RPR_FY2015_No.12_Chapter_4.pdf



Case Study 3

<p>Name of the Cluster</p>	<p>3. Trichy Engineering & Fabrication Cluster, India</p> 
<p>Cluster Size (Turnover) in Million USD</p>	<p>1 billion USD is total job work turnover, however excluding the raw material used for production, the total production value of industry is 0.54 billion.</p>
<p>Employment</p>	<p>20000 (excluding more than 8000 workers working in Mother Plant i.e. BHEL)</p>
<p>Major Products</p>	<p>The SMEs ancillary units doing job workers for Mother Pant, which is Bharat Heavy Electricals Limited (BHEL) other than 10 large units including Railway workshop.</p> <p>The major equipment's/ parts made by these SMEs are:</p> <ul style="list-style-type: none"> i) Boilers, Pressure parts and Structural (ii) Structural for Wind Energy (iii) Electrical Panels (iv) Distribution infrastructure (v) Micro Electronics



(Boilers and Wind Energy equipment's)

<p>Age of cluster (< 10 yrs; 11-20 yrs; >20 yrs)</p>	<p>More than 40 years old, a natural cluster evolved due to establishment of BHEL in 1965.</p>
<p>No. and Type of enterprises</p>	<p>1000 units out of which 30 medium, 300 small and remaining fall under Micro Category (as per India MSME Act, according to which any investment in Plant machinery less than 38460 USD is micro and from 38460 to 7.70 million USD is small and from 7.70 MUSD to 15.38 MUSD as medium)</p>
<p>Production process (Traditional manual, semi-automated, automated.)</p>	<p>As indicated SMEs mainly does job works and mainly process is semi- automated.</p>
<p>Major value chain players</p>	<p>Mother units (act both as backward and forward integration), raw material suppliers, machinery suppliers, agents are the major value chain partners.</p> <p>Associations like BHEL Small Scale Industries Association (BHELSSIA), Trichy District Tiny and Small Scale Industries Association (TIDITSSIA, National Metallurgical Laboratory, National Institute of Technology, Small Industries Development Corporation (SIDCO) are major support institutions.</p>
<p>Markets (Domestic local/ national or Exports with destinations.)</p>	<p>The market is mainly local, catering to BHEL and Large units in the private sector are Rane Group, Sanmar Group, Cethar Vessels, Dalmia Cements, GB Engineering, SRF, Jothi Malleables, MM Forgings etc. In addition, the Indian Railways has its Golden Rock workshop and there are several defence production units near Trichy, which are major consumers.</p> <p>Based on markets catering to SMEs can be classified as:</p> <ul style="list-style-type: none"> (i) Units which are members of BHELSSIA and undertake job works from BHEL only. (ii) Units which are not formal members of BHELSSIA and undertake job works from BHEL as well as other large private manufacturing units. (iii) Ancillary units which take up job works from only large private manufacturing units.



<p>Key challenges faced prior to major interventions in recent past</p>	<ul style="list-style-type: none"> • Most of the SMEs are working in informal scenario, with poor social capital and lack of proper apex association • Very high power costs due energy pilferages and lack of awareness on energy efficiency measures • Market for SMEs mainly confined to BHEL, mother plant, and limited penetration with other large firms • Limited efforts on product diversification • Relatively high input cost in the form of cost of energy and transport • Lack of quality certification that restricts independent growth, i.e. growth beyond BHEL • Critical infrastructure gaps including 'designing' facilities which are required to help move towards large projects and markets • Lack of infrastructure upgradation of estates on which cluster enterprises are housed • Lack of sufficient skilled man power and skill sets are mainly confined to making of boilers, which is major product for mother unit
<p>Main Interventions under taken</p>	<p>Cost optimization</p> <p>Pilot activities in terms of power consumption study and energy audit of a small sample of enterprises were initiated.</p> <p>Implementing Agency Trichy Regional Engineering College – Science & Technology Entrepreneurs Park (TREC-STEP) initially facilitated conduct of an energy survey. The initial power costs for units were as high as about Rs 128 lakhs (USD 291,000) per annum with many in the Rs 50 lakh (USD 114,000) per annum range. Two units were randomly selected for energy audit. Implementation of inverters was a critical suggestion recommended by the auditors and so the two units invested in inverters.</p> <p>The Petroleum Conservation Research Association (PCRA) helped conduct a one-day energy awareness seminar focusing on energy saving strategies (especially the new findings) for cost cutting.</p> <p>Energy Audits pursued by PCRA in a few more units also recommended discontinuing usage of the generator-type welding machines and adoption of inverters for reducing power costs. A ten per cent reduction in the annual power cost of enterprises was achieved.</p> <p>It was also demonstrated that even basic housekeeping measures could help save energy costs by identifying and tackling idle conveyors and inefficient motors. One such energy audit was conducted for a unit primarily catering to BHEL job works. The electrical section of the unit underwent audit pursued by consultants and facilitated by the TREC-STEP. In the two days of study the</p>

recommendations were to install three welding machine-energy savers (saving 2800 units/year), viz about USD 230 in terms of power cost, at an investment of USD 690. The break-even period is less than three months. Installation of appropriate equipment could save on power by 1500 units (USD 124 per annum) at an investment of USD 38. In total about 4300 units/annum or about USD 353 per annum could be saved at an investment of USD 730, the payback period being about three years. Implementation in one unit encouraged adoption of recommendations by others.



(Welding generator and power saver for welding m/c used in cluster)

The cluster enterprises also evolved small informal networks to pursue cost reduction. A 'BHELSSIA transport consortium' was created to curb rising



transportation charges by transporters. Each firm used to send representatives to BHEL with vehicles to collect inputs and also deliver them back. The transport consortium worked out an optimum transportation matrix for collection of raw material from BHEL and delivery of finished goods to BHEL. The total number of vehicles used was also reduced from 90 to 40 by cluster SMEs. Manpower rationalization was also made possible. Moreover, transporters were pressing for a rise in charges when BHELSSIA negotiated a reduction in the rate of about 20 per cent, from about USD 2.2 per tonne to USD 1.5 per tonne.

Quality up gradation for new markets:

Certification under ISO 9001:2000 related initiatives were launched by TREC-STEP jointly with BHELSSIA and the quality department of BHEL. While this prepared the job working units to become quality producers and search for independent job work, it also helped reduce BHEL's investment in terms of time and money on the inspection front and also prompted exploring on-site fabrication possibilities. A quality manual template was circulated amongst BHELSSIA members. With BHEL encouraging them, BHELSSIA negotiated with a few BDS providers. BHEL could reduce inspection costs of material received from vendors if they are certified. Further, upgradation of vendors was part of BHEL's Total Quality Management (TQM) drive. Common negotiation, the option of group training and the offer of a large number of clients, reduced consultancy fee to USD 308 per enterprise from the usual USD 692.

Increasing scope for new market

A 'BHELSSIA product cluster' was also initiated to pursue various initiatives with regard to exploring new markets and products. As a means of resolving logistical constraints affecting the scope for reaching out to markets in faraway regions in India, BHELSSIA targeted the development of new markets and process industries. Further, access to 'volume' customers was made possible by initiatives such as common negotiation and sale to the Koodamkulam power project. Exclusive reliance on BHEL is also being progressively reduced. Market risk reducing options have been demonstrated by cluster enterprises.

Again this drive to independence from BHEL (both for product designs and order) needed to be addressed by developing own design capabilities. BHEL and also medium-sized enterprises in the cluster have their own facilities but not smaller units in the cluster. Hence, about 100 enterprises pooled in about USD 230 each to establish basic design facilities in the cluster.

Welders training interventions are being pursued at the Government Polytechnic with faculty support from the WRI. Department of Science and Technology (DST) is supporting the training of about 2000 welders and BHELSSIA contributes to about 50 per cent of the expenditure. WRI services for upgrading skills of welders on-the-job are also being availed of.

Interventions by stakeholders on developing cluster infrastructure

BIDASS, that had been commonly sourcing and supplying welding materials to cluster enterprises, progressed to establishing an oxygen plant so as to ensure uninterrupted oxygen supply cylinders to firms at reasonable prices. BHELSSIA and TIDITSSIA also filled up other infrastructural gaps by way of quality roads in the Thuvakudi estate and a developed design centre amongst others. An industrial park for SME engineering firms was established under the Industrial Infrastructure Upgradation Scheme (IIUS) of the Department for Industrial Policy and Promotion (DIPP), with all amenities like roads, administrative complex, drainage system etc. with a total project outlay of 10.7 million USD.



(Integrated Industrial Park in Trichy)





(amenities like roads, water tank, power distribution, workers quarters developed in the cluster)

An SPV namely Trichy Engineering & Technology Cluster (TREAT) was formed to establish common Facilities Centre. The centre facilitates use of state-of-the-art machinery for industries that cannot afford the investment; it provides technical assistance and work related services in the critical areas of heat treatment, testing, de-coiling, shearing and other allied activities. It also provides key infrastructure for material handling and an uninterrupted oxygen supply which will enable fabrication units to undertake larger volume orders; the shared facilities centre will enable the units to execute such volumes in shorter time frames.



(CFC maintained by TREAT, the SPV)



**Major outputs/
impacts of
interventions**

- The number of cluster enterprises and their turnover in 2017 stands at 1000 and at about 1 billion USD. In 2002, export turnover is believed by industry representatives to have been negligible, while by 2017 the same is estimated to be at about 10 million USD. This turnover was of course largely contributed by five medium-sized companies.
- Over 150 enterprises have been certified under ISO 9001 so far. Enterprise savings have been to the tune of about US \$ 3400 per annum or more.
- About 70 enterprises operate the transport cluster. Savings to the tune of about USD 1540 per annum for enterprises is envisaged.
- Ties with more than 10 large firms were now firmly established
- About 600 inverters have been installed resulting in energy saving of several million USD per annum for cluster enterprises
- Own designing capabilities are being developed by enterprises. A trained pool of 50 persons are available for cluster enterprises. The design centre established independently by about 40 enterprises is now utilised by more than 200 units.
- Cluster infrastructure is now developed under MIIUS Scheme of DIPP benefitting more than 400 units.
- Strong institutional linkages have been established in terms of the Government polytechnic pursuing training initiatives in association with the World Resources Institute (WRI). A multipronged approach to develop the supply and also skills of the labour pool has resulted in a series of welder training programs for fresh trainees. Capacity building of existing manpower is also being pursued.
- Capacity building of industrial associations has taken place in terms of independently pursuing QMS, design, transport, training/ITRD and product development initiatives.
- Sustainability of interventions is now taken care by BHELISA the apex association and its areas of intervention are:
 - (i) Negotiations on tariff rates.
 - (ii) ISO Initiatives.
 - (iii) Development of Transport Cluster.
 - (iv) Energy Initiatives.
 - (v) Development of Design Center.
 - (vi) Product Development Initiatives.
 - (vii) Training & Placement initiatives.
 - (viii) Placement initiatives.



Learnings	<ul style="list-style-type: none">• Any Implementing agencies can only trigger development initiatives, however their sustainability will largely dependent on associations as such capacitating them during implementation period is a crucial factor• Formation of networks and consortium on need basis is important as all the firms may not have similar problems all the time. For example in the cluster 100 firms are facing transportation problem as their capacities are limited and cannot afford a truck/ container on their own so a common transportation consortium was formed.• Energy Efficiency is a crucial factor in Base Metal and General Engineering firms, such measures can drastically reduce product costs.• Industry Institutional linkages is also a crucial factor in sustainability of interventions and need to be given a priority during CDP implementation period.• Association led common negotiations in terms of BDS provision (for QMS accreditation), transportation, and inverter purchase have drastically reduced product costs.• Creation and maintenance of infrastructure is a priority area to attract more SMEs to establish units in the cluster. Creation of necessary common facilities can reduce production costs and propel SMEs to opt for product and market diversification.
Reference docs/ websites	<p>A publication of FMC “Working together Works, Case studies” http://fmc.org.in/wp-content/uploads/2012/10/Working-together-works.pdf</p> <p>Information from website of Trichy Engineering and Technology Cluster (TREAT) http://www.treat-trichy.in</p> <p>Trichy District Profile, maintained by Development Commissioner MSME http://dcmsme.gov.in/dips/2016-17/DIP.TRICHY.2015.16.pdf</p> <p>Information collected from website of TREC-STEP https://www.trecstep.com/</p>



Case Study 4

<p>Name of the Cluster</p>	<p>Foshan Ceramic Tiles Cluster, China</p>  <p>(Wall falls ceramics – Displayed at Foshan Cluster)</p>
<p>Cluster Size (Turnover) in Million USD</p>	<p>1500 (1600 Million Square Meters in production terms, in 2015)</p>
<p>Employment</p>	<p>10000</p>
<p>Major Products</p>	<p>Ceramic Tiles, decorative tiles, bricks (small quantity)</p>
<p>Age of cluster (< 10 yrs; 11-20 yrs; >20 yrs</p>	<p>More than 40 years old, however regular production and exports commenced in 1980's.</p>
<p>No. and Type of enterprises</p>	<p>500 units out which 10 are large, 30 medium, 100 medium and remaining 360 fall under Micro Category (as per World Bank Norms)</p>
<p>Production process (Traditional manual, semi-automated, automated.)</p>	<p>Semi-Automated kiln based production by small firms and Fully automated by Medium and larger firms</p>
<p>Major value chain players</p>	<p>Machinery suppliers, Kiln Makers, Clay Suppliers, manufacturers (including Job Work nits, OEMs and ODMs), construction firms. Building material super markets, exporters are the major value chain players. Designers, testing labs, R&D centres maintained by local government, quality consultants are the major BDS Providers.</p>



<p>Markets (Domestic local/ national or Exports with destinations.)</p>	<p>Overall 30% domestic market and 70% export market. However exports are of two types low quality tiles made by SMEs are exported to Asian Countries like Philippines, Thailand, Indonesia and High quality tiles made by LMEs are supplied to US and European Countries.</p> <p>The Cluster is now a major competitor to Sassuolo Tiles Cluster of Italy, a benchmark tiles cluster in global exports.</p>
<p>Key challenges faced prior to major interventions in recent past</p>	<ul style="list-style-type: none"> • Lack of technical knowhow to capture export markets • Total dominance by LMEs in domestic and export markets led to severe losses and close down of several SMEs • Very primitive and low productive kilns used leading to poor quality and higher rejections • Price war among SMEs leading to low profit margins • Frequent Conflicts between LMEs and SMEs denting brand image of the cluster • Unable to meet changing tastes of domestic buyers • Severe competition from Italian Tile Industry • Excess supply with falling prices with no product emphasis on diversification • Many SMEs totally depend on large firms for marketing leading to exploitation
<p>Main Interventions taken</p>	<p>Interactive meets between LMEs (OEMs) and SMEs: Town Administration organised interactive meets to develop linkages and SMEs to become vendors for Large Firms (OEMS)</p> <p>Import Substitution: Tile making equipment was imported in the 1950"s and 1960"s: kilns from Germany, USA and France; presses for forming tiles from Germany. Foshan tile makers had to import even simple glazing machines. The Town administration with the help of LMEs trained few SMEs in making of equipment's by inviting trainers from Germany, Italy. As process technicians from tile companies left to start their own equipment companies, a local machinery industry arose in Foshan in similar lines of what happened in Sassuolo tiles cluster of Italy</p>



(Indigenous Kilns made in Foshan) (Multi function glazing line machine)

Establishment of Foshan Ceramics Research Institute: In order to develop low cost equipment's & machinery besides product diversification Government encouraged one of the large firms M/s Jin Gang Group to start a Ceramics Research Centre. The Institute started making plungers, rollers, dies and today it is one the largest ceramic roller manufacturing base in the world.

Promotion of Export Markets: Guangdong Ceramics Association and Gaungdong building materials association helped the cluster firms advertising Chinese and foreign home-based and architectural magazines, publications with wide global circulation among architects, designers and consumers. This heightened awareness reinforced the quality image of Foshan tiles.

Product diversification for SMEs: The associations with the help of town administration sensitised SMEs that they lack resources to compete with LMEs. They encouraged SMEs to manufacture low quality and unglazed polished porcelain tiles which have good market demand in developing countries and those are the major products of "Chinese made tile". All the requisite training programs were taken care by town administration.



(Unglazed tiles made in Foshan)

Emphasis on aftersales services: One of the major success parameter of Italian Ceramics industry is their impeccable after sales services. So the Town Administration and China Building Ceramics and Sanitary ware Association have organized exposure visits to Italian clusters and encouraged firms on effective aftersales service. Today the competitive advantage of Foshan cluster is their quick delivery and after sales service.

Thrust on innovation: The government with the help of Ceramics Research Institute made the contribution to energy saving and efficiency improving by technology innovation. The newly developed super high temperature S-5000 and 6000 rollers, VS-4000 cooling rollers and rectifying rollers solved the problem of non-synchronization of tiles transmission in the kilns.



(S -5000 rollers)

(Performance parameters of S-5000: Super High Temperature Ceramic Roller of S-5000 is as a typical high level ceramic roller. This series roller has high density, low modulus of elasticity, heavy load in high temperature, especially fit for wide body and large output kiln and producing heavy load products, like table-ware, large dimension floor tiles.

Application Field: Large Size Proclain Tile, Table ware, Polishing Glaze tiles, Wide Body Kiln.

Other parameters:

Bulk Density (gms/ cm ³)	: 2.6 – 2.9
Water Absorption in %ge	: 3.0 – 6.0
Bending Strength (mpa)	: > 65 (at room temp) >50 (high temp 1350°C)
Maximum working Temp (°C)	: 1350
Specifications	: OD -21 to 77 mm Length <5200 mm

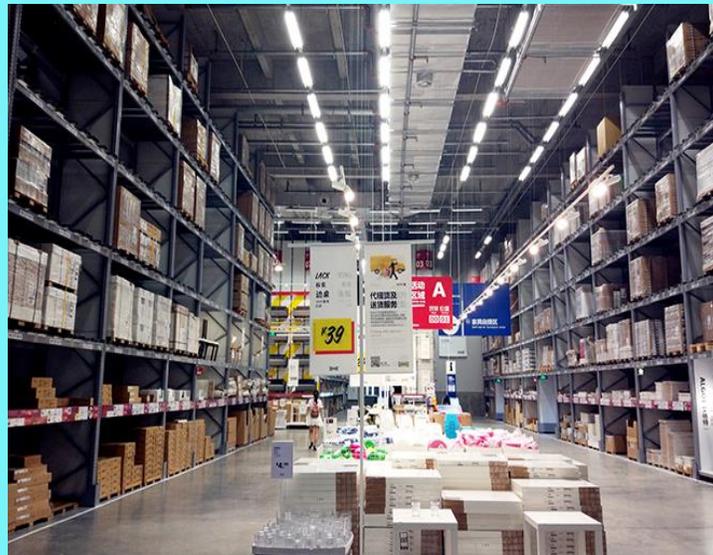


(Performance parameters of VS 4000: With the unique structure combining large and small tooth and large tooth consist of small tooth, VS-3000(VJ95) series anti bending cooling roller is customized for fast cooling zone. Due to its specialty of hardness and higher bending strength, VS-3000(VJ95) roller can avoid the crack and bended being blown by strong airflow in fast cooling section.

Application Field: Fast Cooling Zone of roller kiln and cooling zone

Other parameters:

- With respect to Chinese's standards, the level of product quality of Foshan Cluster is medium-high, most renowned brand are made in Foshan, such as New Pearl, New Zhong Yuan, Dongpeng. The trademark "Foshan ceramic" authorized by China's government in 2013.
- Various interventions undertaken by town administration and associations have created a local pool of skilled workers, allowing the possibility of sharing investments in new and expensive machinery, and the creation of an 'industrial atmosphere' that enhances knowledge spillovers
- The SMEs in Foshan adopted OEM/ODM to export to global market, alternatively; the enterprise group or celebrated brand preferred domestic markets.
- Another feature varies from Italian pattern is the channel of distribution, building materials supermarkets or state exhibitions are the important channel for Foshan producers.



(Typical building material super market in Foshan)



(CERAMBATH – A state sponsored Exhibition displaying foshan products)

- Competitive Prices: the average cost of porcelain tile manufacturing are 10 dollars per square meter in Italy, 3.75 to 6 dollars in Foshan by the year 2006. In terms of general tile products, the average import prices of US are 20.2 to 20.9 dollars by Italy and 8.3 to 8.7 dollars by Foshan.
- Strong R&D and innovation measures resulted in establishment of a full-fledged research institute and local availability of all machines and equipment's. Such import substitution and innovation measures reduced the cost of production among SMEs by staggering 40%, which resulted in cheaper sale prices compared to Italian clusters.

Learnings

- Ceramic tile cluster of Foshan was a typical type of Marshallian district, which creates a local pool of skilled workers, allowing the possibility of sharing investments in new and expensive machinery, and the creation of an 'industrial atmosphere' that enhances knowledge spill overs
- Any Building material industry is very price sensitive, import substitution is the main criterion to reduce the costs so as to compete in the markets.
- SMEs cannot compete with LMEs in resources and quality of products, the solution for SMEs is make products to capture low end segments where sale price dominates quality.
- Development of sector specific technical & R&D institutions and their integration with industry is very important to develop trained man power and to invent indigenous technologies
- Associations & Federations play a crucial role in solving inter firm rivalry and sensitising firms about importance of collaboration.
- Wherever possible and if found viable better to privatise the entire industry than Government still controlling through public sector
- Better policy environment with specific reference to taxes, incentives,

common infrastructure and exports is crucial for development of any manufacturing sector

Comparison between Foshan and Sassuolo (Italy) Ceramic Clusters:

	Foshan	Sassuolo
Cluster paradigm	Cost, economic scale, customized OEM	Style, design, image, tacit knowledge
Main competitive advantage	Cheap price, Brand image for domestic market, Competence of sales reps Customer service; quick delivery	Design and technological leadership New applications for tiles Mergers and acquisitions Diversified brands image, Competence of sales reps
Distribution channels	Building materials supermarket Independent distributor, construction company	Independent distributor, home-center retailer, construction company, company-operated sales center, specialised retail shops
Internationalization strategy	Big firms major in domestic market; global export mostly by SMEs	Global presence in all potentially relevant markets FDI in main markets

Reference docs/ websites

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- VI. “Exploring Competitive Strategies of China Ceramic Tile Industrial Cluster in Global Economy” an article by Mei-Hor Lo, Dechang Han Business School, Nankai University, Tianjin, China
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- VIII. Website of Foshan Ceramic Research Institute : www.fcric.com.cn
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Case Study 5

Name of the Cluster	5. Shantipur Handlooms Cluster, India
Cluster Size (Turnover) in Million USD	1.6 Million USD out of which 0.60 million exports
Employment	20000 (other than weavers)
Major Products	<p>Saris (Traditional attire worn by Indian Women) 50%, Exportable cloth 30%, Ladies Wear (10%). Home Furnishings (10%).</p> 
Age of cluster (< 10 yrs; 11-20 yrs; >20 yrs)	More than 4 centuries old. Weaving practice began in the late 17th century and has remained in existence ever since. Gaining eminence during the Mughal era when the production of saris became systematized, their popularity ensured their export to Afghanistan, Iran, Arabia, Greece and Turkey.
No. and Type of enterprises	<p>Type I (Entrepreneur weavers): buy raw material on their own, work on their own designs and then market their products through a variety of local channels, traders etc.</p> <ul style="list-style-type: none"> • Type II (Labourer weavers) - Weavers linked to master weavers: who receive the raw material and design brief from the master weaver and pass on the final product to them and receive their weaving wages in return • Type III (Cooperative fold weavers): Weavers linked to the primary cooperative

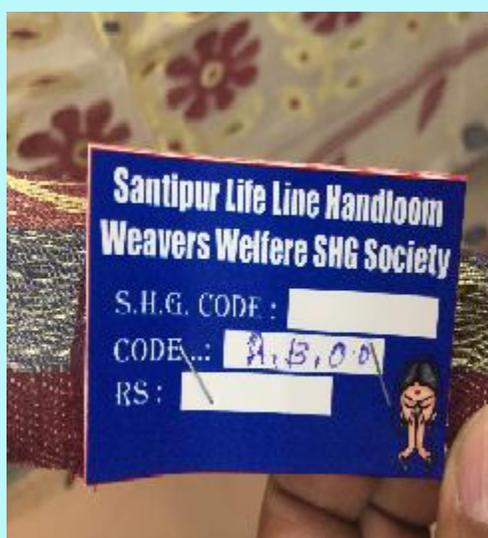
	<p>societies which procure raw material, pass it on to the attached weavers, pay them wages</p> <p>There are 700 master weavers, 60000 weavers and 11 cooperative societies, besides 100 designers and 90 dye houses. There are 70000 working looms in the cluster.</p> <p>All the weavers fall under the category of Micro Enterprises as per Indian MSME Act with less than 10000 USD investment.</p>
<p>Production process (Traditional manual, semi-automated, automated.)</p>	<p>Prior to cluster interventions, the entire process is manual including dyeing and designing.</p> 
<p>Major value chain players</p>	<p>Raw material suppliers like Traders and National Handloom Development Corporation, dye houses, Weavers, Master Weavers, cooperative societies, weaver Self Help Groups (SHGs) Designers, traders, wholesalers are the major value chain players</p> <p>Development Commissioner – Handlooms, Weavers Service Centre, National Institute of Fashion Technology, Indian Institute of Handloom Technology, State Handlooms & Textile Department are the major supports institutions.</p>
<p>Markets (Domestic local/ national or Exports with destinations.)</p>	<p>30% domestic local, 40% national and 30% export market. Ladies wear are exported mainly to adjoining Bangladesh, Nepal, while cloth is exported to Japan, Middle East, Italy, USA, UK, Australia and Germany.</p>

**Key challenges
faced prior to major
interventions in
recent past**

- Lack of any social capital, weavers are highly unorganised and exploitation by Master Weavers rampant.
- 80% of the weaver do not have direct market access and entirely dependant on Master Weavers/ traders
- Banks are unwilling to provide loans as artisans cannot afford any collaterals
- Limited entrepreneurial skills among weavers thus remained as job workers for master weavers since generations
- Lack of awareness on value additions using vegetable dyes, block and screen printing essential to capture export markets
- Limited skill sets on advanced looms like pneumatic jacquards restricting their daily wages to 4.5 to 5 USD per day
- Almost all the designers does manual designing, which is time consuming, there by limiting their earnings to 10USD per design and each design will take 2 to 3 days to make, thus earning 3 to 4 USD per day. There are no design development centres within the cluster.
- Obsolete manual dyeing leading to poor quality, limited production and higher rejection rates of end products
- Use of only cotton as raw material, which is becoming very expensive leading to diminishing profits
- Lack of any direct market linkages with established retail chains resulting in restricted markets

**Main Interventions
under taken**

- At a macro level, institutional development was brought forth through 14 consortiums, coupled with the capacity building of 185 Self Help Groups (SHGs) covering more than 5000 weavers.



- Strengthening 300 weavers of the Weavers' Consortium (registered as a non-profit society) through collateral free cash credit, created the

foundation of the enterprise.

- 2571 weavers were trained in design, marketing and management skills. Some of these groups have evolved into an SHG federation, as evidence of success.
- To widen their world view, weavers were also trained in areas of entrepreneurship, management, packaging, visual merchandising, fabric defect issues and quality assurance, color forecasting, GI, Handloom Mark, vegetable dyeing, export procedures, block and screen printing, and basic computer and English language literacies.
- Multiple exposure visits for the weavers - to bench mark Indian handloom clusters like Alleppey, Kannur, Kaladi, Pochampally, Bargarh, Bhagalpur and Napata, Malda, Baroda and Surat - added to the capacity building effort.
- Multiple state government schemes and international funding aided facilitation of infrastructure and knowledge transfer. An attempt was made to design, plan and diversify products in order to develop new markets, as also to revive the traditional designs of Shantipur
- The 'Design Studio', with its CAD-CAM facilities, provided the benefit of new age design technology to 1500 weavers.



- Once the weavers understood the benefits of new age technology, promotional grants were facilitated for the creation of working capital, for providing computers to local designers, and for the functioning of a Web Portal under CSR support from Exim bank. Such institutional linkages, at every level, became a common thread of success at the Shantipur cluster.

- A common Dye house with modern dyeing technology was established with 600 KG per hour capacity by Ministry of Textiles



- A Raw Material Bank was established by Ministry of Textiles with the help of National Handloom Development Corporation for purchase of cotton and other inputs
- At the process stage, new generation fibres - such as lyocell, soyabean, organic cotton and bamboo - were introduced and awareness was created through training programs to weavers.



(Lyocell fibre)

(Soybean Fibre)

(Bamboo Fibre)

- Under the PPP mode, new looms were provided to them in three separate cluster pockets of Shantipur - namely Babla, Belgoria G.P, and Nabin Pally. These looms not only accorded a renewed sense of

ownership and enthusiasm, but were also ergonomically designed towards ease in weaving and reduction in back problems.



(Latest pneumatic Jacquard looms)

- Consistent efforts to market the products through exhibitions / fairs and buyer-seller meets across Indian cities like Mumbai, Delhi, Chennai, Ahmedabad, Bengaluru, Kolkata, Hyderabad, Indore, Bhopal, Surat and Baroda were made by the Development Commissioner Handlooms Department so as to capture national markets
- Diversified production was given a thrust area to keep target to the abroad customers for the betterment of marketing and more wages earning for the weavers. This export oriented weaving started first with the encouragement of Handicraft and Handloom Export Council and one of their Japanese customer Mr. Yurgen Lahl, a well known Textile Designer of Japan. Types of exportable cloths are Scarves, stoles, made-ups etc. Dress materials etc.
- Sampling cum Training Centre: Various types of samples are being made here. Training programs on request of cluster stakeholders. Mainly women handloom artisans are having weaving up gradation in the centre. Training batch by batch consisting 20 to 25 trainees in each batch for the period of 25 days. This programme is sponsored by the State Institute of Rural Development, Guwahaty, Assam.
- A Common Effluent Treatment Plant (CETP) which has become fully functional during 2014, has created world-class standards, leading to its recognition - by the Ministry of Textiles - as a Model ETP in the handloom sector of India.



**Major outputs/
impacts of
interventions**

- 2571 weavers were trained in design, marketing and management skills so far there by increasing their earnings from USD 4 to USD 7 to 8 per day.
- With establishment of design studio, 100 designers started using it who, as a result, experienced an income increase of USD 300 per month on an average. They also gained a time-saving of 6 hours a day. The designers now spend just an hour to punch a design which otherwise took them 7 to 15 hours to execute. This saved time is now invested in the development of designs, thus raising the capacity for creating new designs from 400 to 4000 annually
- With establishment of common dye house, not only was the dyeing cost to the weaver reduced by 30%, but the related cost of chemical and water consumptions were also brought down by 22% and 30% respectively. The cost of fuel for the dyeing of yarn became a mere Rs. 7.20 per kg from the earlier Rs. 70.
- Common Yarn Depot benefit 3000 weavers; common sourcing of bulk yarn has empowered weavers to procure this commodity from NHDC at a 15% lower cost.
- Weavers Consortia and societies due buyer seller meets, participation in exhibitions developed linkages with major market chains like Pantaloons, Westside, Fabindia, Handloom House, Handloom & Handicraft Export Corporation (HHEC), Reliance Retail etc.
- The societies through various merchant exporters started exporting to markets of JAPAN, ITALY, USA, UK, AUSTRALIA, GERMANY and Middle East



	<p>countries</p> <ul style="list-style-type: none"> • Sample catalogues were created through a Pneumatic-Jacquard operated handloom in the newly developed ‘Common Facility Centre (CFC)’. Weavers realized the possibility of extending the design language into multiple product categories such as saris, fabrics for salwar-kameez, home furnishings and more. • Led to increased strength of local organizations and leadership, and to reduced dependency on intermediation by outsiders for access to resources, markets and public institutions. • More than 6000 weavers were benefitted by Public support schemes through getting Artisan Credit Cards, weavers insurance, work sheds etc. • Strong linkages were developed with Support and Technical Institution like NIFT, IIHT, DC-Handlooms, NHDC, HHEC etc.
<p>Learnings</p>	<ul style="list-style-type: none"> • Unlike other SME clusters, artisans clusters need more time to bring in social capital and achieve desired goals and objectives. A minimum of 5 years period is required to show sustainable outcomes. • Mere formation of cooperatives and SHGs will not suffice, they need to be capacitated through management development programs so as to make them ideal self-governance mechanisms • Active role of Implementing Agencies, support institutions and BDSPs is very crucial as artisans cannot initiate and implement any development interventions considering their poor educational background • Planning of any capital intensive interventions like CFCs and design studios need to be kept as medium or long term objectives, only after necessary activities related to quality, technology marketing and finance were undertaken and considerable amount of trust is developed among stakeholders. • In mega clusters like Shantipur where more than 60000 artisans are active, it is very difficult provide benefit to entire population through CDP. So either a selective population based on the need is to be carefully selected or the cluster can be divided in to sub clusters (preferably based on geographical proximity) and each one need to be treated as separate entity. • Government/ promotional agencies need to give priority in providing raw materials at competitive price in artisan clusters either in the form of a raw material depot or raw material bank which should be located within the cluster region.
<p>Reference docs/ websites</p>	<p>“PRAYAS” A publication of Ministry of Textiles, Government of India (http://handlooms.nic.in/writereaddata/PRAYAS635785218515448945.pdf)</p>



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By Ashish Mithra, Vishwa Bharathi University

(<http://nopr.niscair.res.in/bitstream/123456789/6270/1/IJTK%208%284%29%20502-509.pdf>)

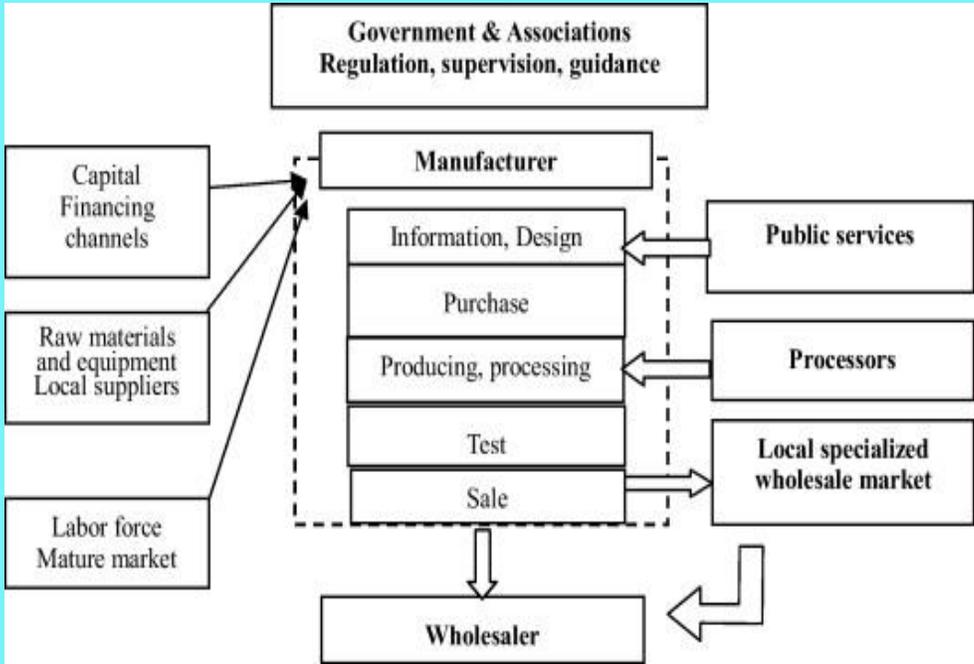
Status of Handloom clusters in India by Shodhganga

shodhganga.inflibnet.ac.in/bitstream/10603/3487/9/09_chapter%203.pdf



Case Study 6

<p>Name of the Cluster</p>	<p>6. Zhili Children Garments Cluster, China</p> 
<p>Cluster Size (Turnover) in Million USD</p>	<p>4.3</p>
<p>Employment</p>	<p>70000</p>
<p>Major Products</p>	<p>Children Garments, fabrics made of cotton, bed sheets, pillow covers</p> 
<p>Age of cluster (< 10 yrs; 11-20 yrs; >20 yrs)</p>	<p>More than 20 years, the cluster started with support of Government in 1978 by producing and supplying bedding and other textile products</p>
<p>No. and Type of enterprises</p>	<p>6000 garment manufactures in the cluster, more than 80% fall under Micro 15% small and 5% medium. Further, there are close to 20,000 traders with daily sales of 3, 50, 000 items. The cluster has eight trading zones which offer close to 1500 different varieties of products.</p>

<p>Production process (Traditional manual, semi-automated, automated.)</p>	<p>Traditional weaving and stitching till late 80's and now semi-automated.</p>
<p>Major value chain players</p>	<p>Machinery suppliers, silk and cotton yarn suppliers, fabric weavers, yarn twisting units, part and composite garment manufacturers, traders, exporters constitutes the value chain. Marketing, quality, finance consultants, transporters, C&F agents are the major BDSPs.</p>  <p>(Network Structure of Cluster)</p>
<p>Markets (Domestic local/ national or Exports with destinations.)</p>	<p>As on 80% local and 20% export to Thailand, Malaysia and other East Asian Countries.</p>
<p>Key challenges faced prior to major interventions in recent past</p>	<ul style="list-style-type: none"> • Saturation of markets for bed sheets and lack of product diversification • Lack of space for production in the household units • Highly decentralised value chain leading to higher transportation costs • High entry level capital requirements discouraging start-ups • Lack of sales outlets within cluster region for direct marketing • High shortage of skilled labour to make readymade garments • Fatal fire accidents in shops led to bad brand image of the cluster • Poor quality of garments led to higher rejections rates and diminishing export markets



**Main Interventions
taken**

- a) **Export Promotion measures by the Government:** Cluster province was given autonomy to promote exports. Trading companies were established in cooperation with industrial enterprises manufacturing products for export. Apart from that special facilities were given to exporting companies and enterprises and they were allowed to retain part of the foreign exchange earnings. In addition, favorable exchange rate was provided to these companies as an incentive for exports. For example, in 1981, while the official exchange rate was 1 U.S. dollar for 1.6 RMB, the more favorable rate of 1 to 2.8 RMB was provided to these companies. This worked out to 75% additional RMB for every dollar of goods exported.
- b) **Tax Incentives:** No import duties were levied on material processed for the exports which provided a big incentive to cluster firms and thus the investors were encouraged. As a result, foreign investment increased by 3 folds. They also managed to set up infrastructure from the investment of the foreign investors, and in return gave special tax benefits.
- c) **Encouraging rural collectives:** Provincial Government given special focus on collective level enterprises and therefore several common infrastructure and working places were constructed
- d) **Transfer of ownership:** Some state-owned retail stores and small factories in cluster region were transferred to collective ownership.
- e) **Establishment of Textile Park:** Zhili Children's Clothes Town was established with a total investment of USD29 million this considerably increased the production volumes of children's garment hence this range of products gained popularity in the market within a short span of time.



(Textile Park in Zhili)



(Modern Garment Factory in Textile park)

- f) **Establishment of common sales outlets:** In the year 2000, in order to meet the growing demand the township build 8 wholesale marketplace which sold the products produced from the stores of the township. The products produced in the neighboring villages which were of lower quality

were also sold here.

- g) **Promotion of quality Certification:** The township authorities sensitised cluster firms about the importance of quality standards and quality certifications and made training on quality management compulsory for all firms.



(Modal QMS Certificate obtained by cluster firm)

- h) **Automation of cluster firms:** To reduce skilled labour problem firms are encouraged to adopt automated machinery and loans were given at subsidised interest rates (4 to 6%). The comparatively faster growth of production compared to employment implies a substantial growth in the dispersion of average labor productivity.



(Automation of cluster firms)

- i) **Product Diversification measures:** Township encouraged product diversification by forming networks. Each network will make products unique from others.
- j) **Access to business setup:** The local government also provided an encouraging environment and an easy mechanism for setting up business in the town at low costs and thereby encourages entrepreneurship. The cost of business licenses, registered trademarks and other basic requirement cost as low as USD 3600.
- k) **Linkage with BDSPs:** Local government also ensured strong presence of Business Development Service (BDS) providers who give one stop services ranging from Banking to Industrial & Commercial Registration, Taxation etc for the traders and enterprises. The whole process took just a week's time to complete which made it extremely easy and convenient for the entrepreneurs to set up business this resulted in an increase in a number of enterprises in the cluster

**Major outputs/ impacts
of interventions**

There was an increase in the proportion of registration of trademark for products from 10% to 45%. 17% of the firms in the cluster were given the ISO certification. These attempts reveal the clusters desire to manufacture Quality products and increase their brand "image" as well as "value" in the market.

Integration of Production and Marketing: The cluster was able to produce the

low value product as a result of an integrated production and marketing system. The cluster was able to sell more than 90% of its products locally and in the neighboring areas directly without much involvement of the intermediaries. Most of the business was dealt in cash sales resulting in a lesser transaction cost, thereby making the price of the final product competitive. It also affected substantial savings in the transportation cost by focusing its selling efforts locally and in the neighbouring areas.

Benefits of Agglomeration: One of the critical factors which contributed for the success of the cluster was that it was able to work as an agglomeration to undertake combined activities like marketing, easy access to the labour market, bulk buying and selling- wherein they were able to sell 90% of their product directly to the consumer. There was no intermediary involved in the selling process. Further these combined activities helped in reducing the cost of the products. The agglomeration proved to be an important factor in establishing the brand of the cluster.

Establishment of Common Business Centre: The centre Zhili Children`s Clothes Town was instrumental in increasing the production of the product and also helped in selling the products of the nearby regions.



(Children Cloth Town in the cluster)

Product Mix: The cluster was able to offer a wide range of product mix (more than 500 types of children`s wear in different sizes) that were available in colourful and came in innovative designs. The products were made available for different for children of age groups. Moreover the cluster also produced products for different seasons like winter wear, summer wear etc. and therefore operates at full capacity

Trusted supplier: The cluster came to known for its quick turnaround time without compromising upon its quality and cost and thus established its reputation as a trusted supplier of quality product. Constant focus on technology and innovation has made the cluster able ensure quality and timely production. This also helped increase the brand loyalty amongst its customers

Increase in Productivity: In the year 2007 the output was 75% higher than 2000



	<p>compared to the similar figure of top quartile to the bottom quartile of the employees which rose to only 11 from 7. The comparatively faster growth of production compared to employment implies a substantial growth in the dispersion of average labor productivity. This also proved to be a critical success factor.</p>
<p>Learnings</p>	<ul style="list-style-type: none"> • Local Government understood that mere establishment of industrial park/ common sheds will not give much impact unless the intervention is backed by tax incentives, credit facilitation, linkage with BDSPPs, nurturing cluster firms for quality up-gradation and creating an ecosystem where entire value chain exists within the cluster region • Cluster firms understood that they cannot depend on traditional beddings and children garments and should focus on product diversification. • When lack of skilled workers is a major problem, automation can be a better option, which can also reduce employee drudgery and increase production • Gaining brand name at cluster level is more important than possessing brands for individual firms, with specific reference to exports • Firms cannot work in isolation and treat other firms as competitors, agglomeration is important to reach economies of scale.
<p>Reference docs/ websites</p>	<p>X. Study on Branding in Cluster a book published by FMC with the help of Small Industries Development Bank of India</p> <p>XI. The evaluation of Industrial Cluster in China by Bleton Fleisher, Ohio University and China Centre for Human Capital and Labour Market Research</p> <p>XII. Sticky factors in the industrial relocation of a cluster: A case study of Zhili children's garments cluster in China by Huang, Zuhui & Lu Jia</p> <p>XIII. DISCUSSION PAPER, The evolution of an industrial cluster in China, by BELTON FLEISHER, DINGHUAN HU, WILLIAM MCGUIRE, XIAOBO ZHANG - http://www.ifpri.org/publication/evolution-industrial-cluster-china</p> <p>XIV. An Book on “The Industrial Policy Revolution I: The Role of Government Beyond Ideology, By Justin Lin Yifu</p>



Case Study 7

Name of the Cluster	Danish Pharmacy Cluster, Demark 
Cluster Size (Turnover) in Million USD	1627 million USD (in the year 2013)
Employment	18000 Direct and 2000 indirect
Major Products	Generic Medicines (Both prescription drugs and Over the Counter Drugs)
Age of cluster (< 10 yrs; 11-20 yrs; >20 yrs)	More than 50 years old
No. and Type of enterprises	226 pharmacies, 18 supplementary units and 70 branch pharmacies (total 314, but with changed composition), and 123 pharmacy outlets, approximately 600 OTC outlets, and 200 delivery facilities
Production process (Traditional manual, semi-automated, automated.)	For Formulation and Generic Drug Manufacturing firms – Automated For Pharmacies and OTC outlets: Mainly in to trading
Major value chain players	Bulk drug manufacturers, chemical suppliers, capsule and other accessory suppliers, manufacturers, pharmacies, OTC outlets forms the major value chain. Ministry of Health, Danish Pharmaceuticals association, World Health Organisation (WHO), European forum, Danish Competition Council are the major support institutions.
Markets (Domestic local/ national or Exports with destinations.)	70% of the production is national and 30% of generics are exported to more than 10 European countries like Sweden, Norway, Belgium etc.



Key challenges faced prior to major interventions in recent past

- Danish Pharmacy branded as mere dispensers of pharmaceutical products, without proper knowledge in healthcare. Unlike other advanced countries like US and Germany, Danish firms unable to offer entire range of health care products, which not augured well with customers. Thus threat of foreign invasion post WTO agreement loomed large over the industry
- Remuneration of pharmacies is controlled by the government. The net remuneration of drugs is the same, regardless of the price and package size. There are no incentives for individual pharmacists or for the pharmacy sector as a whole to sell more expensive medicines. This is because of the fixed net remuneration per package sold, which really demotivated pharmacists for any expansions.
- Lack of sufficient pharmacies in rural areas due to lack of any incentives or compensation
- Strict regulatory environment, stringent control of pharmacy business operations, and monopoly in the market were adequate to make the Danish pharmacy system lacklustre. While the government system had always been protective for the pharmacy system and always ensured its security, it did not sow seeds for efficiency, productivity, and innovations.
- Any reconfiguration of pharmacy value chain clashed with other value chains, which appeared as setback for Danish pharmacies. Other stakeholders of the healthcare stream had started considering many of the aforementioned activities as encroachments on their respective territories. For example, preventive healthcare counselling and anti-tobacco campaigns were considered by the medical fraternity as trespassing. For instance, the stop smoking course started by the Pharmacy Association was closed down due to huge pressure from the medical fraternity on account of its authenticity.
- The doctors did not accept the role of pharmacies in preventive healthcare counselling, and opposed it at the fullest.
- Pharmacies found very few takers for their home health care packages for newly discharged hospital patients, as hospitals and insurance companies did not recommend/accept them.
- Many of the Association's business model innovations for member firms kept running into regulatory hurdles, bureaucratic tensions, and political discourse.

Main Interventions under taken (Best Practices undertaken)

- With series of interaction with cluster members, Danish Pharma Association infused the thought that there is a need to reposition their business offerings by reconfiguring their value chain. The cluster members unanimously concluded that a pharmacy could be much more than a dispensing place of pharma products (POMs and OTC drugs). They decided to remould the pharmacies as comprehensive sources of value added healthcare services, including providing vital health related information. They observed that people

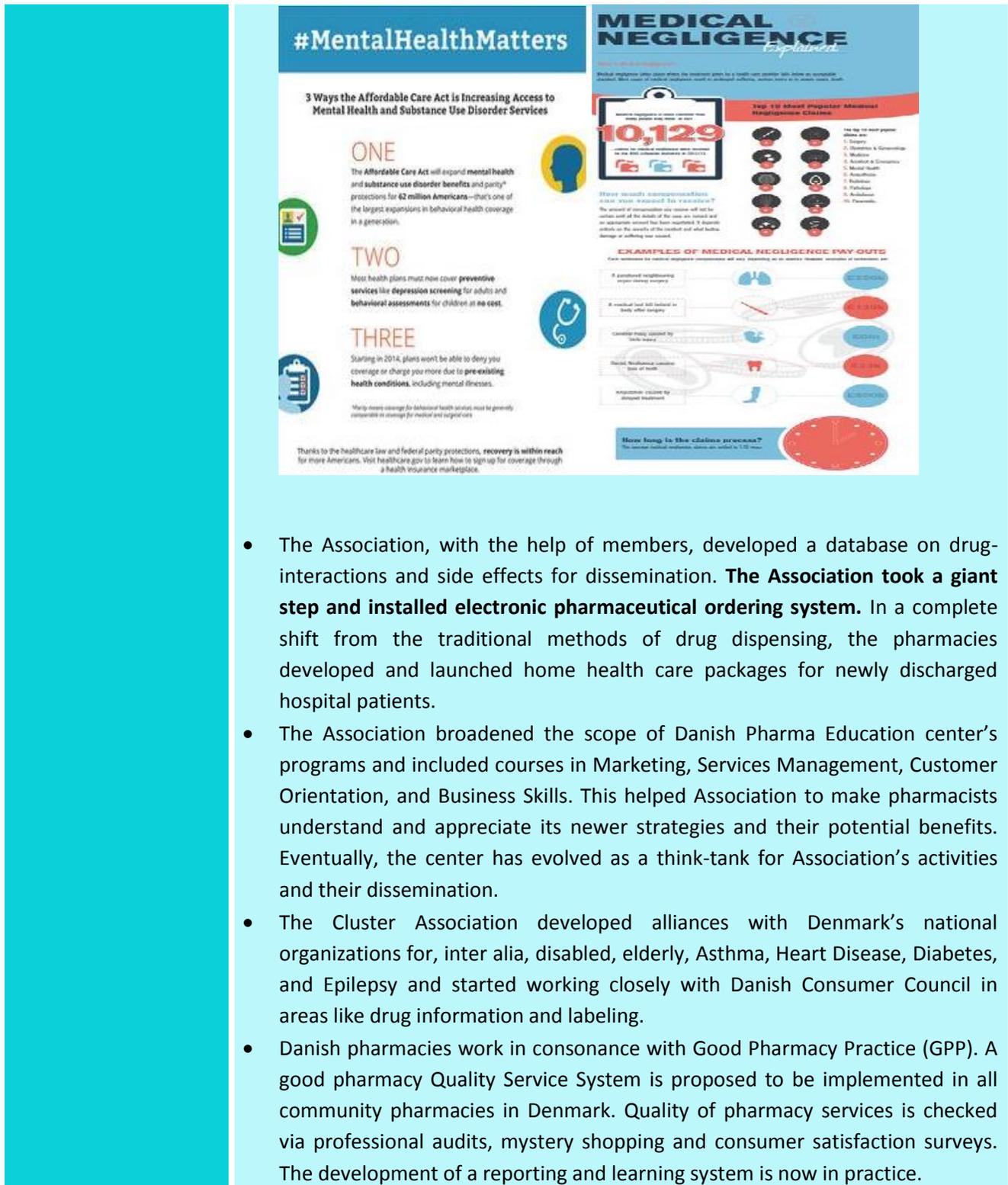
are better informed about the fact that beyond ensuring the availability of medicines and medical practitioners, government and private medicine manufacturers cannot ensure healthy life for them, and the same needs their personal attention and self-initiatives.

- Cluster members realized an incentive system would encourage and enhance efficiency in the overall operations of the pharmacy retailing. And since the government regulation allows only modest profits, pharmacies do not have any reasons to put extra efforts. It was therefore felt important to get a legislation enacted that would provide incentives to the pharmacies to put extra efforts toward enhancing efficiency and productivity. **After a brief but intense perseverance, the Association succeeded in bringing about a change in the laws of retailing. In 1984, the Danish Parliament changed the law, wherein if pharmacies generate higher profits than what was fixed, they could keep it.**
- Pharmacies through collective efforts started expanding their product range to include Diet Foods and Nutraceuticals, High Quality Herbal products, Skin Care and cosmeceuticals. **To ensure a successful launch of the range of new products,, they coordinated marketing activities with suppliers to ensure Quality Control and develop informative literature and provided appropriate and attractive labeling for the entire range of the products**



(Diversified products showcased in Danish pharmacy)

- The pharmacies upgraded their customer information services by publishing and distributing self-help books and informative leaflets on preventive health care



#MentalHealthMatters

3 Ways the Affordable Care Act is Increasing Access to Mental Health and Substance Use Disorder Services

ONE
The Affordable Care Act will expand mental health and substance use disorder benefits and parity protections for **62 million Americans**—that's one of the largest expansions in behavioral health coverage in a generation.

TWO
Most health plans must now cover **preventive services** like depression screening for adults and behavioral assessments for children at **no cost**.

THREE
Starting in 2014, plans won't be able to deny you coverage or charge you more due to **pre-existing health conditions**, including mental illnesses.

Many more coverage for behavioral health services must be generally comparable to coverage for medical and surgical care.

Thanks to the healthcare law and federal parity protections, **recovery is within reach** for more Americans. Visit healthcare.gov to learn how to sign up for coverage through a health insurance marketplace.

MEDICAL NEGLIGENCE Explained

10,129 Medical negligence claims were filed in 2013. That's a 10% increase from 2012.

Top 10 Most Popular Medical Negligence Claims

1. Surgery
2. Obstetrics & Gynecology
3. Medicine
4. Anesthesia
5. Radiology
6. Pediatrics
7. Ophthalmology
8. Cardiology
9. Dermatology
10. Psychiatry

EXAMPLES OF MEDICAL NEGLIGENCE PAY-OUTS

Each settlement for medical negligence compensation will vary depending on an array of factors, including the nature of the negligence and the extent of the patient's injuries.

- A postponed neighboring organ surgery: \$200K
- All medical fees left behind for body after surgery: \$1.5M
- Comerical policy issued by state wrong: \$200K
- Medical negligence common: loss of health: \$1.5M
- Misdiagnosis caused by delayed treatment: \$1.5M

How long is the claims process?
The average medical malpractice claims are settled in 100 days.

- The Association, with the help of members, developed a database on drug-interactions and side effects for dissemination. **The Association took a giant step and installed electronic pharmaceutical ordering system.** In a complete shift from the traditional methods of drug dispensing, the pharmacies developed and launched home health care packages for newly discharged hospital patients.
- The Association broadened the scope of Danish Pharma Education center’s programs and included courses in Marketing, Services Management, Customer Orientation, and Business Skills. This helped Association to make pharmacists understand and appreciate its newer strategies and their potential benefits. Eventually, the center has evolved as a think-tank for Association’s activities and their dissemination.
- The Cluster Association developed alliances with Denmark’s national organizations for, inter alia, disabled, elderly, Asthma, Heart Disease, Diabetes, and Epilepsy and started working closely with Danish Consumer Council in areas like drug information and labeling.
- Danish pharmacies work in consonance with Good Pharmacy Practice (GPP). A good pharmacy Quality Service System is proposed to be implemented in all community pharmacies in Denmark. Quality of pharmacy services is checked via professional audits, mystery shopping and consumer satisfaction surveys. The development of a reporting and learning system is now in practice.

**Major outputs/
impacts of
interventions**

- **Personal Electronic Medication Profile (PEM)** was launched in 2004 on the national health website www.sundhed.dk as a facility for all Danish residents. The Association of Danish Pharmacies was a driving force in the development of the site. The profile gives individual medicine users, general practitioners (GPs), pharmacists and, from 2009, primary care nurses, and an overview of medicines bought by patients. Drawing learning from the same, in 2007, the DMA launched a central prescription server, since then most prescriptions are electronically sent from doctors to pharmacies. This resulted in diffusion of tension between pharmacy and other value chain partners.



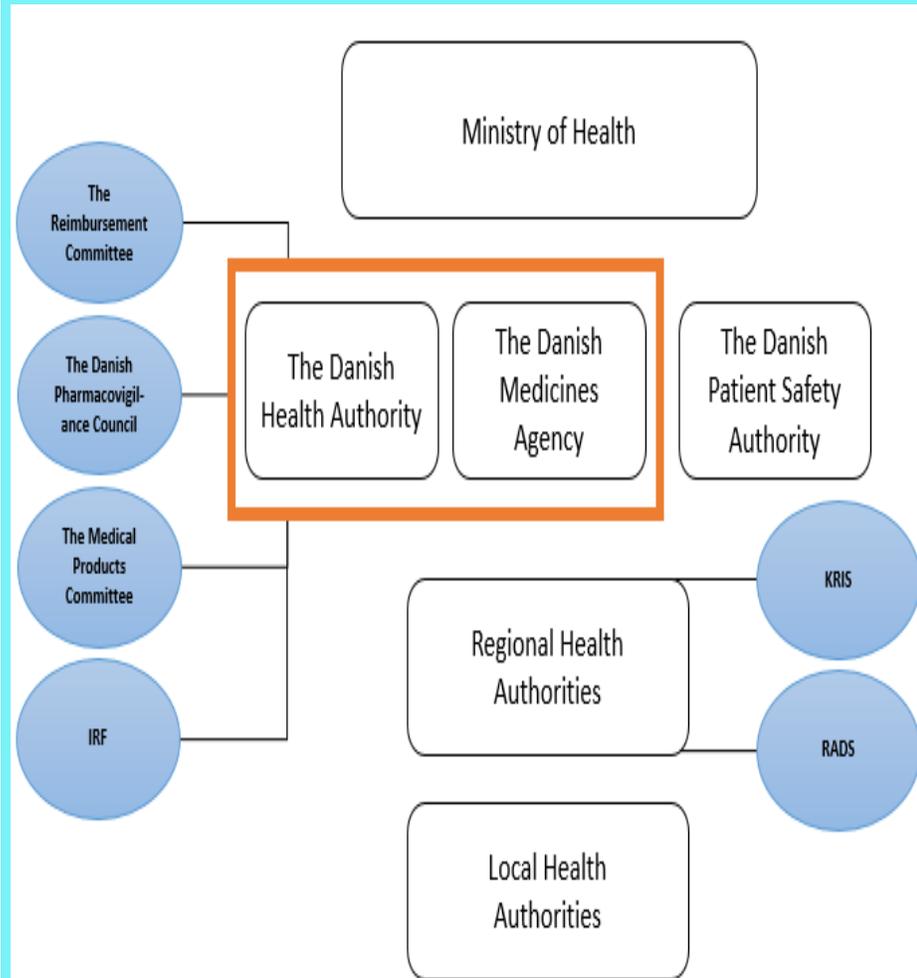
- **Medicinkombination.dk** is a service which was started by the Danish Medicines Agency and which has been created in cooperation with the cluster of Danish Pharmacies. Clear information about interactions for medicines bought on internet is provided. This service is part of the e-services also established on the website of apoteket.dk.
- **Personal Electronic Medication Profile (PEM)** was launched in 2004 on the national health website www.sundhed.dk as a facility for all Danish residents. The Association of Danish Pharmacies was a driving force in the development of the site. The profile gives individual medicine users, general practitioners (GPs), pharmacists and, from 2009, primary care nurses, and an overview of medicines bought by patients. This has resulted in paradigm shift in the minds of consumers about pharmacies are not mere drug traders.

Center for
Health Informatics
Dunsh. de - e Lemaitik

E-Prescriptions

Patient Electronic
Medicine profile (PEM)
Including vaccination (2011)

- A uniform level of quality in the entire pharmacy sector, pharmacies have formulated a set of common standards for counseling at the counter in 2007.
- A survey about the population's attitude towards and expectations to the distribution of pharmaceuticals in Denmark shows that 97 percent of the population is confident that pharmacies ensure the dispensing of the right medicine. Overall, 88 percent of the Danish population is satisfied or even very satisfied with the pharmacies, which is on level with the general satisfaction with hospitals and on a higher level than many other professions.
- The Annual Report 200708 of the Danish Pharmaceutical Association reports that Danish pharmacies strengthened patient safety by checking patient prescriptions. This is a remarkable turnaround of the impression on pharmacy cluster by Government, other value chain partners and consumers.
- An evolved Danish pharma evaluation & monitoring ecosystem is as follows:



Learnings

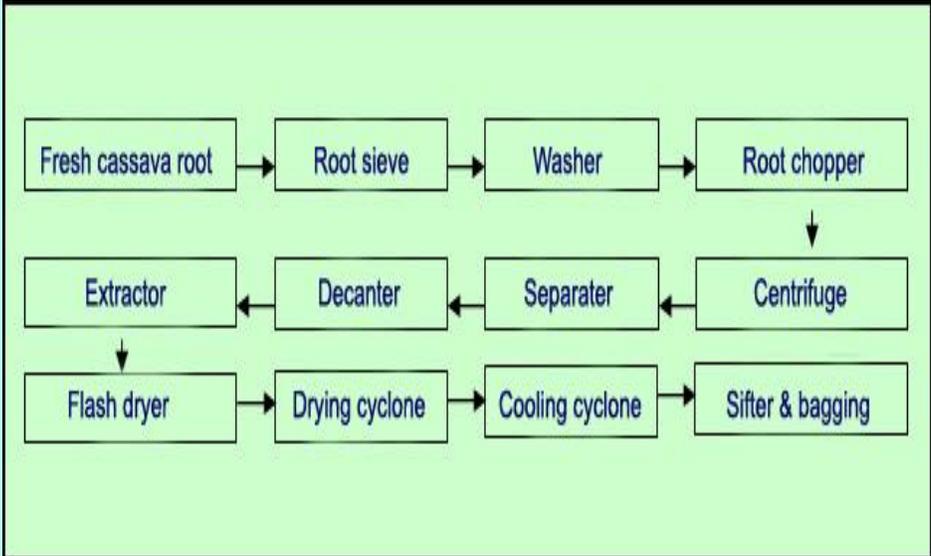
- Since number of units at country level are small, it is better to consider the entire pharmaceutical industry in the country as one cluster. As the number grows, the industry can be divided in to multiple clusters based on region and products/ services offered.
- **Active presence and role of an apex association is very crucial for lobbying with Government and implementing industry level interventions.**
- Pharmacies understood that new services and initiatives, and the processes to implement them, have metamorphosed the traditional pharmacies into modern and progressive business entities. Pharmacies have increasingly grown in terms of escalating their net profit by reducing the gross profits. Increase in pharmacy turnover over a period of time is a testimonial of the same. Their services to the customers have seen multifold improvement, and have become a topic of study for many others. This equation also helped the Danish government to substantiate its non-



	<p>deregulation strategy, which in turn helped the Danish pharmacy to sustain its monopoly in the pharmaceutical retailing.</p> <ul style="list-style-type: none">• Though the Danish Pharmaceutical Association and its member pharmacies still do not want deregulation of pharmacies in Denmark, anticipating the danger to lose its identity and effectiveness in the wake of increased competition, it has already brushed aside through building a brand at the national and international level that can withstand competition from both domestic and international brands. Thus a major lesson learned that “we (Danish pharmacy units) cannot stop competition (from global players), the only solution is strategies to face it and persist with reforms both within and with Government policies”.
<p>Reference docs/ websites</p>	<p>Book published by Foundation for MSME Clusters with the help of Small Industries Development Bank of India on “Brand building in clusters to improve competitiveness of MSMEs”</p> <p>Fact sheet published by Legislative Council Secretariat on “pharmaceutical Industry in Denmark” http://www.legco.gov.hk/research-publications/english/1314fsc47-pharmaceutical-industry-in-denmark-20140902-e.pdf</p> <p>Article published on Denmark – Drugs & Pharmaceuticals by export.gov https://www.export.gov/article?id=Denmark-Drugs-and-Pharmaceuticals</p>



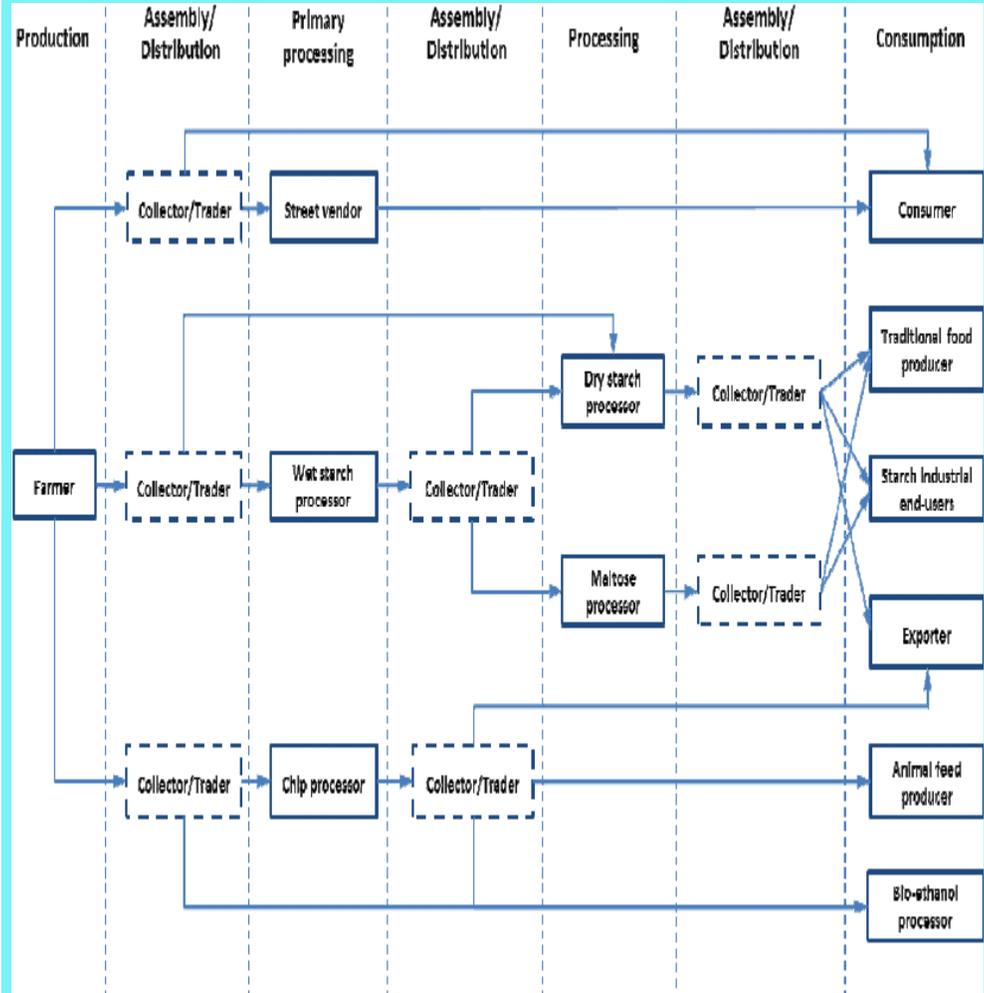
Case Study 8

Name of the Cluster	Dong Lieu Root Crop Cluster, Vietnam
Cluster Size (Turnover) in USD	2 million (as on 2016)
Employment	15000
Major Products	Starch processing from Casava and Canna roots besides piglet rearing 
Age of cluster (< 10 yrs; 11-20 yrs; >20 yrs)	>20yrs
No. and Type of enterprises	1620 root producers and starch processors besides 40 starch refiners
Production process (Traditional manual, semi-automated, automated.)	Traditional Manual now shifted to semi automation  (Typical process of starch production in cluster region)



Major value chain players

Root Producers, Root Traders, Starch processors, Starch refiners, Residue collectors, Maltose processors, Candy Manufacturers, canna noodle makers, pig raisers



(Cluster Value Chain)

Markets (Domestic local/ national or Exports with destinations.)

80% domestic market and 20% exports to neighbouring countries like Cambodia, Thailand, Laos, Malaysia

Key challenges faced prior to major interventions in recent past

- Very poor yield of 0.05 tons/ household/ year leading to poor economies of scale.
- Confined only to starch making without any value additions or product diversification in to Maltose, Candies etc. resulting in limited markets and lack of demand for export market



(Casava root inventory in the cluster)

- Poor quality of starch not suitable for value addition in to maltose
- Poor linkages with support institutions and BDSPs like agri experts resulting in limited awareness on best agriculture practices
- Limited space availability for drying led to drying in fields. Limited space also contribute to low starch quality as there is not enough space to set up settling tanks to produce high quality starch
- Traditional manual process with specific reference to filtration and washing resulting in poor quality and limited production
- Limited awareness on export market procedures
- Lack of any effluent treatment plants to check pollutants in making of starch leading to backlash from local residential communities and Government. The cluster generated 1.45 cubic millions of waste water during 2000-2001 with an estimated 51,750 tons of solid waste.

Main Interventions taken

- A cluster Development Project was initiated in 1980's under Strategic Initiative on Urban and Peri-Urban Agriculture (SIUPA) of the CGIAR, in collaboration with the Rural Agro enterprise Development Project of CIAT and Vietnam national research institutions and local government authorities in Ha Tay.
- Exposure visit to Duong Nai province on South Vietnam where few medium enterprises are having continuous filtering tank system, which accounted for high quality starch, and the way wastes were processed and disposed.
- Commune brainstormed the cluster stakeholders to design for a

processing zone in dong lieu

- Ha Tay Local Government has invited agri experts and engineers to study the existing process in filtration and washing and to recommend better technologies



(Advanced Starch Processing unit)

- Under CIAT project agriculture experts from Vietnam National University of Agriculture were invited who have taken several trainings in better root cultivation practices and quality management in starch making.
- Government declared the cluster area under High tech agriculture zone and assured to establish necessary infrastructure with amenities like Common Effluent Treatment Plants.
- Ha Tay Government authorities organized buyer seller meets between starch processors and candy manufacturers, which resulted in technology diffusion of Maltose making for few of the major starch manufacturers, as maltose is major ingredient for making of candies. During the meetings the stakeholders also understood the growing market for canna noodle making.
- The National Agriculture University also conducted training programs on Starch refining, which propelled few of the affluent starch processors to start starch refining units as forward integration.

**Major outputs/ impacts
of interventions
(Including Best Practices)**

- The yield of Cassava starch increased from 005 tons to 3 tons per day per household and similarly the canna starch production increased from 0.04 tons to 9 tons per day per household. This resulted in increase in income level by more than 300%.
- More than 100 households started using wet cassava starch in the manufacture of maltose, which in turn is used by local candy producers or (the majority) exported. Today more than 200 MT of maltose is exported from the cluster.



(Cassava to Maltose making units)

- Introduction of mechanical filtration equipment, root washers, water filters and the tiling of their tank walls with ceramic tiles have also contributed substantial increase in production levels besides improving the quality of starch.



(Mechanical filters)



(Cassava Root Washer)

- University and local Government encouraged stakeholders to adopt “sour-liquid method” (a method of applying a certain amount of the used processing liquid to balance the pH level of the settling water), and a starch-stirring machine, both of which were designed to improve extraction rates.



(Starch Stirring machine)

- Through these links local workshops were able to develop, manufacture and market equipment that was appropriate to the needs of the cluster. A

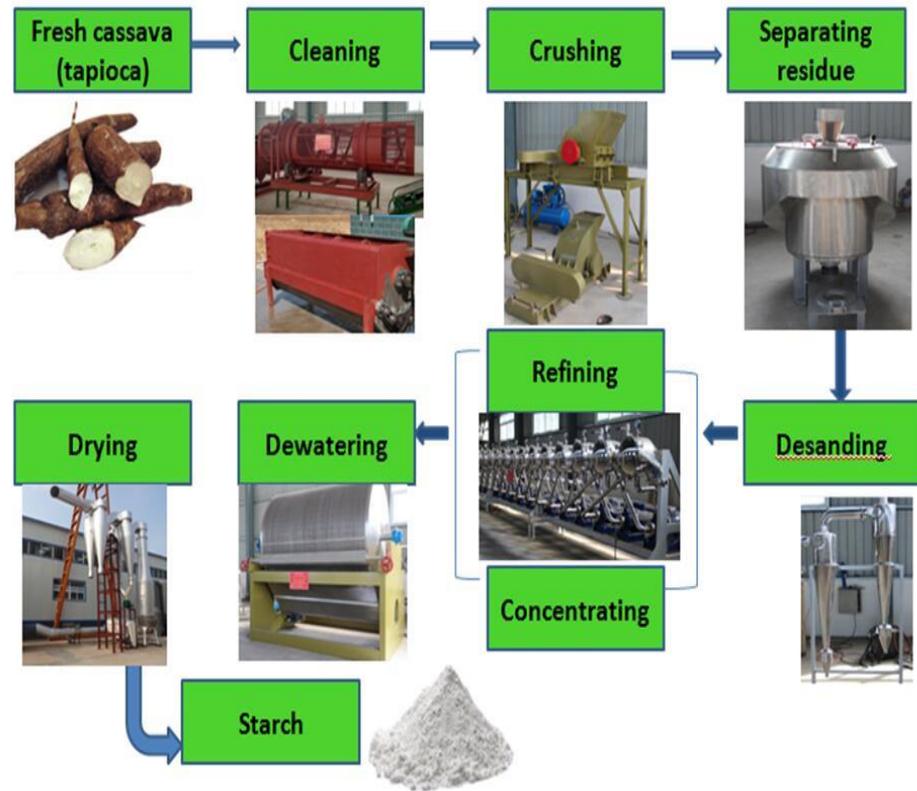
local equipment manufacture and repair industry has grown up to serve the increasing demand of the cluster.

- Meanwhile, the links between the households and the engineers also provided a quick way for the household enterprises to become aware of the new innovations like starch refining and maltose making.



(Starch Refining and Maltose Making machines adopted in cluster)

- Other outcomes of the initiatives undertaken are production of noodles and the collection of the residue from the starch processing process in order to use it for pig raising both inside and outside of the cluster. There is also some fish raising. All these spin-off enterprises are a product of the clustering of the core starch processing enterprises.
- Government included cluster region in its 2030 document for establishment of 20 high tech agri processing zones.



(Advanced production process adopted post intervention)

Learnings

- The improvement of an agro-enterprise, whether urban, periurban, or rural, requires the accurate identification of where the problems and constraints lie. In the case of Duong Lieu processing, the processing technology was developed appropriately and effectively with major interventions undertaken jointly by local government with help of National Agriculture University.
- However diffusion of any new technologies will not happen only through Government promotion and diffusion among cluster stakeholders is very important. Once the cluster concepts induced among the stakeholders and they understood importance of cooperation within competition, the internal diffusion of technology spread rapidly.
- The problems were limited space, wasted labor, and environmental pollution. The solution came from within the community itself, when they observed other production systems and compared it with the constraints they were facing. Thus exposing the micro enterprise clusters to benchmark units/ clusters is very important motivating factor.
- Involvement of technical institutions and forward linkages are very important for any product value addition/ diversification measures, as



	<p>stakeholders need to gain confidence about the technologies, innovation and presence of markets.</p>
Reference docs/ websites	<p>An article “Improving Agro-Enterprises in Duong Lieu Commune, Vietnam” (https://www.ruaf.org/sites/default/files/Improving%20Agro-enterprises_1.pdf) Supply Chain Management and agro enterprise development - CIAT approach in SE Asia an article by Christofer Wheatly, (http://ciat-library.ciat.cgiar.org/articulos_ciat/CW_paper_asean_ph1.pdf) Article “Improving agro-enterprise cluster : Root crop processing and piglet production clusters in peri-urban Hanoi” published in Agritrop (http://agritrop.cirad.fr/514250/) Agribusiness Development Clusters, SEZs and Incubators: Highlights, by Evans School of Business Affairs Agro-based clusters in Asia (file:///C:/Users/ASK%20Sharma/Desktop/Ethiopia%20Material/Cluster%20Case%20Studies%20in%20Asia.pdf)</p> <p>The Casava Revolution in Vietnam by Le Huy Ham, Hoang Kim an article published at World Congress on Root and Tuber Crops</p>



Case Study 9



Name of the Cluster	Ernakulam Wooden Furniture Cluster, India
Cluster Size (Turnover) in Million USD	120 million aggregate turnover out of which 15 million is exports to Gulf, Indonesia, Malaysia and Thailand
Employment	20000 Direct and 5000 indirect
Major Products	Tables, chairs, cup boards, cots, doors, window frames, dining sets, office furniture made of rubber wood available within cluster region other than pine and teak wood imported from Malaysia, Thailand and Myanmar
Age of cluster (< 10 yrs; 11-20 yrs; >20 yrs)	More than 50 years old, a natural cluster evolved due to availability of huge quantities of rubber wood in the cluster region.
No. and Type of enterprises	5000 units out which 25 medium, 150 small and remaining fall under Micro Category (as per India MSME Act, according to which any investment in Plant machinery less than 38460 USD is micro and from 38460 to 7.70 million USD is small and from 7.70 MUSD to 15.38 MUSD as medium)
Production process (Traditional manual, semi-automated, automated.)	Prior to cluster interventions, 70% of the process right from wood seasoning to cutting, polishing is semi-automated.
Major value chain players	<p>Rubber wood farmers, wood traders, teak and pine wood importers, saw mills, wood seasoning plants, spraying units, part manufacturing firms (micro units), composite manufacturing firms (small and medium units),wholesalers, retailers, exporters forms the value chain.</p> <p>Technical Institutions like Rubber Research Institute, National Institute of Interdisciplinary Science and Technology, National Institute of Innovation, promotional agencies like District Industries Centre, MSME Development Institute, commercial service providers like financial consultants, designers, transporters and C&F agents forms the support ecosystem</p>
Markets (Domestic local/ national or Exports with destinations.)	Till 1990's the entire production is consumed locally as product range is limited. However now 15% of the production is exported to GCC countries like UAE, Saudi Arabia, Kuwait besides South Eastern countries like Malaysia and Thailand. 50% of the production is consumed within the state governorate, while remaining 35% will be sent to various national markets.
Key challenges faced prior to major interventions in recent past	<ul style="list-style-type: none"> • Lack of proper wood seasoning plant resulting in high content of moisture (up to 10%), leading to cracks and high wastages. • Heavy dependency on rubber wood which is not suitable to make high quality export oriented products • High import costs of teak and pine wood as they are purchased individually leading to diminishing profit margins • Traditional hand tools methods used in seasoning, cutting, polishing and

	<p>colouring as micro units cannot afford purchase of high end Computer Numeric Lathe, wood seasoning, polishing and spray painting machines, which led to poor finishing and high wastages</p> <ul style="list-style-type: none"> • No emphasis on design development initiatives and dependency on traditional outdated designs resulted in diminishing market demand • High price fluctuations, seasonality, and government restrictions on cutting of wood led to irregular supply of inputs, resulted in high machine idle time and employee drudgery • Micro firms unable to establish their own sales outlets due to financial constraints, so they either remain as job workers for small and medium firms or exploited by traders. • Lack of any linkages with BDSPs related to design, export market, quality, led to restricted markets and poor returns
<p>Main Interventions under taken</p>	<ul style="list-style-type: none"> • To overcome the need of technology up-gradation in product design/finish/standardization, a Common Facilities Centre has been established under Micro, Small Enterprise CDP Scheme of Ministry of MSME. This CFC is to pursue seasoning, designing, standardization, testing and finishing of wood to manufacture the quality product. • In the year 2005, an SPV namely Kerala Furniture Consortium (Kefcon) was formed to create facilities in the CFC for common procurement, cutting into types/dimensions of inputs used, finishing and assembly independently by members by seasoning and chemical treatment, planing, levelling the blocks finger joining/gluing and fusing into appropriate planks and sheets employing hydraulic jacks, mortising and tanning of the furniture parts, sanding operation, processing operation, print to print operations such as carving, grooving, designing, drilling, boring, colouring and spraying. <div data-bbox="461 1318 1279 1839" data-label="Image"> </div> <ul style="list-style-type: none"> • The total project cost of the Common Facility is USD 765000, out of which the

Government of India Grant is 376000, State Governorate Contribution is USD 150000 and remaining is promoter's equity. CFC became operational in the year 2010.

- The Cluster through a common seasoning plant has undertaken seasoning of hard woods like teak and mahogany and soft woods like rubber wood, among a host of other varieties including coconut and neem. The plant offers



chemical treatment as well as heat kilns to reduce moisture. The stakeholders have also undertaken initiatives to make the wood seasoning process more efficient which allowed larger volumes to be handled.

- National Institute of Innovation (NInC) had undertaken design development interventions in

the cluster. This intervention was aimed at demonstrating the value of partnering designers on a regular basis to create a continuous chain of new designs. Apart from National Institute of Design, NInC has helped cluster firms to identify a local furniture designer who was engaged on a formal basis for a limited tenure.

- National Institute of Interdisciplinary Science and Technology, has a new innovative process to produce wood like material using coir as the raw material. This 'Poly-coir' is fire proof and strong. It can be easily moulded and cut according to design specifications. It is also an eco-friendly initiative since it utilizes coir waste and can be easily sourced locally. This initiative is still at lab scale and cluster firms are expected to commercialise the same by the year 2018. NInC is also helping the cluster find suitable manufacturers to make this new revolutionary Poly-coir' material.
- Kerala Marketing Consortium (Kefcon) has established a central marketing hub and also plans to set up 200 branded showrooms over the next 5 years.
- With superior quality of their furniture made in Common Facilities Centre, members of Kefcon with the help of State Governorate, started exporting furniture items to Gulf and Middle East, where concentration of Malayalam population is high.



	<ul style="list-style-type: none"> • NInC helped establish the Cluster Innovation Centre to effectively transfer technologies from public research institutions like NID, Rubber Research Institute and garner support from firms and individuals to address some of the technology and design related challenges. • Members of the consortium have also registered another private limited company by the name of Furniture Park with an idea of establishing 50 to 60 units at one place. The objective behind establishing Furniture Park is to infuse some kind of specialisation in manufacturers and establish a specialised value chain at one place in very close proximity. • Some of the major joint activities of the Consortium include: <ul style="list-style-type: none"> ✓ Organised 12 Joint Trade Delegations to Malaysia and China ✓ Establishment of CFC for wood seasoning and processing ✓ Joint design development training programme with NinC and NID ✓ KEFCON IMPEX is a partnership firm with 19 members from the consortium formed in 2007 doing export and import of furniture. ✓ Help member firms in common transportation for collective sourcing of inputs. Seven 30 feet containers are being jointly availed by the members for minimizing cost. ✓ Registered a common brand name KEFCON six months ago. As per trade marking procedures it will take a total of two years to get a trade mark on the brand. ✓ Common negotiations for purchase of various machinery by individual firms ✓ Help firms in participation of machinery and furniture fairs organised at Bangalore (India Wood Exhibition) and New Delhi (PLASTINDIA).
<p>Major outputs/ impacts of interventions</p>	<ul style="list-style-type: none"> • Today Ernakulam Wooden Furniture cluster is considered as bench mark cluster in India in terms of collective procurement and marketing, technology and infrastructure development and strong linkages with BDSPs • Usage of the CFC facilities has lowered the cost of manufacturing for the micro units. Significant cost savings are expected for larger manufacturing volumes in future. Also usage of machine tools for cutting etc. produces better finished furniture, started fetching higher market price. The benefits are expected to increase with increased manufacturing volumes. The table below demonstrates the net profit from manufacturing a unit 0.7 cft sized chair at a CFC facility versus a micro unit. There is overall gain of 9.00 dollars per unit when a firm utilises the CFC, which is substantial. The selling price will be higher when made in CFC due to superior quality. Reduction in labour costs is substantial which is around 60 percent



Item	Cost to micro unit in USD	Cost at CFC in USD	Gain in USD
Raw material	14	12.4	1.60
Seasoning	2.38	1.77	0.59
Labour	5.46	2.23	3.23
Electricity	0*	0.6	-0.6
Polishing materials	3	4**	-1.00
Packing	0.5	0.3	0.20
Total Cost of Production	25.34	21.3	+4.02
Selling price	30.00	35	+5.00

- Following the training by the Rubber Board and the appropriate wood seasoning technology from Rubber Research Institute, the average time taken for seasoning wood has been reduced by 3 days. From earlier wood seasoning timeframe of 14 days, it has now been significantly reduced to 12 days, thereby creating potential to supply more raw materials in the same time span.
- NInC has helped cluster firms to identify a local furniture designer who was engaged on a formal basis for a limited tenure. This initiative has created 6 new design prototypes, including chairs, beds, and tables etc. utilizing CFC facilities. These prototypes were exhibited at local furniture fairs so that retailers and showroom owners started adopting them for mass production.
- Establishment of Design hub by Kefcon, had helped cluster firms to penetrate more domestic and export markets, through better looking furniture as new design developed by hub are accepted by dealers and international buyers.
- With superior quality of their furniture made in Common Facilities Centre, members of Kefcon with the help of State Governorate, started exporting furniture items to Gulf and Middle East, where concentration of Malayalam population is high.

- Due to efforts of NinC and NID, cluster firms started making Complete Knock down (CKD) kits. CKD is a kit containing the parts needed to assemble a product. The parts are typically manufactured in one country or region, then exported to another country or region for final assembly. In this way cluster firms could able to reduce import taxes and increase their



export market base. More than 50 firms are now making CKD kits in the cluster.

Learnings

- Ernakulum furniture Industry is one the first clusters in India, which realized the importance of Cluster Development Approach to overcome their challenges. While majority of Indian furniture clusters are languishing with gradual decline in turnovers and dwindling profits, Ernakulum not only regained its market share but also one of the first clusters, which started export marketing, thus making it a bench mark cluster, which other furniture clusters are trying to emulate.
- In the form of Kefcon, the cluster developed a strong self-governance mechanisms. Kefcon is led by strong visionaries who foresaw the importance of design and product diversification to sustain in the market. Since one decade Kefcon tried to strengthen the entire value chain right from collective input sourcing, proper seasoning of wood, up-gradation of production process through CFC, propagation of common brand for micro firms, product diversification to make RTAs and CKDs, helping cluster firms in identification of proper marketing channels.
- Active involvement of technical institutions like NID, RRI, promotional agencies like NiNC, funding agencies like Ministry of MSME, DIPP, and State Governorate, played a crucial in making Ernakulum Furniture

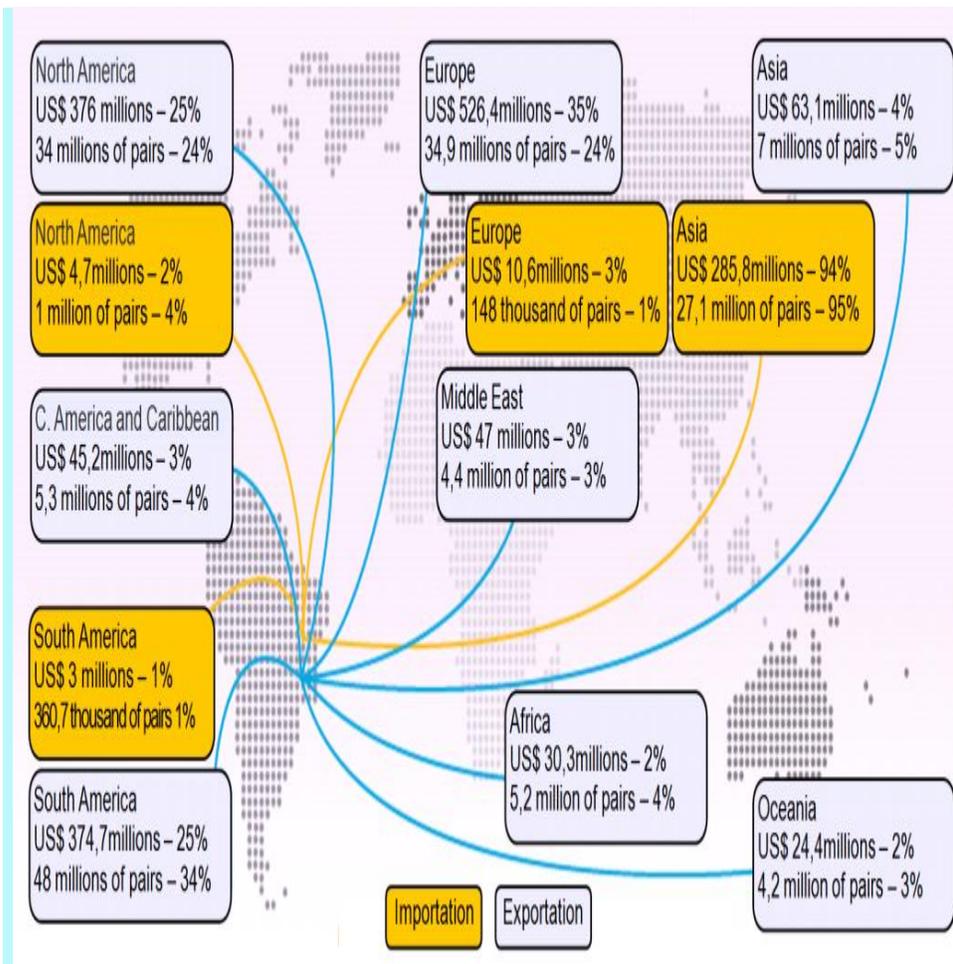


	cluster, a preferred destination for traditional and modern furniture items in the country.
Reference docs/ websites	<p>XV. Indian Case studies on wooden furniture clusters and Carpet Clusters prepared by FMC for Capacity Building Program of Government Officials of Egypt and Cluster stakeholders organised by Socia Fund for Development (SFD), Government of Egypt</p> <p>XVI. Inputs given by members of Kerala Furniture Consortium Private Limited</p> <p>XVII. Innovation cluster in furniture industry at Ernakulam, a Case Study by NiNC (http://initiatives.sampitroda.com/innovationclusters/resources/caselets/Ernakulam_Caselet.pdf)</p> <p>XVIII. Case study written on Ernakula Furniture Cluster, published by NID under design clinic Scheme (http://designclinicsmsme.org/Design%20Awareness%20Programme%20Reports/KEFCON_FCI_NAS+DW.pdf)</p>



Case Study 10

<p>Name of the Cluster</p>	<p>Sinos Valley Footwear Cluster, Brazil</p> 
<p>Cluster Size (Turnover) in Million USD</p>	<p>Total production is 642 million pairs and exports to 164 million with over all turnover pf 300 Million (in 2010)</p>
<p>Employment</p>	<p>200000 including direct and indirect</p>
<p>Major Products</p>	<p>Men and Women Leather Shoes, Sneakers, Sandals etc.</p>
<p>Age of cluster (< 10 yrs; 11-20 yrs; >20 yrs)</p>	<p>More than 20 years. The footwear industry in Brazil has its origins traced back to the arrival of the first German and Italian immigrants to the state in the year 1824 and 1875 respectively.</p>
<p>No. and Type of enterprises</p>	<p>480 shoe producers. Of these, 48.2% were small firms, 34.6% medium sized, and 17.3% large units</p>
<p>Production process (Traditional manual, semi-automated, automated.)</p>	<p>Semi-Automated by small firms and Fully automated by Medium and larger firms</p>
<p>Major value chain players</p>	<p>Machinery suppliers, Consumable & Chemical Suppliers, Slaughter Houses, Tanneries, Skives and other components making, Integrated shoe making companies, Wholesalers, exporters - The region also includes approximately 60% of the components industry & 80% of the Brazilian leather and footwear machinery industry</p>
<p>Markets (Domestic local/ national or Exports with destinations.)</p>	<p>70% Export market and 30% Domestic to more than 60 Countries While the US has long been its main market (69 per cent of total Brazilian exports). Apart from the US, the UK and Argentina are the main markets for Brazilian footwear.</p>



(Sinos Valley footwear – exports and imports)

Key challenges faced prior to major interventions in recent past

- Diffusion and erosion of systematic cluster contribution and development
- Severe competition among individual units, resulted in balance power shifting to buyers
- Reluctance of units to shift from supply model to marketing & design export
- Lack of horizontal cooperation between Government Promotional agencies and cluster stakeholders
- Invasion of cheaper varieties from China resulted in 50% drop in exports (Locals call it as Chinese Shock)
- Relocation of larger firms to other parts of Brazil due to high labour costs
- Unable to cope up with rapid change of design environment in US, the major importer
- Lack of any apex body to tackle the common problems faced by cluster firms with specific reference to SMEs
- Sinos Valley has not been able to position itself as a higher value-added



	<p>producer known for design and branding.</p>
<p>Main Interventions taken</p>	<p>l) Formation and Strengthening of Associations: With the support of local Government, associations were formed for separate actors across the value chain. Associations, played an important part in facilitating the cluster’s ability to qualitatively shift in terms of technical and skill capacities as well as in breaking into export markets. These associations are- Shoe producers- (ABICALCADOS) ii. Tanners- (AICSUL) iii. Component producers (ASSINTECAL) iv. Machinery suppliers (ABRAMEQ) v. Component producers (ASSINTECAL) vi. Export agents (ABAEX).</p> <p>m) Linkage with Support Institutions: To bring the producers and suppliers on a common platform for exchanging and solving their problems resulting in enhancing their growth, Skill Development, Design applications, State Government brought local support institutes like Business Association (Novo Hamburgo), Shoe trade fair organisation (FENAC), Vocational schools (SENAl), Technology centre (CTCCA).</p> <p>n) Bringing together the value chain partners: Associations and State Government took various measures to bring in input suppliers, machinery suppliers and other support firms within the cluster region.</p> <p>o) Government and associations encouraged SMEs to participate in trade fairs both at domestic and also at international level.</p> <p>p) Capacity building and linkage of BDS providers: Regular interactive meets between Cluster firms and BDSPs like freelance designers, technical and financial consultants, specialised transporters were organised.</p> <p>q) Market Diversification: With rapid growth in middle income group in Brazil by early 2000, associations and Government agencies encouraged SMEs to make low cost footwear as per the tastes of local consumers. Sensitisation and training programs were also given to capture high end ladies foot wear to regain US markets from Chinese companies.</p> <p>r) Information Dissemination: Local market information which is so much important for remaining in a competitive market, was made available by the publication of Two Weekly Newspapers and Four Monthly Technical magazines within the valley all of which specialised in the shoe industry.</p>
<p>Major outputs/ impacts of interventions</p>	<p>Sinos Valley is now distinguished from other shoe producing centres in Brazil by local suppliers of inputs: raw materials, and new and second hand machinery; specialised stage firms and shoe component producers; as well as specialist providers of managerial, financial technical and information services critical to</p>

the industry. This provided them with tremendous cost advantage over its competitors.



(Sinos Valley Shoe City)

Within the confines of the valley, “most inputs are produced: uppers, soles, heels, insoles, insocks, shanks, glues, nails, eyelets, dyes, etc.–all of them are made for different technical specifications. In addition, most of the machines that turn these materials and components into shoes are made locally. It has been observed that for every job in shoe manufacturing there is a job in the local supply industry.



(Sole making factory in Sinos Valley)



(Heels, shanks and other footwear part making factory)

Availability of 70 locally-based export agents. Some of these represented leading US retailers. Other agents, Brazilian and foreigners who connect local producers to outlets in Europe as well as Brazil

Sinos valley produces women's leather shoes for highly competitive, demand-led, domestic and international markets.



(Women's shoes made in Sinos Valley)

Emphasis is placed on consistently high standards of quality and on designs that keep pace with rapidly changing fashion trends.

The associations have also had major contribution in branding and development of the cluster. They have played an important role in bringing the producers and suppliers on a platform for exchanging and solving their problems resulting in



	<p>enhancing their growth. The Sinos Valley Cluster benefited from the expertise of the members of all these association which were locally established.</p> <p>The total turnover has gone up to 1.6 billion capturing 80% of total brazil footwear exports, 25% of domestic market with product diversification to sportswear, ladies shoes, children wear, leather garments etc.</p>
<p>Learnings</p>	<ul style="list-style-type: none"> • SMEs cannot work in isolation and they have to be integrated with support firms and BDS providers • Cannot depend on one market or market segment and there should be constant emphasis to diversify • Formation and capacitating Self Governance Mechanisms like Associations and networks are very important to bring various stakeholders to common platforms • Government Promotional Agencies plays a crucial role in bringing in value chain partners and capturing export markets • All the firms should not make similar products and cater to similar markets which may lead to unhealthy competition, expertise need to be segregated and every group need to have their own USP and niche market • Mere clustering of manufacturers may not yield desired result unless input suppliers and market enablers were not brought in to within cluster vicinity. • BDSPs like technical institutions, designers, financial and marketing consultants are very crucial for development of competitive business atmosphere in the cluster
<p>Reference docs/ websites</p>	<p>XIX. Study on Branding in Cluster a book published by FMC with the help of Small Industries Development Bank of India</p> <p>XX. Comparing chain governance and upgrading patterns in the Sinos Valley, Brazi, An paper written by Luiza Bazan at University of Sussex</p> <p>XXI. An article titled Footwear cluster at Sinos Valley published by Danier Camargo</p> <p>Upgrading in Global and National Value Chains: recent challenges and opportunities for the Sinos Valley footwear cluster, Brazil.</p> <p>Upgrading in Global and National Value Chains: recent challenges and opportunities for the Sinos Valley footwear cluster, Brazil.</p> <p>https://www.researchgate.net/publication/268424827_Upgrading_in_Global_and_National_Value_Chains_recent_challenges_and_opportunities_for_the_Sinos_Valley_footwear_cluster_Brazil</p>