Chapter 3

Research Methodology

The research methodology is a systematic procedure having different stages to be adopted for successful completion of any research work. Research design is the foremost step in laying out the structure of every research. It is a roadmap by drawing easy outline for achieving the objectives. It mainly refers to a framework for performing a research in a defined procedure like; the type of problem undertaken by the researcher followed by sampling design and the method of collecting data from the target respondents. Final analysis of the data is done by using different statistical tools and techniques.

Research design is an advance planning for doing a research successfully in a pre-defined manner. Planning is essential for the successful execution of the work in a systematic manner. Therefore, it can be said that research design is the nerve centre and foundation upon which the entire structure for conducting the research depends. Moreover, a good research design helps in minimising the biasness and maximising the reliability of the work done.

3.1 Objectives of the Study

1. To study the CSR practices undertaken by the select organizations of Sonbhadra Region.
2. To investigate the impact of CSR initiatives on the organizational performance in Sonbhadra Region.
3. To examine the perception of the community towards CSR activities undertaken by the select organizations of Sonbhadra Region.

3.2 Methodology adopted for First Objective

Objective-1 To study the CSR practices undertaken by the select organizations of Sonbhadra Region.

Research Design

To achieve the objective, exploratory research design has been used to collect the information related to Corporate Social Responsibility. The term 'Exploratory Research Design' itself implies the way of exploring ideas and deep understanding of the problem. It is mainly qualitative and flexible in nature. The exploratory research design includes the information gathering process in a loose and unstructured pattern. The managers of related organisations were personally interviewed to get the information related to the activities carried out under CSR.

Sampling Technique

To achieve this objective Judgemental sampling under Non-probability sampling technique has been used. Non-probability sampling technique is based on the personal convenience and choice of the researcher. It is less time consuming and relatively inexpensive. Judgemental sampling under Non-probability sampling technique is like convenient sampling in which the researcher chooses the sample from the population purposively on the basis of own interest or judgement. It basically depends on the expertise of the researcher that the chosen sample will represent the population and will also fulfil the matter of concern.

Sample Size

The organizations which come under the criteria of mandatory provision laid down under Companies Act 2013 were chosen for this study. It represents both public and

private sector organizations. Ten organizations selected for the study have been listed in Table 3.1.

Table 3.1 List of Organizations Selected for the Study

S.No	Name of Organization	Area of Operating site at Sonbhadra	Ownership	Sector
1	NTPC - Singrauli	Shaktinagar	Public	Power
2	NTPC - Rihand	Rihand Nagar	Public	Power
3	NCL - Bina Project	Basi	Public	Mining
4	NCL - Kakri Project	Parasi	Public	Mining
5	NCL - Krishnashila Project	Jamshila	Public	Mining
6	UPRVUNL - Anpara Power Station	Anpara	Public	Power
7	Grasim Industries Ltd	Renukoot	Private	Chemicals
8	Hindalco Industries Ltd	Renukoot	Private	Aluminium
9	Renusagar Power Plant	Renusagar	Private	Power
10	Hi-Tech Carbon	Renukoot	Private	Black Carbon

During the survey, researcher also approached some other organisations; Dalla Cement Factory, Obra Power Station and Orient Abrasive Limited but these have not been included in the sample. This could not happen because the Manager of Dalla Cement Factory of Jaypee Group (later takeover by the Aditya Birla Group in July 2017) denied giving interview and disclosing the CSR activities undertaken. The CSR Manager of Obra Power Station was not available at the time of survey, therefore, could not be contacted to give his opinion. The Orient Abrasive Ltd was found to be not meeting the criteria fixed under Companies Act 2013 to undertake CSR activities, so it was also not considered for the study.

Data Collection Instrument

The open ended questionnaire was prepared to collect the CSR related information from the senior CSR managers of the selected companies. Some of the data were also

taken from the website of the companies. The 'Part C' of the questionnaire for managers included the detail information regarding the social responsibility activities undertaken by the organization at Sonbhadra district only.

Data Collection Techniques

The interview was conducted with the CSR manager of the particular organization in order to gather information regarding the CSR activities undertaken by them. Personal interview with the CSR managers of the organization represents the overall CSR dimensions which were taken into consideration to fulfil the research objective. During the interview, managers were asked to discuss their understanding, involvement and experience in pursuing CSR.

3.3 Methodology adopted for Second Objective

Objective-2 To investigate the impact of CSR initiatives on the organizational performance in Sonbhadra Region.

Research Design

Descriptive research design has been adopted for achieving the second objective. The descriptive research design comes under conclusive research design. It is inflexible and structured in nature. The descriptive research design is mainly suitable for quantitative data to be analysed using suitable statistical techniques. Here data used for analysing this objective is quantitative in nature and analysed by using specific research techniques. It is pre-planned design based on the formulation of specific hypothesis. It works on the sample which is drawn from the population using probability sampling technique.

Sampling Technique

To achieve this objective Stratified sampling technique has been adopted for collecting the data. The Stratified sampling technique comes under Probability sampling method and is also known as "Chance sampling" where each element of the population has a probabilistic chance of inclusion in the sample. Under Stratified sampling, the target population is bifurcated into sub-population or strata. The elements in strata are homogeneous in nature with common characteristics and each stratum is heterogeneous in nature with respect to other strata. The elements are picked from each strata using random sampling procedure. So, it is a two-step sampling procedure. The stratified sampling increases the precision as the elements from all the strata are included in the sample. Stratification variables are used to divide the population into strata. The respondents were chosen from the different department of the selected organizations of Sonbhadra region.

Sample Size

The sample of 265 respondents was taken into consideration after the pilot study on 50 respondents for the calculation of sample size as per (Bartlett, Kotrlik, & Higgins, 2001). The Pilot study was also done to pre-test the questionnaire and to make sure the right format and appropriate language of the questionnaire.

Data Collection Instrument

The questionnaire was designed on the basis of selected items which were identified from the literature review. The items for measuring Corporate Social Responsibility and Organizational Performance are taken from the studies conducted by (Yu & Choi, 2014) and (Valmohammadi, 2014). Organizational performance or organizational

effectiveness is measured on some well defined subjective items which are identified by Baruch & Ramalho in his study carried out in 2006 (Baruch & Ramalho, 2006). The beauty of subjective performance indicators is that they are easy to record, understand and interpret. Some studies also show a high association between the subjective and objective organizational performance indicators (Arendt & Brettel, 2010). The statements in the questionnaire are considered on the five-point likert scale ranging from "Strongly Disagree" to "Strongly Agree". The questionnaire was filled through CSR experts and managers during pilot survey. On the basis of their valuable feedback and suggestion, the questionnaire was modified and some of the items were dropped from the final instrument.

Data Collection Technique

The final questionnaire was administered to the targeted respondents which included employees from different departments of the selected organizations. The data were collected from 30 employees from each organisation, including CSR managers, and a total of 10 organizations were covered. Out of the total 300 questionnaires received, only 265 were found suitable for analysis. Rest questionnaires were not included in the analysis because of one or more reasons; either they were incomplete or respondents were found unengaged.

Survey Time Period

The survey was conducted from May 2017 to October 2017. The size of the firm is also taken into consideration on the basis of the number of employees working in that organisation. The average number of employees in each organisation was found to be around 400. The size of the organization may influence the area covered and the amount spent under corporate social responsibility. The large organizations are

considered more active in undertaking CSR activities as compared to small organizations. Control Variable is an extraneous variable which is not included in the analysis to examine but it is taken in the study.

Proposed Research Model

A model was proposed based upon Valmohammadi (2014) in order to analyse the impact of Corporate Social Responsibility Constructs (independent variables) on the Organizational Performance (dependable variables). The model (Figure 3.1) was developed on the basis of the theories taken from the literature and the prevailing conditions of Sonbhadra district of Uttar Pradesh.

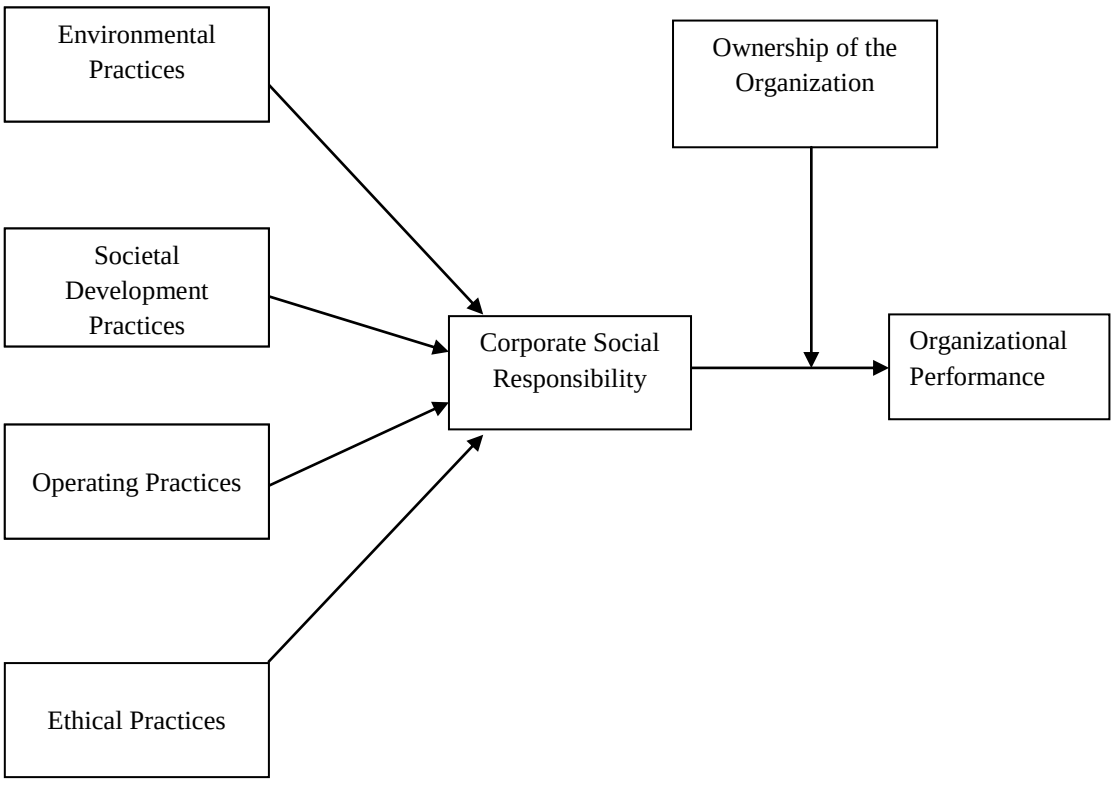

Figure 3.1 The Proposed Research Model

Data Analysis Techniques

The above proposed research model was tested in AMOS using Structural Equation Modeling technique. The four main aspects of CSR activities in Sonbhadra district of Uttar Pradesh was identified from a wide study of available literature.

Structural Equation Modeling (SEM)

Structural Equation Modeling (SEM) brings out a structure of inter-relationship among different variables, which are defined in the form of structural equation. It takes into consideration unobservable or latent factors as constructs which cannot be measured directly without an error.

A construct consist of various observed variables or items. The measurement error which is included in construct describes the latent factor which is not completely defined by the observed variable in SEM.

SEM helps to determine whether a particular model develops through literature review is valid or not under certain given conditions. It takes into account various dependent and independent equations simultaneously. It is a multivariate technique which involves the aspects of factor analysis and multiple regression all together. A conventional model in SEM is divided into two parts as – **Measurement Model** and **Structural Model.**

The **Measurement Model** depicts the validity of measured variable under construct. It represents the theory through confirmatory factor analysis. The loading on each measured or observed variable conform the assumption which is expected to come on the basis of theory.

The **Structural Model** depicts how the constructs are associated with each other. The easy understanding of the model through graphical representation is a path diagram.

Construct used in SEM

Exogenous Construct: These construct acts as an independent variable in the model and mainly have one- headed arrow going out from it. It is not explained by any other construct or variable of the model.

Endogenous Construct: These construct acts as a dependent variable in a model and generally have one-headed arrow towards them as they can be easily distinguished by other construct or variable of the model.

Sample Size Requirement for SEM: The sample size requirement for running a model in SEM is minimum 200 with five construct. If construct are less than five then there should be at least 3 or more indicators having communality value of at least 0.5 (Malhotra & Dash, 2017).

Reliability and Validity: It is also required to measure the reliability and validity of the construct. Reliability is tested through Construct reliability and validity is tested through Average Variance Extracted.

Construct Reliability: The term "Construct Reliability" is used to assess the reliability of the construct in the measurement model as "Cronbach's alpha" is used to assess the reliability of the items in questionnaire. The "Composite Reliability or Construct Reliability" is calculated from the whole square of sum of factor loading to the sum of error variance of a construct. The calculated construct reliability of 0.7 or above is considered good and acceptable for the adequate internal consistency of the construct.

Average Variance Extracted: Average Variance Extracted (AVE) is used to assess the convergent validity of the construct. It shows the variance in the observed variable which is explained by the latent construct. The acceptable value of AVE is taken as 0.5 or more in order to have an adequate convergence of the constructs.

Hypothesis for Testing Model: The hypotheses proposed to test this model have been given below in a Table 3.2.

Table 3.2 Research Hypothesis and its Source

S.No.	Hypothesis	References
H1	Fulfilment of environmental practices and regulation leads to better organization performance	(Mishra & Suar, 2013), (Setyorini & Ishak, 2012) , (Joshi & Gao, 2009), (Valmohammadi, 2014)
H2	Fulfilment of societal development programs leads to better organization performance	(Zairi & Peters, 2002), (Usman & Arman, 2015), (Valmohammadi, 2014), (Joshi & Gao, 2009)
H3	Fulfilment of well-defined industrial operating practices and policies leads to better organization performance	(Menassa, 2010), (Usman & Arman, 2015), (Valmohammadi, 2014)
H4	Fulfilment of ethical and reporting practices leads to better organization performance	(Zairi & Peters, 2002), (Gomez & Donate-Manzanares, 2011)
H5	Overall accomplishment of CSR activities leads to better organization performance	(Yu & Choi, 2014), (Servaes & Tamayo, 2013), (Abott & Monsen, 1979)

Further, for ascertaining the impact of ownership of the organizations on the relationship of CSR and Organizational performance, the hypothesis is taken as:-

Ho: There is no moderation effect of the ownership of the organization on the relationship of CSR activities and the organizational performance.

3.4 Methodology adopted for Third Objective

Objective-3 To examine the perception of the community towards CSR activities undertaken by the select organizations of Sonbhadra Region

Research Design

In order to fulfil the third objective to judge the perception of the community towards CSR activities, descriptive research design has been adopted. It is mostly used for analysing the quantitative data by using suitable statistical techniques.

Sampling Technique

Simple random Sampling, which comes under Probability Sampling method, was chosen to collect the data from the respondents. Under Simple Random Sampling each element has an equal chance of being selected in a sample from the finite population. Each element is selected independently in respect of any other element. It is easy to conduct simple random sampling with projectable result. So, here the respondents were selected randomly from the different villages of Sonbhadra region which were mostly close to the organizations.

Sample Size

The sample size of 400 was taken into consideration based on the calculation of Bartlett, Kotrlik and Higgins (2001) formula after the pilot survey on 100 respondents. The data were collected from 40 villages located close to selected organizations (10) and 10 respondents were selected randomly from each village. The list of villages is given in (Annexure I).

Data Collection Instrument

The questionnaire was designed on the basis of selected items which were identified from the literature review. The items for measuring community perception towards Corporate Social Responsibility are taken from (Galbreath, 2010), (Oberseder, Schlegelmilch, & Murphy, 2013) and (Buehm, 2003). The questionnaire was administered and the responses were filled by the targeted respondents from the selected villages in the Sonbhadra region. The reliability of the questionnaire was tested with the help of Cronbach's alpha value which was found to be 0.877. This satisfy the laid down criteria for checking reliability required for the data analysis.

Data Analysis Technique

Exploratory Factor Analysis

The Exploratory Factor Analysis (EFA) technique was used for data reduction and for its easy interpretation. Factor Analysis is a multivariate statistical technique for analysing the large number of interdependent variables. It is basically used to understand the underlying structure of the variables which is further summarized into factors of manageable size for their easy interpretation. The factor analysis is broadly of two types – Exploratory Factor Analysis and Confirmatory Factor Analysis. Exploratory factor analysis is used to draw factors so as to reduce the data set without having any prior knowledge and Confirmatory factor analysis is used to draw factors in order to meet the expected defined structure on the basis of prior knowledge.

The following key statistics are associated with the factor analysis:

1. The sample size or the number of observation should be minimum 5 times of the variables/items.

2. There should be at least 5 items in each factor.
3. The measure of sample adequacy through Kaiser-Meyer-Olkin (KMO) value should be greater than 0.5, which is considered appropriate for running factor analysis.
4. Bartlett's test of sphericity to examine that the variable is uncorrelated in the population through its significance value. Means, the correlation matrix is an identity matrix having perfect correlation only with itself as (r=1) and has no correlation with any other variable as (r=0).
5. The variables should have communalities of more than 0.5.

Generally, factor analysis is used to reduce the large set of data into meaningful factors. These factors contain a set of correlated items (Malhotra & Dash, 2011).

Independent Sample t-test

The Independent Sample t-test compares the mean of two independent groups in order to check whether the population means are significantly different or not. The independent t-test is a parametric test. It makes comparison among groups.

Analysis of Variance (ANOVA)

ANOVA is the abbreviation of analysis of variance and is the most commonly used technique for analysis of variance of more than two sample means at the same time. It can be inferred from ANOVA whether the sample drawn from the population have same mean or not. It is a procedure for testing difference among different kinds of groups from the data for homogeneity.

The main difference between the t-test and ANOVA is that t-test is used to find the difference between the mean of two categories of data whereas ANOVA is used for

more than two categories of data. In the current study, researcher has used t-test to find out the difference of opinions between male and female respondents towards the CSR activities undertaken by the company at Sonbhadra district of Uttar Pradesh. ANOVA has been used to find out the difference on the basis of educational qualification of the respondents towards the CSR activities.

Hypothesis of the Study

Hypothesis for the third objective are as follows:-

Hypothesis related to ascertain the difference in the perception of the community towards Corporate Social Responsibility on the basis of Gender.

Ho: There is no significant difference in the perception of the community towards CSR activities on the basis of their gender.

Hypothesis related to ascertain the difference in the perception of the community towards Corporate Social Responsibility on the basis of Qualification.

Ho: There is no significant difference in the perception of the community towards CSR activities on the basis of their qualification.