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Employment Intensity of Output in selected Clusters of India- An Analysis of Factors for Employment in MSME Clusters

Institute of Applied Manpower Research

Planning Commission, Government of India

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We are grateful to all the stakeholders involved in this meaningful venture and sincerely believe that this report serves the purpose that it intended to.

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Executive Summary

India witnessed not only a decline in employment growth, but also a fall in employment by numbers, coupled with sectoral growth in the manufacturing sector, during the second half of the last decade. This is happening at a time, when the country has a near-stagnated agri-sector and there is a high level of dependence on manufacturing to absorb the growing labour pool. There is variance in this trend both across sectors and states. While West Bengal witnessed a marginal positive growth, Tamil Nadu and most of the other states encountered negative trends.

Objectives of the Study

1. To understand the phenomenon of "jobless growth" in selected clusters in India
2. To identify the constraints faced by the clusters in terms of skill requirements, gender sensitivity, and finance and so on.

   To draw policy suggestions to create better employment opportunities and the sustainability of cluster in terms of technology upgradation, skill requirements etc.

Methodology

The study is based on 46 clusters that represent the identified sectors (textiles, food processing, chemicals, handicraft etc), both nationally as also in the three identified states.

Findings of the Study

The study suggests that at a macro level the factors that have contributed significantly to jobless growth in clusters in order of importance are technology (28%), market (20%), raw material (20%), pollution and working condition (20%) and infrastructure (11%). Lack of availability of finance and perceived lack of skill have not yet made any significant contribution to jobless growth. However, if one considers a situation of current and definite future influence, "Significantly Witnessed Jobless Growth (SWJG)" and "Showing Signs of Jobless Growth (SSJG)" factor together; infrastructure becomes the most critical issue, followed by technology and market of equal importance, followed by raw material and pollution related issues – both being of equal importance. In fact, factors those are likely to be trouble making in the future will be skill and finance related issues. Interestingly, when looked at from the view points of different types of clusters, as also from the level of industrialization of the state, not only the macro factors vary, but the micro factors that constitute the relevant macro factors vary too.

For the industrial clusters the issues are (i) technology for enhancing productivity and lack of sufficient labour supply; (ii) infrastructure especially lack of power, (iii) pollution, especially insufficient capacity of the effluent treatment plants; and (iv) marketing woes of downturn in the global market. However, for traditional manufacturing the major issues are (i) market, especially competition from cheaper substitutes and lack of product up-gradation; (ii) rising prices of raw materials and; (iii) lack of appropriate technology and lack of capacities to buy new technology. On a different note, the issues for the micro enterprise clusters are: (i) rising prices of the raw material, (ii) advanced technology that has replaced non-availability of skilled workers and lack of appropriate scaled down version of technology, and (iii) pollution-free and safe working conditions.

Again in a relatively less industrialized state of West Bengal, the major issues such as raw material cost, inappropriate technology, lack of market and skill providing organizations and MGNREGA are being felt more in the Micro enterprises and traditional clusters, where the wage rates are relatively low. But Tamil Nadu having mostly industrial clusters faces the challenge of technology based displacement, pollution, power shortage and relatively low wages in some sections, which is wooing away the labour force in welfare schemes. Uttar Pradesh which is relatively less but traditional product producing industrialized state, the most important micro factors are downturn of global market scenario, replacement of labour due to advanced technology and lack of adequate technology, and pollution and working condition.

Interestingly, the stakeholders identified lower wage as a factor for not getting labour in 44 per cent (20 of 45) clusters. Eighty per cent of these clusters are either ME or traditional clusters. Around 70 percent (14 of the 20) clusters have reported that MGNREGA has affected their labour availability. Again 70 per cent of these 14 clusters are either ME or traditional clusters. Thus, it is evident that low wage has definitely affected labour supply in clusters. The problem is more severe in the ME and traditional clusters, where the wage rates are relatively lower due to factors like rise in cost of raw material, falling market share, etc. MGNREGA has added to this trend by opening up alternate wage earning mechanism. Interestingly, industry has also become extremely labour sensitive.

Policy Suggestions

Development of skilling institutions need to be proportionate to usage.

Pollution control department needs to come out with acceptable technologies and approved vendors for sourcing of such technologies.

Appropriate financing models of IT and food processing sectors should be developed

Initiatives towards establishing ESI facilities either as new entities or tie-ups with existing hospitals must be taken up.

In order to revive the sick units, special financial instruments may be introduced, including waving of loans, interests etc.

The institutions and training centers which supply skilled workers need to be appropriately and regularly up-graded.

I. Backdrop

Unorganised non-farm sector is a major contributor to the economy; both in the form of producing goods and services and providing employment. As per 2004-05 data, this sector contributes almost 86 percent of the employment in India.[1] Non-farm sector comprises of the enterprises in the rural areas – small, private sector enterprises – those do not have a formal system of accounting and are not subject to any legal provisions (except minimum wage). Assuming that the micro enterprise (ME) sector is mostly unorganised, it is estimated that, of the 8 million manufacturing MEs, 95 percent are micro (unorganised) and 72 percent are micro-micro (definitely unorganised own account enterprises). Interestingly, two-thirds of these enterprises are estimated to be present in clusters.[2]

However, the recent trend in employment in non-farm sector is not encouraging. As per the report of the Planning Commission, The Restructuring of the Unorganised Sector in India (2003), it has been observed that the workforce in the country has increased by 60 million in the first half of the decade of 1999-2000 to 2004-05 when the GDP growth accelerated to 6.3 percent but the corresponding increase in the second half of the decade is only around one million while the economy grew at over 8 percent, indicating jobless growth during 2004-05 to 2009-10.[3] So, while employment increased by 1.8 percent in the first half of the decade, in the second half the increment was just 0.22 percent. This is largely due to fall in employment in the manufacturing sector of the second half of the decade.

Again, such trend is not similar across states. While West Bengal witnessed a marginal positive growth, Tamil Nadu and most of the other states encountered negative trends. This necessitated an urgent need to investigate why such jobless trends are emerging in recent years and what can be done to promote employment intensive growth in the unorganized sector. In this regard, IAMR is conducting three simultaneous studies to demystify this phenomenon of "jobless growth".

II. Research Objective

The purpose of this study is to understand the phenomenon of jobless growth in the unorganised manufacturing sector as found in Micro Small and Medium Enterprises (MSME) clusters. For this purpose this study has covered both sectoral and geographical dimensions.

For the Sectoral Study, sectors have been identified based on employment elasticity,[4] i.e. employment generating ($e>0.3$), jobless ($0<e>0.3$) and job losing ($e<0$). The sub-sectors have then been identified as those with highest employment contribution in those sectors.

[1] Contribution of the Unorganised Sector to GDP, Report of the Sub Committee of a NCEUS Task Force (Working Paper No. 2)

[2] "Financing of the Micro Enterprises Clusters - Challenges, opportunities and Way Ahead" published in *The Micro Finance Review*, Volume III (2) by BIRD.

[3] According to the 61st and 66th NSSO Employment-Unemployment rounds

[4] Give reference of IAMR Study, from where this categorization has been taken.

On Geographical Study, two states have been selected where employment elasticity is less than zero (Uttar Pradesh and Tamil Nadu) and one and only state of West Bengal where employment elasticity is more than zero. The sectors and sub-sectors in the states have been selected in the same manner as for Sectoral Study.

III. Selection of Sectors

According to the Sectoral Study analysis (concept note of IAMR), the following sectors have been selected.

Table 1: Sectors selected for the Study

Employment Generating	Job Less	Job Losing
1) Constructions (24%) 2) Wearing Apparel (3.67%) 3) Real Estate (2.76%)	1) Textiles (3.74%) 2) Trade (19.32%) 3) Transport, Storage and Communication (8.92%)	1) Food Products and Beverages (2.34%)

However, not all of these sectors are cluster prone, particularly in services (e.g. trade, transport and real estate), etc., whereas computer services and tourism are the two services products which have been found in clusters. Again, Handicraft is very employment-intensive sector. Also, there are some sub-sectors of MSMEs, which have very high importance in employment, turnover, gross value added (GVA) and exports and are mostly present in clusters.

Table 2: Ranking of Sectors as per Contribution of MSMEs

S.N.	Sector- Census	Employment	Turnover	GVA	Export	Total	Average
1	Food Products & Beverages	1	1	1	2	5	1.25
2	Textiles	2	2	2	3	9	2.25
3	Wearing Apparel	3	7	6	1	17	4.25
4	Fabricated Metal Products	4	5	4	6	19	4.75
5	Chemicals & Chemical Products	7	4	3	5	19	4.75
6	Machinery & Equipment n.e.c.	6	6	5	7	24	6
7	Basic Metals	9	3	7	10	29	7.25
8	Other Non-metallic Mineral Products	5	10	9	9	33	8.25

Source: Derived from 4th All India Census of MSMEs: 2006-07

Accordingly, the following sub-sectors have been chosen for selecting clusters thereof.

1. Food products and beverages
2. Textiles
3. Weaving/ Apparel
4. Metal products and parts (including basic metals, fabricated metallic products and other non-metallic mineral products)
5. Chemical and chemical products
6. Machinery and equipments
7. Handicraft
8. Computer Services and tourisms

For the Geographical Study, the sectors for each state which have been suggested by IAMR for selection of clusters are as follows:

Table 3: States suggested by IAMR for selection of clusters

Uttar Pradesh	West Bengal	Tamil Nadu
1. Tourism	1. Foundry	1. Chemicals
2. Textile/ Apparel	2. Leather Products	2. Food Products
3. Food Products	3. Food Products	3. Transport and non-transport machinery and equipments
4. Chemicals	4. Textile/ Apparel	4. Leather and leather products
5. Leather	5. Gems and Jewellery	5. Textile
6. Non-metallic Products	6. Construction	6. Tourism

IV. Selection of Clusters

16 clusters for the sectoral study and 10 clusters each from the 3 suggested states of West Bengal, Tamil Nadu and Uttar Pradesh were selected based on:

a) Leader and Follower for similar sector (L&F) (value wise)

b) Champion (CHAMP) for different sub sectors in some cases or same sub-sector but in different states, in some other cases.

Champion clusters are those who significantly contribute to the total turnover of the same product group clusters or sector. "Leader and Follower" clusters are pairs where one is leading and other is following in the same group of product category or sector.

Table 4: Selection of Clusters for Sectoral Study at National Level

Sector	Clusters		Selection Criteria
1. Food processing	Pune (Fruit products)	Ganjam (Cashew)	L&F
2. Textiles	Varanasi (Handloom)	Chanderi (Handloom)	L&F
3. Apparel	Ludhiana	Ahmedabad	L&F
4. Metal products and parts	Bangalore (Machine tools)	Machilipatnam (Artificial Jewellery)	CHAMP
5. Chemical and chemical products	Hyderabad (Drugs and pharma)	Ahmedabad (Dyes and Intermediaries)	CHAMP
6. Handicraft	Jaipur Block printing	Moradabad (Brassware)	CHAMP
7. Computer Services	NCR	Hyderabad	L&F
8. Tourism	Nalanda	Puri	CHAMP

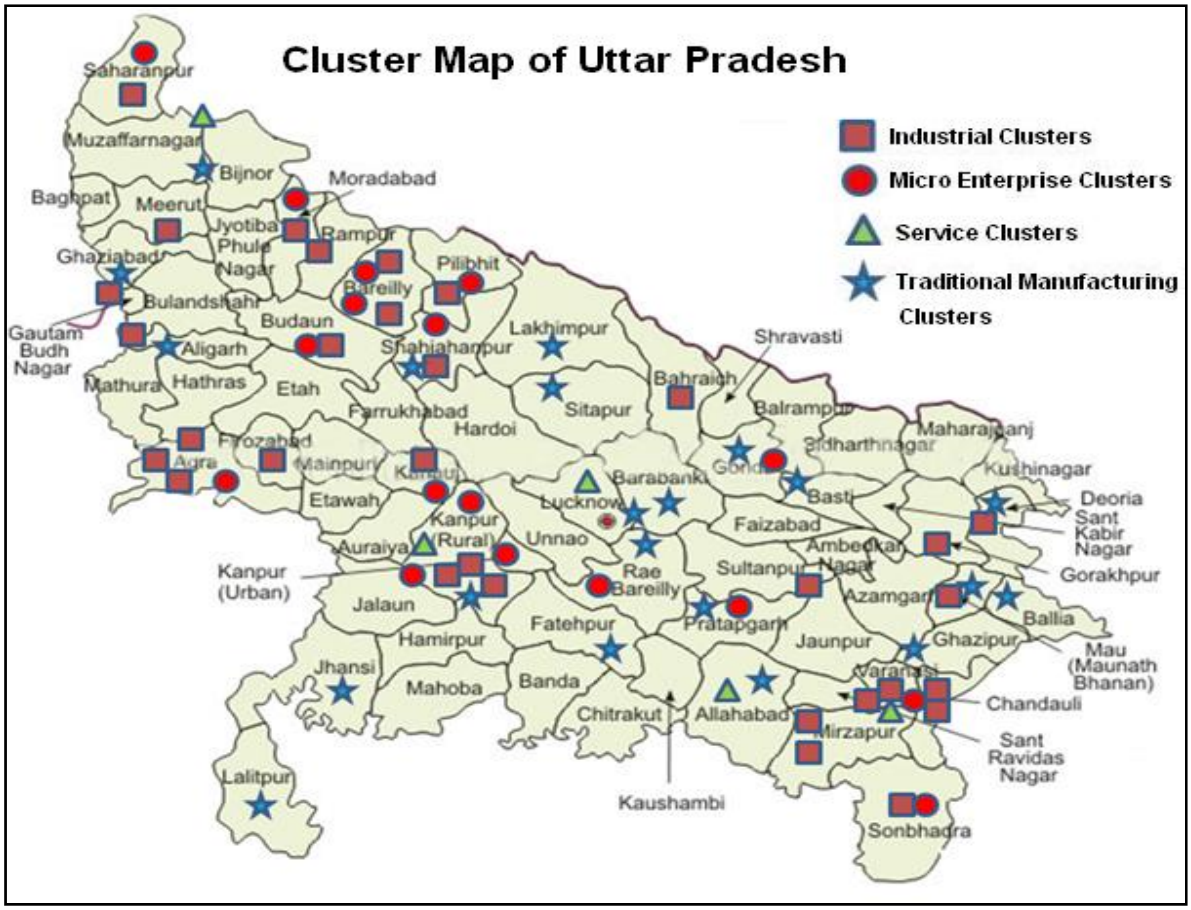
Selection of Clusters for State Level Study

Here, given the sectors, we have tried to first select the clusters with highest employment (EMP) in that state (as per available data). In the absence of the same, either state level champion (CHAMP) clusters (and in the absence of the same) or, clusters with high familiarity[5] (FAM) has been chosen.

Uttar Pradesh

Uttar Pradesh being the largely populated state, houses 168 clusters of different sectors. The four types of clusters are distributed in UP as shown below in the map.

[5] Familiarity is with respect to our institution, i.e. the Foundation for MSME Clusters. As getting appropriate data is a function of trust level, we spoke to those clusters, where we have comparatively higher level of trust.



For the study, 10 clusters were selected which are listed below.

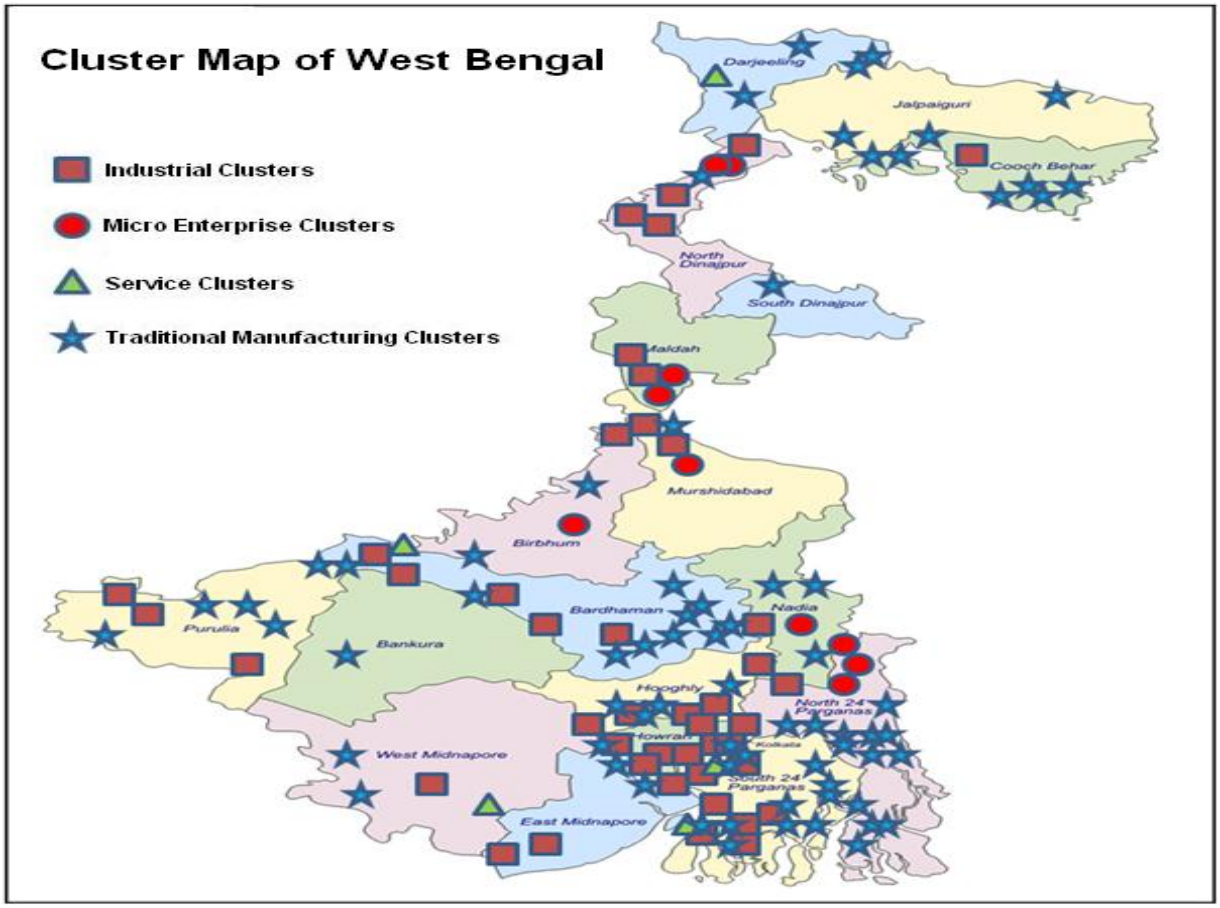
Table 5: Clusters selected for Study in UP

Sectors	Cluster	Selection Criteria	Cluster	Selection Criteria
1. Tourism	Agra	CHAMP	Varanasi	CHAMP
2. Textile/ Apparel	Bhadohi (Carpet)	CHAMP & EMP	Amroha (Textile Waste processing)	L & F
3. Food products	Puranpur (Rice milling)	EMP	Pratapgarh (Amla)	CHAMP
4. Chemicals	Dada Nagar- Kanpur (Soap and detergent)	EMP		
5. Leather	Kanpur	CHAMP & EMP		
6. Non-metallic	Firozabad (Glass)	CHAMP & EMP	Chunar (pottery)	L & F[6]

[6] In the absence of a glass cluster, pottery cluster was selected based on the L&F criterion

West Bengal

The clusters are distributed in the state as represented below in the map.



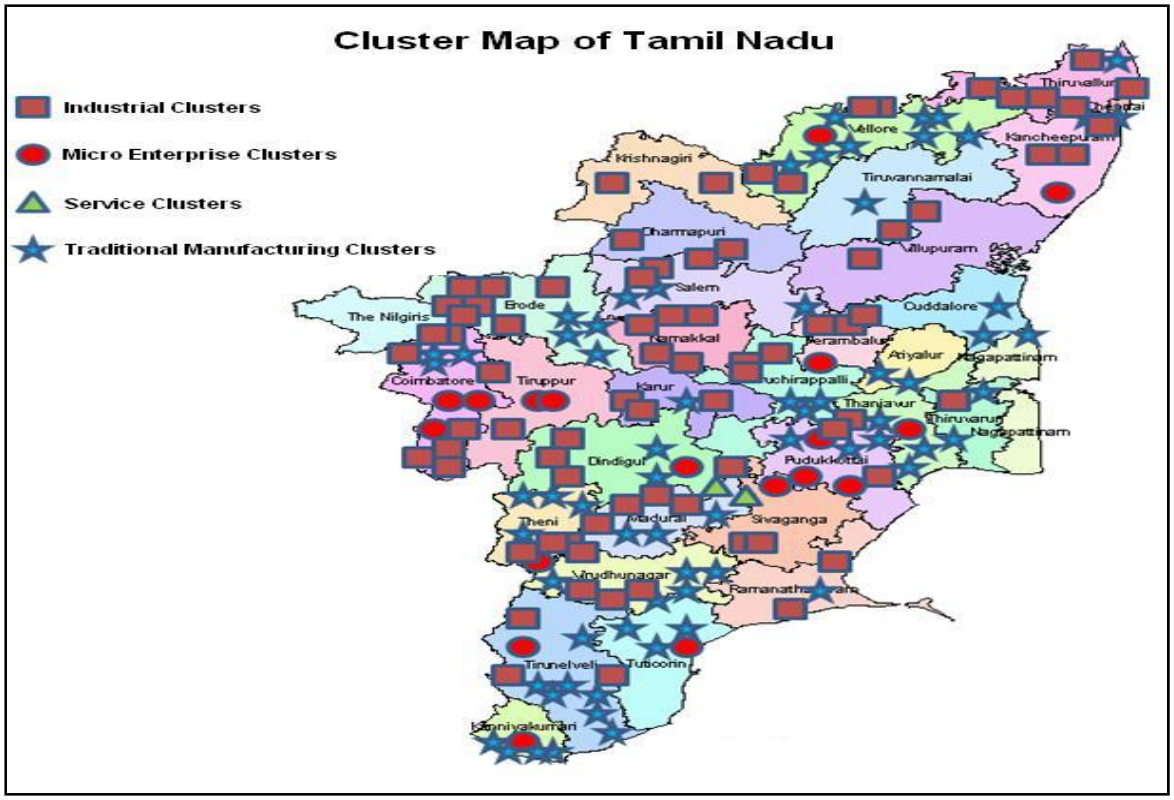
Of all the sectors, there are 70 major clusters in the state and 10 have been selected for the purpose of the study mentioned below:

Table 6: Clusters selected for Study in West Bengal

Sectors	Cluster	Selection Criteria	Cluster	Selection Criteria
1. Foundry	Howrah	EMP & CHAMP		
2. Leather products	Kolkata leather products	EMP & CHAMP	Shantiniketan (Leather handicrafts)	CHAMP
3. Food products	Burdwan (Rice mill cluster)	EMP & CHAMP	Malda (Honey)	FAM
4. Textiles/ Apparel	Sovabazar (Knitwear)	EMP	Murshidabad (Handloom)	EMP
5. Gems and Jewellery	Domjur	L&F	Ranaghat	L&F
6. Construction	Asansol Refractory Brick	CHAMP		

Tamil Nadu

Tamil Nadu is home for 103 clusters of various sectors and they are mapped below as per the categorization done in the study.



In all, 10 clusters were selected that fall in given sectors:

Table 7: Clusters selected for Study in Tamil Nadu

Sectors	Cluster	Selection Criteria	Cluster	Selection Criteria
1. Chemicals	Shivkashi (Fireworks)	EMP & CHAMP		
2. Food products	Namakkal (Starch and Sago)	CHAMP	Krishnagiri (Mango Pulp)	CHAMP
3. Transport and non-transport machinery and equipments	Chennai (Auto components)	EMP & CHAMP	Coimbatore (Pumps and motors)	EMP & CHAMP
4. Leather and Leather products	Chennai (Footwear)	L&F	Ambur (Leather)	L&F
5. Textiles	Tirupur (Hosiery)	EMP & CHAMP	Trirupur (Dyeing)	CHAMP (In trouble)
6. Tourism	Ooty	CHAMP		

V. Coverage of Sample

The study is fully based on primary level data. Primary level data collection in the selected 46 clusters was done through personal interviews and selective Focused Group Discussions (FGDs)[7] to find out the perceived trends of the stakeholders in employment growth, and reasons thereof. Details of the questionnaires for enterprises and association appear at **annex 1-a and 1-b** respectively and list of discussion points for FGD appears at **annex 1-c**.

Questionnaires covered among others, the size of firms and their major macro factors and micro factors thereof in issues related to market, technology, raw material, finance, skill, design, infrastructure, pollution and working condition, etc. and their influence on MSMEs in selected clusters in India.

Selection of respondents was based on the nature of cluster. Broadly, there are three types of clusters. These include:

(a) Manufacturing cluster which is a conglomeration of units producing goods for other industrial or consumption purposes and having two sub-types:

(a.1) Industrial clusters having firms of different size, i.e. large, medium, small and micro; and

(a.2) Micro enterprise clusters having only micro enterprises and mostly owns account enterprises (OAEs), and at times only a few small enterprises, but no medium or large enterprise

(b) Traditional industry clusters producing handicraft and handloom products and consists of micro enterprises and mostly own account enterprises (OAEs), and

(c) Services clusters which provides a service, e.g. tourism, computer software, etc.

The distribution of these clusters is as follows:

Table 8: Distribution of Clusters

	Clusters Covered	**Total**
	Industrial Clusters	21
	Micro Enterprise Clusters	10
	Traditional Industry Clusters	8
	Services Clusters	7
	Total	46

Besides, irrespective of the nature, a cluster also has a number of related enterprises including support service units, technical institutions and also industry associations.

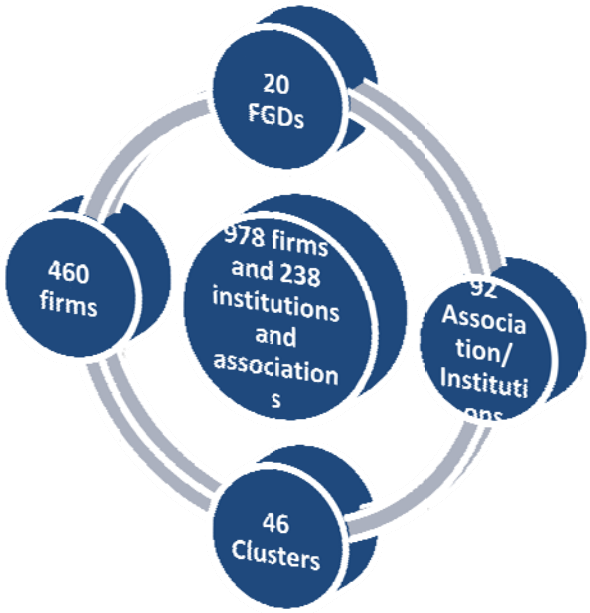
[7] Depending on the level of trust

Accordingly, given the scope of the study, sample sizes of the clusters were fixed as follows:

Table 9: Sample Sizes of the Clusters

	Nature of Cluster	Type of Units				Association/ Institution	Total
		Medium	Small	Micro	Micro-Micro		
1	Industrial Cluster	2-3	4-5	2-3	0	2	10-12
2	Micro Enterprise Cluster			3-4	6-7	2	10-12
3	Traditional Cluster			3-4	6-7	2	10-12
4	Services Cluster		2-3	7-8		2	10-12

Chart-1: Sample Sizes of the Clusters



Besides, focused group discussion was carried out in 20 clusters. A number of institutions and firms participated in these discussions too. In all, around 978 firms and 238 institutions and associations participated in this process.

VI. Methodology for Data Analysis

The Objective of the study was to identify factors that have led to jobless growth in clusters. Jobless growth in a cluster is defined as a situation of either (a) fall in absolute number of jobs, or (b) fall in growth rate of job. At a macro level the prospective factors to cause such situations were identified as issues related to inefficiencies attached to various parts of business operations including raw material, finance, skill, technology, infrastructure, etc. At times these factors were also affected due to policy issues.

Most importantly the study also tried to identify a variety of distinct micro factors for each of those macro factors. Severity of these macro factors (and micro factors thereof) was analyzed depending on their degree of influence on jobless growth as described below. In each case severity of these inputs were considered when either voiced unanimously in FGD and/or at least 30 per cent of the respondents in a cluster said so. Based on the inputs, the following five categories of severity with respect to impact on jobless growth have been identified.

- Category 1: These are situations where respondents felt that the cluster has been substantially hit by jobless growth. **These situations have been named as "Significantly Witnessed Jobless Growth (SWJG)"**.

- Category 2: These are cases where respondents felt that cluster has started showing preliminary signs of jobless growth, which is surely to accelerate if not rectified. **These situations have been named as "Showing Signs of Jobless Growth (SSJG)".**

- Category 3: These are cases where the stakeholders felt, are very potent to lead to jobless growth in the near future. **These situations have been named as "Certainly Future Jobless Growth (CFJG)"**

- Category 4: These are cases where the cluster stakeholders felt, are seeds that may lead to jobless growth in the near future. **These situations have been named as "Likely Future Jobless Growth (LFJG)".**

Category 5: These are cases where the cluster stakeholders felt that growth inhibiting factors has been addressed either through joint actions in the cluster or through policy action and has led to both enhanced growth and employment and are sources of learning for replication. **These situations have been named as "Job-Plus Growth (JPG)".**

Cases which did not come under these groupings are necessarily not impacting jobless growth for the cluster in question and were not given any colour.

The identified issues were then analyzed for the clusters at various levels:

(a) 46 clusters as a whole

(b) However, to understand as to whether there are variations in factors depending on state, especially given the fact that West Bengal is the only state where the total employment has seen a marginal growth and Tamil Nadu being the cluster where total employment has fallen significantly, state specific factors were analyzed separately for the states of West Bengal (10 clusters), Tamil Nadu (10 clusters) and Uttar Pradesh (11 clusters).

(c) Again, a preliminary analysis of data suggested that there was not only variation in macro factors, but more importantly in micro factors for different types of clusters. Accordingly, an analysis of macro as well as micro factors thereof was done for four different types of clusters, i.e. industrial (21 clusters), traditional artisanal (8 clusters), micro enterprises (10 clusters) and services (7 clusters).

VII. Analysis of Data

(A) Overall for 46 Clusters – Macro Factors

At an overall level, the macro factors that have contributed significantly to jobless growth in clusters, in order of importance are technology (28%), market (20%), raw material (20%), pollution and working condition (20%) and infrastructure (11%). Lack of availability of finance and perceived lack of skill have not yet made any significant contribution to jobless growth.

Table: 10: Macro Factors of Critical Importance – All Clusters

	Technology		**Market**		**Raw Material**		**Pollution/Working conditions**		**Infrastructure**		**Finance**		**Skill**	
	No.	*%*	No.	*%*	No.	*%*	No.	*%*	No.	*%*	No.	*%*	No.	*%*
Significantly Witnessed Jobless Growth (SWJG)	**13**	*28*	**9**	*20*	**9**	*20*	**9**	*20*	5	*11*	4	*9*	1	*2*
Showing Signs of Jobless Growth (SSJG)	4	*9*	**8**	*17*	4	*9*	4	*9*	14	*30*	2	*4*	11	*24*
SWJG and SSJG	17	*37*	**17**	*37*	13	*29*	13	*29*	19	*41*	6	*13*	12	*26*
Certainly Future Jobless Growth (CFJG)	1	*2*					3	*7*	1	*2*	2	*4*		
Likely Future Jobless Growth (LFJG)	**7**	*15*	4	*9*	**7**	*15*	1	*2*	6	*12*	**13**	*28*	**16**	*35*
Total	**25**	**54**	**21**	**46**	**20**	**44**	**17**	**38**	**26**	**55**	**21**	**45**	**28**	**61**

However, if one considers a situation of current and definite future influence, Significantly Witnessed Jobless Growth (SWJG) and Showing Signs of Jobless Growth (SSJG) factor together; infrastructure becomes the most critical issue, followed by technology and market of equal importance, followed by raw material and pollution related issues – both being of equal importance. Interestingly, factors that are likely trouble makers in the future will be skill and finance related issues.

(B) Overall for 46 Clusters – Micro Factors

A closer look into the macro factors in all 46 clusters brings out several micro factors that are of critical importance. Analysis of those macro and the micro factors therein are explained as below.

B.1 Technology

Distribution of the problems in percentage across the 4 major categories of units has been captured in the following table.

Table- 11: Technology Problem (In Percentage)

	Significantly Witnessed Jobless Growth (SWJG)	**Showing Signs of Jobless Growth (SSJG)**	**Likely Future Jobless Growth (LFJG)**	**Certainly Future Jobless Growth (CFJG)**
Industrial	38	0	19	0
Micro Enterprise	20	20	30	10
Traditional	0	0	0	0
Services	25	25	0	0
Total	83	45	49	10

The most important micro factor in technology is **labour displacing/replacing/technology** that was witnessed in nine clusters (Significantly Witnessed Jobless Growth factor). Such technology changes were introduced from two different perspectives too.

Case Study-1
Productivity Rises and Employment Falls

During 2002-12 around 30 to 40 percent of the units in the **Tirupur Dyeing cluster** have upgraded their production process from the traditional winch dyeing to soft-flow dyeing process. This change resulted in lesser dyeing time with better quality and lower consumption of water. The soft flow machines could dye larger quantities as it was continuous process.(One machine is capable of producing the same cap, consumes 50 percent less water than the winch process and results in 40 percent lesser levels of TDS in the effluents produced. However as the equipment was around 15-20 times costlier than the traditional process (depending on the capacity), adoption of the technology has been limited to approximately 40 percent of the units only. On the whole, in units where the technology has been adopted the productivity has increased 10 times with absolutely no corresponding increase in employment.

Address productivity challenges – labour displacing: In Tirupur dyeing, during 2002-12, around 30 to 40 per cent of the units in the cluster have upgraded their production process from winch dyeing to soft-flow dyeing, leading to fall in production cost and reduced requirement of labour (Case Study-1). Planned introduction of mechanized drying, that reduced requirement of excess land and fast tracked production, grossly reduced labour requirement too in the Burdwan rice milling cluster. Similarly, mechanization enhanced productivity but led to fall in employment growth in the Firozabad Glass cluster. In Krishnanagar mango pulp, introduction of mechanized equipment has drastically increased production volumes. Productivity in manufacturing process has nearly doubled with 60 percent lesser labour.

Introduce technology to address lower availability of labour – labour replacing: In ME clusters of Coimbatore pump and motors, micro and small units are picking up CNC machine, as it is extremely difficult to get trained mechanic at a wage rate prevailing in the industry. Same was the case in the ME cluster of Namakkal starch and sago, where, despite low labour cost, mechanization was introduced to increase productivity and take care of frequent absenteeism (Case Study-2). Same was the situation in the Ahmedabad dyes and intermediaries industrial cluster.

With more and more introduction of labour displacing technology, the technology sophistication of industry is increasing. This will make the existing labour, more and more misfit for absorption into the labour force without desired skill. Thus there will be need for availability of desired skill up-gradation avenues.

Case Study-2
Automation all the way

The Namakkal Starch and Sago Cluster have around 120 units and has an estimated annual turnover of around Rs. 100 crores. The industry provides work for about 8 months in the year. However, even during these 8 months, work is sometimes unavailable owing to the non availability of tapioca tuber, the basic raw material. The erratic availability of work coupled with low wages (approximately Rs.110-Rs.120 per day) has led to severe shortage of labour in the cluster. In order to overcome labour shortage the industry actively began automating its existing manual manufacturing process. Automatic equipment for peeling and crushing of the tapioca tubers along with conveyor belts were installed in all the units in the cluster between the year 2005 and 2008. This was followed by installation of auto-sizing machines (to form globules of the starch) auto-roasters and auto-drying machines. Automatic equipment for loading and unloading is also being introduced slowly in the cluster to minimize need for unskilled labour. This automation has led to reduction in labour by almost 75 percent in the industry. However, as the area under tapioca cultivation has reduced by nearly 50 percent in the last four years, the automation has not brought about drastic increases in turnover and production of the cluster.

In technology, the second most important micro factor is **lack of appropriate technology** resulting in growth stagnation or falling profitability, thereby leading to fall in employment in ME clusters. Such deficiency arises due to a variety of factors including (a) lack of availability of technology suiting to scale or (b) high cost of available technology and (c) lack of knowledge of availability of technology.

It was evident among the MEs of Pune food processing. Even locally made machine are not of right quality and full range is not manufactured. Hence, importing is must if quality is required. This is a high cost process for ME units. In Kolkata (Jaanbazar) footwear, the existing machinery is of high capacity and not suitable to scale (Case Study-3). Similarly, in Chunar, a machine for firing for a single ME is not available. Lack of appropriate technology was also found as labour displacing due to inefficiency, in the artisanal cluster of Murshidabad, although there is presence of such technology in the country.

Case Study-3
Non-viable Technology in Footwear Manufacturing

There are around 100 ME units in footwear manufacturing in the Kolkata leather (Janbazar) cluster. The cluster is there for over 50 years. Yet, Production of footwear manufacturers by all ME units is completely manual. Use of very basic equipments/handtools is in practice causing low productivity and poor quality. Since the process is not mechanized, the volume of production cannot be increased. Therefore, the cost of production is quite high which does not justify the price of the product. Cluster is gradually losing its market to other competitors who produce in volumes and offer much cheaper price.

In a unique case of pure policy issue, the Shivakashi fireworks cluster is losing out on growth and employment opportunity.

However, introduction of appropriate technology is not a labour-displacing mechanism. In fact, given the low productivity, this process opens up the horizon and enhances employment, even in the short run. Such growth has been experienced in Bargarh Handloom cluster (Case Study-4) and Ganjam Cashew Processing cluster.

Case Study-4
Technology Ensured Inclusivity and Growth

These pre-loom activities opening of hank yarn, bobbin winding, preparation of weft, pirn winding, warp preparation, sizing, tie & dyeing etc in Bargarh Handloom cluster are predominantly carried out by the women. These are tedious and time consuming. Moreover, most of these processes required open spaces and thus are weather dependent. Higher time spent in pre-loom processes and stoppage of this work in Monsoon months lead to poor productivity. Due to the different technical interventions done (during a UNIDO Cluster Development Program (CDP) and the current initiatives taken up by Assistant Director, Department of Textile, Bargarh) the entire pre-loom process was mechanized and therefore the time spent on such activities has drastically fallen down.
Due to use of traditional technique, additional 10 to 11 hours are spent in producing 2 saris as compared to the mechanized processes; this change has led to an increase in monthly income by about Rs 1200-1700 for a weaver family. Additionally the errors in winding have drastically gone down. The social impacts of using the modern machines are no less. While women now get more time for their families, parents who were not willing to send their girls to schools/college, to get their help in the production process, are now allowing them to do so.

B.2 Market

Distribution of the problems in percentage across the 4 major categories of units has been captured in the following table.

Table-12: Market problem (In percentage)

Sector	Significantly Witnessed Jobless Growth (SWJG)	Showing Signs of Jobless Growth (SSJG)	Likely Future Jobless Growth (LFJG)	Certainly Future Jobless Growth (CFJG)
Industrial	29	5	5	0
ME	0	40	30	0
Services	0	0	0	0
Traditional Manufacturing	38	0	0	0

Export market slump is the most critical factors that led to employment loss in seven clusters. In Tirupur Knitwear cluster, owing to the slump in the global economy during 2008-10, there had been a low volume of export orders. Moreover, units have lost market share due to closure of dyeing units for more than 11 months. This has resulted in fall in employment. Market had been good for Chennai Auto Component up till 2007. In 2008-10, there was drastic reduction in turnover due to recession as a result of which 30-35 percent of workers at the trainee/unskilled/semiskilled levels lost their jobs. Though market picked up again in 2010, units are not being able to get adequate workers in the cluster.

On a similar note, Ludhiana Knitwear cluster experienced reduced turnover and fall in employment. Dumping of Chinese products and tax free imports from Bangladesh rather enhanced the problem. Firozabad Glass cluster exports around 50 percent of its product. The cluster was badly hit by recession in 2009 because of which exports fell by 40 percent leading to a fall in employment by 2.5 lakhs (Case study-5).

Case Study-5
Recession leads to fall in employment

Firozabad is known for its glass products – bangles, lamp sheds, vases and chandeliers, tubes and rods, etc. Around 70,000 workers (out of 1.5 lakh) are involved in the bangle industry along that includes the manufacturing, designing and decoration. A huge number of household units employ women labour for making bangles and decorating them, which is estimated at around 30,000.

Firozabad exports around 50 percent of its product. The cluster was badly hit by recession in 2009 for which exports fell down by 40 percent. 4000 traders left their trade and 450 glass workshops reduced to 275. Employment reduced from 4 lakhs to 1.5 lakhs. However, around 25 new units came up in 2010-11 after recession but the loss due to recession is yet to be compensated with this minor increase. Moreover, the cluster is also facing competition from Chinese and Italian products as those are cheaper and superior because of low manufacturing cost and better designs.

Asansol Refractory Brick cluster was also hit by market slump and growing competition from other units. Price of IS-6 quality of refractory increased from Rs. 2,500 – Rs. 3,000 to Rs. 5,500 – Rs.6,500 per ton in 2004-2006 due to sudden spurt of growth of some user industries resulting in a boom in requirements of steel & hard coke. Therefore, demand for refractory bricks increased by at least four times. However, in recent past demand from steel industry has gone down significantly. Fall in demand from core industries on the one hand and growing number of refractory industries in India on the other is creating competition in the market. The use of Ramming Mass by these steel industries has also reduced the consumption of refractory brick. Number of new units increased suddenly with increased market demand in 2004-06. However, again with drastic fall in demand from steel industry, the profitability/turnover of units has gone down. Therefore, the wage rate is not sufficiently attractive to retain labours and employment has fallen. Moreover, number of units is likely to go down if this trend exists.

Competition from substitutes is the second most critical factor leading to market and employment loss in two clusters.

Murshidabad Handloom cluster is facing competition from other substitutes and also low cost power loom products. Also, over-dependency on traders is squeezing their profit margins and making them less competitive. This has led to joblessness in the cluster. Chunar Pottery cluster is facing a similar problem due to availability of other ostensibly better quality and cheaper substitutes like plastic and glass products. In addition, the cluster has a limited range of products and is highly dependent on festivals like Deepawali and Janamashtami. They have annual business cycle. Limited market and low demand has led to closure of units and large scale unemployment. The families currently doing the business are not able to get the profit margin if they solely depend on pottery business. So, they have taken up farming as the major occupation and pottery as an optional one.

Lack of product diversification is the third most important factor where negative growth of the clusters have been experienced, which will definitely lead to job loss in near future.

Lack of market knowledge and lack of product diversification to cater to new markets has limited the growth of micro units in Kolkata Leather cluster. Additionally, there is growing competitions from other manufacturers who produce better quality and low priced products because of use of machines. This is another threat to the units which is likely to cause jobless growth in the cluster. Similarly, the Ranaghat Gold and Silver Jewellery cluster is facing market problems due to lack of design diversification and innovation into light weight jewellery to match the current market trends.

Agra has limited tourism products to offer; therefore tourists do not prefer to stay more than a day. There is no support from the government for promoting night life in Agra is causing low occupancy rates in hotels. However, there is a recent development by the Tourism Guild of Agra which promoted 'Experience golf' in the premises of Taj Mahal and also linked several close by tourists' spots to promote tourism. This is likely to have a good impact on the growth of the cluster.

Competition from other clusters/players is the fourth critical factor causing jobless growth in the clusters. The Foundry Cluster of Howrah has got restricted because of growing competition from Chinese producers. China having technology and cost advantage is capturing global foundry market. The cost of Howrah foundry product is higher due to use of labour operated technology, high cost of raw material etc. Due to restricted capital investment and growing labour issues, Howrah has started losing its market share. Also, one of the major clients, railways, is now shifting to other low cost and better quality substitutes. Market demand is going down causing low growth rate of the cluster. Turnover and profit margin is declining, units are not being able to give good wage to retain migrant labourers.
The traders and buyers of Amroha Textiles Waste cluster have now opened their own production units in marketing zones of Varanasi and Panipat and reduced their procurement from Amroha. This has impacted the growth of the cluster and likely to impact employment negatively in near future. Similarly, unhealthy competition among units to get orders is bringing down the profit margins in Thrissur Gold Ornament cluster.

Poor marketing strategy is another critical factor influencing growth of the cluster.

Nalanda tourism cluster is not being able to attract customers because of improper marketing strategy and limited product range. This will surely lead to joblessness if not tackled properly.
Most of the artisans in Domjur Gems and Jewellery do job work and the market is largely controlled by traders/showroom owners. Entrepreneurs do not have any other market channel or direct access to the consumer and therefore earn little margins.

However, a near similar situation has been handled through better marketing strategy by the association in Shatiniketan leather craft cluster (Case study-6). Bargarh handloom cluster has also experienced positive growth due to various market interventions under different support programs and because of the presence of a strong local market (Case study-7).

Case Study-6
Eye level, buy level

Product designs and quality has improved significantly by the artisans in last 4/5 years in **Shantiniketan leather craft cluster**. Moreover, due to the Geographic Indication (GI) received by the Association, the craft has got greater visibility in outside market. This has helped in positioning "Shanti Craft" as traditional craft and attracts more number of buyers. The micro units and the artisans who are producing better products and designs have mentioned that their turnover has gone up by 40-50 percent in last 4-5 years.

Case Study-7
Right strategy, definite growth

Existence of strong local market for Ikat is the main reason for the growth of **Bargarh Handloom cluster**. Moreover, demand in national and international market for Ikat is growing and with lot of interventions by the textile department and Sambalpuri Basralaya, weavers are now being able to reach out to right kind of market. Weavers without having alternative market channels and due to lack of working capital were forced to sell their product at lower price. However, gradual opening up of alternative marketing channels and also with credit linkages by financial institutions, the distress sale has significant decreased in last 5 years. Income of the skilled weavers has increased atleast by 100-120 percent in last 5 years.

In Ahmedabad Apparel cluster, ensured payment due to the Adats (a class of local traders), who buy the products from the units and ensure payment has positively impacted growth of the cluster has increased market security for micro units.

In Chanderi Handloom cluster, despite huge competition from power loom products the cluster has been able to stay competitive because of proper market strategy – specialization and linkages with big retail chains. The demand for the cluster products in Machhilipatnam Gold and Silver Ornament cluster has increased because of induced cluster development programme (CDP); firms have got good hold over domestic market, particularly South Indian market (Case study-8).

Case Study-8
CDP helped addressing marketing issues

As the market started showing downward trend for local jewelry industry since late nineties, in **Machilipatnam Imitation Jewellery** cluster firms realized that there is a need to diversify the products so as to meet the changing tastes of customer besides expanding the market base. After a series of meetings among the association members it was decided to diversify to Temple Ornaments which has great demand in the South Indian Market and to silver ornaments to capture North Indian Market. With the help of APITCO, the association encouraged few of its members to start making temple and silver made ornaments. This has paid rich dividends and at present there are 20 firms, who are exclusively in to temple ornaments besides 50 firms making silver ornaments. More than 100 firms are also making these items based on the seasonal demand and orders. The turnover of these firms has increased by 30 to 40 percent besides profit margins by 10 to 15%. Even the employment potential of these firms is increased by 30 to 50 percent.

B.3 Raw Material

Table-13: Raw Material Problems (In percentage)

Sector	Significantly Witnessed Jobless Growth (SWJG)	Showing Signs of Jobless Growth (SSJG)	Likely Future Jobless Growth (LFJG)	Certainly Future Jobless Growth (CFJG)
Industrial	14	14	19	0
ME	20	10	10	0
Services	0	0	14	0
Traditional Manufacturing	38	0	0	0

Increasing cost of raw material is the most critical factor leading to jobless growth in 8 clusters and will definitely lead to employment loss in another 2 clusters in near future. It is worthwhile to note that out of these 10 cases, 5 cases are from West Bengal.

In Gold and Silver Jewellery making there is a waste of material. Traders who give gold to the manufacturers compensate the loss with certain value. Apart from that they also give a jewellery making charge. Both the metal loss and the jewellery making charge are considered to be the real wage of the artisan. This value has not changed over time. Therefore, given the technology, the absolute loss has increased which has actually depleted the real wage to less than affordability thereby causing a fall in employment. Such fall has been observed in Domjur, Ranaghat and Thrissur Gold and Silver Jewellery clusters (Case study-9). As a result, entrepreneurs have stopped running their units (few labourers) and have migrated as labourer themselves in other units.

Case Study-9
Surviving the acid test: Soaring Gold prices

The Rs 2,000 crore gold industry of **Thrissur**, employing nearly 40,000 artisans in 2,500 micro units boasts of such high figures as annual turnover owing to the nearly 450 percent increase in the cost of gold over the last five years. Despite the reported turnover, the volume of production has been reducing in the same period of time due to low market demands. Almost all the micro units cater to larger retail showrooms or market via traders. In order to offset their costs they in turn squeeze the margins of the micro manufacturing units. With such low order volumes and wafer thin margins, those units which have larger capacities are the only ones that are performing profitably. As a result, the prospects of the household job-working units in the cluster appear bleak and their ability to sustain in the long run has become a matter of grave concern.

In Shantiniketan, raw material cost constitutes 50-60 percent of the total cost of production of ladies wallets, bags and other leather products of the cluster, whereas overhead and profit margin is only 13 to 15 percent of the value of the product. Raw material cost has increased 3 times in last 2 years, whereas the price of the finished products has not increased much. This has squeezed the profit margins substantially. Moreover, there is no raw material and accessories supplier in the area. In case of any urgent requirement there is no option with the entrepreneur but to head to Kolkata which causes additional cost in terms of money and time. Profit margins have gone down. Two-thirds of the units in the cluster have closed down in last couple of months. This has impacted employment. Similarly, increased coal price in Asansol because of formalization of sourcing led to fall in capacity utilization and thereby employment.

In Sovabazar Knitwear cluster, cost of raw material has increased by nearly 60 percent but price of product has not increased correspondingly and thereby limiting the profit margins. Reduced profit had led to low wage rate, making the job unattractive and leading to fall in employment. Similarly, in Chunar Pottery cluster, the cost of plaster of Paris (PoP) has almost doubled in 2010-12. Also the cost of coal has increased. This is a major reason due to which many units have closed down.

There is a significant increase in the cost of Brass in Moradabad cluster within a very short duration, because of which manufacturers/ exporters are diversifying their business either into other metals like aluminum, iron, etc. or into other trades like wooden furniture, wax products, glass products etc., leading to fall in employment.

Quality of raw material is the second-most critical factor observed in one leather cluster of Ambur. Shortage of raw material due to lack of good husbandry practices is a major problem in the cluster. Reduction in capacity utilization of units is resulting in smaller units being closed when hide is not available for processing. This has caused downfall in employment.

Availability of raw material due to seasonality is the next critical factor observed in Namakkal Starch and Sago cluster. Reduction in cultivation area of tuber, coupled with seasonality of the crop which is monsoon dependent, affects the production and thereby growth of the units. The erratic nature of work availability also resulted in non availability of labour in the industry.

Fluctuating cost due to Import duty is the next critical factor observed in Firozabad Glass cluster. Directorate General of Anti-dumping and Allied Duties has imposed an anti-dumping duty of USD 38.79 per tonne on soda ash which is the major raw material in order to protect the domestic big players. But this has increased the production cost of MSMEs and negatively impacted their growth.

B.4 Pollution and Working Condition

Nearly 20 per cent (8 of the 46) of the clusters surveyed has suffered employment reversals due to pollution (solid/liquid waste emissions) related challenges. The most severely affected clusters are the industrial ones, with around 30 per cent (6 of the 22) clusters, being affected adversely and the situation being threatening in 1 more cluster. However, the situation is emitting alarm signals in even the micro enterprises clusters too, though for the present only 2 of the 17 clusters being affected adversely and the situation being likely to be threatening in 2 more, thereby together influencing nearly 24 per cent of the clusters.

Among the affected industrial clusters, the situation went out of hand despite having effluent treatment provisions in 5 of the 6 clusters. Again of these 6, while in 2 clusters it has led to closure, in the other 4 it has restricted growth. In **Tirupur dyeing cluster,** improper effluent treatment technologies in CETPs have led to closure of units due to non-compliance to pollution control norms. (See Case study-10).

Case Study-10

Lack of approved technology solution adds to confusions

Tirupur Dyeing Cluster's has 550 units which are connected to Common Effluent treatment plants and 150 having individual ETPS. The 20 CETPs were set up as per the recommendations of technical experts and consultants at an enormous cost of Rs.800 crores in order to achieve Zero Liquid Discharge (ZLD). However, the CETPS were found to be incapable of completely achieving ZLD due to technological shortcomings, specifically in the evaporator section. This non compliance led to closure of the CETPs along with all the units in the industry.

Many of the unit owners were factory workers who had turned entrepreneurs perceiving the industry to be a lucrative one. They, along with the rest of the industry, accepted the recommendations of the technical experts for the CETPs without question and are currently bearing the losses when these "suitable" technologies failed. The industry leaders opined that "….In order to overcome such problems, active R&D support from the government to tackle effluent treatment is an immediate requirement. There is no single approved/prescribed technology solution recommended by the pollution control authorities. There is an urgent need for the government to intervene and take responsibility along with the units, in identifying and implementing the right technology to combat the effluent problems of the cluster……"

Similarly in **Ambur leather cluster**, insufficient treatment capacities have led to closure of more than 30 units in the cluster and restrictions on establishment of new units. These have led to fall in employment.

Of the four clusters where growth got restricted, in **Kanpur leather cluster** also, the existing CETP has the capacity to treat less than 30 percent of total effluent output of the cluster. In **Howrah foundry cluster**, restrictions on expansion have been imposed by the government in order to keep air pollution levels under control. This has resulted in no new units being set up in the last 5/6 years in addition to number of units being closed, once again leading to drop in employment. Similarly, while limited capacity to treat waste in the CETP has restricted expansion of units in the **Ahmedabad dyes and intermediaries cluster** resulting in stagnation and fall in growth of employment in the cluster, the situation is becoming even alarming due to a "non-committal stance of the state Government". However planned relocation is giving better results. (Case study-11)

Case Study-11

Stability in Decision Making

Andhra Pradesh is planning to put the industrial units, which currently exist in and around Hyderabad, into multi-purpose commercial spaces by shifting all the polluting manufacturing units. The State Government opines that all new units should be established in the 45 zones located outside the ORR (Outer Ring Road).

BDMA, for instance, is in opinion that all such manufacturing units were established by the State Government only at about 20-30 years back. So, no guarantee can be assumed as to in no circumstances the units will be asked to shift again 30 years down the line from now. Also, there are several machineries and equipments have been put in place by these units, and so, dismantling and reestablishment of such delicate machineries will not be easy and incur huge expenses.

Thus, we find that though some kind of waste treatment measures are in place in industrial clusters, they have been found wanting either in terms of low capacity or inappropriate technology or both, mostly because of the growth process that has taken place since its inception, has caught the planners unaware. Hence, serious long term planning is the need of the hour. While it has led to unemployment through closures, in yet others the situation is explosive. Thus, there is immediate need to do detailed planning exercise in all such potential clusters to avoid such employment loss situations in the future. This will also lead to avoidance of situations where industry does not get surprises and are asked to relocate, having once established their units.

In contrast to the industrial clusters which have waste treatment mechanisms (effective or otherwise) in place, in the micro enterprise clusters there is a complete absence of the same. They are ill equipped to deal with pollution and safe work environment related issues, resulting in an inevitable downward trend in their growth as was found in few clusters.

Ninety percent of the units were operating from residential areas in the Machlipatnam imitation jewellery cluster. The units were emitting huge quantities of hazardous effluents and were polluting the ground water, thereby leading to health problems to the residents. During the period 2005 to 2007, there was a huge public outcry for closure of 20 percent of the units and reduction in the capacity of the remaining ones. This led to loss of jobs with workers migrating away from the cluster in search of alternative livelihoods untreated effluents severely contaminated ground water leading to closure of nearly 20 per cent of the units. This resulted in job loss. However, owing to the public pressure to comply with environment norms, the units re-located to a jewellery park with CETP facilities. Though this led to loss of jobs in the interim period when units were closed due to non-compliance, the industry is functioning with increased capacities and has registered growth in employment after the relocation.
Nearly 50 percent of the units were closed in the **Amroha Textile waste** cluster due to absence of effluent treatment mechanisms leading to loss of jobs. Also, a negative growth in employment is apprehended in the **Sanganer Block printing** cluster where the government is denying registrations for new units on pollution grounds due to absence of effluent treatment measures.

In a unique positive case, **the Namakkal Starch and Sago** cluster have overcome a potentially threatening starch effluent problem by converting effluents into eco-friendly bio-methane by a simple process. As a result, they have not only eliminated their pollution problem, but have also reduced their fuel cost (See case study-12).

Case Study-12

From toxic effluent to eco friendly fuel

The Namakkal Starch and Sago industry with around 120 units have arrived at a remarkably simple, low cost solution for their effluent treatment problems. The effluent generated during the extraction of starch from the tapioca tubers have high BOD, COD and cyanide contents. The units would simply discharge the effluents into nearby lakes and rivers leading to contamination of ground water. The effluents however are highly bio-degradable and have valuable organic content that could help recover methane to be used as fuel. The anaerobic digestion model was introduced by KVIC (Khadi Village and Industry Corporation), which not only effectively treated the effluent but also resulted in generation of methane. Currently, more than 90 percent of the units have adopted the bio-methanation plant. Apart from the environmental benefits, the resultant methane is being used as fuel for roasting sago in factories thereby conserving electricity considerably.

Working Conditions have also proven to be critical factors which have led to drop in employment growth, although in very few clusters. . While the issues pertains to industrial clusters are with regard to organizing the work space and ensuring safety, the micro enterprise and traditional clusters suffer from basic constraints in terms of space availability which give them limited or no scope for betterment.

In the micro-enterprise cluster of **Sivakasi Fireworks** unsafe and hazardous environment in the manufacturing premises of cluster has resulted in under capacity utilization in these clusters due to man power shortage (See case study -13).

Case Study-13

Going up in smoke

The **Sivakasi Fireworks** industry has around 630 licensed units making an annual turnover of around Rs.1500 crores. The industry works in steadily around the year to cater to the huge demand for fireworks across the country. The increased urgency to deliver the goods on time during the festive seasons sometimes leads to extremely costly mistakes. Though the industry claims that safety norms have been taken care of the number of accidents and deaths in the industry have been very high. A total of 237 persons have been killed and 200 have been injured due to various accidents in the last 12 years. With safer avenues of work being available, there is marked disinclination to work in an industry which involves in dealing with hazardous chemicals and explosives. Most of the labourers have migrated to other districts of Tamil Nadu like Coimbatore and Tirupur where opportunities to work in spinning mills, hosiery manufacturing units etc are aplenty. Consequently the industry is currently facing a sever manpower crunch with most of the units operating at 50 percent capacities only.

In micro enterprise clusters like **Sovabazar hosiery** and **Ganjam cashew** processing, lack of space is resulting in cramped and unventilated work environment is the primary concern. With most of the units operating out of rented premises there is no scope for expansion and as a result improving working conditions for the workers is not possible. Again, in the traditional **Gems and Jewelery cluster of Domjur**, the artisans suffer from ailments such as loss of eye-sight and back pain due to stress involved in the manual manufacturing processes.

However, poor dilapidated work sheds and other infrastructure related problems resulting in unsafe work environment and under-capacity utilization have been overcome **in Bargarh Handloom** cluster where financial support from Department of Textiles has enabled building of concrete work-sheds.

In **Chennai Leather cluster**, newer employment opportunities in the burgeoning electronics manufacturing industry are beginning to slowly attract labor due to their comfortable air-conditioned work conditions. This is likely to cause man power shortage in the future in the cluster. In **Coimbatore Pumps and Motors** cluster, the difficult work at the shop floor levels is unattractive resulting in less availability of manpower in the industry. Similarly, the **Tirupur knitwear** cluster is facing a labour leakage (not leading to unemployment though).

This clearly shows that as the Indian industry is maturing, natural market push is leading the cluster firms to think differently for improved labour condition. The phenomenon is seconded by the fact that none of the services cluster faces any working condition related problem.

B.5 Infrastructure

Table-14: Infrastructure problem (in percentage)

Sector	Significantly Witnessed Jobless Growth (SWJG)	Showing Signs of Jobless Growth (SSJG)	Likely Future Jobless Growth (LFJG)	Certainly Future Jobless Growth (CFJG)
Industrial	19	33	14	0
ME	10	20	20	0
Services	0	29	14	0
Traditional Manufacturing	0	0	0	0

A. General Infrastructure

Power

While power shortage has definitely impacted employment in three clusters so far, it is leading to negatively affecting employment in 8 more clusters and is definitely to be an employment regressive issue in 6 more clusters in the future.

Severity of the power shortage problems along with its impact can be seen in the following table.

Table 15: Impact of power shortage

State	Type	Significantly Witnessed Jobless Growth (SWJG)	Showing Signs of Jobless Growth (SSJG)	Likely Future Jobless Growth (LFJG)	Total	Impact
Tamil Nadu	Industrial	1	3	4	8	Increased manufacturing cost reducing profits and under capacity utilization resulting in delays in production
	Micro Enterprise	-	1	-	1	
Uttar Pradesh	Industrial	-	1	-	1	Increased manufacturing cost
	Micro Enterprise	1	1	2	4	Under capacity utilization leading to reduced production volumes and loss of market, inability to mechanize
Others	Industrial	1	2		3	Under utilization of equipment, poor quality of product reduced production volumes and increased production costs
	Micro Enterprise	-	-	-	-	

Shortage of power has emerged as the "most critical infrastructure issue" and has impacted 37 percent (17 out of 46 clusters) studied. Of them, the most affected are the clusters from the highly industrialized state of Tamil Nadu where 9 out of 10 clusters reported power shortage as an issue.[8] Following Tamil Nadu is Uttar Pradesh, where 5 out of 10 clusters found power shortage to be problem. Uttar Pradesh, being at a relatively lower level of industrialization, 4 of the 5 affected clusters is micro enterprise. None of the clusters in the power surplus[9] state of West Bengal reported power as an issue, though this may also be attributed to lower coverage of power intensive industries in the state sample. As expected, none of the traditional clusters figured in the above mentioned list as power did not have an impact on their production processes.

Power shortage leading to drastic fall in employment

In the Coimbatore Pump and Motor cluster, power cuts especially during the peak demand a period in April through June is severe. The SMEs in the cluster continue to run operations on generated power but this reduces their profits substantially. The worst hit is, however, the nearly 10000 micro job working units in the cluster. Without the means to generate power, they work round the clock to meet their needs (Case Study-14).

[8] It is to be noted that Tamil Nadu has a massive power deficit of 4000 MW.

[9] Source: Business Line, The Hindu, http://www.thehindubusinessline.com/industry-and-economy/economy/article1991236.ece (Weak source)

Case Study-14
Woes of the job-worker

There are around 10,000 micro job working units in the **Coimbatore Pump and Motor Cluster**. The micro units are paid on delivery of their completed orders of subcomponents on a weekly basis. There is an average of 2-5 people, including the owner, working in a typical micro unit. These units are grappling with the problem of acute power shortage. Out of the 12 hours of effective working period, only 3-4 hours are available for work due to intermittent power cuts. In order to meet the deadlines and earn their living, these units work round the clock, as and when power is available. Power shortage has severely reduced their production capacity and then units are unable to employ labour, during odd hours, leading to drop in employment.

In addition they are unable to take up bigger orders as they do not have the capacity to deliver without power supply. With such difficult work situations created due to the power shortage the units are unable to employ labour leading to drop in employment.

The micro enterprise Textile Waste cluster of Amroha is also similarly affected due to the power shortage resulting in the severe capacity under utilization especially in the carding units. (Case Study-15)

Case Study-15
Low voltage checks on carding in Amroha

In **Amroha,** the carding machines which are dependent on power supply are unable to run regularly as the cluster has limited power supply for only 8-9 hours a day on an average. Adding to the woes is quality of power, efficient machines are unable to run on it. As a result the units are not able to fully utilize the installed capacity and consequently unable to fulfill the orders on time. The traders, in order to meet their commitments, have opened their own carding units outside the cluster, in Varanasi and Panipat areas where the power situation is better, and are drawing the skilled labour away from Amroha. This in turn is causing fall in employment.

Also hit is the Hyderabad Bulk Drugs and Intermediaries cluster, where power cuts hamper critical production processes resulting in increased costs due to loss of expensive raw material.

Fall in profitability in industrial clusters

In Tamil Nadu's Tirupur Dyeing and Knitwear clusters, Krishnagiri Mango Pulp cluster and Namakkal Starch and Sago Cluster and Ambur Leather Cluster power shortage has served to increase the manufacturing costs substantially due to added cost of generated power. A similar situation prevails in the Kanpur leather cluster and Ludhiana Knitwear Clusters. These clusters, as a consequence, have started showing reduction in employment.

Capacity under utilization in micro enterprise clusters

In Chunnar Pottery, Moradabad Brass and micro units in the Ganjam Cashew Processing cluster, the enterprises are unable to afford generated power as a result of which there is under capacity utilization leading to low production volumes. This has impacted the growth of these industries and limited employment.

Infrastructure – other Issues

In addition to power shortage, issues pertaining to connectivity (road, rail and air) are also of concern in Kanpur Leather and Chunnar Pottery clusters as this restricts the access to better markets and as a result limits growth. In the jewelry clusters of Thrissur and Domjur, as the raw material gold is of very high value, lack of proper security measures in place poses as a major threat to the cluster. In Chanderi Handloom Cluster adequate drinking water facilities would save time for weaving and increase productivity. Lack of social infrastructure like housing facilities, ESI hospitals, access to drinking water and sewage treatment in Ambur Leather Cluster has led to make the cluster unattractive, especially to younger generation workers.

B. Cluster-specific Infrastructure

Absence of cluster specific infrastructure has led to reduced growth and impacted the employment potentials in few clusters. In Pune Food Processing cluster, inability of micro units to expand due to want of space, lack of CFC for expensive machinery and insufficient storage capacities has restricted the cluster's growth potential. Some of the entrepreneurs feel that under the circumstances setting up of food parks with common facilities for processing and packaging are the need of the hour.

High cost of living has necessitated the need for hostel facilities in Ahmedabad Dyes and Intermediaries cluster without which it is unable to attract and retain labour.

In Puranpur Rice Milling cluster, lack of sufficient storage facilities along with power shortage issues have led to low productivity and loss of perishable products. The Thrissur Gold Jewelry cluster recorded a case of positive growth in one of the consortia created for common production during MSE-CDP implemented by MSME-DI, Thrissur highlighting the need for joint activities. (Case Study-16).

Case Study-16
Cooperation has always been Crucial

Bulk of the 2500 micro units in **Gold Jewelery cluster of Thrissur**, contributing to the nearly Rs. 2,000 crore turnover annually, are micro house hold units functioning as job workers. However, with reducing order volumes and profit margins, the only way for units to function viably is by having increased capacities. Realizing the need for the artisans to work together in order to reap the benefits of larger scale of operation, the Cluster Development Program (CDP) of MSME-DI, Thrissur was launched in the year 2005-2007. One of the key initiatives of the program was to form consortia of the artisans to enable the units to carry out common production and marketing. As a result, Fine Gold Pvt. Ltd., a consortium comprising of 20 micro units was established. It set up a manufacturing unit with 20 workers where common manufacturing was done. After a period of 6 years, Fine Gold has increased its manpower to 50 workers and turnover has increased by 200percent. The consortium benefited not only from the increased capacity of production but also from the increased design portfolio of its members. Additionally, it is considering opening of a retail showroom in the cluster with its own brand.

The Chennai and Kolkata leather clusters have both embarked on building new manufacturing facilities to the rural areas around the cities. In Chennai, the reasons cited for the move were the easy availability of labour at lower cost. In Kolkata however the industrialists are keen to do so in order to usher in the much required industrialization of the villages in the state of West Bengal (Case Study-17)

Case Study-17
Moving manufacturing towards the villages

While the **Kolkata leather cluster** is expanding its capacities in order to cater to the rising international demand for the products, lack of sufficient manpower is anticipated to become a major issue. The reduction in inflow of migratory labour to industry has set the trends for the same.
In order to address the problem, a few units are looking to take the industry to the villages instead of the other way around. Rajda Industries and Exports has set the precedence by taking the first step . The company is working with Ramakrishna Mission through which a manufacturing unit comprising of 300 employees has been set up in a village which is 60 km from Kolkata. Operations of the unit, training of new hands and the space are managed by the NGO with the Rajda group sending their orders to be executed regularly.

Workers who were working in their Kolkata units but who were originally from the village or close to it were given an opportunity to relocate to the rural unit. The workers are given the same wages as before but are now able to come to work from the comforts of their homes. This initiative is proving to be extremely profitable as it is drawing more workforces from nearby villages. In addition, the enhancement of a skill for the rural population along with improved quality of living as a result of good wages will ensure development of an entire village community.

B.6 Finance

Finance is not a major factor leading to fall in employment. It has impacted employment in 3 clusters and restricted growth in another 3 clusters.

Table-16: Finance problem (in percentage)

Sector	Significantly Witnessed Jobless Growth (SWJG)	Showing Signs of Jobless Growth (SSJG)	Likely Future Jobless Growth (LFJG)	Certainly Future Jobless Growth (CFJG)
Industrial	19	33	14	0
ME	10	20	20	0
Services	0	29	14	0
Traditional Manufacturing	0	0	0	0

Improper documentation is the most important micro factor causing fall in employment. In Sovabazar Hosiery cluster and in the micro enterprises of Kolkata Leather, Goods and Footwear cluster the units are either set up in residential rented areas (not meant for setting up of industries) or on regularized land and are not being able to get loans from the banks.

Though the IT cluster of Delhi NCR is not typically industrial in nature, the units are asked to submit documents that are not relevant to their area of activity like pollution clearance document, etc. Also some of the units operate from incubation centers due to which they are not able to get registered with DIC and get the benefits of MSE reservation policy. So, there is a gap in the documentation requirement, posing financial limitation on the units and will impact employment definitely in the near future. Chunar Pottery Cluster also faces the finance issue due to poor paper work, registration problems, etc. that has led to fall in employment (Case Study-18).

Case Study-18
Banks vs Mahajans: Potter's choice

The entrepreneurs in **Chunar** Pottery cluster seek loan as working capital as well as capital investment. They have two options, They can either go to the banks or can borrow money from local money lenders (mahajans). The issues with banks are "..lengthy procedures, formalities, intensive paper work, requirement of collateral and registration status, …". Also quick cash flow is required to ensure repayment, whereas pottery has a long cash flow period of one year and the units also do not have collateral and documents to offer. On the other hand, the local lenders are easily approachable, available all the time, requiring no formal procedures, or collateral. They however charge high interest rates of 36% which is much higher than the 8 percent interest offered by banks. The entrepreneurs consider going for easy availability rather than low interest rates. Since the interest rate eats away the profit margins, the entrepreneurs are no more interested in running the business and are looking for other remunerative jobs. Many are joining a upcoming cement factory.

Case Study-19
Providing finance to Cluster Firms

During 2007 to 2009, in **Machilipatnam Jewelery cluster**, when more than 100 units have planned for relocation/ establishment of their units in the jewelry park, finance became a major constraint for the micro firms. The executive members of SPV then held discussions with Canara Bank and 10 firms were provided with credit facilities under CGTSME. Encouraged by the commitment the bank has sanctioned loans for 20 more firms. This has created a ripple effect and other nationalized banks like Indian Overseas Bank, State Bank of India and Corporation Bank have started lending the firms. At present, 80 firms have availed credit facilities with an aggregate loan amount of Rs. 15.50 crores. So far 50 firms were covered under CGTSME with loan component varying between Rs. 5 to 10 lacs besides 50 new firms have availed grant under PMEGP Scheme of KVIC.

Case Study-20
BMO as Financial Mediator

In **Shatiniketan**, the financial linkages with the banks created by the association became instrumental for the growth of the units. For this, association took various steps like: a) loan appraisal of the artisan; b) help in filling up the form and preparation of other necessary document; c) appraising the bankers about the credit worthiness of the unit and credit requirements; d) helping the banker in doing credit assessment; e) following up with the artisans for regular repayment after the credit is disbursed by the bank, etc. This active role by the association has resulted in more than 150 successful loan disbursements by the banks as of 2012.

Case Study-21
Amar Kutir, winning the fight

In **Shantiniketan**, when most of the micro/ household units are facing labor attrition, Amar Kutir is a unit which is not facing the issue. This is because of the steps it has taken like on-job training and benefits like incentives, bonus, provident fund, insurance facilities, etc. This shows that labor is willing to come to the cluster if he is well incentivized.

Interestingly, similar situations in Machilipatnam Imitation Jewelry cluster and Shantiniketan Leather Craft cluster, have been overcome successfully.
The second major factor is lack of collateral that will definitely had a negative impact on employment. This is seen in Ranaghat Gold and Silver Jewellery cluster and Murshidabad Textile Handloom cluster.
However, there are two clusters which have successfully come out of the financial issues. These are Bargarh Handloom cluster and Pratapgarh Food Processing cluster. While in Bargarh, financial literacy along with credit facilitation for productive use by CDP resulted in positive growth of the cluster, in Pratapgarh, financing the processing technology by NABARD and Bank of Baroda through a local NGO called CETD has helped the entrepreneurs move up in the value chain.

B.7 Skill

Table-17: Skill problem (in percentage)

Sector	Significantly Witnessed Jobless Growth (SWJG)	Showing Signs of Jobless Growth (SSJG)	Likely Future Jobless Growth (LFJG)	Certainly Future Jobless Growth (CFJG)
Industrial	0	10	33	0
ME	0	20	30	0
Services	0	14	57	0
Traditional Manufacturing	13	38	13	0

Skill development was not found to be an immediate concern in the clusters. However, it is a very potent area that may lead to jobless growth in the not too distant future. Thus, while there is only one "Significantly Witnessed Jobless Growth (SWJG)" factor, 11 are moving towards the danger zone, but an overwhelming 16 of them are likely to be challenged in the future.
Some of the major issues that have challenged performance and jobless growth are as follows.

Low Wage

Low wage is the most important issue that has had serious implications on employment. The trend among the clusters can be classified into three as discussed below.

Exodus of labor from cluster due to low wage – In some of the traditional manufacturing clusters due to the low wage, labor is switching to other remunerative jobs, which is impacting negatively on employment. The case is most severe in Bargarh Handloom cluster where there has been fall in employment. (Case study-22)

Case Study-22
Skill exodus- a threat for the craft

Bargarh Ikat Handloom Cluster of Orissa is home to more than 35,000 weavers and allied handloom workers. The cluster has witnessed increased wage of its weavers in last five years, however, the increase is not uniform for all the categories. While it is substantial for the skilled weavers who are the tie and dyers (master weavers including national and state awardees and entrepreneur weavers doing own tie and dye) the wage for semi-skilled weavers is gradually becoming non remunerative. These semi-skilled weavers are the weavers who do weaving either on wage or for own production by buying tie and dye yarn from the local market. While a skilled weaver easily earns more than Rs 200 per day, a semiskilled weaver gets Rs 80-Rs150 or even less depending on the experience. He is supported by one or two members in the family for pre-loom and post loom activities. These semi skilled weavers are leaving weaving and going for other job work. Many of them have availed 100 days job under MGNREGA and getting wage more than Rs 150 individually. This exodus of semiskilled wage based weavers has created a shortage of manpower in the cluster and has posed future threat to the growth of the cluster.

In similar cases of Bhadohi Carpet and Shantiniketan Leather Craft cluster, there is migration of the skilled workers due to low wage, which is likely to result in non-availability of skilled workers definitely in the near future. Although this phenomenon has been observed in Moradabad cluster, the impact on employment is yet to be seen.

Falling Interest of Home Based Worker

In some traditional and micro-enterprise clusters (that largely depend on the local labor), the trend is different. The Labourer is not interested to take up the job due to social set up and the disrespectful attitude of the new generation towards the family traditional work. This factor is likely to impact employment in the near future are Sanganer, Thrissur, Kolkata, Malda and Ranaghat.

Case Study-23
All that glitters…

The **Thrissur Gold Jewelry Cluster** reports a drop in labour supply by almost 40 percent over a period of 5 years due to the non-availability of younger generation. This is due to perceptual indifference in the society. Under such circumstances, the units either depend on migrant labor or outsource to job workers. Additionally the training cost of unskilled hands is also high and risky. In order to elicit the interests of the younger generation and bring more respectability to the profession, the Jewelry Manufacturers Association has initiated the development of a proposal to be submitted to the National Skill Development Cooperation to set up a training institute. This will be the first of its kind in the cluster and is expected be completed within 2 years.

In Sanganer Block Printing cluster, women printers prefer to work from the safety and comfort of their home and are not willing to work with hired male labourers or work in formal set up. This is resulting in shortage of skilled workers. There is also a rising demand of managerial, IT professionals and designers as the units are moving towards formal set ups.

However, some of the micro enterprise clusters have not yet observed significant impact on employment like Domjur Gems and Jewelry cluster, Amroha Textile Waste Processing cluster and Pratapgarh Amla Processing cluster. But they are likely to experience the same in the near future.

Labour Attrition

Another trend observed in the study is the switching of labour within the cluster like in Machiliaptnam, Hyderabad IT and Delhi – NCR IT. These clusters indicate a growth trend as a result of which there is high, competitive demand for skilled workers among the units. Therefore, the units face high skilled labour attrition.

Lack of specialized skills and professional aptitude is the most important issue in the services clusters of Ooty, Nalanda, Varanasi and Agra. The skills in demand are cooking staff for different cuisines, well behaved drivers, presentable working staff, etc.

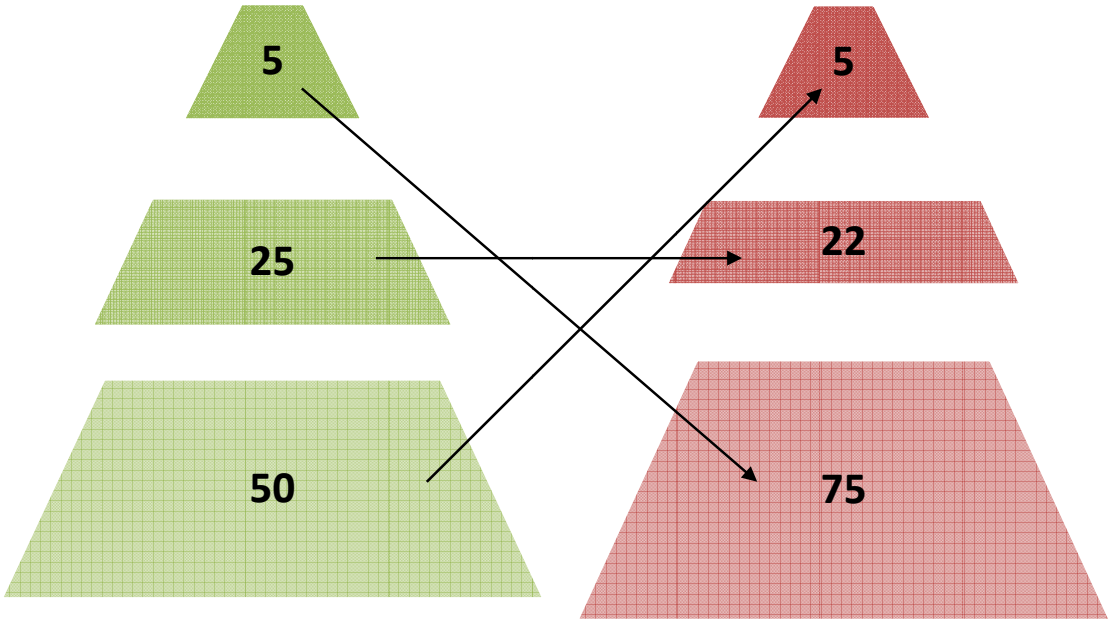
However, the industrial clusters have two trends of issues pertaining to skills, one is technical skills for handling new machinery and other is lack of adequate number of training opportunities for sourcing skilled labor. Handling new machinery is an issue in 5 clusters but the problem has no significant impact on employment as of now. The clusters are Ludhiana Knitwear, Asansol Refractory, Sovabazar Hosiery, Tirupur Knitwear, Coimbatore Pumps and Motors and Burdwan Rice Milling clusters.

Lack of adequate training opportunities for creating skilled labor is prevalent in Ahmedabad Apparel, Chennai Footwear, Kanpur Leather, Kolkata Leather, and Hyderabad IT. It is noteworthy that all these clusters show positive demand for skilled labour.

Case Study-24
Skill Demand Supply Mismatch

The Coimbatore Pump and Motors cluster faces a unique problem of presence of disproportionate number of institutes. A typical industry requires a minimum number of diploma holders/engineers at the top of the pyramid, slightly bigger number of ITI/vocationally trained persons at the supervisory level and a large number of skilled workers at the bottom. However in Coimbatore the supply is inverted. There are a large number of engineering colleges (nearly 50) producing skills at the top of the pyramid. As compared to that there are fewer ITIs (approximately 25) in and around the cluster. Finally the institutes which are required to produce skilled workers are only a handful. Although their number should have been much bigger as compared to the engineering colleges and it is.

Chart-2- Skill Demand Supply Mismatch



No. of Institutes **Skill requirement in percentage**

B.8 Policy Issues

Although the above business factors are of importance, in few cases they were not stand alone and were actually pushed towards jobless growth by state/central policy. This was particularly the case for two issues:

1. Pollution: While many clusters are having "polluting industries", the state policy did make the process happen, as without a policy impediments, an industry can very well continue to flourish, despite creating pollution. In all the six "Significantly Witnessed Jobless Growth (SWJG)" and one "Showing Signs of Jobless Growth (SSJG)" case of pollution, this was the issue. Here of particular importance is the fact that the pollution issues vary from state to state. A most disturbing fact for the industry is the issue that industry is not sure about the type of machinery that will actually be acceptable to the PCB.

Case Study-25
Pollution Issues in Tirupur

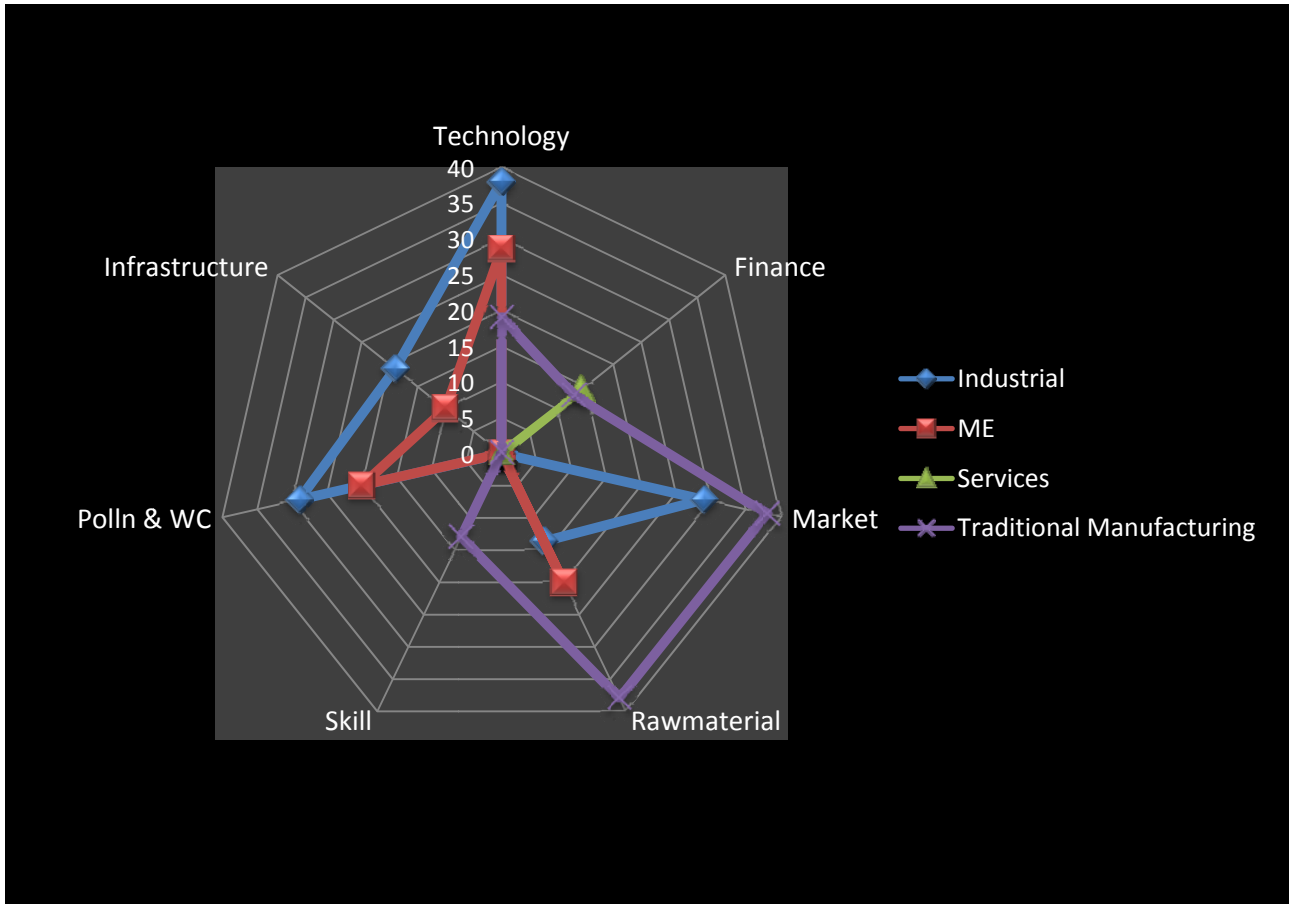
In Tirupur, the industry has spent Rs.1200.00 crores in the last 5-6 years for effluent treatment and protection of environment. While the rest of the country enjoys a Total Dissolved Solids (TDS) limit of less than 2100 mg/l., but Tirupur was subjected to achieve Zero Liquid Discharge. The financial support of Central and State Governments for the 20 Common Effluent Treatment Plants (CETPs) in the form of grant came very late after years of representations by the industry. Even the sanctioned grant was denied by the officials who put all sort of conditions for the grant. Thus what was belatedly given was also denied. Consequently, the CETPs have been forced to pay hundreds of crores as interest to the banks for more than Rs.500.00 crores borrowed by them for establishing the CETPs.

2. Taxation Issue: In a case of one of its kind, the Dadar Nagar soap and detergent cluster got eliminated due to some fiscal decisions. The cluster is said to have a turnover of Rs 1000 crores and employing around 5000 persons till 2006-07. During 2007-08 Government of India upheld the exemption of excise duty making the units pay 16 percent as excise tax. The excise duty took the units running without the aid of power under its ambit. Most of the soap and detergent units were hand based. So the Government asked them to get registered under 'Khadi Gramudyog' and generate employment in rural areas, if they wanted exemption from the duty. This would mean shifting the industries to the rural areas or to invest in machinery and become power based. In both the cases, the cost that would be incurred was very high especially for the soap making units that were micro in size. This left the units to either close down or move to the rural areas. Over and above, Government of Uttar Pradesh increased sales tax from 8 to 12.5 percent. While most of the units closed down, a handful got relocated to the villages, thereby killing a thriving cluster.

(C) Sector-wise analysis

There are four broad categories of sectors covered under the study. Those are (1) Industrial; (2) Traditional Manufacturing; (3) Micro Enterprises: (4) Services. Distribution of the problems across these sectors with respect to its severity in terms of impacting employment (Significantly Witnessed Jobless Growth (SWJG) problem) can be seen in the following cob-web chart. Number of clusters fall in each category of problem is expressed in terms of percentage.

Chart-3: Sector Wise "Significantly Witnessed Jobless Growth (SWJG)" Problem Distribution



C.1 Industrial Clusters

Of the 46 clusters studied, 22 (47 percent) were industrial. The most important factors contributing to jobless growth in these clusters are technology, infrastructure, pollution and working conditions and marketing.

Table 18: Factors contributing to jobless growth in Industrial Clusters

Factor	Significantly Witnessed Jobless Growth (SWJG)	Showing Signs of Jobless Growth (SSJG)	Likely Future Jobless Growth (LFJG)
Technology	8		4
Infrastructure	4	7	3
Pollution and Working Condition	6	3	1
Marketing	6	1	1
Raw Material	3	3	4
Skill		2	7

C.1.1 Technology

8 out of the 22 clusters studies (36 percent) have registered jobless growth and 4 more have begun showing signs leading to the same due to technology related issues. The two major micro factors for introduction of labour displacing technology for the industrial sector are (a) market demand to go for up-gradation of manufacturing processes for enhancing productivity and (b) lack of sufficient labour supply

Market led technology change: In Burdwan rice milling technology up-gradation in drying has reportedly led to three times increase in productivity by but an estimated reduction in potential labour recruitment by at least 35 persons per unit. In Tirupur dyeing cluster, 30 per cent units have upgraded their technology resulting in reduction in labour by 20 per cent in the cluster. Traditional lathes have begun giving way to CNC machines in Coimbatore pump and motor clusters. Good export market demand and abundant availability of raw material (mango) has led to the entire process being upgraded in the Krishnagiri mango pulp cluster, nearly doubling the productivity but reducing the potential labour recruitment by a reported 60 percent, In Firozabad glass cluster technology upgrading has led to reduction in labour though this has resulted in better standardization of the product.

Shortage of Labour supply: In Ahmedabad Dyes and intermediaries shortage of labour and high cost of labour has been the main driver for up-gradation of technology. Ludhiana Knitwear cluster expressed the desire to create appropriate technology for handling the labour shortage scenario being faced by them.

C.1.2.1 Infrastructure (Power): With all clusters in the industrial sector being dependent on power, shortage of the same has been reported as the most critical of the factors affecting production and subsequently employment growth. Though power issue has been highlighted “Significantly Witnessed Jobless Growth (SWJG)” in two industrial clusters only, there is beginning of fall in employment scenario as suggested in 6 more clusters due to the shortage.

Severe power shortage has affected Coimbatore's pump and motor sector leading to capacity under utilization especially in the job working units. As a result the units are unable to undertake larger orders and employ more workers leading to potential drop in employment. In the Hyderabad Drugs and Pharmaceuticals cluster there have been severe losses in expensive imported raw materials as a result of frequent power cuts during the manufacturing processes.

In all clusters with "Showing Signs of Jobless Growth (SSJG)" status, indicating a beginning in the fall of employment, the key impact has been the rising manufacturing expenses. The industries in Tirupur knitwear and dyeing , Ambur Leather, Ludhiana knitwear and Kanpur Leather clusters have all reported drastic increase in expenses as a result of the cost of generated power which is cutting into their profit margins.

C 1.2.2 Cluster Specific Infrastructure: Apart from power, cluster specific infrastructure has limited the growth potential in 3 other industrial clusters. In Pune, lack of Common Facility Centre (CFC) for expensive machinery and shortage of packaging facilities has lead to stunted growth of the cluster. In Ahmedabad dyes and intermediaries cluster, the high cost of living is dissuading migrant labour from working in the cluster leading to labour shortage. Common hostels and dormitories are required to be set up in order to attract a sizable number of workers to the cluster. The need for workers' hotel was also voiced in Ludhiana Knitwear cluster too. In Puranpur Rice milling cluster there is a need for storage facilities to prevent the loss of products.

C.1.3 Pollution and working conditions

Pollution has been identified as the critical factor that has led to drastic fall in employment in 27 per cent (6 out of 22 clusters) of the industrial clusters. The major cause of pollution in 5 of the 6 clusters is insufficient capacities of existing effluent treatment plants leading to closure of units in 2 clusters (Tirupur Dyeing and Ambur Leather clusters) and restricted growth in 4 others (Kanpur leather, Hyderabad drugs and pharmaceuticals, Ahmedabad dyes and intermediaries and Howrah Foundry). In most cases the planning process probably did not take into account a good estimate of the likely growth in the long term, resulting in insufficiencies.

Poor working conditions have begun to affect employment growth negatively in another 11 per cent (3 out of 22 clusters) of the industrial clusters. Small units operating out of rented premises make for extremely uncomfortable working conditions leading to reluctance of persons to work in these sectors. Lack of ventilation with increased risks of fire hazards and insufficient floor space to work in comfortably are some of the major complaints in these clusters. Coimbatore pump and motors cluster, Ganjam cashew processing cluster and Sovabazar Hosiery cluster have all reported reduction in employment due to a combination of the factors mentioned.

C.1.4 Market

Loss of market demands has negatively affected employment growth in 27 per cent (6 out of 22 clusters) of industrial clusters. In all of the 6 clusters the only factor leading to the jobless growth has been the downturn in the global market scenario. All six clusters (Tirupur knitwear and dyeing, Chennai auto-components, Asansol refractory brick, Firozabad glassware and Ludhiana knitwear clusters) are export oriented and the sudden drop in order volumes led the industries "laying off workers" leading to reduction in employment. However the clusters have recovered from this shock.

C.1.5 Skill

Though skill related issues have not figured as "Significantly Witnessed Jobless Growth (SWJG)" in any of the industrial clusters it has begun to cause drop in employment in 10 per cent of clusters (Tirupur Knitwear and Burdwan rice milling clusters) and is likely to lead to the same in 32 per cent of clusters (7 out of 22). It is noted that non availability of skilled trained labour is the major issue in all of the clusters.

Conclusion: Thus the major macro factors that have contributed to jobless growth in the industrial clusters are (i) technology wherein the major micro factors are market demand to go for up-gradation of manufacturing processes for enhancing productivity and lack of sufficient labour supply; (ii) infrastructure where power is the major micro factor that has negatively impacted employment and cluster growth; (iii) pollution and working conditions where the most important micro factor is the insufficient capacities of the effluent treatment plants; and (iv) marketing where the downturn in the global market scenario is the major micro factor.

C.2 Traditional Manufacturing Clusters

Out of the sample of 46 clusters, 8 clusters are traditional manufacturing. Severity of the macro factors all these 8 clusters is detailed in table --- below.

Table-19: Factors contributing to jobless growth in Traditional Manufacturing Clusters

Factors	Significantly Witnessed Jobless Growth (SWJG)	Showing Signs of Jobless Growth (SSJG)	Likely Future Jobless Growth (LFJG)
Market	3	-	-
Raw Material	3	-	-
Technology	2	2	-
Finance	1	1	3
Skill	1	3	1
Pollution & Working Condition	-	-	-

The most critical factors came out to be "**Market"** and "**Raw Material"** which has caused jobless growth in 3 clusters each.

Market: Like the industrial cluster, although market is an issue here too, however the micro factor for the same is competition from cheaper substitutes and inability of the cluster to upgrade in higher value added products.

Murshidabad handloom cluster is facing competition from other substitutes and also low cost power loom products. Moreover, over dependency on traders is squeezing their profit margins and making them less competitive. This has led to joblessness in the cluster. Chunar Pottery cluster is facing a similar problem due to availability of other ostensibly better quality and cheaper substitutes like plastic and glass products. Being heavily dependent on export, Bhadohi Carpet is also facing completion from machine made carpets from within and outside the country like China, although it also experienced downfall during global recession, this being an export intensive cluster.

In contrast, market issues have been successfully handled for part of the cluster stakeholders (those who participated) in three clusters in Shantiniketan, Bargarh and Chanderi. It is interesting to note that in all these three locations, Cluster Development Program has been implemented and successful market linkages facilitated.

Rising cost of raw material has squeezed the profit margins in Shantiniketan, Chunar and Moradabad clusters. It appears that in the absence of value up-gradation, these clusters are working more on raw material based competitiveness, which is getting eroded very fast.

Technology is the next critical factor that led to jobless growth in 2 clusters and has hampered growth in 2 more cluster where there is a high chance of employment inelasticity in near future. While lack of appropriate technology is the cause in Murshidabad, Chunar pottery is suffering due to lack of capacities of artisans to buy new technology. Many a times it is happening due to lack of information, e.g. compare between Murshidabad and Bargarh

Lack of ability to get formal financing has led to jobless growth in one cluster i.e. Chunar Pottery cluster. While Chunar, Murshidabad, Bhdohi and Sanganer are facing problem due to collateral requirements and improper documentation, Moradabad is reportedly facing problem due to procedural complications. Thus lack of proper documentation is a clear area, that needs intervention for MEs.

Skill is another critical factor leading to jobless growth in Bargarh cluster and likely to lead the same in near future in Shantiniketan, Bhadohi, Sanganer and Moradabad cluster. In these clusters, the new generation is not getting enough incentive to work for. Interestingly the only cluster where this problem was not felt is the Chanderi handloom cluster, where, there had been an exceptional growth phenomenon. It

may be noted, that the art forms are learnt here over years of apprenticeship, as a family heritage and is not easily transferable through a skill development programme

Improved **working condition** in Bargarh has led to job plus growth in the cluster. Being situated in low lying area, the semi concrete houses of poor weavers face lot of difficulties during rains. Production gets hampered due to water seepage and linkages. Most of the time looms remained idle. But, thanks to the financial support from Department of textile for concrete work shed for the poor weavers from SC/ST community, capacity utilization of the loom enhanced to 100 percent.

Conclusion: Thus the major macro factors that have contributed to jobless growth in the industrial clusters are: (i) market where the important micro factor is competition from cheaper substitutes and inability of the cluster to upgrade in higher value added products; (ii) raw material where rising prices of raw materials have squeezed the profit margins and; (iii) technology, where, lack of appropriate technology and lack of capacities to buy new technology are the major micro factors.

C.3 Micro-Enterprise Clusters

9 clusters of this study fall under the category of micro enterprise clusters. The table below gives a distribution of problems according to their severity.

Table-20: Factors contributing to jobless growth in Micro-Enterprise Clusters

Factors	Significantly Witnessed Jobless Growth (SWJG)	Showing Signs of Jobless Growth (SSJG)	Likely Future Jobless Growth (LFJG)
Technology	2	2	3
Finance		1	3
Market		4	3
Raw material	3	1	3
Skill		3	3
Pollution & Working Condition	2	1	
Infrastructure	1	1	2

The study has picked up raw material as the most important factor followed by technology and pollution and working conditions.

Raw material: The high cost of raw material has led to low profit margins in Domjur Gems and Jewellery, Thrissur Gold Ornaments Cluster and Ranaghat Gold and Silver Jewellery. In such gold and silver works any increase in the price of raw material has a major impact on profit margin. Due to this wage rate has fallen resulting into unemployment. In Namakkal Starch and Sago cluster, seasonality and high perishability of the tuber has led to low production and will definitely pose a negative impact on the cluster

employment. As in the case of traditional manufacturing, here also the micro enterprises are working on profitability based on raw material cost. Thus margin is shrinking and is leading to labour displacement by restricting the growth of the industry itself.

Technology: Here, there are two sub-factors actually leading to decrease in employment. First is advanced technology that has replaced non-availability of labor as in Namakkal Starch and Sago and Coimbatore Pump clusters and second is lack of technology availability as in Sivakasi Fireworks cluster where electrification prohibited led to capacity under utilization. However, in Ranaghat Gold and Silver Jewellery Cluster and Pratapgarh Food Processing Cluster, lack of adequate mechanization limits the production capacity of the clusters and thus impacts growth. This will definitely have negative impact on employment in near future. Also lack of appropriate scaled down version of technology is bothering the clusters of Kolkata (Jaanbazar) cluster, the micro enterprises of Pune Food Processing anf

Pollution and Working Condition

Pollution: Two of the 9 ME clusters – Amroha Textiles and Machlipatnam Jewelry (although have taken steps now) have witnessed pollution leading to job displacement. Thus it seems that the ME clusters are not well prepared to handle the pollution issues, as and when they appear and neither do have the financial muscle (as was done by Tirupur) to get past such problems. Interestingly, in Namakkal Starch and Sago cluster the issue of pollution has been well managed as referred in case study-2.

Working Conditions: Here, there are two sub-issues – safety and working conditions. Safety issue (in the absence of appropriate technology) and high cost of safe technology has led to potential and actual job loss respectively in these two clusters. Although not a 'Significantly Witnessed Jobless Growth (SWJG) factor' as yet, lack of availability of space is causing problems to the MEs in the Sovabazar hosiery cluster and improper working condition in the Ganjam Cashew and Coimbatore Pumps cluster.

The **infrastructure** issue is only in Amroha due to lack of adequate power supply leading to capacity under utilization. Namakkal faces shortage of water due to the over usage of water by the units.

Market will definitely lead to negative trend of employment in the near future in Domjur and Thrissur due to existing intermediaries who lessen the profits of the entrepreneurs, and Amroha facing the issue of shrinking market

Skill is also an upcoming factor which will pose negative impact on clusters definitely in the near future. The issue is prevalent in Ranaghat, Thrissur and Malda as already mentioned in section B-7.

Conclusion: Thus the major macro factors that have contributed to jobless growth in the industrial clusters are: (i) raw material, where rising prices of the raw material has led to squeezed profits, negatively impacting the cluster employment; (ii) technology, where two important micro factors have come up,

advanced technology that has replaced non-availability of skilled workers and lack of appropriate scaled down version of technology and; (iii) pollution and safe working conditions.

(D) Analysis of State Level Micro Factors

D.1 West Bengal

10 clusters were studied in West Bengal. These included 4 industrial, 4 micro enterprise and 2 artisanal clusters[10]. No services cluster was covered in this state. The distributions of factors that are affecting the clusters along with their severity are shown in the table below:

Table- 21: Factors affecting employment growth in clusters in West Bengal

Factors	Significantly Witnessed Jobless Growth (SWJG)	Showing Signs of Jobless Growth (SSJG)	Likely Future Jobless Growth (LFJG)
Technology	2	5	
Finance	2	2	1
Market	2	4	1
Raw Material	5	1	2
Skill		5	4
Pollution	1	2	0
Infrastructure		1	

Here the factor of most critical importance is **increased cost of raw material**, which was observed in 50 per cent of the clusters – Domjur, Ranaghat, Shantiniketan, Sovabazar and Asansol. This has contributed towards fall in profitability and wage and also growth rate – all leading to jobless growth. It may be noted that barring Asansol, all the clusters are micro enterprise clusters. Again so far as Asansol is concerned, the rise is due to a policy initiative that has restricted open market sourcing of coal. (See case study-26)

[10] The leather cluster of Kolkata had a mix of two clusters – an industrial cluster of leather goods and an ME cluster of leather footwear manufacturers. Since all the red items were found in the ME cluster only, we have since considered it to be an ME cluster only.

Case Study-26
Policy Influences Increased Cost of Raw Material

In the **Asansol refractory cluster**, the major raw material is coal, which accounts for 40 percent of total cost of production. Units were previously largely dependent on open market sources of coal costing Rs 2500-3000 per ton. This open market coal mining has been restricted by the Government which compelled the manufacturers to go for bulk sources costing more than Rs 10,000 per ton. This huge price difference has a major impact on the cost of production. Moreover, coal mines are leased out to big companies or traders as the micro units do not have the capacity to participate in the bid. Growth in the number of industries in the area, especially, the sponge iron industry is also putting pressure on availability of coal in the region. Because of all these problems, most of the units are running at 50 percent capacity thereby leading to fall in employment.

Although **technology** turns out to be the next most important factor, the micro factors were different for the ME/artisanal and industrial cluster. While for Burdwan it was a case of a labour displacing technology; so far as the ME/artisanal cluster was concerned, it was low productivity due to usage of obsolete technology, due to non-availability or lack of knowledge of sourcing.

Lack of appropriate **market** is the next critical reason for jobless growth. This has surely contributed towards jobless growth in two clusters, but for different reasons. While for Asansol refractory, it was due to recession, but for Murshidabad handloom, it was due to competition from much more productive substitutes. Lack of product diversification is threatening the ME clusters of Kolkata leather and Domjur gems and jewellery too.

Equally important to market is **finance**, which became an issue due to lack of proper documentation that resulted because of lack of authorized factory premises in the city based clusters of Sovabazar and Kolkata. This issue was not envisaged by planners at the time when these MEs were setting up their units. Lack of finance due to lack of proper collateral is also a simmering issue in the town and village based clusters of Murshidabad and Ranaghat.

Another factor which is also brewing to add to jobless growth is **skill** related challenges. This is looming large over the ME clusters of Malda honey, Jaanbazar (Kolkata) leather, Ranaghat leather and the artisanal clusters of Shantiniketan leather goods. While these are mostly due to low wages which is curbing the flow of unskilled family or hired labour and is drying ultimately up the flow of skilled labour who graduates in this process.

Interestingly, infrastructure was not high on the agenda of the stakeholders. However, **MGNREGA** was voiced significantly as a serious labour displacing factor in 4 clusters. It is found that in all these four clusters – Murshidabad handloom (Rs 2400 per month for semi-skilled), Shantiniketan leather goods (leass than Rs 150 per day for unskilled workers), Asansol refractory 100-150 and Howrah Foundry 100-150, it

became a challenge because of low wage rates that was caused due to market and growth related challenges respectively.

Conclusion: Thus in a relatively less industrialized state of West Bengal, the major issue is of raw material cost mostly for ME clusters who are thriving on it in the absence of other profit earning avenues. Lack of market has mostly affected the ME clusters, either due to lack of product diversification (traditional industry cluster) or competition from substitutes, barring exception, where special efforts were taken by the programmes to address this issue. Although technology is an issue, for the ME clusters it was mostly for lack of appropriate technology or for lack knowledge of sourcing of appropriate technology. Skill factor is looming large over ME clusters and they do not have any skill promotion institute to produce skills retainable at their wages. Finance is an issue, but due to lack of proper documentation and allowing unplanned growth of MEs, which is now, when they have reached their growth frontier is becoming a constraint. MGNREGA is being felt more in the ME and traditional clusters, where the wage rates are relatively low.

D.2 Tamil Nadu

Of the total of 10 clusters covered in Tamil Nadu, 7 are industrial, 1 is service and 2 are micro-enterprise clusters. The distributions of factors that are affecting the clusters along with their severity are shown in the table below:

Table- 22: Factors affecting employment growth in clusters in Tamil Nadu

Factors	Significantly Witnessed Jobless Growth (SWJG)	Showing Signs of Jobless Growth (SSJG)	Likely Future Jobless Growth (LFJG)
Technology	5		1
Finance			4
Market	2		2
Raw Material	1	2	
Skill		1	1
Pollution	3	1	
Infrastructure (power)	1	4	4

Being a state with high levels of industrialization, Tamil Nadu has the largest number of industrial clusters covered. Though 2 clusters (Namakkal starch and sago and Sivakasi fireworks) are by our definition micro, the nature and scale of their operations are more typical of industrial clusters. As a result the problems and severity of Tamil Nadu‘s clusters are characteristic of those faced in general by most industrial clusters.

The factor that contributed to jobless growth in majority of clusters in the state is **Technology**, reported in 50 percent of the clusters- Tirupur Dyeing, Coimbatore Pumps and Motors and Namakkal Starch and Sago,

Krishnagiri Mango Pulp and Sivakasi Fireworks. In all clusters except Sivakasi Fireworks, upgrading of technology has led to increase in productivity and displacement of labour and jobless growth as a result. The situation may turn serious given the current deep routed thought process of lack of easy availability of labour. In a typical case of Sivakasi Fireworks, there has been no scope of introducing appropriate technology due to the restriction on electrification of the manufacturing premises by central government policy (Explosives Act of 1984) resulting in low productivity, which together with outward movement of labour, given the safety condition, has resulted in potential job loss, given the level of production less than market demand.

Pollution and Working Condition was the next most critical factor that led to jobless growth and reported "Significantly Witnessed Jobless Growth (SWJG)" in 30 per cent of the clusters. Lack of compliance to effluent treatment led to closure of industries and large scale loss of jobs in Tirupur dyeing cluster and slowed growth in Ambur leather cluster due to ban on establishment of new units. In addition to the above, in both Tirupur and Ambur clusters, inability to open closed units without special financial assistance from the government has also limited growth and employment in the industry. In Sivakasi fireworks cluster however, units are unable to increase their manpower and subsequently their production as workers are reluctant to work in unsafe environments of the industry (Case Study-27).

Case Study-27
Sivakasi's Conundrum: To electrify or not is the question

In **Sivakasi**, the sale of the fireworks is seasonal. However every year there is a shortfall in production, against the demand, by at least 20 percent. The industry largely attributes this problem to the prohibition on electrification of the manufacturing premises as per the Explosives Act of 1984. With no equipment being introduced in the industry the units are fully dependent on the workers. Working overtime after hours to meet demands is also not possible as there is no lighting. The associations contend that bringing in electricity within the units will revolutionize the sector and enable it to compete globally. However the industry's abysmal track record in terms of occupational safety prevents the government from taking such drastic steps. The issue can be resolved only when fool proof safety measures are implemented in the units. Until then the issue of manpower shortage leading to under capacity utilization is bound to continue causing reduction in employment.

In Namakkal starch and sago cluster, the effluents which were generated during starch extraction were harmful and caused land and water pollution. However through a simple cost effective model introduced by the KVIC, the organic content rich effluent was converted into bio-methane. The bio-methanation plant is set up in all the units in the industry resulting in complete elimination of the pollution hazard and reduction in fuel costs at the same time.

Market conditions have also led to jobless growth in 20 percent of the clusters. However, both the affected clusters (Chennai auto-components and Tirupur knitwear) are export oriented and the slump in the

international markets during 2008-11 has led to reduction in order volumes the units and loss of jobs as a result However with the markets bouncing back, the units are now facing difficulty sourcing labour after laying them off.

In an interesting marketing initiative, the Namakkal starch and sago cluster, with assistance from Directorate of Industries and Commerce, Government of TN has set up a cooperative society which is the industry's sole marketing channel. This has protected the manufacturers from middle-men and ensured transparency in the process at both the producers and consumer ends.

Power shortage, though reportedly caused job loss in one cluster in the industry, it has affected 9 out of 10 clusters (barring the services cluster of Ooty Tourism) of Tamil Nadu with varying levels of impact. Apart from one 'Significantly Witnessed Jobless Growth (SWJG) case', it is beginning to affect employment in four and is likely to do so in four more clusters. Though the state is at an advanced level of industrialization, it is grappling with power deficit, which is currently estimated to be at around 4000 MW. This has led to both industrial and micro-enterprise sectors in the states to be severely hit. The industrial clusters have coped with the situation at the expense of increase in manufacturing expenses due to cost of generated power. The micro enterprises on the other hand have been the worst hit due to their inability to do the same leading fall in capacity and as a result employment.

MGNREGA: 60 per cent of the clusters were vociferous in their opinion that lack of availability of workforce was linked to the **MGNREGA scheme**. The respondents felt that the combination of work opportunities under MGNREGA and availability of various state government schemes and subsidies made sourcing of workers a challenge in Tamil Nadu (See case study-28).

Case Study-28
"Subsidies taking away labour force"- feels industry

Industry reported that multiple subsidies are reducing the flow of labour force. "……Under the previous government every family with a ration card was eligible to get rice at Re.1 per kg, subsidized pulses and cooking oil and gas stoves with LPG connection. The most ambitious of the free schemes had been the distribution of free colour television sets. The current government, not to be outdone, has its own "freebee" list: cows and goats in rural areas for those below poverty line and 20 kg of free rice per month to all to all households with ration cards. The government is distributing free mixers, grinders and electric fans to all ration card holders as well……." (Source: FGD report)

However, it is to be noted that in the Namakkal starch and sago cluster, where the shortage was so severe that it induced technology upgrading, the wages given per day is less than Rs.110 – Rs.120. Conversely, in Krishnagiri Mango pulp cluster with wages as high as Rs.400 per day, the effect of the schemes on workers was reported as minimal. In Sivakasi Fireworks cluster, workers prefer working under the MGNREGA as it offers safer work environment despite higher wages. In Ambur leather and Coimbatore Pump and Motor clusters, insufficient social infrastructure and difficult working environment have been the causes for workers preferring to work under the scheme. The Tirupur Dyeing cluster, the industry had to close the

industry down due to pollution for nearly a year and the workers rendered jobless have sought the benefits of the central/state government schemes as a result. It appears that although, MGNREGA scheme is being sighted as being one of the drivers of manpower shortage, low level of market wages are getting challenged (see policy section for further details).

However, few industries have taken special efforts to ensure labour retention. The labour intensive Chennai Footwear and Tirupur knitwear cluster have a large worker base comprising of women. The industries have taken special initiatives like vehicle services and good wages to encourage these workers and retain them (Case Study-29).

Case Study-29
The stabilizing role of women workforce

The **Chennai Footwear Cluster** is home to 150 shoe/shoe upper manufacturing units and makes an annual turnover of around Rs. 3000 crores. Being Labour intensive, the cluster employs nearly 25000 persons. A unique factor of this industry is that 64 percent of the total worker population is women. They predominantly work in the cutting and stitching sections and constitute nearly 80-90 percent of the shop-floor workers. In order to encourage and retain them, most companies provide pick up and drop services. This enables to women to work in units as far away as 20-30 km from their hometowns or villages on the outskirts of Chennai, as the buses ensure their safety and offers hassle free commuting. Though the issues of reduction in entry of new workers due to various reasons have been cited by units, the presence of a large and steady base of women workforce offsets the problem. As they are less prone to changing companies frequently and there is reduced absenteeism among women, their presence serves as a stabilizing role in the industry.

Conclusion: Thus the relatively industrialized state of Tamil Nadu, faces the challenge of technology based displacement (for productivity challenges) or replacement of labour (for non-availability), pollution and relatively low wages in some sections, which is wooing away the labour force in welfare schemes.

D.3 Uttar Pradesh

In Uttar Pradesh, 10 clusters were studied of which, 4 are industrial, 2 micro enterprises, 2 traditional manufacturing and 2 service clusters. The 10 clusters are classified according to the thematic areas and the severity of impact on employment as given in the following table.

Table-23: Factors affecting employment growth in clusters in Uttar Pradesh

Factor	Significantly Witnessed Jobless Growth (SWJG)	Showing Signs of Jobless Growth (SSJG)	Likely Future Jobless Growth (LFJG)	Job-Plus Growth (JPG)
Technology	2	1		
Finance	1		2	1
Market	3	1	1	
Raw material	1	1	4	
Skill		1	5	
Pollution	2			
Infrastructure	1	5	2	

The most critical factor that has led to fall in employment is the market related problem. The major micro factor is recession that has led to fall in employment in Bhadohi Carpet and Firozabad Glass clusters as already discussed.

The second micro factor is competition from product substitutes as in Chunar Pottery cluster. The pottery products of Chunar have lost their value in the market due to the increased demand of the products made out of plastic, glass, etc. It is also facing competition from clusters like Khurja and Agra where better and more sophisticated pottery designs are manufactured.

The next major factors are technology, pollution and infrastructure which are of equal importance. In technology, the prominent micro-factors are replacement of labor due to advanced technology that has led to labor layoff, observed in Firozabad Glass cluster and lack of appropriate (downscaled) technology in Chunar Pottery cluster. Pollution is a major issue in Kanpur and Amroha, where lack of compliance to pollution norms has led to closure of many units and thus loss of employment.

Raw material and finance are two factors which have caused closure of 75% of the units and therefore fall in employment. Similarly, infrastructure (power supply) has led to fall in employment in Amroha Textile Waste cluster where units are not being able to operate fully to fulfill orders.

Similarly, Central Policy issues are is observed to be critical factors causing negative growth in employment in 2 clusters. One of them is the collection system of FCI (Food Corporation of India) in Puranpur Rice milling cluster. As per the levy, the enterprises have to sell 60 percent of the produce to the government and rest 40 percent to the market. Due to procedural reasons, the payment to the entrepreneurs often gets delayed by 2-3 months. As a result, they are not able to procure the raw material for the next cycle of milling. This results into low capacity utilization leading to joblessness. The other case is the impact of import duty in Firozabad Glass Cluster that has increased the production cost of the industry and would definitely lead to fall in employment in the near future.

One of the most important cases where **policy** led to closure of the cluster is Dada Nagar-Kanpur Soap and Detergent Cluster (Case Study-30).

Case Study-30
Policy cleaning of the Soaps and Detergent Cluster

The industry is said to have a turnover of Rs 1000 crores and employing around 5000 persons till 2006-07. During 2007-08 Government of India upheld the exemption of excise duty making the units pay 16 percent as excise tax. The excise duty took the units running without the aid of power under its ambit. Most of the soap and detergent units were hand based. So the Government asked them to get registered under 'Khadi Gram Udyog' and generate employment in rural areas, if they wanted exemption from the duty. This would mean shifting the industries to the rural areas or to invest in machinery and become power based. In both the cases, the cost that would be incurred was very high especially for the soap making units that were micro in size. This left the units to either close down or move to the rural areas thus forcing the cluster to die.

Conclusion: In relatively less industrialized state of Uttar Pradesh the major macro factors are market, technology and pollution and working conditions. The most important micro factors in market are downturn of global market scenario that has negatively impacted the clusters and competition from the product substitutes. This is followed by technology as the next important factor under which the major micro factors are replacement of labor due to advanced technology and lack of adequate technology and; pollution and working condition.

E. Issues of MGNREGA

1. Lower wage and MGNREGA: There are multiple factors that have led to lower wages in some of the clusters.

Table-24: Factors affecting wages in Clusters

	Factor Impacting Wage Negatively	**Wage Impact**		**MGNREGA**	
		M/T	**I**	**M/T**	**I**
1	Increased cost of raw material squeezing profitability	3 SWJG			
2	Consistently falling market share	5 SWJG	1 SWJG	3 SWJG	1 SWJG
3	Restricted growth due to pollution	1 SWJG	1 SWJG	1 SWJG	1 SWJG
4	Generally low paid industry	5 SWJG, 1 SSJG	1 SWJG, 1 SSJG	5 SWJG, 1 SSJG	1 SWJG, 1 SSJG
5	Comparatively low wage	1 SWJG		1 SWJG	
	Total	15 SWJG, 1 SSJG	3 SWJG, 1 SSJG	10 SWJG, 1 SSJG	3 SWJG, 1 SSJG

Note: M = ME, T = Traditional, I = Industrial, SWJG=Significantly Witnessed Jobless Growth, SSJG=Showing Signs of Jobless Growth

Case Study-31
Tirupur Suggests A Way-out

"…..There is urgent and imperative need to make drastic changes in the scheme, like linking the workforce with agriculture and industry. The wages given under this scheme may even be given as 'dole' subject to the condition that only those who have worked for a prescribed minimum no. of days in agriculture and/or industry (say 300 days in a year) would be eligible to receive the dole. Unless this scheme is modified with emphasis on improving productivity in agricultural and industrial sectors, it is certain that both the sectors would continue to register negative growth in employment. If not done, the damage to economy would be irreparable and irreversible…."

The stakeholders identified lower wage as a factor for not getting labour in 44 per cent (20[11] of 45) clusters. 80 per cent of these clusters are either ME or traditional clusters. Around 70 percent (14 of the 20) clusters have reported that MGNREGA has affected their labour availability. Again 70 per cent of these 14 clusters are either ME or traditional clusters.

Table-25: Factors Affecting Availability of Labour

			Low Wage				MGNREGA Reported			
		T1	SW JG	SS JG	T2	T2 as % of T1	SW JG	SS JG	T3	T3 as % of T2
1	ME Cluster	13	10	1	11	85	4	1	5	45
2	Traditional Cluster	8	5	0	5	63	5	0	5	100
3	Industrial	17	3	1	4	24	3	1	4	100
4	Services	7	0	0	0	0	0	0	0	0
	Total	45	18	2	20	44	12	2	14	70

Note: One industrial cluster does not exist anymore; SWJG=Significantly Witnessed Jobless Growth, SSJG=Showing Signs of Jobless Growth

Thus it is evident that low wage has definitely affected labour supply in clusters. The problem is severe in the ME and traditional clusters, where the wage rates are relatively lower due to factors like rise in cost of raw material, falling market share, etc. MGNREGA has added to this trend by opening up alternate wage earning mechanism.

A case in point is the Chunar pottery cluster, where despite low wage, respondents did not point fingers to MGNREGA, but they suggested that labour has moved away to the newly created cement factory. In fact in Bhadohi, the desperate weavers are happy that MGNREGA is raising their minimum wages too. Or in the Chanderi cluster, which has made a turnaround in the marketing issue, has seen a rise in wage rate and neither wage rate nor MGNREGA is an issue. The debate is further supported by the fact that none of the services cluster, where wage rates are relatively the highest, did report any wage or MGNREGA issue.

[11] In relative term in 1 of the 20 clusters

Case Study-33
ESI Facility in Tirupur

"…The workers and employers in Tirupur contribute crores and crores of rupees towards ESI. But the government has not cared to create commensurate ESI and Medical facilities in the town. Hence in most enterprises the workers refuse to contribute their share which also falls on the employer. It is the moral responsibility of the government to provide good and quality ESI and medical facilities to the workers with easy access so that the cluster would be in a position to attract workers from far off places…"

Labour supply has definitely taken a beating in the industrial clusters too, however this is probably not the main cause of jobless growth as clusters are taking various means, e.g. introducing labour replacing (and not planned displacing) moving towards rural areas, sub-contracting (Kolkata leather) in rural areas, etc. However whether this technology up-gradation will make the entry of labour in those historically labour intensive clusters or not, is an issue that needs to be further researched. Under such condition it was suggested that a win-win for industry and MGNREGA can be that while MGNREGA supports industrial employment by picking up the cost of welfare benefits, industry will give the labour the wage at market rate.

Interestingly, industry has also become extremely labour sensitive. For example, in Ambur the industry raised the issue of poor living condition as a major issue leading to employment. Unit owners in the Ludhiana knitwear cluster stated that the staying condition of labourers needs improvement. Proper residential arrangement need to be done. This can be done by creating hostels for labourers through a PPP model. State Government can give land and the project cost can be shared by Ministry of Industry, Govt of India under any of their scheme like Industrial Infrastructure Up-gradation Scheme and local industry. For implementation an SPV can be made. Local industry contribution may be 20 per cent. Similar issues have led some of the unit owners to put in place "air-conditioned units"!

Case Study-32
Hi-tech Facilities for Labour

"….Ambur town has not seen any development worth mentioning in the last 10 years. Drinking water supply is poor, no sewerage system, no good roads, no recreational facilities and so on. Due to the poor living conditions, no one wants to come for working in Ambur. The situation has been further aggravated with the presence of umpteen number of IT and ITES companies and many high profile MNCs that are attracting youngsters from Ambur. The fast transportation facilities, especially after the completion of four-lane Chennai-Bangalore NH have enables the workforce to opt for greener pastures. And those get used to city life do not want to come back to Ambur which has nothing to offer for a decent living conditions, entertainment and other social activities.

VIII. Policy Suggestions

Technology Up-gradation independent of Power: In view of the rising labour cost, increased labour productivity is a must, more so for the micro enterprises and artisanal cluster. However the huge power shortage as observed in most of the clusters, suggest strongly that as and when this power gap will get reduced, it will definitely first take place in the urban places followed by semi-urban and then rural sector. Hence there should be an emphasis on promoting power-independent technology or technology that can depend on workable non-conventional energy sources.

Technology Indigenization: High cost of imported machinery is a major deterrent for enhancing labour productivity. Technical institutions may be given a mandate for indigenization of imported off-patent machinery or creation of similar machinery as import substitutes. For this sectoral technology council be created with representation from firms of different size (medium, small and micro) and a list of desired machinery be created and task assigned to relevant technology institution to deliver.

Subsidy for power generation in a PPP mode for clusters: In the relatively more industrialized clusters, lack of availability of power is a major crisis point that in many cases are making them high cost. Here appropriate support schemes may be created for promoting PPPs for captive power generation suitable to needs of the cluster.

Special support for infrastructure for improved labour condition: PPP schemes are not taking off due to government investment mostly in machinery and not/negligibly on land and building. While the spirit of this support is well taken, aberration may be made for cluster infrastructure which do not have machinery, but are very critical for promoting responsible business. These include hostels for labourers or for that matter appropriate hospital for labour check-up. In such investments, the cost of machinery is negligible. Given the rising interest of the industry in promoting labour welfare, a subsidy that covers at least the full cost of building and machinery, up to a limit, if not land, will be very productive.

Skill mismatch: Development of skilling institutions need to be proportionate to usage. While a particular cluster can have the benefits of disproportionate amount of engineering colleges and ITIs, there is simultaneous need for creating proportionate amount of permanent labour training institutes. Creation of such institutes through existing local infrastructure, who has business interest in providing such training needs to be given priority. Hence role of industry associations becomes paramount in this effort.

Skilling of traditional clusters and gender sensitivity: While skill can be relatively easily created in industrial and ME cluster, the issue of skill creation can be a real uphill task for traditional clusters, where family members learn the skill for years and acquire a finesse, which can never be acquired through limited structured training. In general a family member of a skilled artisan learn the techniques and family secrets of the art form, just like any other fine arts over years (15 to 20 years) under the guidance of their parents. Inclusion of outside labour to the family business is also witnessing replacement of women artisans,

wherein the women folk does not feel comfortable under the existing social conditions to work with unknown male workers. This will further add to the deskilling process. Since it is near impossible to create such skill, the only option for such traditional art form to survive is the make the returns and the pride of working attractive enough to retain and nurture the natural talents, by making appropriate market linkages for these clusters. No amount of skilling is a solution to this issue.

Support MSMEs in handling pollution: Pollution control department need to come out with acceptable technologies and approved vendors for sourcing of such technologies. Else lot of efforts may go waste. For ME clusters in particular, there is need to go a step further and need to be provided handholding to come to pollution related solutions. Also it is important to critically follow the growth process in clusters, where there are pre-defined pollution limit, else, often the cost of forced adjustment is too high for the economy to bear.

Appropriate financing models of IT and food processing sector: The ICT entrepreneurs find it extremely difficult to get finance, as they often operate from incubators, which are not considered by District Industries Centre as appropriate locations for getting registered as industrial units. As a result they miss out on getting loans and also benefits of compulsory procurement norms as created for micro enterprises. Similar problem is also faced by food processing units which often find it difficult for loans as their products are seasonal.

Active BMOs have helped growth cause: Active BMO and similar organization of firms have led on many occasions in vital areas like providing finance, market promotion, infrastructure promotion, skill development, tacking pollution problems, etc. Thus it makes immense sense in actively promoting BMOs and their capacity building for the purpose.

Lack of ESI Facilities: The ESI facilities have been created across the country to serve the medical needs of the workers. It has been observed from the study that a number of critical areas with substantially high density of industries do not have the access to these facilities. While the employers and employees are obliged to contribute their share towards the ESI scheme, lack of facilities within their clusters results in dissatisfaction, especially among the workers. Identification of those critical pockets where such services are either non-existent or inadequate and initiatives towards establishing them, either as new entities or tie-ups with existing hospitals, must be taken up.

Mechanization in Fireworks Industry: The prohibition on electrification of the manufacturing premises as per the Explosives Act of 1984, the units in Sivakasi Firework cluster are unable to meet the market demands through manual manufacturing methods alone. With no equipment being introduced in the industry the units are fully dependent on the workers sheer lack of manpower. Working overtime after hours to meet demands is also not possible as there is no lighting. The industry believes that bringing in electricity within the units will revolutionize the sector and enable it to compete globally. Concrete steps may be taken towards introduction of technology in this industry provided fool proof safety measures are implemented in the units.

Special financing tools for reviving of closed unit: With all units being closed for nearly 11 months in Tirupur cluster in the year 2011, it is felt that at least 20-30 percent of the closed units will not be able to recoup their losses and will not be able to reopen. In order to revive the sick units, special financial instruments maybe introduced in addition to providing loan/interest waivers.

Technology operation and maintenance related skill creation: While technology up-gradation is taking place at various levels in a number of clusters, the units and their workers are not equipped to handle the new machinery. Sub-optimal operations of these equipments are resulting in "lower-than-possible" levels of productivity. The service providers who carry out maintenance and repair of the equipment are also insufficiently qualified to service these equipments.

The introduction of such newer technologies has taken place in the recent past (last 5-7 years) in all the industries; however the curriculum of the institutions and training centers which supply skilled workers have not been up-graded alongside. Focused measures on identifying needs of the industry and upgrading the syllabus of existing institutions in addition to introducing new training modules are the emerging needs of industries that are moving towards automation.

IX. Annex

Annex I-a

Study on "Cluster Development: Employment Intensity of Output in Selected Clusters of India"

QUESTIONNAIRE I: ENTERPRISES

State_____Sector_____Cluster_____

1. Identification Particulars

1.1. Name and address of the enterprises_____

Contact Person_____ Cell no_____ Email_____

1.2 Broad activity_____

(As per NIC 4 or 5 digits (2008) classification_____)

1.3 Main products_____

1.4 Which Generation of business? _____

1.5 How old/ year of establishment?_____

1.6 Type of unit (Please √ the appropriate box)

1) House Hold Unit *without* hired labour		2) Household unit *with* hired labour (ask what work they do and why?)	
3) ME with hired space		4) Small firm	
5) Medium firm		6) Others, Please specify	

1.7 Type of ownership (Please √ the appropriate box)

Proprietary - Male		Private Limited Company	
Proprietary - Female		Others (please specify)	
Partnership			

1.8 Nature of operation (Please √ the appropriate box)

Perennial		Seasonal		Casual	

1.9 If seasonal/casual, what you do rest of the Year _____

1.10: Has there been any change in turnover in last 5 years? If yes, pls specify the change and the reasons

_____

2. Business Information and Trends

2.1 Finance

2.1.1 What is the principle source of finance for working capital?

Own	Bank	Family/ friends	Support firm (Bigger unit/ raw material supplier/ trader/ etc)	Other (Please specify)

2.1.2 Do you face any problems in getting bank finance, particularly during the last five years? Yes/No
If **yes,** nature of problems (Please √ the appropriate box)

Delay in sanctioning of loans		Project proposal not accepted	
Lack of appropriate collateral		Other (please specify)	

2.1.3 How it impacted employment?

_____

_____

2.2 Market

2.2.1 What are the marketing related problems?

a) Lack of marketing skills ☐

b) Lack of access to markets ☐

c) Weak demand for products ☐

d) Market seasonality ☐

e) Lack of market information ☐

f) Limited product range ☐

g) Competition from other substitutes ☐

h) Any other, please specify_____

2.2.2 Did this have any impact on employment?

_____

_____

2.2.3 Where and through which what channel are the enterprise's main products sold? (%)

	Own shop	Other shop	Trader	Agent	Fair/ Exhibition	Other units	Total
Within cluster							
Outside cluster							
Export (direct/ indirect)							
Total							100

2.2.4 Is there any change in market demand during the last 5 years? _____

2.2.5 If so details and reason_____

2.2.6 Did it have any impact on employment ?_____

_____

2.2.7 Payment system/condition? (advance/ after delivery/Lead time, etc)_____

_____

2.2.8 Any change in the last 5 years?

2.2.9 Did it have any impact on employment?_____

_____

2.2.10 Who gives designs/drawing?_____

2.2.11 Who provides training for new designs or new people? _____

2.2.12 Is there any change in product design/type during the last 5 year?_____

2.2.13 If so principal reason_____

2.2.14 Did it have any impact on employment?_____

_____

2.3 Raw material

2.3.1 What are the sources of two to three major raw materials? (Please √ the appropriate box)

Own buying	Local trader	External	Government	Industry	Buyer	Others

2.3.2 Terms and conditions of raw materials buying: advance/credit_____

2.3.3 If credit, what are the terms? _____

2.3.4 Any major change in T&Cs ? _____

2.3.6 What are the raw material related problems?

Non-availability		Sudden change in supply/ non-availability?	
High cost		Import Problem (import duties etc)	
Poor quality of the raw materials		Others (please specify)	

2.3.7 Did it lead to slow down? If yes, pls specify

_____

2.3.8 Did it have any impact on employment?_____

_____

2.4 Machinery/Technology

2.4.1 What are the technology related problems you face?

a) Low productivity due to obsolete technology
b) Lack of knowledge information on advanced technology
c) Few/ No machinery suppliers in the area
d) High cost of new machine/ technology
e) No technical experts or Business Development Service Providers (BDSPs) for introducing new technology
f) Difficulty in repair and maintenance
g) Any other, please specify _____

2.4.2 Has there been any major change in the technology/ machinery during the last 5 years? Yes/ No

2.4.3 If yes why?_____

2.4.4 Was there any increase/ decrease in turnover due to investment in machinery/

technology?_____

2.4.5 Did it have any impact on employment?_____

_____

2.5 Human Resources

2.5.1 What are the skills related problems you face?

a) Shortage of skilled manpower
b) Lack of skills of the existing workforce (production and designs)
c) Lack of technical skills
d) Deficient product packaging and design
e) Any other, please specify_____

2.5.2 What are the sources of labor recruitment?

a) Migrant (other states)
b) Local
c) Nearby villages
d) Others, please specify_____

2.5.3 Is there any change in trend of labor sources in last 5 years? Yes/ No

2.5.4 If yes, please specify_____

2.5.5 Did it have any impact on employment?_____

_____

2.5.6 What are the current manpower type and number?

Type	Full time		Part time (Contractual)	
	Male	Female	Male	Female
a) Professional/managerial				
b) Skilled/Technical				
c) Semi-skilled				
d) Others				

2.5.7 Has there been any significant increase in wages of skilled/unskilled/managerial workers during the last 5 years? Yes / No

2.5.8 If yes, reasons and which category? Please specify _____

_____

2.5.9 Did it have any impact on employment?_____

_____

2.5.10 Has there been any problem of availability of skilled/unskilled/managerial workers during the last 5 years? Yes/ No

2.5.11 If yes, why? Please specify_____

2.5.12 how it impacted employment?_____

_____

2.5.13 Has there been any change in number of women employees in last 5 years? Y/N. If Yes, pls specify

_____

2.5.14. Is there any specific problem related to women employment? Pls specify

_____

2.5.15 Has there been any fall in capacity utilization of the firm during the last 5 years? Yes/ No

2.5.16 If yes, what was/ were the possible reasons?

Fall in demand of current products		Lack of available human resource	
Increase in price of products due to increased cost of production		Change in technology to account decrease in human resource availability	
Availability of improved substitute		Raw material available	
Others (please specify)			

2.5.17 Give details of skills in shortage

Skills in shortage (Pl. mention specific skills category wise)	Number of persons required
Skilled	
Semi-Skilled	
Unskilled	

2.5.16 Could you get any schematic support during the last five years? (Give the name of Scheme)

a. Subsidy ☐
b. Provision of Machinery and equipment ☐
c. Capacity building activities ☐
d. Marketing assistances ☐
e. Procurement/supply of raw materials ☐
f. Introduced new schemes for the business activities ☐
g. Other protection measures (please specify)_____
h. No assistance received from any source ☐

3. Policy environment and implications

Non-cluster issues which may be relevant to impact on employment during the last 5 years *(Both Central level and State level policy)*

Issues relevant to the sector	Describe the change	Impact on Employment
Government Policy/Scheme		
Taxes and exemptions		
Labour Laws		
Global economic crisis		
Inflation		
Registration		
Outsourcing (magnitude & type of activity)		
Non-availability of electricity connection/Power Cut/Fuel		
Lack of other infrastructure (road, water)		
Major Strikes		
others (please *specify)*		

4. Comments and Suggestions

4.1 Any other issues or comments shared by the respondents

_____

_____

_____

_____

4.2 General observation and comments of the investigator

_____
_____
_____
_____
____

Date_____ Name and Signature of the

Investigator_____

I-b,

Study on "Cluster Development: Employment Intensity of Output in Selected Clusters of India"

QUESTIONNAIRE II: ASSOCIATIONS

State_____Sector_____Cluster._____

1. Identification Particulars

1.1. Name of the Association_____

	President/Secretary	Executive
Name		
E mail		
Mobile		

1.2. Association Legal status_____

1.3 Main products_____

1.4 How old is the cluster? _____

1.5 How old is the association? _____

1.7 Who are the members?

a) Manufacturing enterprises (Please mention their work)_____
b) Support enterprises (Please mention their work)_____
c) Raw material suppliers
d) Traders
e) Business Development Service Providers
f) Others, please specify_____

1.8 How many members in the association? _____

1.9 What is membership fee? _____

1.10 Number of firms operating in the cluster?_____

1.21 Services rendered by the association?

a) Information Services_____
b) Training Services_____
c) Advisory Services_____
d) Infrastructure related Services_____
e) Advocacy services/ workshop/seminar/ studies/ visits/ _____

f) Marketing ……..
g) Any others, please specify_____

2. Analysis of Business Operations

2.1 Technology

2.1.1 What are the major problems of technology?

h) Low productivity due to obsolete technology ☐
i) Lack of knowledge information on advanced technology ☐
j) Few/ No machinery suppliers in the area ☐
k) High cost of advanced machines ☐
l) No technical experts (BDSPs) in the area ☐
m) Lack of R&D and quality control facilities ☐
n) Any other, please specify _____

2.1.2 Any major change in investment in technology and machinery during the last 5 years by the units? Yes/No

2.1.3 If yes, reasons and how?_____

2.1.4 How it impacted employment?_____

2.1.5 Was there any increase in turnover due to installation of machinery?_____

2.1.6 Did it have any impact on employment?_____

2.2 Market

2.2.1 What are the major problems related to market?

a) Lack of marketing skills ☐
b) Lack of access to markets ☐
c) Weak demand for products ☐
d) Market seasonality ☐
e) Lack of market information ☐
f) Limited product range ☐
h) Competition from other substitutes ☐
g) Any other, please specify _____

2.2.2 Is there any change in market demand during the last 5 years? _____
If so details and reason_____

2.2.3 Is there any impact on employment?_____

2.2.4 Is there any change in product design/type during the last 5 years?_____

2.2.5 If so details and reason_____

2.2.6 Is there any impact on employment?_____

2.3 Human Resources

2.3.1 What are the sources of labour recruitment?

a) Migrant ☐
b) Local ☐
c) Nearby villages ☐
d) Others, please
specify_____

2.3.2 Is there any change in trend of labour sources in last 5 years? Yes/ No

2.3.3 Percentage increase/decrease in employment

Period	**% increase**	**% decrease**	**Reasons**
1999-2000 to 2004-05			
2004-5 to 2009-10			

2.3.4 What are the skills related problems the cluster face?

a) Shortage of skilled manpower
b) Lack of skills of the existing workforce (production and designs)
c) Lack of technical skills
d) Deficient product packaging and design
e) Any other, please
specify_____

2.3.5 Has there been any significant increase in wages of skilled/unskilled/managerial workers during the last 5 years? Yes / No

2.3.6 If yes, why? Please specify_____

2.3.7 Has there been any problem of availability of skilled/unskilled/managerial workers during the last 5 years? Yes/ No

2.3.8 If yes, why? Any suggestion?_____

2.3.9 Is there any impact on employment for that?_____

2.3.10 Has there been any change in capacity utilization of the industry during the last 5 years? Yes/ No

2.3.11 Do you think it is because of wage increase or non-availability of labour?_____

2.3.12 Why? Any suggestion?_____

2.3.13 Has outsourcing increased/ decreased during the last 5 years? Yes/ No

2.3.14 Was there any skill related training initiative by the association in last 5 years? Yes/ No

2.3.15 If yes, does it have any impact on employment? Pl. specify

_____

2.3.16 Did the association tackle any labour related issue in last 5 years? Yes/ No

2.3.18 If yes, what is the issue and how it was tackled? Does it have any impact on employment? Please Specify_____

_____

2.3.19 Give details of skills in shortage

Skills in shortage (Pl. mention specific skills category wise)	Skill wise percentage shortage compared to total requirement
Professional	
Skilled/Technical staff	
Semi-Skilled	
Unskilled	

2.3.20: Has there been any change in type of skill requirement (of the above mentioned categories) in last 5 years? If yes, pls specify_____

2.3.21 Could you get any schematic support during the last five years? Yes/ No

i. If Yes, which is the scheme?_____

3. Policy environment and implications

Non-cluster issues which may be relevant to impact on employment during the last 5 years

Issues relevant to the sector	**Describe the change**	**Impact on Employment**
Government Policy/Scheme		
Taxes and exemptions		
Labour Laws		
Global economic crisis		
Inflation		
Outsourcing (magnitude & type of activity)		
Others (please specify)		
Non-availability of electricity connection/Power Cut/Fuel		
Lack of other infrastructure (road, water)		
Major Strikes		
others (please *specify)*		

4. Has there been any industry/ cluster specific development activity/ program implemented in last 10 years? If yes, pls specify (including major focus of the activity and achievements)

5. Comments and Suggestions

5.1 Any other issues or comments shared by the respondents

_____
_____
_____
_____

5.2 General observation and comments of the investigator

_____
_____
_____
_____
_____

Date_____

Name and Signature of the Investigator_____

I-c Cluster Development: FGD – Associations/Enterprises/Government Officials/Workers

- How are the activities of the cluster impacting economic growth of the district?
- What factors are contributing to cluster development in terms of output and employment growth?
- What factors are hampering cluster development in terms of output and employment growth?
- Trend of growth and employment in the cluster.
- Proportion of local people in the existing industries.
- Status of Skills and type of skill shortages is the in the cluster.
- Forward & Backward linkages with other clusters (links b/w small and large clusters).
- Modernization/ technology up gradation.
- Marketing facilities of the clusters.
- Nature of role played by NGOs/SHGs and financial institutions towards activities of the cluster.
- What are the government schemes for the cluster? Any impact on employment?
- Potential for women employment in the cluster (outsourcing/home based work/safety issues).
- Whether cluster is export linked/ oriented?
- Specific problems faced by the cluster.
- Future potential of the cluster/sector.
- Policy level suggestions by the participants to address cluster level employment related problems.

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