CHAPTER 2

HYPOTHESIS

Indian Pharmaceutical Industry is facing Global Competition on various fronts, mainly due to Generic Market, Patent Laws, Stricter Regulatory Laws, Government Interventions, DPCO (Drugs Price Control Order), huge investments required to be done in facilities and R & D, meeting stakeholders demands, earning reasonable profits and finally sustaining and remaining competitive in the global space. This is a challenging task! Thus, Pharma Industry needs to focus on cost reduction as a strategy, continuously improving in each and every activity, processes and segments. It’s needless to say that each & every organization must be focusing on “Cost Reduction”. However, how much it is organized, who takes the full responsibility, how employees are motivated, what are the reward systems, what are management perceptions and employees’ perceptions towards the entire process, how the successes and failures are measured, are the questions being addressed under the research topic.

2.1 Objectives

1. The purpose of the study is to detect the relationship between tools, techniques used by the organization & cost reduction achieved.

2. To study the relationship between efforts of motivation put by the management & motivated employees.

3. To study the hidden factors affecting cost reduction.

4. To find out department wise, tools/ techniques (other than MATERIALS) used or preferred to use which lead to cost reduction.

2.2 Hypothesis

1. Use of tools and achievement of cost reduction are independent of each other.

2. Use of techniques & achievement of cost reduction are independent of each other.

3. Behavioral pattern of employees & efforts of motivation practiced by the management are independent of each other.
2.3 Reasons for selecting objectives and hypothesis:

The researcher of this thesis had his entire career of 38 years in ‘Pharmaceutical’ industry. Researcher was fortunate enough to get exposure of working for MNCs and Indian organizations too. The function of working at the initial stage of career was in ‘Production Planning’ department, later on in Purchasing, Materials Management, Supply Chain, Exports, Domestic Sales of Bulk Drugs and finally in Operations, including ‘Projects’. Researcher had good exposure to work at top management level. The issues at corporate level, challenges for sustainability for a long period, market complexities, and challenges for Materials Management, up-coming issues at national level and at global level could be experienced during the career. During the career, he could get an exposure to visit countries like US, Europe & China and visit many plants of MNCs, & could experience philosophy towards Quality, values and their culture.

Generally, in Pharmaceutical industry, marketing professionals do get credit for generating revenues and also incentives for achieving targets. However, in the same way, the other departments are not looked at by the management.

Most of the career of researcher has been spent in ‘Materials Management’ field & ‘Cost Reduction’ subject being very close to the heart, researcher was very inquisitive to know about the practices followed by the ‘Pharmaceutical’ industry in general as such, the initiatives taken, the various tools & techniques being followed to achieve the targets, the reflections of cost reduction achievement in performance appraisal, hidden factors (de-motivating), motivating factors etc. At initial stage of research, there was no working hypothesis was made, since an idea was to understand the facts being practiced. However, at the later part, after discussing with working professionals and with researcher’s personal experience hypothesis were formed. Lot of formal & informal discussions with working professionals, colleagues, students from the industry made a great significant difference in collecting data & information. The thesis was selected with a view to secure greater insight into practical aspects of the problem.

In today’s global competition, the most of ‘Pharmaceutical’ organizations have focused their strategy for growth and also in ‘Research & Development’. To invest in R&D, sufficient generation of profit margin is a must! In fierce competition, it will be really difficult to generate higher margins. All the Pharmaceutical products cannot give higher margins. Higher margins can
be generated only by few products, which are of ‘Proprietary’ nature &/or patented. In such a scenario, organizations required to focus on ‘Cost Reduction’.

At top level of management ‘cost reduction’ has become an important agenda. Today, organizations are trying to liquidate their inventories, controlling capital expenditure, tightening discounts, monitoring receivables, cutting down unnecessary costs. Yet, research done by ‘Ernst & Young’ indicates that only 30% have sustained their performance improvement, however 70% have failed to improve cost to revenue ratio. This implies lack of either approach or determined goals or defining success or failure for cost reduction, not assigning clear cut responsibility, demotivational factors, and failure to understand hidden factors for not achieving cost reduction, absence of culture etc.

In Pharmaceutical industry, ‘Materials Management’ is more preferred for cost reduction program, in a way right, rather than any other department. The simple reason being ‘Materials Management’ is considered as ‘Profit center’ and not ‘cost center’ as traditionally thought of.

Materials management can really do wonders in every segment and activity of flow of materials, right from product development to delivery of product to customer.

The following table will indicate money spent on ‘MATERIALS’ by the organizations. (Table No. 2.T1: Materials consumption in %: Source- Respective annual reports)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Organization</th>
<th>Year of data</th>
<th>Revenue Rs. Crs.</th>
<th>Materials Consumed Rs. Crs.</th>
<th>% of material to revenue</th>
<th>Traded materials purchased Rs Crs.</th>
<th>% of traded to revenue</th>
<th>Total % of total materials to revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>CIPLA</td>
<td>2013-14</td>
<td>10173.39</td>
<td>3376.22</td>
<td>33.18</td>
<td>562.86</td>
<td>5.53</td>
<td>38.71</td>
</tr>
<tr>
<td>2.</td>
<td>Glaxo Smith Kline</td>
<td>2014</td>
<td>2546.15</td>
<td>538.57</td>
<td>21.15</td>
<td>670.00</td>
<td>26.31</td>
<td>47.46</td>
</tr>
<tr>
<td>3.</td>
<td>Ipca</td>
<td>2013</td>
<td>3234.82</td>
<td>1097.51</td>
<td>33.92</td>
<td>90.49</td>
<td>2.79</td>
<td>36.71</td>
</tr>
</tbody>
</table>
The table clearly indicates the cost of materials to revenue in the range of 33% to 48%. Thus, ‘Materials Management’ has lot of scope to work with different tools & techniques in order to achieve cost reduction target. In the above table, two different columns are made, one for purchasing for consumption and other for traded items.

The Indian organizations’ are purchasing less % of traded items as compare to MNCs. This is mainly due to MNCs’ do not have sufficient facilities & infrastructure of their own and they are outsourcing. Thus, their traded items cost includes manufacturing cost also. That is why; MNCs’ cost of materials purchased for consumption is comparatively less than Indian organizations.

( Table No.2.T2- Revenues of selected Pharma Organizations in total & domestic market for the year 2014. Source: Business Standard 1000 annual & AIOCD market intelligence report 2014.)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Organization’s name</th>
<th>Total revenue for 2014 in Rs. Crs.</th>
<th>Only domestic revenue for 2014 in Rs. Crs.</th>
<th>% of domestic revenue to the total.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sun pharma</td>
<td>16,709.10</td>
<td>4426.00</td>
<td>26.49</td>
</tr>
<tr>
<td>2</td>
<td>Lupin</td>
<td>11,603.50</td>
<td>2716.00</td>
<td>23.41</td>
</tr>
<tr>
<td>3</td>
<td>CIPLA</td>
<td>10430.00</td>
<td>3902.00</td>
<td>37.41</td>
</tr>
<tr>
<td>4</td>
<td>Glenmark</td>
<td>6044.40</td>
<td>1764.00</td>
<td>29.18</td>
</tr>
<tr>
<td>5</td>
<td>Wockhardt</td>
<td>4845.90</td>
<td>964.00</td>
<td>19.89</td>
</tr>
<tr>
<td>6</td>
<td>Ipca Lab</td>
<td>3365.40</td>
<td>1413.00</td>
<td>41.99</td>
</tr>
<tr>
<td>7</td>
<td>Glaxo</td>
<td>2819.10</td>
<td>2752.00</td>
<td>97.62</td>
</tr>
<tr>
<td>8</td>
<td>Alembic</td>
<td>1907.10</td>
<td>1097.00</td>
<td>57.52</td>
</tr>
<tr>
<td>9</td>
<td>Unichem</td>
<td>1249.10</td>
<td>785.00</td>
<td>62.85</td>
</tr>
</tbody>
</table>
Activities of Materials Management.

Activities of ‘Materials Management’ in Pharmaceutical industry in general could be as follow-

1. Vendor’s search for a material. 8. Receiving & Warehousing
2. Cost control. 9. Operation
4. Strategic Sourcing 11. Distribution
5. Purchasing. 12. Transport/ Shipping
6. Inventory control 13. Disposition

(Table No. 2.T3: Tools which can be used for cost reduction against the activity.)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Activity</th>
<th>Cost reduction tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vendors search</td>
<td>• Vendor’s early involvement alternate materials, Change in specifications, lead time analysis</td>
</tr>
<tr>
<td>2</td>
<td>Vendor selection</td>
<td>• Negotiation, Credit improvisation, innovativeness, JIT, lead time analysis, import substitution, tendering, yield improvement</td>
</tr>
<tr>
<td>3</td>
<td>Purchasing/ Strategic sourcing</td>
<td>• Negotiation, credit improvisation inventory reduction, cost price</td>
</tr>
<tr>
<td></td>
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<tr>
<td>---</td>
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<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
<td>analysis, lead time analysis, outsourcing, wastage control, yield improvement, tendering, reverse auction, new vendors</td>
</tr>
<tr>
<td>4</td>
<td>Inventory control</td>
<td>• JIT, Pareto’s law, variety reduction, cause &amp; effect, inventory reduction, lead time analysis.</td>
</tr>
<tr>
<td>5</td>
<td>Receiving /Warehousing</td>
<td>• ERP, JIT, Inventory reduction, cutting storage space, variety reduction, cause &amp; effect, materials handling</td>
</tr>
<tr>
<td>6</td>
<td>Operations</td>
<td>• Control charts, cause &amp; effects, materials handling, yield improvement, value engineering, wastage control, packaging economics,</td>
</tr>
<tr>
<td>7</td>
<td>Packaging</td>
<td>• Packaging economics, cause &amp; effect, inventory control, wastage control, variety reduction, yield improvement.</td>
</tr>
<tr>
<td>8</td>
<td>Distribution/ Transport/ Shipment/ Inbound and outbound logistics</td>
<td>• Cost cutting in transport modes, ERP, Innovativeness, Lead time analysis, materials handling, negotiations, packaging economics,</td>
</tr>
<tr>
<td>9</td>
<td>Disposition</td>
<td>• Tendering increased scrap recovery.</td>
</tr>
<tr>
<td>10</td>
<td>Cost control</td>
<td>• Brainstorming, creativity,</td>
</tr>
</tbody>
</table>
innovativeness, cost cutting, kaizen, cause & effect, value engineering.

These tools used for ‘cost reduction’ are basically for one to carry out his profession. The tools used in appropriate manner can propagate ‘cost reduction’ for organization.

1. **Alternate Materials**- In Pharmaceutical, there is always a scope to use ‘alternate material’ without affecting product’s efficacy. This alternate material is comparatively cheaper and easily available.

2. **Brainstorming**- This tool can give an opportunity to develop many ideas for a problem faced by the organization. The ideas generated are required to be short-listed to check on its feasibility and commercial viability. This tool is very effective and can help in achieving cost reduction.

3. **Change in Specifications**- This is possible to apply, when specifications already given are either too high or are not required for requisite application. In which case, specifications are softened, special technology or extra purity is not required and thus, lead to cost reduction.

4. **Creativity** – This per se, cannot give or lead directly to cost reduction, the ideas generated can further lead to cost reduction. Creativity is discovery of something that is novel, but also useful, or relevant or economical or elegant or valuable.

5. **Credit improvisation**- This tool will be more effective if organization is enjoying good –will of vendors and reputation in the market. Vendors do not mind extending credit facility, provided they are pretty sure about business and integrity of the organization.

6. **Cost price analysis (CPA)** - This is a tool to the buyer. This tool will give complete insight of analysis of cost factors of a material, including labor cost and other indirect costs, with profit margin charged. Based on CPA, buyer can negotiate better price.

7. **Cost cutting –Transport modes**- Various transport modes are available. The total unit cost per unit requires to be brought down. This transport cost had connotations with inventory
carrying cost, hence buyer has to take into account total cost scenario and then decide the transport mode. A lot of saving can be done if appropriate exercise is done in details.

8. **Cost cutting in storage space**- Space is very expensive especially in urban areas. There is a cost of rent on an on-going basis, cost of construction, cost of storage system etc. Conserving space is important from the point of view of saving on storage costs. Proper selection of storage system, materials handling equipment, scientific layout would play crucial role in cost reduction.

9. **Cost cutting- application of ERP**- ERP delivers a comprehensive set of integrated, cross-functional business processes. Due to ERP, organization can align strategies and operations, improve productivity and insight, reduce costs through increased flexibility, cut down costs through reduced throughput & lead times.

10. **Import substitution**- This is one of the important tools for Pharma industry. Earlier days, lot of imports was done by the Pharma industry. Slowly, bulk drugs and intermediates were developed indigenously. These were cheaper than imported and thus, improvisation in quality gave an edge to the industry.

11. **Innovativeness**- Organization needs to develop culture for innovation. There is always risk of uncertainty in Innovativeness. Innovativeness is a process of developing creative ideas. These ideas should be workable, practical to use. Innovativeness can be technical or non-technical. Technical innovativeness is in product or in production process. Non-technical could be either in management process or in organization structure or in growth strategies or in styles of management. There are two distinct phases in innovativeness- first is design and second is implementation. The design phase is marked by divergent thinking or creativity or brainstorming or search for alternatives. In implementation stage in fact, large number of people are required to be motivated, planning is required, in short a managerial professionalism is required.

12. **Inventory control**- Different tools like, ABC analysis, 3D-MUSIC, FSN, XYZ are required to be used to bring down the inventory. Generally, inventory carrying cost in India is 25-30%. This cost is hidden cost but huge, if not controlled. Organizations controlling this cost have made a distinct difference in profit margins.
13. **Just-In-Time (JIT)**- In Pharma industry, JIT cannot be used blindly like auto industry, mainly due to regulatory. No material can be used without testing in house or by outsourcing. The materials consumed are for human consumption, thus required to be tested thoroughly prior to its use. However, certain packing materials where the testing period is as low as one or maximum two days, can be tried for JIT. For the success of JIT, suppliers’ networking is important. The inventory level can come down very drastically.

14. **Lead time analysis**- This will lead to inform where the time is getting lapsed. Administrative lead time can be tackled very fast and if there is more lead time taken by supplier or by transport, an appropriate measure can be taken.

15. **Inventory Reduction**- ROI for every business is important. Fixed Assets, one can do hardly anything. In current assets, in Indian Pharmaceutical industry, one can observe that almost 75-80% of money is blocked only in Inventories. Therefore inventory reduction is most paramount in increasing the profitability.

\[ \text{ROI} = \left( \frac{\text{Profit}}{\text{Sales}} \right) \times \left( \frac{\text{Sales}}{\text{Investments}} \right) \]

16. **Increased scrap recovery**- In Pharmaceutical industry, scrap is generated at packing point and/or at production stage of bulk drugs or intermediates. There is a scope to first find out the reasons of generation of scrap. Elimination or minimization can be one remedy. If one cannot escape, then action for selling the scrap to either manufacturer directly can bring in more money or by bidding to actual customer could be other solution.

17. **Materials handling**- the moment material is moved, one adds to its cost & not value. Thus fewer movements, scientific layout help in reduction of cost.

18. **New Vendors**- Organization needs to try out new vendors. No doubt, Quality will be prime factor. However, vendors with tax-holidays or having new technology could be given more preference.

19. **Outsourcing**- Pharma organizations are already in ‘outsourcing’. The reason is core activities are focused more by the organizations & non-core activities where expertise of other can be outsourced. It leads to cost reduction.
20. **Supplier Early involvement**- Suggestions from supplier, technology expertise of vendor can help organization in different perspective.

21. **Value engineering**- it is an application of identical technique to new products, new design &/or for developing new design at minimum cost. In VE, value of each part by part with the objective of achieving the required function with least cost is assessed.

22. **Wastage control**- Wastage at any point, any activity, needs to be identified and eliminated. Wastage in production area, in packing, in administration could be identified.

23. **Cause & Effect**- Ishikawa’s tool can be used for any problem in the organization and causes could be eliminated in order to get problem resolved.

24. **Control charts**- These are mainly used in production areas to check on variations in the process. Control charts can give significant idea of variations in processes. This can guide production manager how and where to control, in order to get quality products in acceptable range.

25. **Negotiations**- This is a process. A buyer who is experienced in the field can work out different strategies to gain maximum advantages.

26. **Packaging economics**- Rational packaging can give protection to the material at minimum cost. One needs to think various packaging materials available & the cost factors, along with transport or handling hazards.

27. **Reverse auction**- With the help of ‘IT’, organizations can now take the quotations on line of approved suppliers and keep competition ‘on’. Here, suppliers can see rates quoted, of course without the name of a supplier. Thus, competition is very transparent and buyers get benefits.

28. **Tendering**- This is another way to keep competition very fierce, and transparent. Tendering benefits to the buyer in a large way.

29. **Variety reduction**- Organization opts for standardization and reduces varieties. This helps in inventory control, in getting price discount due to large volume etc.
30. Yield improvement- Yield is major factor in Pharma industry. In production, in packing, lots of wastages do take place. Various tools like ‘cause & effect’, Pareto’s law etc. can give remarkable solutions.

31. Pareto Law- 80/20 rule if applied appropriately, reasons could be well focused, and remedial measures can be sought for. This can be applied in inventory control, purchasing, in operations as well.

32. Why? 5 times- To find out a simple solution for a problem, one can ask ‘WHY’ 5 times and one can get definite answer for the question. The statistical data indicates that asking 5 times why, gives an answer.

The techniques used for cost reduction are generally adopted with long term strategy, and organizations deploy these techniques throughout the organization, keeping in view changing the culture of organization, & achieve cost reduction, improve quality aspects, improve customer satisfaction at greater length.

1. TQM- For survival in world class competition, this is a best technique. Unfortunately, in India, no organization has instituted it seriously and organizations which initiated this are totally flopped. Some of Indian Pharma organizations have initiated this but used the technique for cost reduction purpose only, without understanding its importance of changing the culture. TQM forces top management to change the culture. If the culture is not changed, all results are superfluous. This has been viewed by US-FDA commissioner openly and has directed Indian Pharmaceutical Industry to change the culture.

2. TPM- TPM is hardware and part of TQM. TQM is considered as software. To get success in TPM, the TQM software needs to be addressed. If there is a lapse in implementing TQM, TPM cannot be successful. TPM addresses ‘Preventive’ and ‘Predictive’ maintenance of facilities, plant, machineries etc. For Pharma industry, this is very important area from ‘Good Manufacturing Practices’ point of view.

3. Six Sigma- Many Pharma organizations have initiated with six-sigma. The basic concept is reduction in variability. Smaller the value of deviations, greater is the Quality aspect. By
applying six-sigma, the process variations are reduced to a greater extent, assuring consistency in quality, resulting in better yield, almost nil rejection.

4. P-D-S-A. (Plan-do-Study-Act). This cycle helps in improving any process. In ‘Plan’ stage the reasons or causes are studied. Alternate solutions are found out. More feasible solution is selected. In ‘Do’ stage, selected solution is implemented. In ‘Study’ stage, variations, objections are studied and rechecked. Corrections are made & re-implemented. In ‘Act’ stage, thought process starts for further improvement & action for the same in next cycle.

5. KAIZEN- This is Japanese style of management. ‘5S’ or Muda-Mura-Muri, tools are used to eliminate wastes in the process. 5S is used to clean up everything in the office & maintain discipline. Small improvements are encouraged in KAIZEN. These improvements are accomplished at little or at no expense. This technique is mainly for changing mindset.

6. Benchmarking – This is to compare one’s organization process or activity with that of ‘Best in Class’ in the industry. Industry need not be the same. It could be different. This technique gives insight to compare with ‘Best’, an opportunity to learn & improve by comparing and achieve superior performance.

‘Cost reduction’ requires to be fully integrated into a company’s culture, strategies & operations. It is not one time process. It should become part of corporate DNA. Organization at this level do not see ‘Cost Reduction’ as reducing expenditures or in terms of increasing operating efficiencies but also in terms of doing the things in new ways, innovative, creative, imaginative ways and achieving significant competitive advantage. **Organization must have a ‘constructive discontent of everything’**.

However, for sustaining cost reduction, the program requires to be linked with individual’s performance or with team members’ performance and the cost owners are duly incentivized. If this is not done in a formal way, employees get de-motivated. Generally, young employees want to achieve something different and make a career. As time lapses, they get de-motivated due to umpteen number of reasons which become finally ‘Hidden Factors’ in the organization for not achieving cost reduction as it should be. Many things got revealed during data-collection;
however, informal discussions gave more insight on motivational and de-motivational factors. If organizations do take care on those accounts, organization will benefit in long term to achieve cost reduction, developing the culture and more over building reputation in the market.

On this background, hypotheses were made and the answers were sought for. From respondents’ views, the data was collected and was analyzed to check on validity of the hypotheses.

2.3 Region of Research

The geographical location for the study is MUMBAI city in the state of Maharashtra. Mumbai being capital of the state and also being commercial hub of many industries and moreover hub for major Pharma Companies was selected. Most of the top Pharma companies are having their registered offices as well as Materials/Commercial offices in Mumbai. The offices of IDMA (Indian Drugs Manufacturers Association) and OPPI (Organization Of Pharmaceutical Producers Of India) are situated in Mumbai. Even, the AIOCD (All India Origin Of Chemists & Druggists) representing mainly retailers, distributors, wholesalers of Pharma industry on all India basis is also located in Mumbai. The statistical information on Indian Pharma Industry, studied regularly by AIOCD’S sister concern AWACS Pvt. Ltd., a pharmaceutical market research company’s office is also located in Mumbai.

2.4 Research Design

The research conducted is of Descriptive & Analytical in nature. The objectives set for research study & the general hypothesis of the study was kept in focus while adopting research design in research methodology. The numbers of “Null hypothesis” were formed for the study are subjected to statistical method of testing. The objectives, general hypothesis and different null hypothesis become the center of research methodology in order to fulfill the purpose of the research.

2.5 Population & Sampling
In the domestic market of Indian Pharma, there are 27 top organizations, spread all over India, contributing to 73.75% of domestic sales. Out of these, 19 organizations are in MUMBAI, contributing to 50.50% of domestic sales. The population was of these 19 organizations. The sampling covered is of 14 organizations contributing more than 41% of domestic sales, amounting to Rs.34,030 crs. for the year 2014. The organizations covered under sampling are having their ‘Registered office’ &/or ‘Materials Mgt.’ office in Mumbai.

The sampling method incorporated is convenient sampling method. The conclusions of my research are based on the sampling (as mentioned above) and are reported at the later part of the thesis in the relevant chapters. An attempt was made to have a larger sample size but responses of ‘Proprietary’ type organizations (their confidentiality) played a major role in restricting to 14 numbers.

2.6 Collection of Data

The collection of data consists of both Primary & Secondary data. The Primary data was collected by mainly thru’ questionnaire and interviews conducted personally by me. Some data have also been collected from personal sources working in Pharma organizations. Prior to finalization of structured data, it was subjected to pilot testing. The suggestions and ease factor for responding were considered after discussing with senior officials from Pharma industry. It has been appropriately acknowledged. After eliminating all hurdles, the questionnaire was restructured. I could interact very openly & many times informally with many senior officials of Pharma industry (maintaining confidentiality). The discussions, interactions, opinions, experiences & concerns at both –management & employees levels, provided a better understanding in their feelings towards the subject of research. I had a privilege to interact even with junior executives from the Materials Management field.

The secondary data was collected from the following sources:

1. Annual reports of AIOCD/AWACS/IDMA/BUSINESS STANDARD

2. Annual reports of Pharmaceutical companies.
3. Books and journals relevant to the study conducted.

4. Published research reports.

The secondary data used is ensured that it is – reliable, suitable and adequate.

The structured questionnaire consisted of 38 questions set in 15 numbers of pages. There were sub questions & sub-sub questions. The multiple choices were provided to each and every question in order to facilitate response quickly without much of time wastage. Respondent could select an appropriate choice.

The structured questionnaire was designed covering different segments relevant to the research topic as follow:

Part A- Organization details. (Respondent’s Organization)

Part B – Cost Reduction. (Practices and approaches of the respondent.)

Part C- Services (Practices and approaches of the respondent)

Part D-Motivation (Practices, Perception of Management, Perception of employees)

Part E- Other departments (other than Materials Management) contributing to cost reduction. Specific comments of an interviewee on interactions, observations made etc.

The questionnaires were sent to CFO/Deputy Managing Director/ Head of Materials Department./ Head of Commercial department., depending upon the organization structure and the final responsible official of the organization for the function of Materials. All the respondents are professionals, highly qualified and having very rich experience in the pharmaceutical field.

In few cases I had a privilege to fill the questionnaire directly while interacting with the respondent and in few cases respondent had filled prior to our meeting for the interactions. There was not a single incomplete questionnaire. This was more of a “Personal Interview”, structured & with intensive investigations. The structured interview in the beginning stage was to gather more of a relevant & focused information and data. Whereas, at the end of questionnaire it was greater flexibility and freedom to the respondent to opine/express his views on cost reduction
methods, motivation to employees, culture of the organization, policies framed and ethics being followed.

2.7 Processing Data

The total numbers of 14 questionnaires were admitted for further analysis & interpretation. However, for removing few clerical type of mistakes, responded questionnaires were subjected to editing.

The edited questionnaires were recorded. The recorded data was subjected to classification. The data was classified on the basis of segment’s needs, related to the questions asked and the responses received for the different parts of questionnaire-part A, B,C,D and E. The observations made are recorded in the discussions separately.

**Part A----Organization Details**, such as name of the company, address, respondent’s name and designation, number of employees, different approvals sought by the organization etc.

**Part B----Cost reduction.** Tools and techniques used, responsibility, review methods, achievements, targets taken, importance of creativity and innovations.

**Part C--- Services.** Cost reduction in Services of the company (Indirect Materials).Practices, spent analysis, specific goals taken, methods used for procurement of services etc.

**Part D--- Motivation Part.** Motivation to employees, various methods, awards system etc., hidden factors for not getting motivated, reflections in performance appraisals etc.

**Part E--- Other departments , if any, how do they contribute?** The methods deployed etc. and specific comments of an interviewee made as observations after interacting with officials. Interactions were formal and many a times were informal.
2.8 Statistical Methods

The classified data was subjected to the statistical method of analysis. The statistical method was subjected to testing null hypothesis, chi-square test. The distribution of different classified areas are given in the technical analysis of the subject. The “strata” statistical package and computerized data processing were adopted for tabulation, analysis and interpretation of data. As per the set objectives, “three” null hypothesis were framed and tested for rejection. Level of significance used was 5%.

2.9 Methods of Reporting

The research reporting is in the form of a text, one way & two way tables, bar diagram, line diagram & pie diagrams, histograms, charts etc. for providing effective understanding.