CHAPTER 5
RESEARCH METHODOLOGY

Social Science Research can be simply described as the scientific study of human society; it includes many subjects like sociology, economics, anthropology, history, political science, public administration, demography etc.

Public Administration became a new branch of subject after it was slowly bifurcated from political science since late 1880's. From the point of view of research, Public Administration can be described as a diverse and constantly changing field of inquiry into the behaviour of individuals and groups involved in the administrative and managerial activities and process. Researchers study people involved in analyzing, planning, organizing, implementing and controlling the programs and activities of government agencies, units and systems for the purpose of meeting the needs of society.[1]

The present research is on one these facets of study, that is, implementation of the government's program in rural development. Public Administration researchers have explored a wide variety of topics using a wide variety of research approaches, methods and tools. The focus is still on applied or empirical research for the resolution of practical problems faced by public and non-profit organization administrators and managers. Likewise, the present research too is empirical research using quantitative research method. Empirical research can be defined as "research based on experimentation or observation based on evidence[2].

Social Science Research or Social research is the systematic method of discovering and verifying new and old facts, their succession, connection, fundamental explanation, and the natural law that governs them. In other words, it is the scientific undertaking in the field of social sciences to acquire new facts. It is the manipulation of things, concepts and symbols with a view to extend new knowledge or verify the old knowledge whether that knowledge aids in the construction of a theory or in the practice of an art. Social science research has been defined by Rummel as "A devoted study of mankind in his social environment and is concerned with improving his understanding of social orders, groups, instructions and ethics.[3]

The present study is undertaken to acquire facts on the ongoing government program, the study will help in gaining new knowledge supported by primary data. Further it will be useful in enhancing the awareness of the people about the program as many questions are formulated based on the Act. Hence while answering the questionnaire they became aware of the various provisions of the Act as they are given explanation to every question on which

they have any doubt or if they do not understand the concept of the questions. Just like there are two sides of the same coin there are always two sides of any government programme- the government report/record and the practical/actual reality in the implementation field. The present research will give the practical/actual reality of implementation of MGNREGA in Mizoram in the selected districts.

5.1: RESEARCH DESIGN

A research design is a strategy or programme, prepared by a researcher for his own guidance for determining answers to the research questions raised by him. Research design provides guidelines to an investigator in the collection, analysis and interpretation of data. It allows him to draw inferences regarding causal relations. It defines the boundary line for any inferences or generalizations to be drawn. It usually covers the details about the selected methodology appropriate to the problem. Giving description of data gathering process and explanation about how hypothesis will be tested[4].

5.2: RESEARCH APPROACH

The present study employed Quantitative approach; which is the systematic empirical investigation of observable phenomena using statistical, mathematical or computational techniques. The approach is structured, rigid and predetermined methodology. The main purpose of investigation in this method is to quantify the extent of variation in a phenomenon, situation, issue, etc. The analysis of data in this method focussed on variables to frequency distributions, cross tabulations or other statistical procedures.[5] Quantitative research is suitable for the present study as it allows participation of more MGNREGA beneficiaries to be part of the study while collecting data.

5.3: METHODS OF DATA COLLECTION

5.3.1: Primary Data

Primary data are those data that are original in nature; they are collected for the first time for a specific purpose, for research, for studies, etc. The instrument for collection of primary data can be interview, questionnaire, observation, etc. In this research primary data are collected using the instrument of Questionnaire.

5.3.2: Secondary Data

Secondary data are those data which are already available in the form of various records, written, hard copy or soft copy. The present research collected secondary data from

books, government documents (records and reports on rural development programmes), internet, newspaper and various journals- printed as well as soft copy.

5.4: FORMULATION OF QUESTIONNAIRE

Questionnaire is formulated on the basis of different features of MGNREGA under different categories. There are a set of questions under each category. The questions are laid out in the form of a statement for example- "I know that I can demand for work under MGNREGA" which is followed by a set of responses they can choose. Likert's five points scale attitude test is employed with responses such as Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree where the value of each responses are taken as 5, 4, 3, 2, 1 respectively. There are a total of 73 questions including bio-data of the respondents.

Likert scale is also known as summated rating scale, it is based upon the assumption that each statement/item on the scale has equal attitudinal value, 'importance' or 'weight' in terms of reflecting an attitude towards the issue in question. This scale helps to place different respondents in relation to each other in terms of the intensity of their attitude towards an issue: it shows the strength of one respondent's view in relation to that of another and not the absolute attitude[6].

5.5: SAMPLING

Sampling is the process of selecting a few (sample) from a bigger group (the sampling population) to become the basis for estimating or predicting the prevalence of an unknown piece of information, situation or outcome regarding the bigger group[7]. There are three broad categories of sampling and there are sub categories under each of them as shown in Fig 5.1. The three broad categories are explained in brief as follows-

1) Random/probability sampling where each element in the population has an equal and independent chance of selection in the sample. 2) Non-random/non probability sampling where the selection of elements is dependent upon considerations of the researcher's choice or convenience. There are five commonly used non-probability designs, each based on different considerations- quota sampling accidental sampling, judgemental sampling or purposive sampling, expert sampling and snowball sampling. 3) Mixed sampling- this type of sampling is also called systematic sampling; it has the characteristics of both random and non random sampling. In this type of sampling, the sampling frame is first divided into a number of segments called intervals. Then from the first interval, using Simple Random Sampling technique, one element is selected, the selection of subsequent elements from intervals is

dependent upon the order of element selected in the first interval, for example- the fifth element is selected, then the fifth element of each subsequent interval will be chosen[8].

The present research used non random/non probability sampling namely, quota sampling, in quota sampling, the main consideration is the researcher's ease of access to the sample population. In addition to this, the guiding factor is some visible characteristics like gender or race, etc of the study population that is of interest to the researcher[9]. In this present study, the researcher selected ten samples from each village of the sampling universe using gender as the consideration of selection. Therefore, five samples each are selected from female and male population. There are two districts of Mizoram under this study, 270 samples are selected from each district that makes a total of 540 samples.

5.6: VALIDITY AND RELIABILITY

Validity is the ability of instrument to measure what it is designed to measure. Smith defined validity as the degree to which the researcher has measured what he has set out to measure[10]. According to Babbie, "Validity refers to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration[11]. The concept of appropriateness and accuracy as applied to a research process is called validity. As inaccuracies can be introduced into a study at any stage, the concept of validity can be applied to the research process as a whole or to any of its steps: study design, sampling strategy, conclusions drawn, the statistical procedures applied or the measurement procedures used.[12]. In quality research, there are two approaches used to establish the validity of an instrument: the establishment of a logical link between the objective of a study and the questions used in an instrument and the use of statistical analysis to demonstrate these links[13]

The present study carefully links all the questions in the questionnaire with the objectives of the study. The empirical data collected from the questionnaire are then analysed using various statistical tools.

Reliability indicates that a research tool is consistent and stable, hence predictable and accurate. The greater the degree of consistency and stability in an instrument; the greater is reliability. Therefore, a scale or test is reliable to the extent that repeat measurements made by it under constant conditions will give the same results[14]. The data collected in the present research is analysed using SPSS 16.0 version.

5.7: STATISTICAL TOOLS

5.7.1: Frequency Analysis

In this study, Frequency analyses are done on all the collected data and are shown using frequency tables, bar chart and pie chart. Frequency Analysis is an important area of statistics that deals with the number of occurrences (frequency) and analyzes measures of central tendency, dispersion, percentiles, etc[15]. Frequency analysis is useful for brief analysis and interpretation of data at a glance. They provide quick and easy understanding on data and research at hand.

5.7.2: Bar charts

Bar charts are used for showing the frequency distribution of respondents on their responses. A bar chart is identical to a histogram except that in a bar chart, the rectangles representing the various frequencies are spaced, that indicates that the data is categorical. The bar chart is used for variables measured on nominal or ordinal scales. The discrete categories are usually displayed along the x-axis and the number of percentage of respondents on the y-axis. The bar chart is an effective way of visually displaying the magnitude of each sub-category of a variable[16]. The present study used bar charts to show the percentage of the various responses on the questionnaire.

5.7.3: Pie charts

Pie charts are used in the present study to show some of the data. Pie chart is a way of representing data graphically as a circle. The 360 degrees of a circle are used to represent 100 percent or the total population. The circle or pie is divided into sections in accordance with the magnitude of each subcategory. So each slice is in proportion to the size of each subcategory of a frequency distribution. The proportions may be shown either as absolute numbers or as a percentage[17]. The present study used pie charts to show the distribution of respondents on various demographic profiles.

5.7.4: One Sample Test

One sample hypothesis tests are used to determine whether a sample statistic, usually the mean, falls within a set of upper and lower critical values. One sample tests are also used with proportions and to establish the distribution of the statistic. These tests are important because two key assumptions in most interval and ratio data hypothesis tests are (1) randomness and (2) a normal distribution. The hypothesis formed and statistical tests

employed will depend upon specific decision circumstances facing the manager, the data collection process to be followed, whether the variance is known and whether the test is one tailed or two tailed. The decision to accept or reject is null hypothesis is based upon an acceptance value that is called a confidence level[18].

In the present study one sample test two tailed is done on the overall sample irrespective of any biographical profile of the respondents. The test is run on all of the different categories of the questions which were formulated based on different features of MGNREGA under study. This test is very useful in the present research as it gives the opportunity to test the main hypothesis framed. For the convenience of generalizing the present study result, this test proved to be highly useful. Test value is set at 3 with the intention of finding out whether majority of the respondents are taking the "neutral" stand for the statements made in the questionnaire. The significance level therefore is 0.01.

5.7.5: *t*-test

A *t*-test is used to compare the means of no more than two groups with approximately equal variances. Only two sets of means can be compared at one time using the *t*-test[19]. In the present study, t-test is used to compare significant differences between (1) Male and Female (2) married and unmarried with respect to different features of MGNREGA under study.

5.7.6: ANOVA

Analysis of Variance is a tool for comparing the differences in means between any number of groups and for doing so at more than one level. In all applications, analysis of variance uses an F-statistic in a comparison of the variance of mean score. The test compares the variance of the mean to the overall variance found in the sample. Furthermore, analysis of variance results include summary statistics for each sample or group, an F-ratio and a probability value. The p-value of the F-ratio will indicate whether the null hypothesis is to be rejected, but it will not indicate where the difference lies. Another test, called a posterior test or a post hoc test, is required. There are three different versions of analysis of variance, a one-way version, a two-way version and an "n-way" version. The present research used the one-way version. One-way ANOVA is the basic procedure, it is used when two or more groups' means are compared across a single factor. It compares the mean scores on a scale variable across two or more categories of a single categorical variable[20].

Most public administration and social science researchers make hypothesis acceptance decisions at the .05 level of confidence. The present research also used this level

of confidence while interpreting results with p-values. Anova test is done in the present research for comparing the mean scores across the different demographic profile of the respondents' age, occupation, monthly income and educational qualification.

5.7.7: Duncan Multiple Range Test

Duncan Multiple Range Test (DMRT) is a multiple comparison procedure developed by David B. Duncan in 1955. DMRT belongs to the general class of multiple comparison procedures that use the standardized range statistic q_r to compare sets of means[21]. In this study, DMRT is done on those tests that proved to be significant in ANOVA test

5.7.8: Chi-Square Test

A Chi-Square test is used to analyse categorical data, counting and dividing data into categories. In another way, the Chi-Square test is that test the null hypotheses that the variables are independent. The test compares the observed data to a model that distributes the data according to expectation that the variables are independent. Wherever the observed data does not fit the model, the likelihood that the variables are dependent becomes stronger, thus proving the null hypothesis incorrect[22]. In the present study, Chi-Square test is used to analyze the difference in the scores between the selected two districts, irrespective of the various demographic features.

5.8: ETHICS

Ethics is a branch of philosophy that studies the moral behaviour of human in society. It has also been defined as the set of principles that governs the conduct of an individual or a group of persons and briefly as the society of morality or moral behaviour (Velasquez 1998)[23]. Morality refers to the standards that people have about what is right, what is wrong, what is good, or what is evil; these standards are the behaviour norms of a society. Moral behaviour is acting in ways that follow the normal standards in ways that follow the moral standards that exist in society[24].

5.8.1: Ethics in Public Administration

Ethics in Public Administration functions in two dominant levels or ethos. The term refers to the characteristics that distinguish a particular person or group. First, public administrators are faced with a professional or bureaucratic ethos that has to do with the way people perform their jobs. The second level is the underlying belief and commitment to

public service. That is democratic ethos or favourably service ethos. This ethic deals with values such as liberty, justice, human rights and equality[25].

The present research has dealt in some way with both the ethos. The MGNREGA works can be commenced only when the work order comes from the public administrator that is District Rural Development Agency or Block Development Office in this case. So, as we mentioned here, as first ethos dealt with how people performed their jobs, much depended on people who are assigned for MGNREGA related works, the time of commencing work and even payment for the work. And we can relate the second ethos with the equality given under the MGNREGA works, against all caste and gender.

We can further state that other values such as liberty, justice and human rights are not left out under MGNREGA. All these facets are covered in this research through questionnaire. If the government officials assigned for MGNREGA are not committed to their service, these values will be undermined.

5.8.2: Research Ethics

Research ethics refers to the application of moral standards to decisions made in planning, conducting and reporting of the results of research studies. J. Mitchel (1998) has identified four practical ethical principles that shape morality in public administration research: truthfulness, thoroughness, objectivity and relevance[26]. The following paragraphs illustrate that these principles relate them to the present research.

Truthfulness principle means that it is against ethics for researchers to lie or deceive with a purpose of doing any kind of fraud. Misinterpretations of the study purpose intentionally, concealing the dangers or any pros and cons that can arise from participation of the respondents are some of the examples that failed the truthfulness principle. The present research is free from all these unethical conduct. The questionnaire is translated into Mizotawng that is the local dialect of the study area. If the respondents have any doubt, all the questions are explained with their concepts to overcome any possible apprehension of being deceived. The purpose of the research is mentioned in the first page of the questionnaire sheet before any of the question.

Thoroughness principle means being "methodologically thorough" or doing good science by following proper steps in a study. It is the moral obligation of the researcher to include the following in the study reports:

- Definitions for all key concepts used in the study.

- Selection of appropriate samples including full descriptions.
- Identification of all limitations of the research design.
- A description of the analysis design.
- Reporting all results and findings of the research both good and bad news.

The researcher followed this principle of thoroughness comprehensively in this study from the defining by concepts to reporting all the good and bad news of the study results.

The objectivity principle refers to the need of the researcher to remain objective and impartial throughout all aspects of the study. The researcher should never infuse personal feelings or bias in any stage and part of the study, be it selection of participants, in asking or writing questions.

The researcher followed this principle throughout all aspects of the study from formulation of questionnaire to reporting results. For example use of machine is not allowed under the provision of the Act. The researcher find out from secondary sources as well as from pilot study that use of machine in the form of JCB is popular all over India in MGNREGA worksites. This actually can make the study area look bad. Yet, the researcher even though hailing from the study area did not hesitate to include the question regarding use of machine or not in the MGNREGA works so as to find out the extent of the Act in practice.

The principle of relevance, according to Mitchell, research in a democracy has a moral responsibility to be understandable to people and useful. Kumar[27] has summarized the need for relevance as "If you cannot justify the relevance of the research you are conducting, you are wasting your respondents' time, which is unethical".

The present research is done on the ongoing programme of Government of India under rural development ministry where millions of life is directly or indirectly affected. This study will be useful for the people as well as various private and public organisations to know about MGNREGA in Mizoram with factual data derived from the study. The relevance as well as justification and invitations of the research are duly interpreted in the thesis.

5.8.3: Ethics in the Research Process

Public administration as well as NGO researchers are very much concerned with ethics four times in the research process when planning to gather data, while gathering data, when processing and interpreting data and finally when disseminating the results of research. Ethics when planning research involve deciding who will be the participants, use of the

proper sampling design and consent of the respondents. Informed consent, voluntary consent, knowledgeable consent and freedom from harm are to be ensured to the potential respondents[28]. The researcher in this study followed this well by informing the respondents that their opinion alone is taken and encouraged to be straightforward and made free from intrusion by anyone.

All the respondents' participation is voluntary and no one is forced against their will. Before going on with the questionnaire, they asked whether they have time and will to answer the questions. They are requested to complete the questionnaire not leaving any question left un-answered; at the same time they were given freedom to withdraw at anytime if they wanted to. To ensure knowledgeable consent, the respondents are made aware of all the aspects of the research and they are well informed that no harm will befall them for being respondent of the questionnaire.

5.9: LIMITATIONS OF THE STUDY

There are limitations in the present study, some of which are as follows-

1) The study area covers the selected districts of Mizoram- Lunglei district and Kolasib district. Hence the researcher does not claim the results and findings to be representing Mizoram as a whole, but only the selected districts.
2) The findings of the study are based on the respondents' view given in the questionnaire and are limited only to the time frame of that time when data was collected.
3) The respondents are requested to answer according to their views and opinions and their own knowledge during collection of the questionnaire, their views, opinions and knowledge might change under any other circumstance. The researcher therefore does not include considerations of the changes in these matters which were not covered during the collection of data.
4) All the rural development blocks in the selected districts are covered but not each and every village within various rural development blocks in the study. This is not possible for the researcher due to limitations of finance and time. The study therefore obtained results from the selected villages only.

End Notes

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