CHAPTER – 4

RESEARCH METHODOLOGY

This chapter illustrates the design of the research been carried out. This explains the conceptual model of the research study followed by the data sources and collection methods. This chapter also brings out the population, sampling size and procedure followed in this research. Also it provides the details of questionnaire development, profile of the respondents’, validity, reliability of the questionnaire and the statistical tools for analyzing the data.

4.1 Research Design

This research has three major research phases:

Phase I - Literature study.

Phase II - Pilot study on corporate social responsibility of 5 large industries of Pune Area.

Phase III - Main study of corporate social responsibility of 35 large industries of Pune Area.

The First phase of the research was done to have a thorough understanding of the concept and focuses on the review of literature done through internet downloads, library materials extraction through books and journals on the subject of corporate social responsibility in terms of evaluation studies, citation reviews. The corporate social responsibility concepts were learnt in depth and finally its practices on large industries were studied. The survey of literature includes national & international relevance. This
enlightens to the research purpose, objectives & hypotheses finalization after refinement.

The Second phase of the research concentrated on the pilot study on 5 large industries to study the practice of Corporate Social Responsibility Efforts and activities in Pune Area which was analyzed to understand the relevance of the topic chosen and further scope of continuing this research as a main study in an effective manner. Pilot Study was done by making a reliability analysis through Cronbach’s Alpha and & validity analysis through face validity.

Figure 4.1 : Research Phases

The Third phase illustrates the main study of this research on studying the CSR efforts and activities practiced in 35 Large Enterprises of Pune region which was again verified
through Cronbach’s Alpha reliability and validity analysis through construct & content validity.

Table 4.1: Research Design

<table>
<thead>
<tr>
<th>Research Design</th>
<th>Research Methodology</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Type</td>
<td>Descriptive Research – Survey Method</td>
<td>A survey is made of at least a sample (or full population in the case of a census), a method of data collection (e.g., a questionnaire) and individual questions or items that become data that can be analyzed statistically. With a representative sample, that is, one that is representative of the larger population of interest, one can describe the attitudes of the population from which the sample was drawn. It allows one to generalize the findings from the sample to the population, which is the whole purpose of survey research.</td>
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<tr>
<td>Nature of Study</td>
<td>Quantitative approach</td>
<td>Systematic empirical investigation of social phenomena via statistical, mathematical or numerical data or computational techniques.</td>
</tr>
<tr>
<td>Data Collection Method</td>
<td>Primary Data</td>
<td>Questionnaire Based</td>
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<tr>
<td></td>
<td>Secondary Data</td>
<td>Books, Magazine, Journals, Published Report Articles &amp; Manuals, Company websites</td>
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<tr>
<td>Measurement Technique</td>
<td>Questionnaire Design</td>
<td>Part A – Organizational Efforts on Society benefits</td>
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<td></td>
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<td>Part B – Organizational Efforts on work culture and employee motivation</td>
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<tr>
<td></td>
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<td>Part C – Organizational efforts for building corporate strategies towards environmental protection</td>
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<td></td>
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<td>Part D – Organizational efforts for the Competitive Advantage towards sustainability</td>
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<td></td>
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<td>Part E – CSR methods as per the Company act</td>
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<tr>
<td>Sampling</td>
<td>Population</td>
<td>53 organizations with an average of 10 departments (530 approx respondents)</td>
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<tr>
<td></td>
<td>Sample Size</td>
<td>35 large industries with 352 respondents approximately</td>
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<td></td>
<td>Sampling Procedure</td>
<td>Simple Random Sampling</td>
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<tr>
<td>Data Analysis</td>
<td>Software Package</td>
<td>Statistical Package for Social Sciences (SPSS) version 18</td>
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</table>
This study posed seven problem statements and 4 hypotheses. A descriptive research design was used to answer the research questions and test the hypothesis. The Research was carried out from framing the objectives, by setting and testing the hypotheses to bring out appropriate finding of large manufacturing industries. The independent and dependent variables were identified. Primary Data was collected from the respective target respondents. Questionnaire based survey, interviews and secondary data sources were taken. The data were analyzed using Statistical Package for Social Sciences (SPSS) tool to get the statistical results. Next the interpretations of the research results were done and the hypothesis were either accepted or rejected. Based on which the findings and interpretations were indicated and implications were given to the large industries of Pune region of Maharashtra.

4.2 Conceptual Model of the Research

The Conceptual model was developed based on the various CSR models given by various researchers’ that has been listed and described in Chapter 2.2. The researcher has made an extensive review of literature to develop a conceptual model. The review was to understand the different CSR activities and methodologies of large enterprises of Pune Area and the level of practices they adopt. These dimensions that could be linked to frame a model especially with Indian context that helped to identify four dependent variables - society benefits, corporate strategies, work culture and competitive advantage of the organization with the independent variable being CSR efforts.
Figure 4.2: Conceptual Model of the Research Study

Table 4.2: Variables of the Research Study

<table>
<thead>
<tr>
<th>Variables</th>
<th>Description</th>
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<tbody>
<tr>
<td>CSR Activities (Independent)</td>
<td>Corporate Social Responsibility initiatives and activities to be followed as per the Company Act.</td>
</tr>
<tr>
<td>Society Benefits (Dependent)</td>
<td>Benefits and the support that the society get from the efforts of Large Organization</td>
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<tr>
<td>Work Culture &amp; Employee Motivation (Dependent)</td>
<td>Organizational efforts taken for better Work culture and Employee Motivation of the large organizations</td>
</tr>
<tr>
<td>Corporate Strategies towards Environmental Protection (Dependent)</td>
<td>Set of corporate strategies that are followed by the large organizations towards building environmental protection.</td>
</tr>
<tr>
<td>Competitive advantage for sustainability (Dependent)</td>
<td>Measures taken by the Large organizations to keep them always a step ahead of the competitors and</td>
</tr>
</tbody>
</table>
4.3 Sources of Data Collection

For this research study the data was collected through primary source and secondary source which are explained below:

4.3.1 Primary Sources

The primary data was collected through a structured and pilot-tested questionnaire for corporate training with sample of 352 respondents from Large Manufacturing Industries of Pune. The information has been collected directly from the departmental heads of these organizations. Instrument used being Questionnaire method.

*Questionnaire Method*: In this research study, the information has been collected through the ‘Questionnaire based survey method’. Prior appointments were taken from the various departmental heads of the large organizations in the area. Hard copies of questionnaires were circulated to the concerned authorities through emails and in person. Few organizations could give filled questionnaire immediately but in a few companies the respondents did not respond and kept the questionnaire with them. Few respondents mailed the questionnaire or scanned a copy of the hard questionnaire and sent it to the researcher.

4.3.2 Secondary Sources

The Sources of secondary information were collected from the following:

a) Annual reports, working papers, Journals, Books and Magazines.
b) Date related previous research work and publications.c) Company website contents

d) Maratha Chamber of Commerce Industries & Agriculture (MCCIA) data on large organizations of Pune region of Maharashtra.
e) Govt. of India policies, acts and guidelines
4.4 Target Respondents

The source of data related to the population were taken from Industrial Directory of Pune through Mahratta Chamber of Commerce, Industries and Agriculture (MCCIA) which is a premier industry association with over 2500 members from different sectors like Automotive and Auto Ancillaries, Electronics, Agribusiness, Information Technology, Bio-Technology, Environmental Technologies, Chemicals, etc. It has been catalyst for economic development of Pune and has continuously strived to make Pune a global business destination.

There are 53 large organizations of various sectors of Pune Region which are registered under Maharatta Chambers of Commerce Industries and Agriculture (MCCIA), Pune chapter are considered for the research study. List of the organizations considered for study has been provided in the Annexure –B.

4.5 Sample Size

a. Criteria for the selection of Sample:

This research targets only large organizations of varied sectors of Pune region of Maharashtra. Totally there are 53 large organizations registered under MCCIA. Out of these, 35 organizations have been chosen as a sample based on the following criteria:

1. The enterprises engaged in the manufacture or production of goods pertaining to any industry specified in the first schedule to the industries (Development and regulation) Act, 1951). The Manufacturing Enterprise is defined in terms of investment in Plant & Machinery.

2. Investment in plant & machinery which is more than 10 crores which comes under MIDC area of Pune region.
3. Such companies which are registered under MCCIA (Mahratta Chamber of Commerce and Industries Association).

b. Justification of the sample size

For any social science research the justification of sample size is important. One of the objectives of research is to collect sample with an appropriate sample size that will represent the population. The target is to get data questionnaire filled from various departmental heads of the large organizations of Pune. Out of 53 large organizations, in an average of having 10 departments in each organization, then the total population is 530 approximately. Out of which, the researcher has contacted 35 organizations based on simple random sampling and 352 questionnaires got filled from the various departmental heads.

Table 4.3 – Sample determination size from a given population

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<td>90</td>
<td>73</td>
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<td>95</td>
<td>78</td>
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</table>

According to Kerjcie and Morgan (1970) as given in table no 4.3 for determining the sample size for categorical types of data which shows size of the population and amount of error that determines the size of a randomly selected sample. Hence for the population of 530 respondents, around 220 responses are to be considered for the study. Still the researcher has considered 352 responses which gave an overall response rate of 64% of large firms and is a good sample to perform the research study. Some of the questionnaires were received back because the organizations did not show much of interest in responding for the survey. Also other questionnaires were incomplete or inadequate to be included in the survey hence discarded.

4.6 Sampling Procedure

Out of the 53 companies from the large organizations of Pune area having an average of 10 departments, approximately 530 respondents were to be contacted. Out of which 35 organizations hence 352 respondents were selected based on simple random sampling. Thus simple random sampling technique was used for the selection of the respondents. The list of companies considered for study has been represented in Annexure-B. The researcher has personally visited the 35 companies and the data was collected through questionnaire methods. The researcher had to conduct short seminar sessions to explain the pattern of questions in the questionnaire, the significance of undergoing research study and its usage to the organizations.

4.7 Questionnaire Design

The purpose of this research is to study CSR activities and approaches as mentioned in the company bill and its impact that are followed in large organizations. The questionnaire was framed keeping this in mind by taking the opinions of industry experts, academicians and researchers in order to fulfill the purpose of the research

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study. Before formulating the research questions, various sources of materials regarding
the subject were examined and subsequently the research questions are introduced.

4.7.1 Preparation of Questionnaire

The questionnaire was framed in the following parts.

PART A – Organizational efforts for the Society benefits
PART B - Organizational efforts for better Work Culture and Employee Motivation
PART C - Organizational efforts for building Corporate Strategies towards Environmental Protection
PART D - Organizational efforts for the Competitive Advantage towards Sustainability
PART E - CSR Activities and Programmes as per company bill.

Part A- The focus of these questions is to understand measures the company takes to
provide benefits to the society.

PART B- The focus of these questions is to understand measures the company takes to
create better work culture and employee motivation.

PART C - The focus of these questions is to understand measures the company to form
new strategies to benefit towards environmental protection.

PART D - The focus of these questions is to understand measures the company takes to
take the organization one step ahead of the competitors towards sustainability.

PART E - The focus of these questions is to understand measures the company takes to
provide CSR activities as per the company bill.

4.7.2 Validity of the questionnaire

The questionnaire was provided to three industrialists and three academicians to get the
content and context of the questionnaire checked with then and to validate it to fulfill
the purpose of the study.
a. **Content Validity** - An instrument has content validity if it has measurement items that adequately cover the content domains or aspects of the concept being measured (Ahire et al., 1996\(^{126}\)). It is not assessed numerically, but can only be subjectively judged by the researchers (Saraph et al., 1989\(^{127}\); Gotzamani and Tsotras, 2001\(^{128}\)). Refers to the extent to which the content of items represents the entire body of content to be measured. The instrument used in this study has been framed after careful and extensive review of the relevant literature. The questionnaire is validated with the experts for their opinion and consultation so as to remove some of the variables which were not fit in corporate social responsibility parameters according to the specialist in the field of management.

b. **Construct Validity** - Construct Validity is used to ensure that the measure is actually measure what it is intended to measure (i.e. the construct), and not other variables. First of all, Field work was done at different sites before starting data collection. Websites of various companies were studied to understand the level of CSR activities and the methods. With the work procedures from the company got a better understanding of which data sources to select and which questions to be further included in questionnaire. It was important to do this test because the study was done to understand the various CSR practices of firms who differ in the level of adoption of the CSR approaches.

### 4.7.3 Pilot Study

A pilot study was conducted by taking random 5 organizations and 50 respondent data to understand whether the research is feasible to be carried out and if it is being conducted in right direction and focus. Pilot study was done to test all types of ever changing conditions and to check the responses throughout on all departments of large

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organizations of Pune could give an insight of proceeding this study and further suggestions on the questionnaire. Based on this study, the revised and final questionnaire and other related instrument was designed.

4.7.4 Reliability Analysis - Pilot Study

The degree of consistency between two measures of the same thing. (Mehrens and Lehman, 1987\textsuperscript{129}). The measure of how stable, dependable, trustworthy, and consistent a test is in measuring the same thing each time (Worthen et al., 1993\textsuperscript{130}). The Cronbach alpha coefficient was used to estimate the internal consistency and reliability of a measure. A generally agreed lower limit of the Cronbach’s alpha coefficient is 0.7 Nunnally(1978\textsuperscript{131}). Table 4.4 provides the cronbach-alpha test to help us to determine whether the same set of items would elicit the same responses if the same questions are recast to the same respondents.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Number of Items</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part – A</td>
<td>33</td>
<td>0.85</td>
</tr>
<tr>
<td>Part – B</td>
<td>16</td>
<td>0.77</td>
</tr>
<tr>
<td>Part – C</td>
<td>13</td>
<td>0.65</td>
</tr>
<tr>
<td>Part – D</td>
<td>18</td>
<td>0.70</td>
</tr>
<tr>
<td>Part – E</td>
<td>10</td>
<td>0.73</td>
</tr>
</tbody>
</table>

The above table summarizes the results of the reliability analysis of the study for each dimension. This Cronbach alpha test has been conducted on pilot data having 50 respondents of 5 large industries. As can be seen, the Cronbach alpha values for the factors ranged approximately between 0.65 to 0.85. This provides evidence that all the dimensions have high internal consistency, and are thus reliable. Generally, alpha values

greater than 0.7 are regarded as sufficient (Nunnally, 1994; Cuieford, 1965), although a cut-off value of 0.6 was used by researchers such as Black and Porter (1996), Rungasamy et al. (2002) and Antony et al. (2002).

4.8 Statistical Tools used for Data Analysis

This research study has used the questionnaire developed by the researcher as an instrument to collect the data. The data collected was analyzed using statistical tool SPSS 17.0. Using SPSS, different tests were conducted depending on the nature of the data. The methods of data analysis used to answer the research questions and test hypotheses are as follows:

4.8.1 Reliability Analysis

Reliability of a scale is to examine its internal consistency by calculating Cronbach’s alpha. This method indicates the extent to which items (elements) within a scale are homogenous or correlated (Saraph et al., 1989; Badri et al., 1995). It helps to determine whether the same set of items would elicit the same responses if the same questions are recast to the same respondents. Variables derived from test instruments are declared to be reliable only when they give reliable responses which are numerical coefficient of reliability.

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4.8.2 Descriptive Statistics

A set of brief descriptive coefficients that summarizes a given data set, which can either be a representation of the entire population or a sample. The measures used to describe the data set are measures of central tendency and measures of variability or dispersion. Measures of central tendency include the mean, median and mode, while measures of variability include the standard deviation (or variance), the minimum and maximum variables. Descriptive statistics provide a useful summary of security returns when performing empirical and analytical analysis, as they provide a historical account of return behavior. Although past information is useful in any analysis, one should always consider the expectations of future events.

4.8.3 Pearson Correlation

This test is used to measure the strength of a linear association between two variables, where the value \( r = 1 \) means a perfect positive correlation and the value \( r = -1 \) means a perfect negative correlation. So, for example, you could use this test to find out whether people's height and weight are correlated (they will be - the taller people are, the heavier they're likely to be).

Requirements—Scale of measurement should be interval or ratio, Variables should be approximately normally distributed, The association should be linear and there should be no outliers in the data.

Equation

\[
r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2} \sqrt{\sum (y_i - \bar{y})^2}}
\]
4.8.4 Multiple Regressions

Multiple regression analysis is a multivariate statistical technique used to examine the relationship between an outcome variable and several predictors (George and Mallery, 2003\textsuperscript{138}). Multiple regression analysis examines the relationships among variables, and the extent to which they are linked and explain the dependent variable (Gay, 1996\textsuperscript{139}).

4.8.5 Chi-square Test

A chi-square test, also referred to as $\chi^2$ test (infrequently as the chi-squared test), is any statistical hypothesis test in which the sampling distribution of the test statistic is a chi-square distribution when the null hypothesis is true. Also considered a chi-square test is a test in which this is asymptotically true, meaning that the sampling distribution (if the null hypothesis is true) can be made to approximate a chi-square distribution as closely as desired by making the sample size large enough. The chi-square (I) test is used to determine whether there is a significant difference between the expected frequencies and the observed frequencies in one or more categories.

4.8.6 Mann-Whitney Test

Mann–Whitney $U$ test (also called the Mann–Whitney–Wilcoxon (MWW), Wilcoxon rank-sum test, or Wilcoxon–Mann–Whitney test) is a nonparametric test of the null hypothesis that two populations are the same against an alternative hypothesis, especially that a particular population tends to have larger values than the other. It has greater efficiency than the t-test on non-normal distributions, such as a mixture of normal distributions, and it is nearly as efficient as the t-test on normal distributions.
