CHAPTER-3 RESEARCH METHODOLOGY

3.1 Introduction

Research in common parlance refers to a search for knowledge. One can also define Research a scientific and systematic search for pertinent information on specific topic. P.M. Cook: “Research is an honest, exhaustive, intelligent searching for facts and their meanings or implications with reference to given problem. It is the process of arriving at dependable solutions to problems through planned and systematic collection, analysis and interpretation of data.” The present study focuses on the financial performance of selected Sugar manufacturing industrial units of Gujarat for the period 2002-03 to 2012-13 with the help of Ratio Analysis, Analysis of Variance (ANOVA) and Trend Analysis. This chapter deals with the stepwise procedure followed in order to carry out the present research work.

3.2 Research Statement:


3.3 About the research problem

The present study focuses on financial analysis of selected sugar manufacturing Industrial units of Gujarat for the period 2002-03 to 2012-13. For carrying out this Study, the financial data reported by company have been used and from such data, various ratios have been worked out for the selected units as well as the Sugar Industry of Gujarat in general, one of the major factors affecting the functioning of an industrial unit is the size of that unit. So far as financial analysis is concerned, one of the most important parameters of judging the size of an industrial unit is the net worth of that unit. Obviously the net worth may vary from year to year. Therefore it is bound to lead to variation in the functioning, including the financial performance of that unit. Therefore, when certain ratios are considered for judging the financial performance of the unit such ratios must be used along with the net worth of that unit at that given
point of time, particularly when the financial performance is to be studied over the years together. Considering this aspect, in the present study I have tried to innovate in analyzing the ratios by combining them with the net worth, at respective point of time and working out composite ratios for 11 years duration for the companies. Then such composite ratios have been used in carrying out trend analysis and comparative analysis through various tests of hypothesis.

3.4 Research Design

William C. Emory in his book “Business Research Methods” define research as “Any organized inquiry designed and carried out to provide information for solving Problems”. A research design is the specification of methods and procedure for acquiring the information needed. It is the overall operation pattern or framework of the project that information is to be collected from which sources and by what Procedure.

A research design is a plan of action to be carried out in connection with a research project. It is the conceptual structure within which research is conducted and it constitutes the blue print for the collection, measurement and analysis of data. Kerlinger (1986) “A research design is a plan, structure and strategy of investigation so conceived as to obtain answers to research questions or problems. The plan is a complete scheme or program of the research. It includes an outline of what the investigator will do from writing the hypothesis and their operational implications to the final analysis of data.”

The present study entitled “A Study of Financial Performance of Sugar Industry of Gujarat State during 2002 to 2013” is a descriptive, conclusion oriented and Hypothesis testing type of research study here the researcher has tried to analyze the Financial performance of the selected Sugar manufacturing units of Gujarat with the help of liquidity, profitability, Efficiency and Leverage/solvency ratios.
3.5 Objectives of the study
The main objectives of the present study “Financial analysis of selected Sugar Manufacturing Industrial Units of Gujarat for the period 2002-03 to 2012-13” are as follows:

- To analyze and evaluate the financial performance of selected companies in particular and the Sugar industry in general.
- To study overall financial health of selected sugar manufacturing companies and sugar industry.
- To study the pattern of growth and development of Sugar industry in Gujarat.
- To make suggestions/comments about the functioning and development of Sugar industry in Gujarat.

3.6 Hypothesis
The formulation of hypothesis or proposition as to the possible answers to the Research questions are an important step in the process of formulation of the research problem. Hypothesis is usually considered as the principal instrument in research. Its main function is to suggest new experiment and observations. Keen observation, creative thinking, imagination, vision, insight and sound judgment are of great importance in setting up reasonable hypotheses. A thorough knowledge about the phenomenon and related fields is of great value in its process. The formulation of hypothesis plays an important part in the growth of knowledge in every science. The hypothesis is formulated to facilitate the findings of the research study.

Null Hypothesis:
H0: There is no significant difference in financial performance of selected Sugar Industrial units of Gujarat State.

Alternative Hypothesis:
H1: There is a significant difference in financial performance of selected Sugar Industrial units of Gujarat State.
3.7 Nature and Sources of data
The present study is mainly based on secondary data that have already been published in annual reports of the companies. These data has been collected from annual reports of the selected companies. Further information has been collected from bulletin, annual survey of industries reports of Gujarat State Sugar Manufacturing Association, reports of All India Sugar Manufacturers Association, reports of Gujarat Sugar federation, libraries of various Institutions, various magazines, journals, research publications, consultants’ reports and search engines like Sugar Manu .com etc.

3.8 Period of Study
The present study covers the period of eleven (11) years spanning from the year 2002-03 to 2012-13. The period of eleven years is sufficient to infer the results. The complete data of eleven years is available, so I have selected this period of time.

3.9 Sample design
A sample design is a definite plan for obtaining 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 is determined before data are collected. There are many sample designs like random sampling, stratified random sampling, systematic sampling, cluster sampling, two-stage sampling, purposive sampling etc from which I have used Population sample for the present study. As in this study the members or units in population is smaller so all working member selected as a sample.

3.10 Type of universe (Population)
For the present study all the Sugar manufacturing (Co-operative Factories) Industrial units of Gujarat region, which are listed in the Gujarat State co-operative Sugar Federation, are the members of the population. There were total 25member companies (Co-operative) in the GSSFG. Out of them six belonging to heavy Crushing capacity, four belonging in medium range, and 9 falling under small units out of 25 units only 17 units are working under various capacity.

3.11 Sampling units and sample size
Out of 25 registered numbers of units, I have selected 17 units in a sample on the basis of Share capital, annual turnover, installed capacity, total number of workers and the
date of incorporation of the company; I have classified all the units of population on
the basis of size of the company, age of the company and area of the company.
Following table shows the details of the selected Companies on the basis as crushing
Capacity per day and Net Worth (in lakh Rs.)

Table: 3.11.1

Primary Information about the selected Sugar Factories fall under heavy
crushing capacity is as follows:

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Name of Sugar industry.</th>
<th>Crushing Capacity tons/per day</th>
<th>Net worth (in lakh Rs.) (2012-13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bardoli</td>
<td>10,000</td>
<td>405</td>
</tr>
<tr>
<td>2</td>
<td>Madhi</td>
<td>7000</td>
<td>935</td>
</tr>
<tr>
<td>3</td>
<td>Gandevi</td>
<td>5000</td>
<td>465</td>
</tr>
<tr>
<td>4</td>
<td>Chalthan</td>
<td>5000</td>
<td>140</td>
</tr>
<tr>
<td>5</td>
<td>Valsad</td>
<td>5000</td>
<td>490</td>
</tr>
<tr>
<td>6</td>
<td>Sayan</td>
<td>5000</td>
<td>320</td>
</tr>
</tbody>
</table>

(Source: Annual report 2013)

Table: 3.11.2

Primary Information about the selected Sugar Factories fall under Medium
Range crushing capacity is as follows:

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Name of Sugar industry.</th>
<th>Crushing Capacity tons/per day</th>
<th>Paid up Capital (in lakh Rs.) (2012-13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mahuva</td>
<td>3500</td>
<td>685</td>
</tr>
<tr>
<td>2</td>
<td>Ganesh</td>
<td>4000</td>
<td>513</td>
</tr>
<tr>
<td>3</td>
<td>Pandvai</td>
<td>4200</td>
<td>1480</td>
</tr>
<tr>
<td>4</td>
<td>Kodinar</td>
<td>3250</td>
<td>990</td>
</tr>
</tbody>
</table>

(Source: Annual report 2013)
Table: 3.11. 3

Primary Information about the selected Sugar Factories fall under Small Range crushing capacity is as follows:

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Name of Sugar industry</th>
<th>Crushing Capacity tons/per day</th>
<th>Paid up Capital (in lakh Rs.)(2012-13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Maroli</td>
<td>2500</td>
<td>1075</td>
</tr>
<tr>
<td>2</td>
<td>Ukai</td>
<td>2500</td>
<td>2350</td>
</tr>
<tr>
<td>3</td>
<td>Kamrej</td>
<td>2500</td>
<td>750</td>
</tr>
<tr>
<td>4</td>
<td>Kopar</td>
<td>2500</td>
<td>1920</td>
</tr>
<tr>
<td>5</td>
<td>Narmada</td>
<td>2500</td>
<td>1968</td>
</tr>
<tr>
<td>6</td>
<td>Vadodara</td>
<td>2500</td>
<td>2935</td>
</tr>
<tr>
<td>7</td>
<td>Talala</td>
<td>1650</td>
<td>2290</td>
</tr>
</tbody>
</table>

(Source: Annual report 2013)

3.12 Sampling procedure

So there is out of 25 units in Gujarat State 8 were not in working condition. For the Financial Analysis of Gujarat Sugar Industry Selected only 17 Working Units of Gujarat State categorized than on crushing capacities, there is no need of use of Sampling Procedure.

3.13 Tools and technique

For the purpose of financial analysis of the Sugar industry of Gujarat following Accounting and statistical tools and techniques are used.

(I) Accounting Technique:
   1. Ratio analysis

(II) Statistical technique:
   1. Average (Mean X)
   2. Analysis of Variance (ANOVA)
   3. Trend Analysis
3.14 Tabulation, Classification, Graphical Representation of Data

For the purpose of analysis, various types of Graphical presentation, the data are classified according to the variables and the different types of tables are used as per the requirement for the present study.

3.15 Scope of the study

The study is mainly intended to concentrate on the issues relating to the financial Performance of selected units. Financial ratios like Current Ratios, Debt-Equity Ratios, Operating Profit Margin Ratios, Gross Profit Margin Ratios, Net Profit Margin, Return on Capital Employed, Interest Cover Ratios, Fixed Assets Turnover Ratios and Expenses to Sales Ratio have been covered under the present study. From every research study in the field of commerce some benefits in some way are derived by certain segments of an industry and the Indian economy in general. This study can also be beneficial to the government, Sugar Manufacturing Association of India, Gujarat state Sugar manufacturing association of Gujarat, state industrial policy makers, Government decision making authority, aspiring entrepreneurs, students and teachers of commerce and management and researchers etc. This study Will serve the following objectives

- One will have an overview of Sugar industry of Gujarat.
- It will throw light on various aspects relating to financial performance of Sugar industry of Gujarat.
- It will help in judging the overall financial health of selected Sugar manufacturing units and Sugar industry.
- It will help in studying the pattern of growth and development of Sugar manufacturing in Gujarat.
- It studies the trend of Sugar industry in Gujarat.
3.16 Limitations of the study
The limitations of the present study are as follows:

1. The study is primarily based on a Gujarat Sugar industry only. Therefore, it will have all the limitations normally associated with such studies based on sample information.

2. The sample includes only Co operative Sugar Factories listed on Gujarat State Co op Federation, Gandhinagar. As the study is based on the secondary data taken from Published annual reports, the conclusion of the study depends on the accuracy of such data reported by respective companies.

3. As the study has been carried out for a period of eleven years only i.e. Financial years 2002-03 to 2012-13 and for the sugar industry only, for the study with other similar studies, the factor affecting the respective industry and Indian economy during the respective period must be taken into consideration.

3.17 Chapter planning
All the efforts in collection of data and its analysis are ultimately shown in the form of report, so writing a report is a very important part of any project. Moreover the way of the reports writing enhances the quality of work and conveys the message. Present study has been broadly divided into following nine chapters.

CHAPTER-I: Introduction
CHAPTER-II: Literature Review
CHAPTER-III: Research Methodology
CHAPTER-IV: Introduction of the selected Sugar Industry
CHAPTER-V: Ratio Analysis
CHAPTER-VII: Analysis of Variance (ANOVA) Company-wise
CHAPTER-VIII: Analysis of Variance (ANOVA) Year-wise
CHAPTER-VI: Trend Analysis
CHAPTER –IX: Conclusions and Suggestions