CHAPTER 3
RESEARCH METHODOLOGY

3.1 Introduction:

The researcher made a list of all Small & Medium Scale Industries in & around Nashik and randomly started contacting them. While preparing the list of industries for survey, information were gathered from - Office of the Joint Director of Industries, Nashik Region (Government of Maharashtra), Nashik Industries & Manufacturer’s Association (NIMA), Ambad, Industries Manufacturer’s Association (AIMA), Laghu Udyag Bharti (Nashik Branch of MSME Industrial Association) etc. Researcher defined the research scope to Small to Medium Scale Industries in & around Nashik. Around 150 Small to Medium Scale Industries in different sectors were contacted. Out of them the data was finally collected from 102 Small to Medium Scale Industries because of certain limitations like questionnaire were not answered or not replied back in spite of reminders. Majority of the Small to Medium Scale Industries from where data was collected were from the Engineering sector. Majority of Small to Medium Scale Industries which were contacted by researchers were from MIDC (Maharashtra Industrial Development Corporation) Industrial areas of Satpur & Ambad as they were near Nashik city and easy to reach and travel to.

While formulating the subject of the thesis the researcher had many brainstorming sessions with the guide to decide first the title of the research. After days of thinking and discussing; the title of the project got fixed. Then further the direction was to go to next step of the objectives & hypothesis formulation. Based on the initial interactions with Small to Medium Scale Industries the objectives & hypothesis were formulated & then initial questionnaire was structured to carry out the pilot survey. The pilot survey played a guiding role in understanding the Supply Chain Management and Relationship Management practices of Small to Medium Scale Industries.

In-depth study of the subject was carried out with the help of books, national & international journals, websites, visiting the SME’s. Research papers were analyzed
and literature review was done. Further the survey questionnaire based on 108 questions including various parts of Supply Chain Management and Relationship Management parameters was prepared. The pilot survey of 25 Small to Medium Scale Industries was done.

Interviews were conducted & primary data was collected. The data was analyzed, findings were derived, and inferences were drawn. After the pilot survey, the review of questionnaire was taken and there was no need to redesign the same. Interviews again were conducted by personally meeting the respondents who were mostly the Owner, Managing Director or Department Heads of the Small to Medium Scale Industries. Experiences of Small to Medium Scale Industries were taken into consideration, their success stories, supply chain management practices, relationship management practices as well as the challenges they faced were studied, and observations were drawn. Researcher could manage to get live case studies which added more strength & a different facet to the study. Statistical qualitative & quantitative analysis of the data was done. The conclusion was by drawing findings, inferences & recommendations.

3.2 Research Objectives and Hypothesis formulated:

3.2.1 Objectives of the Study:

- **Objective1:** To Study the Influence of Relationship Management on Components of Supply Chain of Small and Medium Scale Industries in Nashik.

- **Objective2:** To Study the Influence of Relationship Management on Key Performance Indicators of Supply Chain of Small and Medium Scale Industries in Nashik.

- **Objective3:** To study the influence of Relationship Components on Supply Chain of Small and Medium Scale Industries in Nashik.

60
3.2.2 Statement of Hypotheses:

Hypothesis is the proposed assumption, explanation, supposition or solution to be proved or disapproved. It is considered as a main instrument in research. Hypothesis provides the focal point for research. Hypothesis is a principal instrument in this research which sets forth as an explanation for the occurrence of some specified phenomena to guide the investigation in the light of established facts. The working Hypothesis is laid down in order to test its logical consequences.

The need to establish good supply chain within organization and with external members should be based on good relationships amongst various parties involved, that is with suppliers, customers and within organization. This leads to the hypothesis

- **For Objective 1:**
  
  Hypothesis 1 (H1): Relationship Management Significantly Influences Components of Supply Chain of Small and Medium Scale Industries in Nashik

- **For Objective 2:**
  
  Hypothesis 2 (H2): Relationship Management Significantly Influences Key Performance Indicators of Supply Chain of Small and Medium Scale Industries in Nashik

- **Objective 3** is taken only for in-depth study purpose, in order to understand the extent of influence of particular relationship component on supply chain of Small and Medium Scale Industries in Nashik and hence hypothesis is not formulated for this objective.
3.3 Sampling Design:

A sample design is a definite plan for achieving a sample from a given population. It refers to the technique or the procedure the researcher would adopt in selecting items for the sample. Sample design may lay down the number of items to be included in the sample i.e. the sample size.

A convenience sample is a matter of taking what you can get. It is an accidental sample. Although selection may be unguided, it probably is not random, using the correct definition of everyone in the population having an equal chance of being selected. Researchers use convenience sampling not just because it is easy to use, but because it also has other research advantages. Convenience sample is usually used because it allows the researcher to obtain basic data and trends regarding his study without the complications of using a randomized sample.

The data collection was done by convenience sampling. The questionnaire was given to different Small and Medium Scale Industries in & around Nashik from various sectors and the data was collected by personal interviews in the form of written responses of the questionnaire.

The details of sampling design are as follows:

i) **Universe**: All Small and Medium Scale Industries in and around Nashik.

ii) **Sampling Frame**: List of Small and Medium Scale Industries in and around Nashik.

iii) **Sampling Unit**: Every Small and Medium Scale Industry in and around Nashik.

iv) **Sampling Method**: The respondents were selected by Convenience Sampling Method from Small and Medium Scale Industries in and around Nashik.

3.4 Area Covered:

The research covers the area in and around Nashik. Geographical areas covered are Nashik city, Industrial areas under Maharashtra Industries Development Corporation (MIDC) of Ambad, Satpur, Sinner, Gonde, Vadivarhe & Dindori.
3.5 Sample Size:

*Number of total Small & Medium Scale Industries = 1752
(* Source: National Informatics Center, Collectorate, Nashik)

5% of the total ‘Small & Medium Scale Industries’ will be the sample size

Hence 5% of 1752 is 87.6 which will be rounded to 90.

**Sample size = 90**

The actual Survey was conducted for samples of 102 Small and Medium Scale Industries in and around Nashik.

3.6 Research Methodology Design:

"An Analytical Study on Role of Relationship Management in Managing Supply Chain with special references to Small and Medium Scale Industries in Nashik”

Interacting with Small & Medium Scale Industries

Literature review

Formulation of objectives

Formulation of hypothesis

Formulation of questionnaire

Pilot survey

Interviews
3.7 Survey Done by Collecting Secondary & Primary Data:

3.7.1 Secondary Data Collection:

Secondary data was collected from various sources as follows:
1) Books and National and International journals from Libraries
2) Internet and various Web-sites
3) Literature Reviews
4) From National Informatics Center, Collectorate Nashik and Office of the Joint Director of Industries, Nashik Region (Government of Maharashtra)
5) From Directory & Mobile App. of Nashik Industries & Manufacturers' Association (NIMA) etc.

3.7.2 **Primary Data Collection:**

Primary data was collected from various sources as follows:
1) Pilot survey through initial questionnaire
2) Interviews
3) Observations
4) Again designing structural questionnaire including soft format
5) Releasing the questionnaire in the industries by taking interview
6) Taking expert opinion on the study
7) Frequent interaction and Discussion with the guide and deep study of the subject

3.7.3 **Design of Structured Questionnaire (Research Instrument):**

Salient features of Survey Questionnaire:

1) Total Response fields = **108**
   Therein, following is break-up of response fields
   a) 8 response fields are for information about participating industry
   b) 2 response fields are for information about customer of participating industry
   c) 2 response fields are for information about respondent of the survey
   d) 95 response fields are for questions to collect information to understand ‘Role of Relationship Management in Managing Supply Chain’
   e) 1 response field is for open ended comment or suggestion by the respondent on the research topic
2) The survey questionnaire is divided into 9 Parts as per information category as follows:

i) Part1: Introduction
ii) Part2: Design of Supply Chain
iii) Part3: Planning Demand and Supply in Supply Chain
iv) Part4: Planning and Managing Inventories in a Supply Chain
v) Part5: Sourcing in Supply Chain
vi) Part6: Transportation in Supply Chain
vii) Part7: Pricing & Revenue Management in Supply Chain
viii) Part8: Key Performance Indicators of Supply Chain
ix) Part9: Overall Influence of Relationship Management on Supply Chain

3) For questions from part2 to part9, the response scale is from 1 to 5.
   Response ‘1’ for ‘Least Influence’ to Response ‘5’ for ‘Most Influence’.
   Response ‘0’ for particular question means it is ‘Not Applicable’ to the responding organizational set-up

### 3.8 Data Analysis & Testing of Hypothesis:

All collected data from survey responses were tabulated systematically into a database, covering entire data fields of the survey questionnaire. This was done by writing all the key responses in a systematic order, as is done in a questionnaire designing. This forms a starting point for systematic data analysis. Then different responses were studied and analyzed for each question. The responses of questions were categorized in to groups and then analyzed systematically correlating with the objectives and the hypotheses. For the analysis and interpretation of data following tools and methods are used: Coding, tabulation, classification, bar & column charts, line charts, pie charts, percentages and average.

Following is the brief information of the tools used for analysis:
1) **Bar & Column chart:** It displays series as set of vertical or horizontal bars. The plain bar chart is closely related to the column chart, which displays series as sets of vertical bars. Bar and column charts are most commonly used to show comparisons between groups. It is popular for showing categorical information.

2) **Line chart:** In line charts, the vertical axis (Y-axis) always displays numeric values or frequency or percentage etc. and the horizontal axis (X-axis) displays other category for which the measurement is done. Line chart is also effective in displaying trends.

3) **Pie Chart:** It is a circular statistical graphic which is divided into slices to illustrate numerical proportion. In a pie chart, the arc length of each slice and consequently its central angle and area, is proportional to the quantity it represents. Pie charts are very widely used in the business world.

### 3.9 Scope of the Study:

1) The scope of the study is restricted to the topic entitled “An Analytical Study on Role of Relationship Management in Managing Supply Chain with special references to Small and Medium Scale Industries in Nashik”

2) The research was conducted in and around Nashik therefore the scope of the study, findings, conclusions & recommendations of the study are restricted to Small and Medium Scale Industries in and around Nashik.

3) The research study is conducted with reference o Small & Medium Scale industries only. Large scale or Micro enterprises are not part of research study.

4) The researcher has selected only one person from each sample of Small and Medium Scale Industry as a representative to respond to the survey questionnaire.

5) The study is limited only to selected components of supply chain.

6) The study is limited only to selected relationship components for its influence in managing supply chain.
7) The study is limited to Influence of relationship management on selected Key Performance Indicators of Supply Chain

3.10 Limitations of the Study:

1) The research findings as based on present business environment including social and economic situations. Hence the research findings may vary if business environment has major changes.

2) For particular Small or Medium Scale Industry, the research findings may not apply, due to possible different business practices followed and/or business situation specific to respective organization or business unit.

3) Sometimes because of business confidentiality, sensitivity of research topic or other issues, some respondent might not have disclosed the real information. The conclusions are based upon the information provided by the respondents.

4) Some other limitations includes non-cooperation in providing required information and giving biased or misleading information and even refusal of some respondents to participate in the study. Even though researcher has taken utmost care in collecting the genuine data required for the research but he might have fall short somewhere due to lack of expertise in conducting such researches.

5) Hence, specific research area, limited sample size, limited time & selected participants and secrecy are the major limitations of this study.
References:


Websites:

1. http://nashik.nic.in (National Informatics Centre, Collector office, Nashik.)
3. http://nimanashik.in (Nashik Industries Manufacturer’s Association)