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A Study to Enhance Indian Apparel Exports

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***Abstract*:- In the global exports of clothing, as per the UN Comtrade, 2014 data released in November 2015 India is ranked 5th largest exporter amongst all the exporting countries. India's competitiveness in the international markets has to be viewed from an angle of productivity competitiveness, with greater emphasis on improved productivity and quality improvement. Studies conducted by various researchers in the past have highlighted that productivity of Indian garment industry is much lower as compared to countries like Vietnam and China.**
In view of above a comprehensive study was conducted in 50 units/styles in four major garment manufacturing/export clusters namely NCR, Bengaluru, Tirupur and Ludhiana.
The study covered all major departments like fabrics, layering, cutting, sewing, finishing and packing. Data was captured through discussions with departmental heads and structured questionnaires. In all the 4 clusters, significant variation in productivity and work practices was observed in all the departments. This can be attributed to several factors such as type of fabric used, style, operator skills and work practices. Amongst all these, use of different work practices was observed to be a major contributor causing variation in productivity.

Keywords: Productivity, stores, layering, cutting, sewing, SAM, finishing, work practices

1.0 INTRODUCTION:

India's textile and clothing industry is one of the mainstays of the national economy. It is also one of the largest contributing sectors of India's exports worldwide. In the global exports of clothing, as per the UN Comtrade, 2014 data released in November 2015 India is ranked as 2nd largest Textile & Clothing exporter globally with US$ 38.6 billion while in clothing exports India was ranked 5th largest exporter amongst all the exporting countries with US$16.5 billion worth of clothing exports. China, Bangladesh, Italy, Germany and Vietnam are the other major exporters of clothing. [1]

2.0 REVIEW OF LITERATURE:

According to a study conducted by the World Bank, D&B Analysis 2014, most of the Indian firms in the Textiles (Weaving/Knitting & Processing) & Garments Sector are still in the Stage I of the competence protocol and targeting basic conveniences & cleaning up of operations to achieve competitiveness. Their efforts are made towards cost reduction (raw-material & logistics being the most prominent), increasing labour productivity, ensuring compliance to quality norms and engaging in continuous quality improvement efforts. Some of the aspects in Stage I like energy conservation, clean & safe working environment, etc. are still to be looked up as measures for competitiveness.

Amongst the competing countries, China has already crossed the first stage and has managed to fare well in the next stage as well with optimized capacity utilization and system improvements. Vietnam, although still in Stage I of the competency protocol has been able to tackle most of the issues like labour productivity, controlling costs, etc. The Italian & Japanese counterparts have already crossed the stage II and their focus is on total improvement in systems & business processes by achieving total quality enrichment.

India's competitiveness in the international market, therefore, has to be viewed from an angle different from the availability of cheap labor and raw materials. Rather than low wage competitiveness, it has to be higher productivity competitiveness, with greater emphasis on quality improvement and improved productivity through creation of a modern, efficient, better organized and competitive industry in place of a traditional one[2].

3.0 NEED AND OBJECTIVES OF THE STUDY:

Indian apparel industry has long been lagging behind in terms of labour productivity viz-a-viz its competing countries like China, Vietnam, Sri Lanka, Bangladesh etc. According to a study conducted by the World Bank, D&B Analysis 2014, China is the clear leader in labour productivity in cotton textiles and garments with labour productivity more than double than that of India. (Refer Fig-3.1). Labour Productivity has been estimated as a ratio of Gross value added (GVA) to the number of workers. Major reasons cited in the report for lower labour productivity include lower efficiency, poor work practices, high worker absenteeism, dearth of newly skilled people, lack of availability of technical manpower to use modern technology effectively etc.

In case of garment manufacturing, especially in sewing room, the published literature indicates that needle running time is only about 15-20% of the total available time and the operator spends the rest of the time in activities like material handling etc. The same is true for the rest of the activities although to a lesser extent.

Thus, it was felt that one of the ways by which productivity of a garment unit can be improved is by adopting better work practices and improving material

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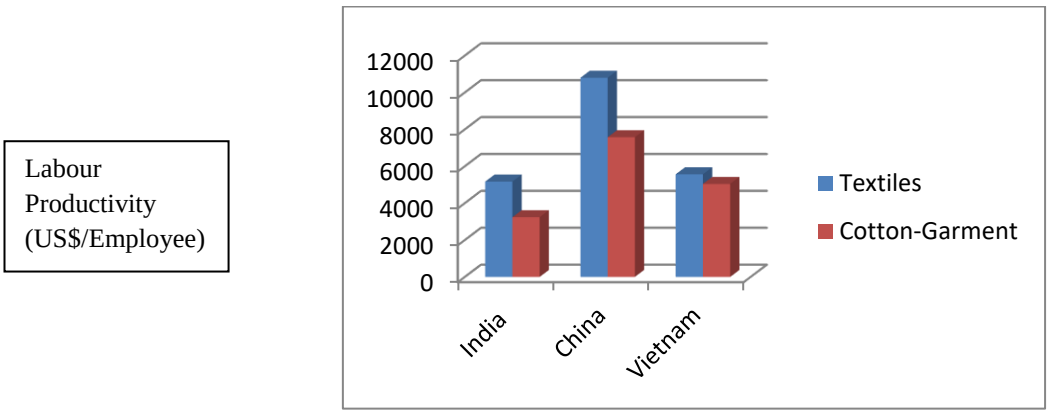
handling techniques. In view of this, following objectives were set out for the study:

- ❖ To study the work practices in major garment manufacturing clusters across India;
- ❖ Identify work practices that could improve productivity of various departments; and
- ❖ Share those work practices with the industry to help them improve their productivity and thereby improve cost competitiveness.

Figure 3.1: Labour productivity



Source: UNIDO

4.0 METHODOLOGY:

The study was conducted using a combination of quantitative and qualitative research methods. Four leading garment manufacturing clusters namely National Capital Region (NCR), Bengaluru, Tirupur and Ludhiana were selected for the study. The present paper covers the findings of NCR and Ludhiana clusters. The studies were conducted in 23 units in NCR and 9 units in Ludhiana. Data of various departments like fabric, laying & cutting, sewing, and finishing was collected through structured questionnaires. Best work practices, both in terms of new technology as well as improvement in existing machinery/work practices were studied and captured through pictures and videos, wherever possible.

5.0 RESULTS AND DISCUSSIONS:

Cluster : National Capital Region (NCR)

Total No. of Units Covered: 23

Profile of Units Studied:

i. 8 units were more than 20 years old while the remaining 15 units were less than 20 years old.
ii. 20 units studied were export units while 3 were involved in both export and domestic garment business.
iii. 15 units were involved in manufacturing of both woven and knitted garments while 3 units were manufacturing only woven garments and 5 were manufacturing only knitted garments. Major products manufactured are Ladies, and Kids Wear.
iv. Normally working hours varied between 8 to 10 hours/day.
v. 8 units were employing only salaried workmen, while the remaining 15 were employing both salaried and contractual workmen.
vi. No. of sewing machines varied between 150-1550. Capacity Utilization varied between 40% and 89%. Actual garment production varied between 900- 22,000 pieces/day. (Refer Fig- 5.1, 5.2 and 5.3).

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Figure 5.1: No. of Sewing Machines

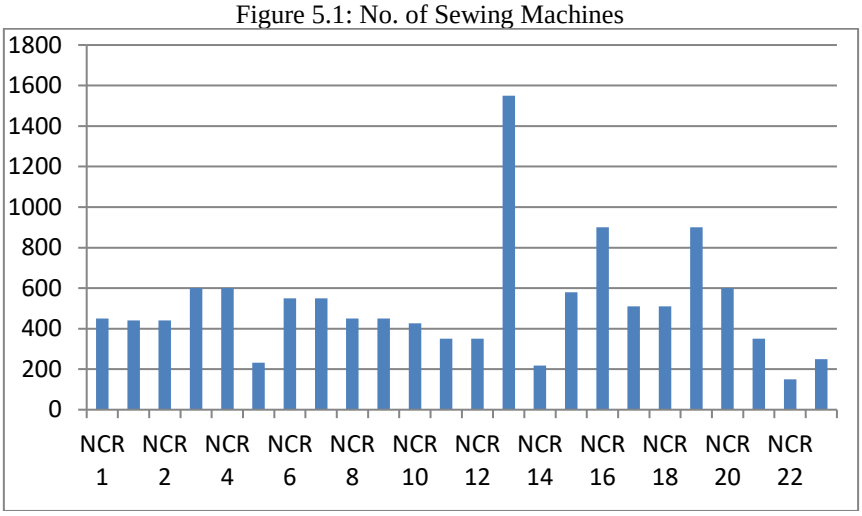


Figure 5.2: Capacity Utilization (%)

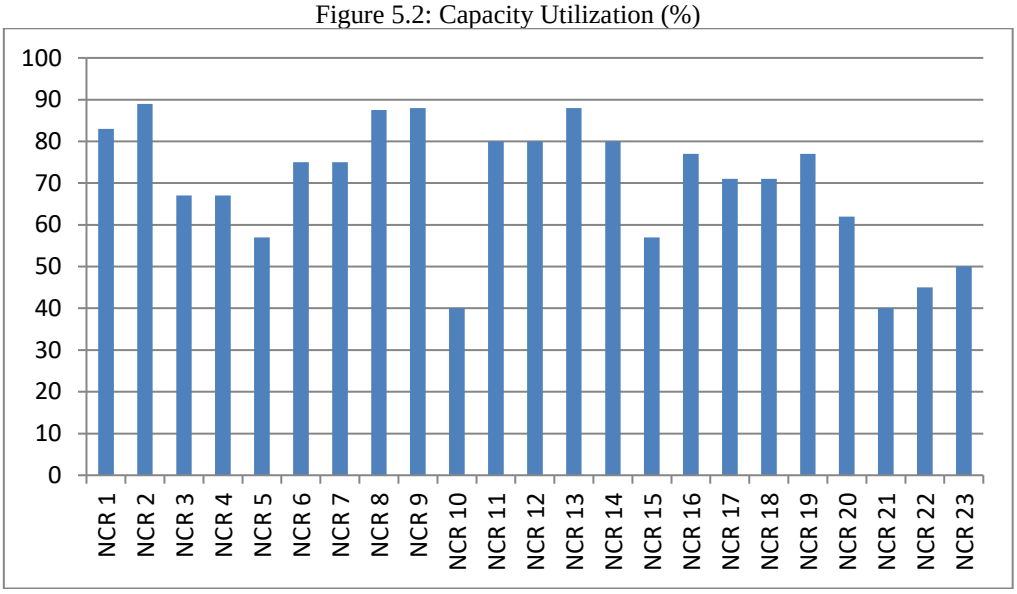
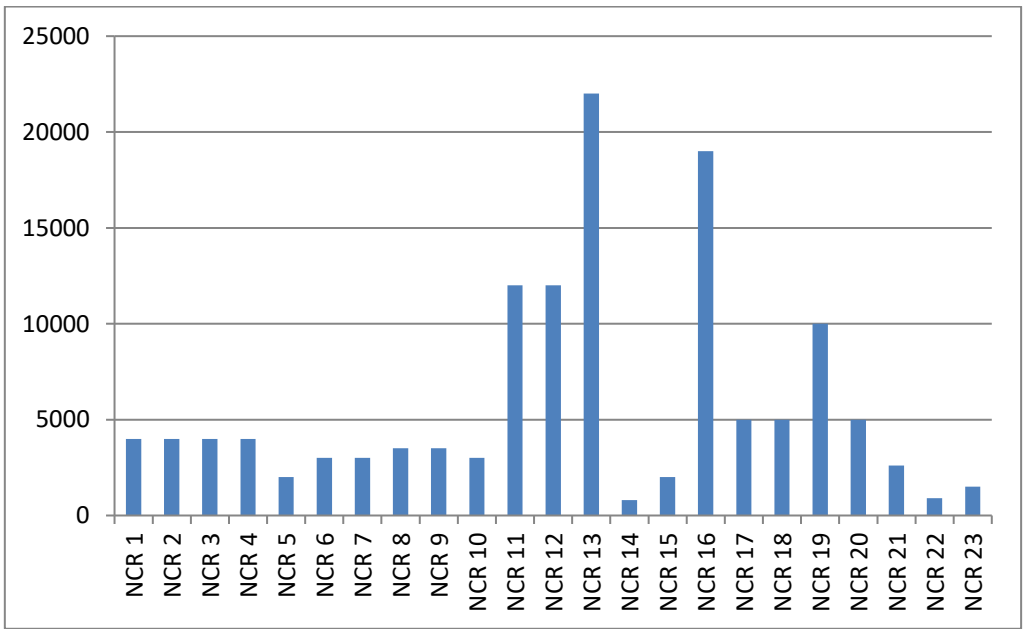


Figure 5.3: Actual Production/ Day



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DEPARTMENT-WISE OBSERVATIONS:

a) Fabric Deptt:

i. All the 23 units were following 4-point system for fabric inspection.
ii. The units were maintaining fabric inventory between 20 days and 1 year.
iii. Out of 23 factories, 18 units were using ERP for fabric issue while the remaining 5 were doing it manually.

b) Layering & Cutting:

i. Time studies are conducted on styles manufactured from woven and knitted fabrics by manual layering process.
ii. Significant variation between Marker length and actual Lay length was observed during the studies. The extent of variation was between 1cm and 10 cms. This can be attributed to poor work practices.
iii. It was observed that, laying productivity varies significantly with respect of type of fabric laid (solid/stripes/checks/prints) and marker length and operator skills. (Refer Fig. 5.4 and 5.5).
iv. In cutting, studies were conducted mainly on Straight Knife machine. There was a wide variation in operator productivity between the units. No. of garment cut /cutting team/hour varied between 40-294. (Refer Fig. 5.6). Major reasons of variation were type of fabric being cut, operator skill and capacity utilization.

Figure 5.4 : No. of Layers/team/ hr (Solid fabric)

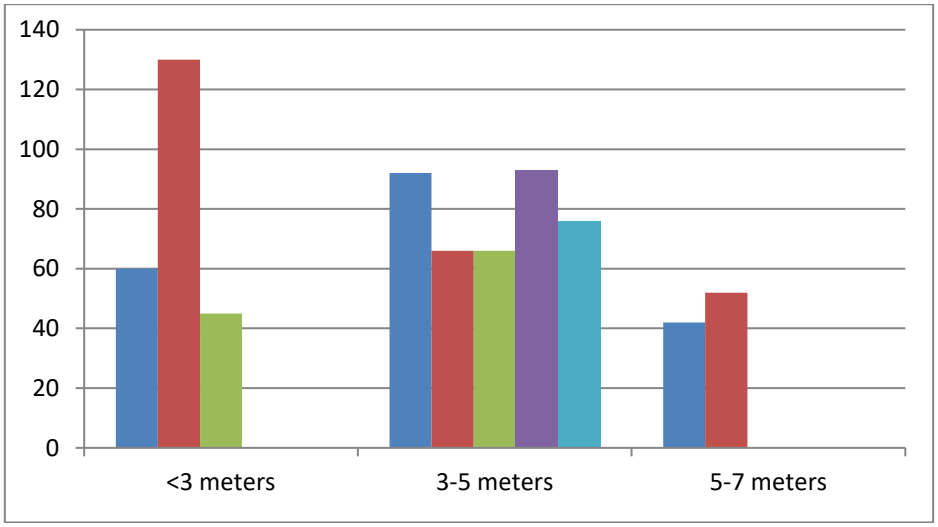

Figure 5.5 : No. of Layers/team/ hr (Printed fabric)

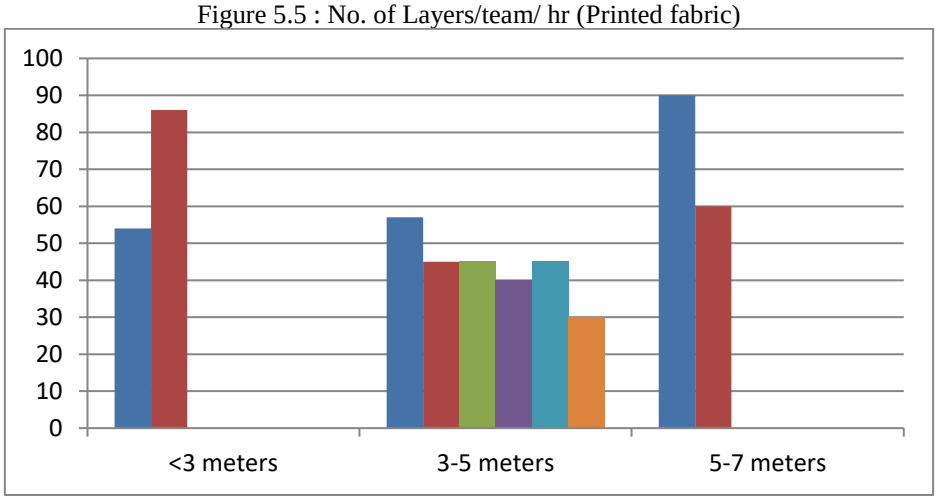

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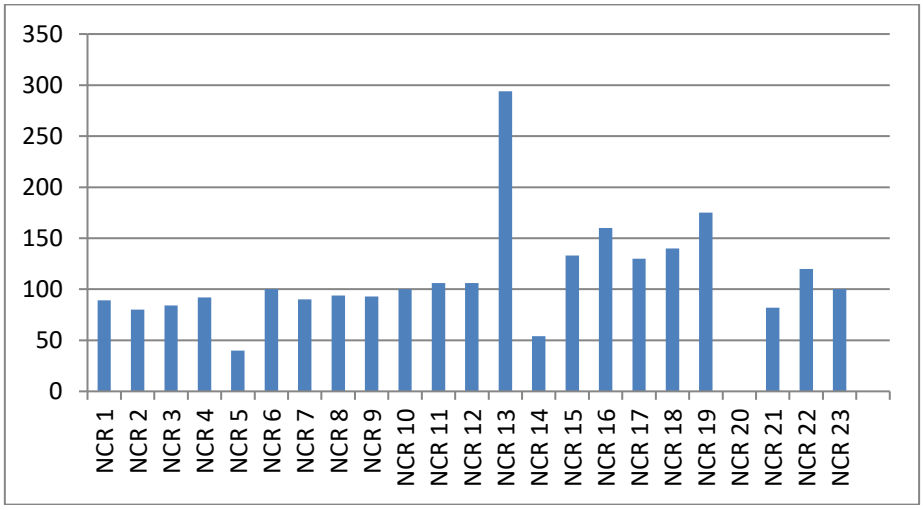
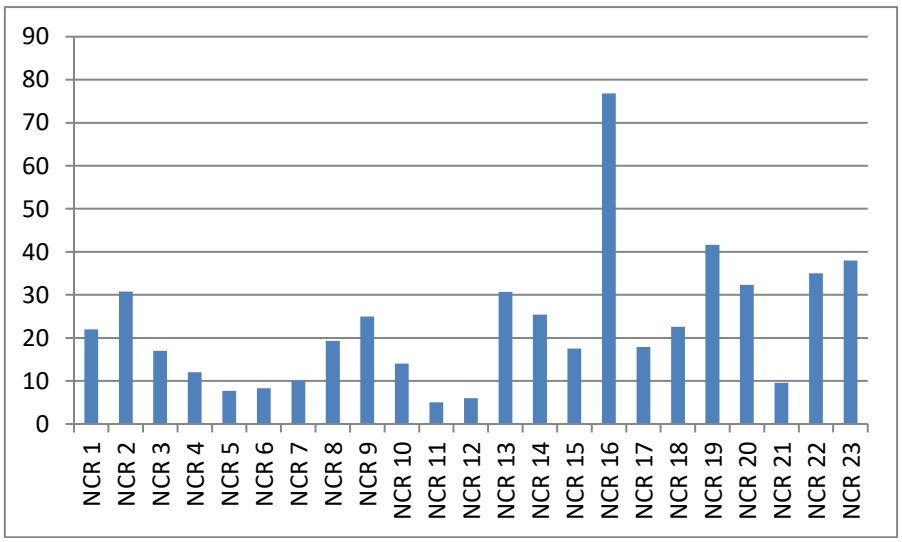
Figure 5.6: No. of Garments Cut/ person/hr



c) Sewing:

i. Key performance parameter in sewing department is SAM (Standard allowed minutes) for any given style.
ii. There are several factors that affect SAM. Major among them are type of garment and style, type of fabric, use of attachments, operator skill (measured in terms of efficiency) and material handling systems/techniques.
iii. SAM values varied between 5 min to 76.8 min. Major reasons for this variation was differences in the style, work practices and operator skill. (Refer Fig-5.7)

Figure 5.7: SAM/ Garment



d) Finishing and Packing:

i. Major activities covered under finishing are thread trimming, initial inspection, spotting, pressing, final inspection and packing. Large variation in productivity was observed in all these areas.
ii. In case of thread trimming, worker productivity/hr varied between 15 and 51 pieces (Refer Fig-5.8). This variation was largely due to style variation and degree of thread trimming required in the garment
iii. In case of pressing, worker productivity/hr varied between 7 and 60 pieces. (Refer Fig-5.9). This variation was largely due to variation in style, size, operator skill and work practices.

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Figure 5.8 : No. of Garments Trimmed/person/hr

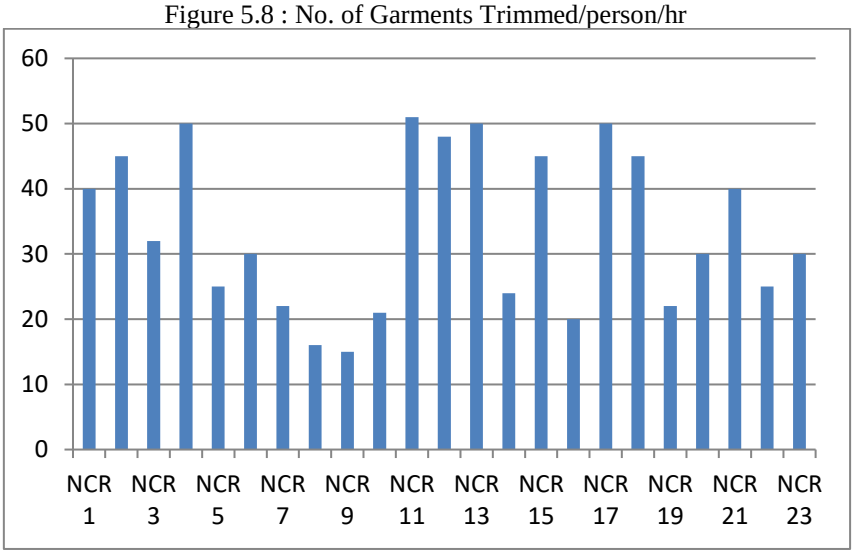
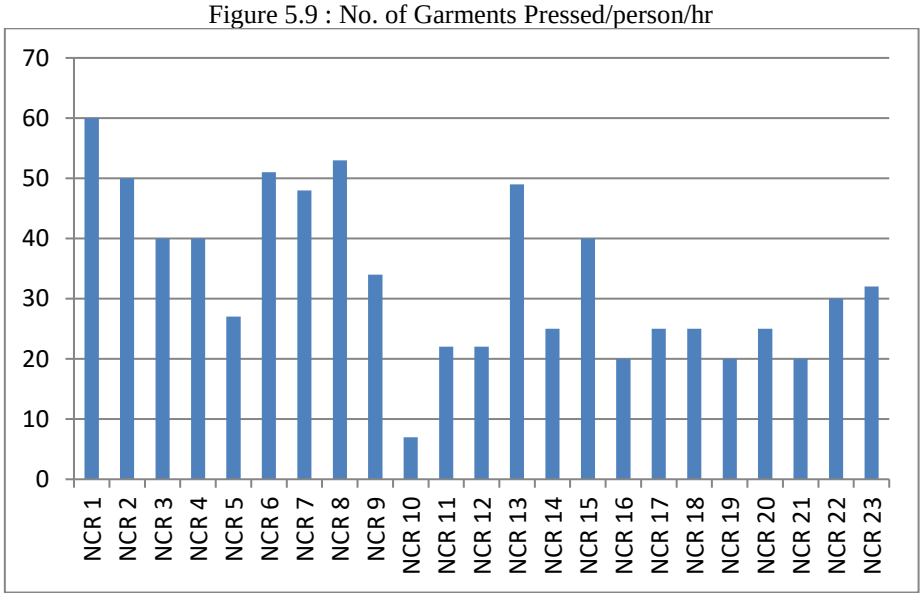


Figure 5.9 : No. of Garments Pressed/person/hr



CLUSTER : LUDHIANA(LDH) /INDORE(IDR)

Total No. of Units Covered: 9

Profile of Units Studied:

i. 6 units were more than 20 years old while the remaining 3 units were less than 20 years old.

ii. 7 units studied were domestic units, 1 unit was involved in both export and domestic and 1 unit was involved in garment exports only.

iii. All the 9 units were involved in manufacturing knitted garments. Major products manufactured are Men's, Ladies, and Kids Wear.

iv. Out of 9, 8 units were working 8 hrs/day while 1 unit was working double shift of 8 hrs.

v. All the units were employing only salaried workmen.

vi. No. of sewing machines varied between 200-3500. Capacity Utilization varied between 21% and 93%. Actual garment production varied between 2,000-70,000 pieces/day. (Refer Fig 5.10, 5.11 and 5.12)

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Figure 5.10: No. of Sewing Machines

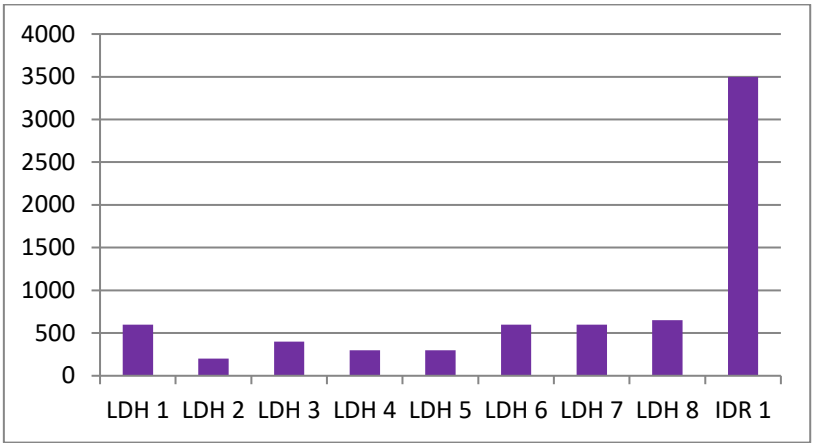


Figure 5.11: Capacity Utilization (%)

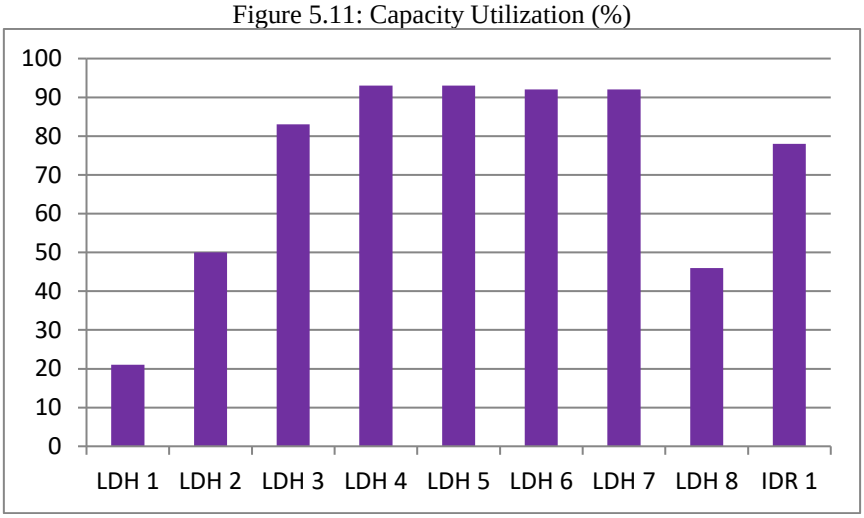
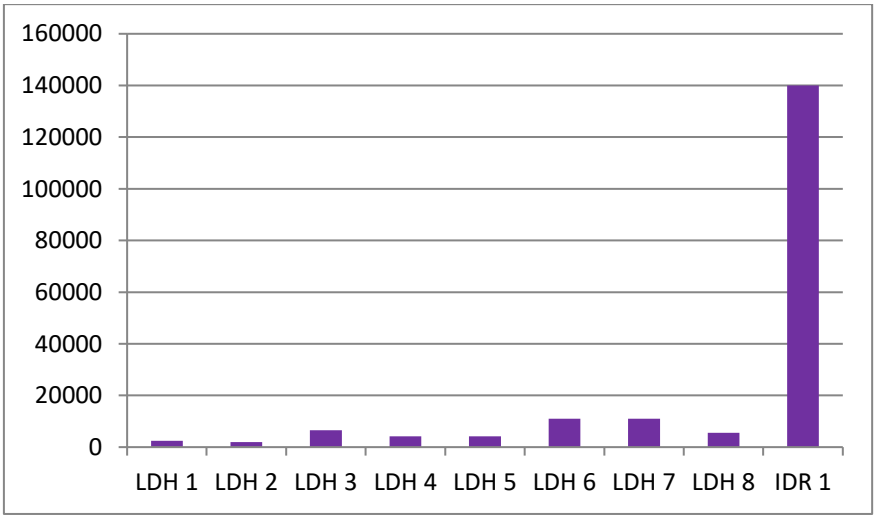


Figure 5.12: Actual Production/ Day



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Department-Wise Observations:

a) Fabric Deptt:

i. All the 9 units were following 4-point system for fabric inspection.
ii. The units were maintaining fabric inventory between 15 tonnes and 216 tonnes.
iii. Most of the units are ERP system for fabric issue.

b) Layering & Cutting:

i. Time studies are conducted on styles manufactured from knitted fabrics by manual layering process.
ii. Significant variation between Marker length and actual Lay length was observed during the studies. The extent of variation was between 4cm and 10 cms. This can be attributed to poor work practices.
iii. In general, a layering team consists of 3 persons. It was observed that, for marker lengths 5-6 meters, layering productivity/team varies between 15-30 layers/team/hr while for marker length between 7-9 meters productivity/team varies between 24-60 layers/team/hr. (Refer Fig. 5.13).
iv. In cutting, studies were conducted mainly on Straight Knife machine. There was a wide variation in operator productivity between the units. No. of garment cut /cutting team/hour varied between 87-173 (Refer Fig. 5.14). Major reasons of variation were type of fabric being cut, operator skill and capacity utilization.

Figure 5.13: No. of Layers/team/hr

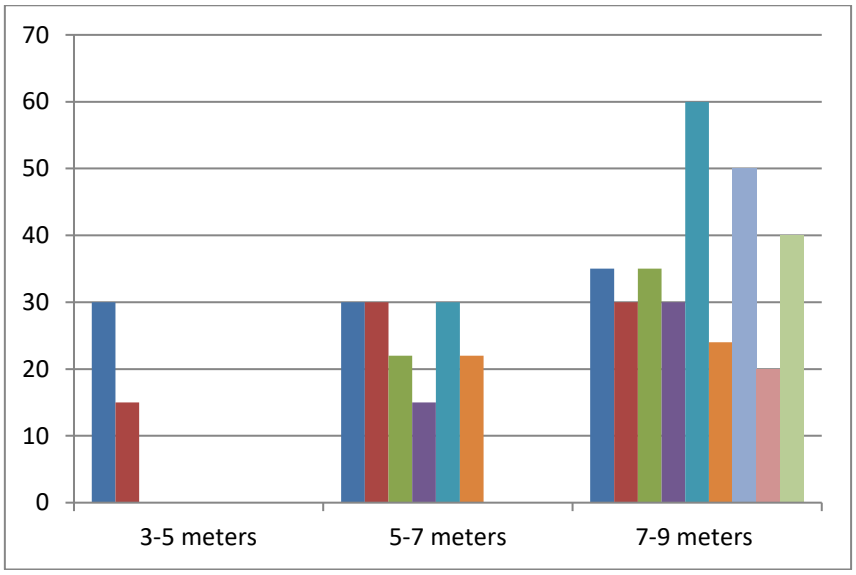
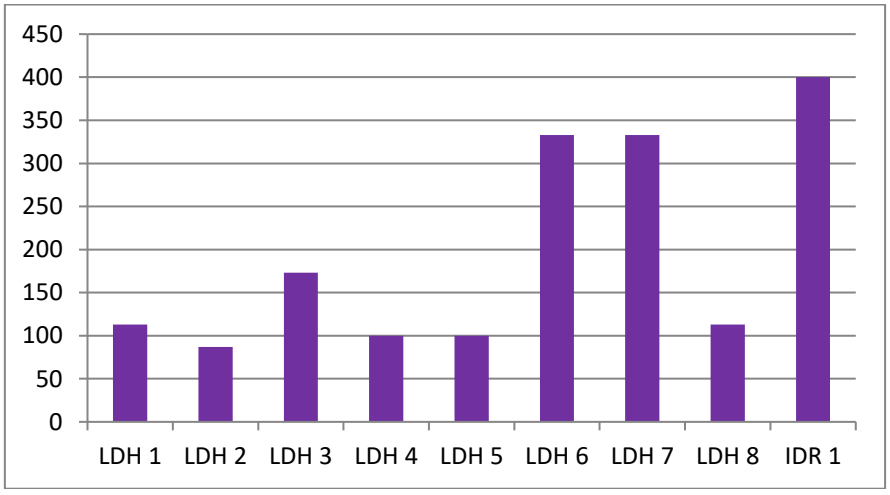


Figure 5.14: No. of Garments Cut/ person/hr



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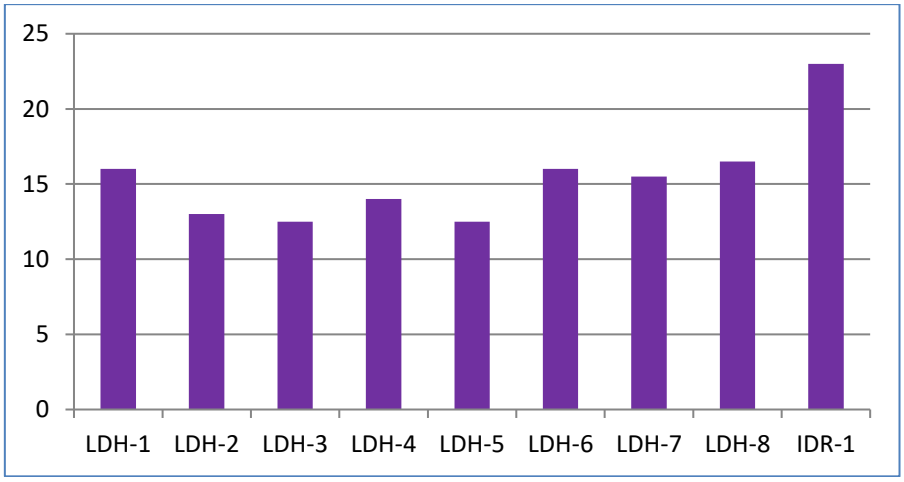
c) Sewing:

i. Key performance parameter in sewing department is SAM (Standard allowed minutes) for any given style.
ii. There are several factors that affect SAM. Major among them are type of garment and style, type of fabric, use of attachments, operator skill (measured in terms of efficiency) and material handling systems/techniques.
iii. SAM values varied between 12.5 min to 23 min. Major reasons for this variation was differences in the style, work practices and operator skill. (Refer Fig-5.15)

Figure 5.15: SAM/ Garment



d) Finishing and Packing:

i. Major activities covered under finishing are thread trimming, initial inspection, spotting, pressing, final inspection and packing. Large variation in productivity was observed in all these areas.
ii. In case of thread trimming, worker productivity/hr varied between 21-43 pieces (Refer Fig-5.16). This variation was largely due to style variation and degree of thread trimming required in the garment.
iii. In case of pressing, worker productivity/hr varied between 35 and 53 pieces. (Refer Fig-5.17). This variation was largely due to variation in style, size, operator skill and work practices.

Figure 5.16: No. of Garments Trimmed/person/hr

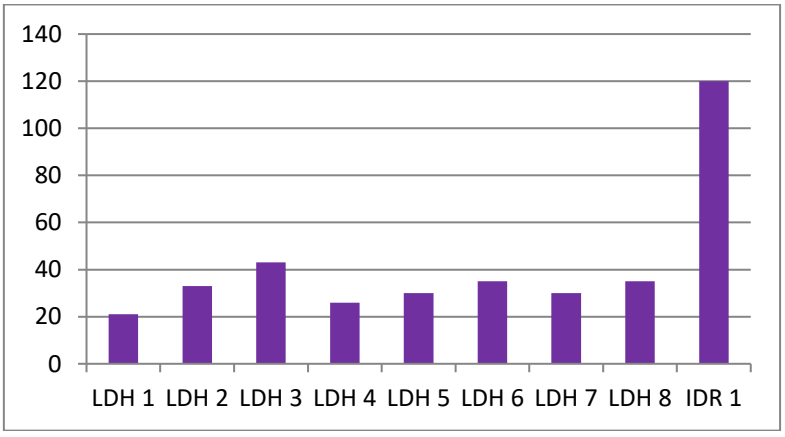


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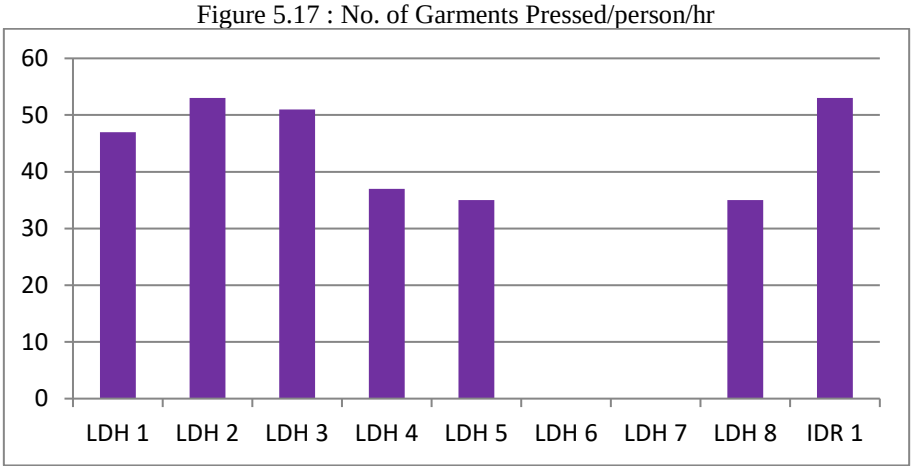
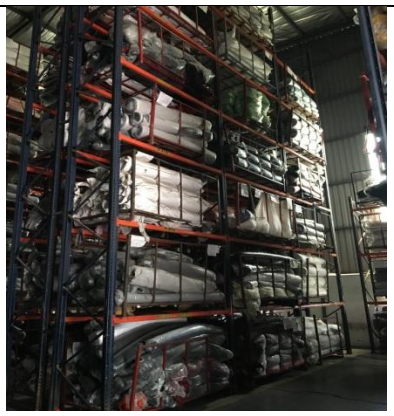
Figure 5.17 : No. of Garments Pressed/person/hr



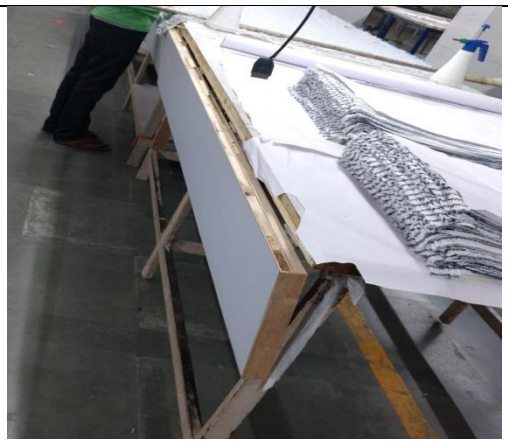
6.0 BEST PRACTICES

Some of the best practices observed in the units of NCR and Ludhiana are shown in the Fig.6.1

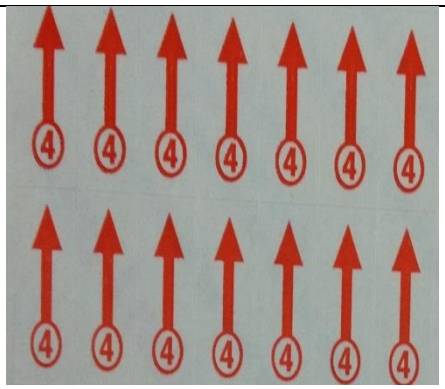


Innovative Fabric Storage System

Innovative Fabric Storage System



Foldable laying table



Fabric Defect Identification Flag

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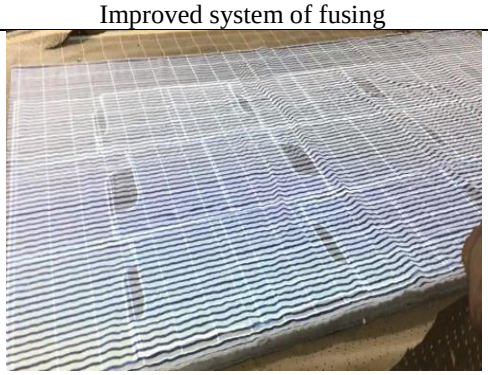
Improved system of fusing

Improvised Garment Inspection Table



Projector guided cutting

Schiffli Cutting Device

Figure 6.1: Some of the Best Work Practices

7.0 CONCLUSIONS:

In case of both NCR and Ludhiana, it was observed that there is a significant variation in productivity of various departments between different units. This can be attributed to several factors such as type of fabric used, style, operator skills and work practices. Amongst all these, use of different work practices was observed to be a major contributor causing variation in productivity.

Therefore, by improving/adopting better work practices, it is possible improve productivity of various operations in a garment unit.

8.0 ACKNOWLEDGMENT:

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9.0 BIBLIOGRAPHY:

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