CHAPTER 4

RESEARCH ANALYSIS AND FINDINGS
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4.1 DEMOGRAPHIC INFORMATION OF SAMPLES STUDIED:

4.1.1 Place Vs number of industries:

Out of 96 industries contacted, their location in MIDC area, Industrial Estate and Amravati City is as per given below in Figure 4.1.

- MIDC = 75 (78%)
- Industrial Estate = 15 (16%)
- Amravati City = 06 (06%)

4.1.2 Number of industries Vs Year of establishment:

Considering the history of establishment of the industries, it is observed that nearly 59 industries have been established before the year 1990. The details are as under as shown in Figure 4.2.

I. Year 1960 and before = 02 (02%)
II. During year 1970 and 1980 = 06 (06%)

95
III. During year 1980 and 1985 = 10 (10%)
IV. During year 1985 and 1990 = 43 (45%)
V. During year 1990 and 1995 = 20 (21%)
VI. After 1995 = 15 (16%)

4.1.3 Annual sales turnover Vs number of industries:

The annual sales turnover of the SSI units contacted for this research analysis gives the details as below:
(Figure 4.3)

I. Sales <10 lakhs = 15 (10%)
II. 10 lakhs < sales < 15 lakhs = 29 (30%)
III. 15 lakhs < sales < 25 lakhs = 21 (22%)
IV. 25 lakhs < sales < 50 lakhs = 24 (25%)
V. 50 lakhs < sales < 100 lakhs = 05 (05%)
VI. 100 lakhs < sales < 300 lakhs = 02 (02%)
4.1.4 Qualifications Vs number of respondents:

Out of 96 respondents, their qualifications appear to be as below: (Figure 4.4)

I. SSC / HSC = 28 (30%)
II. B.A. = 25 (26%)
III. B.COM = 20 (21%)
IV. B.SC. = 07 (07%)
V. L.L.B. = 01 (01%)
VI. B.E./DIPLOMA = 10 (10%)
IN ENGG.
VII. D.B.M/M.B.A. = 05 (05%)

![Bar chart showing qualifications versus number of respondents]

4.1.5 Years of exposure in industrial environment of respondents:

The respondents who have personal exposure to industries environment is shown in Figure 4.5:

I. More than 20 years = 15 (16%)
II. Between 15 and 20 years = 18 (19%)
III. Between 15 and 10 years = 28 (29%)
IV. Between 10 and 5 years = 20 (21%)
V. Less than 5 years = 15 (15%)
4.1.6 Raw materials purchasing from different locations:

The details of raw materials being purchased by entrepreneurs in Amravati area are given in Figure 4.6

I. Amravati City = 16 (18 %)
II. Amravati District = 14 (14 %)
III. Vidarbha Region = 15 (15 %)
IV. Maharashtra State = 28 (29 %)
V. All India = 22 (23 %)
VI. Foreign = 01 (01 %)

4.1.7 Time required for processing a product:

The total time required for processing a product being marketed by the entrepreneurs is shown in Figure 4.7 as below:

I. Time < 2 hours = 28 (29 %)
II. 2 hours < Time < 6 hours = 24 (25 %)
III. 6 hours < Time < 12 hours = 18 (19 %)
4.1.8 Different types of contracts engaged by industries:

Out of 96 industries, only 21 industries are at present engaged in different types of contracts. Their findings are shown in Figure 4.8 as below:

I. Rate contract  = 08 (38%)
II. Running contract = 11 (52%)
III. Service contracts = 02 (10%)
4.2 RESEARCH FINDINGS:

4.2.1 Discounts Vs quantity of purchases analysis:

Out of 96 entrepreneurs, only 31 of them give discounts to their customers. The various percentages of discounts are shown in Figure 4.9

- Purchases upto Rs. 50,000/- = 2% offered by 12 industries
- Purchases upto Rs. 1,00,000/- = 5% offered by 11 industries
- Purchases upto Rs. 5,00,000/- = 3% offered by 10 industries.

4.2.2 Sources of developing new suppliers:

Out of 96 entrepreneurs, only 34 have tried for developing various sources of suppliers. This observation is shown in figure 4.10 as below:

I. Trade Journals = 08 (24%)
II. Trade Directories = 08 (24%)
III. Exhibitions and fairs = 04 (13%)
IV. Telephone Directories = 10 (12%)
V. Suppliers catalogue = 01 (02%)
VI. Company's salesmen = 03 (08%)
4.2.3 Reasons of customer satisfaction:

The following most appropriate reasons of customer satisfaction as experienced by the SSI units in Amravati have been found: as shown in Figure 4.11.

| I.  | Orders well in advance | = 31 industries |
| II. | Price discounts        | = 31 industries |
| III.| Bulk orders            | = 20 industries |
| IV. | Timely payments        | = 16 industries |
| V.  | Proximity              | = 27 industries |
| VI. | Exact quantity         | = 33 industries |

4.2.4 Probable reasons of rejections:
Out of 96 industries, only 43 industries have been facing the problems of rejections. The probable reasons of rejections as experienced by the entrepreneurs are as shown in Figure 4.12:

I. Defective raw materials = 04 (09%)
II. Defective processing = 07 (06%)
III. Environmental factors = 09 (21%)
IV. Design considerations = 03 (07%)
V. Defective handling = 09 (21%)
VI. Bottlenecks in production = 05 (12%)
VII. Aging = 06 (14%)

4.2. Bottlenecks in production capacity utilization:

The industries in Amravati have been facing the very severe problem of utilizing the installed production capacity in their units. This research have identified the following bottlenecks in optimization of production capacity utilization as shown in Figure 4.13:

I. Technological obsolescence = 03 (03%)
II. Man-hours availability = 06 (06%)
III. Labor skills = 11 (12%)
IV. Machine capacity = 05 (05%)
V. Raw materials = 19 (20%)
VI. Unpredictable demand = 36 (38%)
Schedules
VII. Vendor constraints = 06 (06%)
VIII. Finance = 10 (10%)
4.2.6 Periodic reporting of items:

Out of 96 units, only 48 units have been maintaining regular recording of items in their records. This is shown in Figure 4.14.

I. Slow moving items = 12 (25%)
II. Damaged items = 16 (33%)
III. Obsolete items = 13 (26%)
IV. Over-stocked items = 07 (16%)

4.2.7 Periodic record maintenance:

Out of 96 industries, only 48 units are regularly maintaining records of scrap, bye-products and returnable products. The details are shown in Figure 4.15.
I. Scrap = 18 (38%)
II. Bye-products = 11 (23%)
III. Returnable stores = 19 (39%)

4.2.8 Recording of perpetual inventory stock maintenance:

Out of 96 industries, only 48 units have been recording the maintenance of perpetual inventory stocks regularly and from time to time. Their findings are shown in Figure 4.16:

I. Raw materials = 12 (25%)
II. Work-in-progress = 12 (25%)
III. Finished goods = 11 (23%)
IV. Stores = 13 (27%)
4.2.9 Period of stock of raw materials in stores:

Only 48 units have been regularly adopting the practices of maintaining records of raw materials in stores.

This is indicated by the Figure 4.17 as under:

I. Raw materials storage time (RMST) < 1 week = 20 (42%)
II. RMST < 2 weeks = 06 (12%)
III. RMST < 5 weeks = 04 (08%)
IV. RMST < 10 weeks = 11 (23%)
V. RMST < 15 weeks = 07 (15%)

4.2.10 Period of stock of work-in-progress:

The 48 industrialists who have been maintaining regular records of work-in-progress inventory are as shown in Figure 4.18 as below:

I. Work-in-progress (WIP) < 1 day = 19 (39%)
II. 1 day < WIP < 3 days = 11 (24%)
III. 3 days < WIP < 1 week = 06 (12%)
IV. 1 week < WIP < 2 weeks = 05 (10%)
V. 2 weeks < WIP < 3 weeks = 07 (15%)
4.2.11 Period of stock of finished goods inventory:

Total 48 units have regular stocks keeping practices of finished goods inventory in their stores. The details are as under as shown in Figure 4.19.

I. Finished goods (FG) < 12 hours = 13 (28%)
II. 12 hours < FG < 24 hours = 10 (20%)
III. 1 day < FG < 2 days = 07 (15%)
IV. 2 days < FG < 1 week = 02 (04%)
V. 1 week < FG < 2 weeks = 03 (06%)
VI. 2 weeks < FG < 3 weeks = 04 (08%)

4.3 JIT IMPLEMENTATION FINDINGS:

The industrialists in Amravati, even though do not know any theoretical methodology of just-in-time (JIT), but in actual practice, they are implementing JIT principles. The analysis related to this point reveals the
following information as detailed below.

(i) Nearly 30% of entrepreneurs are purchasing raw materials from Amravati city and district.
(ii) Nearly 28% of industries are processing the final product requiring processing time upto 24 hours.
(iii) Nearly 50% of SSI units are maintaining periodic reporting of items regularly.
(iv) Nearly 25% industrialists are maintaining records for damaged items, 26% maintains records of obsolete items and 16% are maintaining over – stocked items records.
(v) Nearly 38% of SSI units are maintaining records for scrap, 23% for bye-products, and 39% are maintaining records for returnable products.
(vi) Nearly 25% units in Amravati have been maintaining perpetual inventory records for raw materials, 25% for work-in-progress, and 23% have recorded finished goods records and nearly 27% have been keeping stores records in their stores.
(vii) Nearly 42% of industries have been implementing raw materials storage for less than 1 week, 12% industries are maintaining for less than 2 weeks, 8% of them maintain raw materials storage for less than 5 weeks, 25% of units contacted are maintaining raw materials storage for less than 10 weeks and only 15% of them are maintaining raw materials for more than 15 weeks duration of storage of raw materials in their stores.

4.4 T-TEST FOR CHECKING LEVEL OF SIGNIFICANCE:

In this research, ABC analysis of 40 A-class items is made and t-test for checking the level of significance at 5% level has been performed and its results are shown in Table.

This indicates that the presently widely used economic order quantity (EOQ) method of ordering of inventories is not significant.

Hence, alternative method of ordering of inventories is suggested to SSI units to improve their cost competitiveness, thereby, increasing productivity.
<table>
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<th>SR NO</th>
<th>OFA (ITEMS)</th>
<th>INDUSTRY NO</th>
<th>ITEM NO</th>
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<th>EOQ SIZE</th>
<th>ANNUAL DEMAND</th>
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<td>3.834</td>
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</table>
4.5 COMMON PROBLEMS FACED BY SSI UNITS:

1. Most of the entrepreneurs have not undergone any type of training pertaining to management and control of inventories.

2. It is found that most of the industrialists lack motivation. Hence, they should be motivated at the institute level.

3. They are not aware of the benefits of using computers in their day to day business activities.

4. At present no any software programs are used by SSI units in Amravati for regularly upkeeping inventory records.