CHAPTER - 3

OBJECTIVES, HYPOTHESES AND RESEARCH METHODOLOGY

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Background of the Study</td>
<td>121</td>
</tr>
<tr>
<td>3.2 Statement of Problem</td>
<td>122</td>
</tr>
<tr>
<td>3.3 Objectives of the Study</td>
<td>122</td>
</tr>
<tr>
<td>3.4 Research Premise and Hypotheses</td>
<td>123</td>
</tr>
<tr>
<td>3.5 Scope of the Study</td>
<td>124</td>
</tr>
<tr>
<td>3.6 Limitations of the Study</td>
<td>124</td>
</tr>
<tr>
<td>3.7 Methodology of the Study</td>
<td>125</td>
</tr>
<tr>
<td>3.8 Chapter Scheme</td>
<td>140</td>
</tr>
</tbody>
</table>
In this chapter, the background, statement of problem, objectives, hypotheses, significance and limitations of the research study has been presented. Also the methodology used for the research study which includes the research plan and design, sample size and sampling procedure, sources of data collection, process of statistical analysis of data and tests and tools used for the same has been given in this chapter.

3.1 Background of the Study:
Pune is the cultural capital of Maharashtra and is also known as the ‘Queen of Deccan’ for its hilly territory, comfortable climate and for green coverage. It is also called as ‘Detroit of India’, ‘Oxford of the East’ and ‘Silicon Valley of the Western Ghats’ for its automobile industries, academic institutions and software sector. The Pune Municipal Corporation’s area is 243.84 sq.km. Mula and Mutha rivers flow through the city dividing the city in two parts. The city is fortunate enough to have good source of water supply from Khadakwasla and Panshet dams to the South – western side of the city. Almost 10% of the city area is covered by hills giving the city a picturesque beauty. The city is well linked to Mumbai, the financial capital of India and has good road, rail and air connectivity.

After 1950, a diversified modern manufacturing sector grew in and around the city, and consequentially there has been a steady growth of population in the area. Pune is now almost a metropolis. Over the past five decades there has been more growth of production and income and the city has witnessed a growing competition for employment opportunities. Also the city has witnessed a growing incident of slums and squatter slums associated with an increasing inadequacy in the overall coverage provided by urban services. The central government realized the problems arising due to the slums. Determined or forced to face this situation, government has been extending its efforts to cope with “Urban Problems” and in particular with degradation in slums and squatter slums. These extensions can be generalized and the nature, content and limitations of the “public learning” involved assessed. Such an understanding is an important requisite for formulation of public policy and effective intervention of social action. In order to erase this stain from the country the central government introduced the slum clearance scheme known as ‘Gallicha Vasti Nirmulan Yojana’ (GA.VA.NI.) in Delhi and Mumbai. After the year 1974-75 this scheme was extended to the state governments in order to work effectively on the
problem. The researcher while working with the Pune Municipal Corporation as a Deputy Commissioner, (Slum Control – a department which was established in 1975 in Pune Municipal Corporation) for 12 years, also felt that the slums is a social problem and the slums are causing ill effects on the society. Hence the purpose of this research is to understand the current condition of the slums and the role played by the government and the PMC in the clearance and redevelopment of slums in Pune city and to suggest effective measures to curb slum growth.

3.2 Statement of Problem:
In the last three decades the population of Pune city has grown from 8.56 lakhs to over 30 lakhs i.e. around 62 percent growth. Rapid urbanization due to ‘pull factor’ or the employment opportunity created in the city and ‘push factor’ due to the lack of the same in rural areas and including environmental degradation, has attracted immigrants not only from the rural Maharashtra but also from other parts of the country. Growth of industrialization around the Pune city, famine situation in the rural area, inadequate rain in the rural area, castism, rapidly and vast building construction activity in and around the city and information technology parks, has given surety for skilled, unskilled, semi-skilled jobs which are available to the deserving people. Most of the immigrated families who could not afford formal housing satisfy their need for housing by occupying available vacant land illegally and solving their housing problem and contribute to the creation of slums. Thus it is important to find out the spread of slums, its clearance and redevelopment of existing slum areas. Considering this situation the researcher has selected the research topic entitled “A Study of Slum Improvement, Clearance and Redevelopment: A Case Study of Slum Areas in Pune City.” The researcher wants to finding out the following things:

1. Growth of slum areas in Pune city area.
2. Different measures and program’s undertaken by various authorities to control slum areas and its clearance.
3. Problems and issues faced by slum dwellers.
4. Redevelopment status and its effective implementation.

3.3 Objectives of the Study:
1. To find the extent of the spread of the slums in the city and their management by Pune Municipal Corporation.
2. To study the various ill effects brought about by the growing tendency of slums.

3. To find the extent to which slum control measures have been introduced and implemented by Pune Municipal Corporation.

4. To study the nature of the active role played by State Government and concerned authorities to control and regulate the slums.

5. To find the extent to which NGO’s have taken the responsibilities to mitigate the sufferings of the slum dwellers.

6. To find out the various financial sources available with the PMC for slum development.

7. To find out the various schemes of the central and the state government towards the development and welfare of the slum dwellers.

8. To study the satisfaction and sufficiency of the slum dwellers regarding the facilities and amenities provided to them.

3.4 Research Premise and Hypotheses:

The research premise is as under:

“The growth of slums within the Pune city is due to rapid urbanization, migration, famine situation in the rural areas, growth rate of population, searching job opportunity and due to these effects the slums have increased and the burden of management by Pune Municipal Corporation administration to provide them basic amenities and some protection by police from exploitation, from land lords and slum lord etc. has also increased”.

The research hypotheses are:

1. \( H_0 \): There is no significant difference in the facilities / amenities provided in the slum areas by the Pune Municipal Corporation.

   \( H_1 \): There is a significant difference in the facilities / amenities provided in the slum areas by the Pune Municipal Corporation.

2. \( H_0 \): There is no significant difference in the reasons for migration of slum dwellers.

   \( H_1 \): There is a significant difference in the reasons for migration of slum dwellers.
3. **H\(0\):** There is no significant difference in the level of satisfaction of slum dwellers with respect to the facilities provided by the Pune Municipal Corporation.

**H\(1\):** There is a significant difference in the level of satisfaction of slum dwellers with respect to the facilities provided by the Pune Municipal Corporation.

4. **H\(0\):** There is no significant association between the sufficiency and satisfaction of facilities provided by the PMC to the slum dwellers.

**H\(1\):** There is a significant association between the sufficiency and satisfaction of facilities provided by the PMC to the slum dwellers.

### 3.5 Scope of the Study:

The researcher started studying the subject more and more deeply and found the issues regarding slum to be very vast and complex in nature. The researcher found that the policies regarding slum were announced in the past 70 years. The study will examine the World, Central, State and P.M.C.’s policies towards the slum. This study will give a valuable insight into the growth of slum areas in Pune city. This study will observe the different measures and program’s undertaken by various authorities to control slum areas and its clearance. This study will help to develop a proper understanding of the situation and motivate the concerned authorities to conduct further district / state / national level study on the same.

This study will also highlight the different factors and issues which are important for the slum dwellers. The study will assist in identifying the problems faced by the slum dwellers of Pune city and also suggest measures to overcome these problems. This study will throw light on redevelopment status of various slums and its implementation and will provide guidance on how to make effective implementation in redevelopment procedure to clear slum areas from Pune city.

### 3.6 Limitations of the Study:

The following are the limitations of the research study.

1. The study is limited to Pune city only.
2. The time frame covered in the study is 2008 – 2014.
3. The study is restricted to slum areas developed up to 2011 covered as per the slum census of 2011.

3.7 Methodology of the Study:
The following methodology has been used to find out the outcome of the research and for this purpose the methodology has been divided into six parts as given below.

- Research Plan and Research Design
- Sample Size and Sampling Technique
- Sources of Data Collection
- Designing of Questionnaire
- Data Collection and Data Analysis Process
- Statistical Tools

Let us look at each of the six parts in detail.

3.7.1 Research Plan and Research Design:

3.7.1.1 Research Plan:
The research plan on which the study was carried over has been presented here. The research plan was drafted as under:

a) Identification of problem area
b) Setting of Objectives
c) Reviewing and examining of relevant literature
d) Collection of information from secondary sources regarding slum development and its clearance.
e) Population size, justification of population size and sample size
f) Pilot study for questionnaire
g) Preparatory work for designing the questionnaire, drawing up the draft questionnaire, its pilot testing, analysis of the sample and finalization of the questionnaire done in consultation with experts
h) Collection of primary data using suitable questionnaires and data entry
i) Analysis of primary data carried out with the help of statistical tools to draw findings, testing of hypotheses, interpretations and conclusions
j) Presentation of certain suggestions on the basis of findings and conclusions
3.7.1.2 Research Design:
As per views of various experts and authors, analytical research, uses facts or information already available, and analyze them to make a critical evaluation of the material. While descriptive research, also known as statistical research, describes data and characteristics about the population or phenomenon being studied, descriptive research answers the questions i.e. who, what, where, when and how. Thus, on the basis of the above, researcher has used the tools which were appropriate for the study. This study is related to the slum improvement, clearance and redevelopment of slums in Pune city. The following table no. 3.1 will explain the research design used for the study.

**Table No. 3.1: Research Design**

<table>
<thead>
<tr>
<th>Research Design</th>
<th>Research Methodology</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Research</td>
<td>Descriptive Research</td>
<td>It is concerned with condition, practices, structures, differences, or relationships that exist, opinions held, processes that are going on or trends that are evident.</td>
</tr>
<tr>
<td></td>
<td>Analytical Research</td>
<td>It involves the identification and interpretation of data already existing in documents, pictures and artefacts.</td>
</tr>
<tr>
<td>Nature of the Study</td>
<td>Quantitative Study</td>
<td>Focuses on measurement and proof, based on scientific approach</td>
</tr>
<tr>
<td>Data Collection Approach</td>
<td>i) Primary Data</td>
<td>Questionnaire Method, Formal and Informal Discussion</td>
</tr>
<tr>
<td>ii) Secondary Data</td>
<td>Related Published Books, Magazine, News Paper Articles, Journals, Published Report Articles &amp; Manuals, Related web sites</td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Interview Type</td>
<td>Verbal questioning for gaining relevant information related to research study (Chairman of Prabhag Committee and P.M.C. Office Bearers)</td>
<td></td>
</tr>
</tbody>
</table>
| Measurement Technique | Questionnaire Design  
| Questionnaire 1: Slum Inhabitants  
A) Residential Slum Dwellers  
B) Non-residential Slum Dwellers (Businessman)  
C) Health Practitioners  
| Questionnaire: Opinion Survey  
A) Social Workers  
B) NGO  
C) Corporators  
D) Slum Rehabilitants |
| Sampling |  
| Population size | As per the census (2011) of the Pune city Slum Area  
Population = 10,23,005*  
Total no. of declared slums in Pune = 379 Slum (Total 14 Administrative Wards)#  |
| Sample Size | Slum Population = 379  
No. of Slum = 76 (20% of 379) |
3.7.2 Sample Size and Sampling Technique:
A research population is also known as a well defined collection of individuals or objects known to have similar characteristics. A research population is generally a large collection of individuals or objects that are the focus of scientific query. To understand the opinion of the population researches are conducted. However due to the large size of the population it is difficult to test and obtain detail data from every individual of the population. If each and every individual of that population is to be tested, then it will become time consuming and expensive. Hence appropriate sampling should be done which will represent the appropriate population.

This research study has covered Pune city. Collecting appropriate samples from the available population is the most important aspect of any research study. Three types of slum inhabitants i.e. residential slum dwellers, health practitioners and business persons were identified in the Slums and data was collected from them through three different questionnaires designed for each respondent (attached in Annexure I, II and III). An opinion survey of the Social workers, Non-government organizations, corporators and slum rehabilitants has been conducted in order to support the study. Also to help the study formal and informal interviews and discussions were conducted with the Chairman of Prabhag Committee, Office bearers and ex-office bearers of the PMC and SRA. There are totally 564 (declared (379) and undeclared (185)) slums in Pune city spread over 14 administrative wards. Out of the declared 379 slums 119 are located on government and semi government land and the remaining 260 slums are located on private land. For the purpose of the study 20% of the total declared slums i.e. 76 slums have been studied and responses have been collected from the slum inhabitants. As per Mashal Group’s report there are a total of 14 administrative wards
which have been considered for the study. The slums are spread all over the Pune city and are situated on central government, state government and Pune municipal corporations’ land as well as on private land. Only declared slums have been considered for the study. The table no. 3.2 gives information on the ward wise questionnaires collected.

**Table No. 3.2: Administrative Ward Wise Questionnaires Collected**

<table>
<thead>
<tr>
<th>Administrative Ward Office No.</th>
<th>Name of the Administrative Ward Office</th>
<th>Slum Inhabitants</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Slum Residents</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Health Practitioners (Doctor)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Slum Non-Residents (Business Persons)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Aundh</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>19</td>
</tr>
<tr>
<td>2</td>
<td>Kothrud</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>Ghole Road</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>Warje – Karvenagar</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>Dhole Patil Road</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Hadpasar</td>
<td>4</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>7</td>
<td>Nagar Road</td>
<td>19</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>27</td>
</tr>
<tr>
<td>8</td>
<td>Sangamwadi</td>
<td>37</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>9</td>
<td>Bhavani Peth</td>
<td>27</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>10</td>
<td>Vishrambaug Wada</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>11</td>
<td>Sahakar Nagar</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>12</td>
<td>Tilak Road</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>13</td>
<td>Bibwewadi</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>14</td>
<td>Dhankawadi</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>163</strong></td>
<td><strong>179</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>182</strong></td>
<td><strong>524</strong></td>
</tr>
</tbody>
</table>

(Source: Primary Data)

The above table no. 3.2 shows the ward wise collection of data from the three main samples of slum dwellers i.e. the dwellers who use the slum dwelling for residential purpose, the dwellers who use it for business purpose and the health practitioners (doctors) practicing in the slum.
Opinion surveys of Social workers, Non Governmental Organizations, Corporators and slum rehabilitants have been collected and formal and informal discussions with the chairman of the Prabhag Committee and the P.M.C. Office bearers, who are doing work for the slums, have been conducted. Table no. 3.3 gives information on the actual questionnaires of the opinion surveys collected.

Table No. 3.3: Actual Opinion Survey Questionnaires Collected

<table>
<thead>
<tr>
<th>Particulars</th>
<th>No. of Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-government Organizations</td>
<td>33</td>
</tr>
<tr>
<td>Social Workers</td>
<td>42</td>
</tr>
<tr>
<td>Corporators / M.L.A. / Others</td>
<td>39</td>
</tr>
<tr>
<td>Slum Rehabilitants</td>
<td>23</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>137</strong></td>
</tr>
</tbody>
</table>

(Source: Field Work)

Justification of sample size:
In order to determine the sample size for the slum population, the population size of slum dwellers has been taken from the population census 2011 of Pune city issued by the government of India. The table no. 3.4 shows the table for determining the sample size as per Salant and Dillman which has been followed and simple random sampling has been done.

Table No. 3.4: Table for determining sample size as per Salant and Dillman

<table>
<thead>
<tr>
<th>Population Size</th>
<th>+/- 3% Sampling error</th>
<th>+/- 5% Sampling error</th>
<th>+/- 10% Sampling error</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50/50 split</td>
<td>80/20 split</td>
<td>50/50 split</td>
</tr>
<tr>
<td>100</td>
<td>92</td>
<td>87</td>
<td>80</td>
</tr>
<tr>
<td>250</td>
<td>203</td>
<td>183</td>
<td>152</td>
</tr>
<tr>
<td>750</td>
<td>441</td>
<td>358</td>
<td>254</td>
</tr>
<tr>
<td>1,000</td>
<td>516</td>
<td>406</td>
<td>278</td>
</tr>
<tr>
<td>5,000</td>
<td>880</td>
<td>601</td>
<td>357</td>
</tr>
<tr>
<td>10,000</td>
<td>964</td>
<td>639</td>
<td>370</td>
</tr>
<tr>
<td>25,000</td>
<td>1,023</td>
<td>665</td>
<td>378</td>
</tr>
<tr>
<td>1,00,000</td>
<td>1,056</td>
<td>678</td>
<td>383</td>
</tr>
</tbody>
</table>
The population size for the Slum dwellers in Pune city is 10,23,005. For a population with 10,23,005 persons whom are expected to be about evenly split on the characteristics in which they are being measured, a sample of approximately 384 is needed to make estimates about the population with a sampling error of no more than +/- 5 percent, at the 95 percent confidence level. A “50/50” split means the population is relatively varied. The table was developed using statistically valid methodologies by Priscilla Salant and Don A. Dillman, authors of “How to Conduct a Survey”. The researcher has collected data from a sample of 524 respondents as given in Table No. 3.2.

3.7.3 Sources of Data Collection:
For this research study the data and information is collected through primary source and secondary source. The details of these sources and process are explained below:

3.7.3.1 Primary Source:
The primary data was collected through a structured questionnaire for the slum inhabitants, the social workers, the Non-government organizations, the slum rehabilitants, the chairman of the Prabhag Committee, the office bearers and ex-office bearers of the PMC and SRA. The primary data was collected through Questionnaire method, Formal and Informal discussions and Observation Method which are briefly mentioned below.

1) Questionnaire Method: The formal instrument in the form of questionnaire was developed to test the present status of the slum inhabitants, the reason for their migration to the city and to find out the facilities provided by the Pune Municipal Corporation to the slums. In this research study, the information has been collected through the ‘Questionnaire’ method. Hard copies of questionnaires were circulated to the concerned respondents.
2) **Formal and Informal Discussions:** In this method interviews were scheduled with the respondents and questions were asked orally and information related to the study was collected. The same procedure was followed in the case of the opinion surveys also. In some cases the respondents preferred to fill the questionnaire while some preferred to answer the questions orally.

3) **Observation Method:** In this method Researcher has observed different points & things which are useful for interpreting the data. Formal & informal discussions with respondents have provided the necessary information to the researcher to analyse, interpret & to arrive at conclusions.

3.7.3.2 **Secondary Source:**

The Sources of secondary information are printed and electronic annual reports, working papers, Journals, Books and Magazines, research work and it consist of

1. The data about different related research work and opinion of researcher’s about their work.
2. The data related to legal provisions, rules and regulations and norms issued by the government.
3. The data collected is related to government reports, Acts and legal provisions pertaining to the slums.
4. Data collected from books published on Slums, Slum Redevelopment, Slum Clearance and Slum Rehabilitation, Published reports and articles, News Papers, Weekly Magazines and Websites related to the research study.

3.7.4 **Designing of Questionnaire:**

Before formulating the research questions, various sources of materials regarding the subject were examined. Then the questionnaires were framed with appropriate questions to extract the required information for the research study.

3.7.4.1 **Preparation of Questionnaire:**

On the basis of the objectives of the research study the researcher has prepared a questionnaire for Slum inhabitants and questionnaires have also been prepared for the
opinion survey which will be done to support the study. The names of the questionnaire are given below:

**Main Data Collection: Slum Inhabitants**
- Questionnaire I: Residential Slum Dwellers
- Questionnaire II: Non Residential Slum Dwellers (Business Persons)
- Questionnaire III: Health practitioners in the slums (Doctors)

**Opinion Survey:**
- Questionnaire IV: Non-Government Organization
- Questionnaire V: Social Workers
- Questionnaire VI: Corporators
- Questionnaire VII: Slum Rehabilitants

**3.7.5 Data Collection and Data Analysis Process:**
For this research study the data has been collected from two groups. In this section the data collection process and the process for the analysis of the data has been explained.

**3.7.5.1 Data collection process:**
The research study is related to slums. Hence the slum inhabitants have been selected for data collection. For the slum locations the administrative ward wise list of the slums has been obtained from the P.M.C. The researcher had conducted a pilot study to ascertain the correctness of the questionnaire and based on the data collected through the pilot study necessary changes were made in the questionnaire and a final instrument for collection of data was prepared. The questionnaires were distributed administrative ward wise and the data was collected. For the opinion Surveys the researcher has collected data from the office bearers and the people who are directly or indirectly associated with the slums. The population (Total no. of slums) for the data has been taken from the Administrative Ward Wise List and the sample size was ascertained and the data was collected area wise with the use of the questionnaire prepared for the same. The total slum population has been obtained from current population census of 2011 of Pune city published in the government website, and as per the sampling technique, the desired sample data was obtained, and data was collected according to the areas. Totally 700 questionnaires were distributed and 524 fully filled questionnaires were obtained from the slum inhabitants. Similarly 200 questionnaires were distributed to collect the opinion survey and 137 fully filled
questionnaires were collected from the opinion survey. A total of 661 questionnaires have been collected.

3.7.5.2 Coding of Data:
The collected data was entered in the statistical package for social sciences after making the appropriate coding. Each questionnaire was coded and entered into the respective files. The questionnaires were coded as 1 = Yes, and 2 = No for nominal scale questions and for ordinal and other scales the coding was done as per the requirement. The coded data was processed and frequency tables were obtained and then further inferential statistical tests were performed to test the hypotheses.

3.7.5.3 Data Analysis Process:
The data collection has been completed and the process of coding and analysis of the coded data has also been completed. The data has been entered in Microsoft excel in separate data sheets prepared as per the questionnaires. Answer to all questionnaires, coded in excel has been be exported to SPSS software package. Then various statistical tools and test for analysis were applied and reports have been generated.

3.7.6 Statistical Tools:
As the research consists of large sample size, the data falls in the category of the normal distributions. After coding of data the analysis has been done by using various tests and statistical tools for data analysis. The following are the statistical tools that have been used by the researcher.

- Microsoft Excel: Data Storage Tool
- IBM SPSS: For Data Analysis & Interpretation.
- Microsoft word: Data Presentation.
- Statistical tests: Testing of hypotheses

The statistical tools used by the researcher are explained in detail here.

Microsoft Excel: Data Storage Tool:
Excel is an electronic spreadsheet program that can be used for storing, organizing and manipulating data. When you look at the Excel screen you see a rectangular table or grid of rows and columns. The horizontal rows are identified by numbers and the
vertical columns with letters of the alphabet. For columns beyond 26, columns are identified by two or more letters. The intersection point between a column and a row is a small rectangular box known as a cell. A cell is the basic unit for storing data in the spreadsheet. Because an Excel spreadsheet contains thousands of these cells, each is given a cell reference or address to identify it. The cell reference is a combination of the column letter and the row number.

The types of data that a cell can hold include numbers, text or formulas. Just as in math class, formulas are used for calculations usually involving data contained in other cells. Excel and other electronic spreadsheets include a number of built in formulas used for common tasks known as functions.

Spreadsheets are often used to store financial data. Formulas and functions that are used on this type of data include: Performing basic mathematical operations such as summing columns and rows of figures, finding values such as profit or loss, calculating repayment plans for loans or mortgages, finding the average, maximum, or minimum values in a specified range of data, graphing or charting data to assist users in identifying data trends, sorting and filtering data to find specific information. The information garnered in a spreadsheet can easily be incorporated into electronic presentations.

**SPSS: - For Data Analysis & Interpretation:**

Statistical Package for the Social Sciences (SPSS) was religiously used for the statistical analyses. Coding of variables in a quantitative research is very critical for better interpretation of results. The questions and responses were coded and entered in the computer using Microsoft Excel Software. Required analysis was done with the aid of Statistical Package for Social Sciences. Certain statistical methods were applied on the data to get the results which were analyzed. After the excel sheet was completed with coding of data the researcher exported all the data to SPSS software package, checked all fields, scales and other parameters of data and then applied various tools i.e. mean, median, mode and various tests to generate reports for the study.

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1 http://spreadsheets.about.com/od/tipsandfaqs/f/excel_use.htm
**Microsoft word - Data Presentation:**

Word processors have a variety of uses and applications within the business world, home, and education. Business, within the business world, Microsoft word is extremely useful tool. Typical uses include: memos, letters and letterhead, legal copies, reference documents. In Microsoft word, word processors on their computers, word processing in the home tends to be educational or business related, dealing with assignments or work being completed at home. Some use word processors for letter writing, resume creation, and card creation. However, many of these home publishing processes have been taken over by desktop publishing programs.

The data was divided into chapters and all relevant information related to the specific chapter was recorded with the help of word processor and also advance functions like font selection, margin selection was done through Microsoft word.

Tables and graphs are visual representations. They are used in the study to organize information to show patterns and relationships between different variables related to slum inhabitants. Different graphs and charts like Column Chart, Bar Chart, Pie chart, Doughnut Chart and Line Chart have been used for better presentation of the data.²

**Statistical test:**

The researcher has used different statistical tools like the Reliability testing of the data, Measures of Central Tendency (mean), Correlation, Z test etc.

**Measures of Central Tendency:**

Measures of central tendency (or statistical averages) tell us the point about which items have a tendency to cluster. Such a measure is considered as the most representative figure for the entire mass of data. Measure of central tendency is also known as statistical average. Mean, median and mode are the most popular averages. Mean, also known as arithmetic average, is the most common measure of central tendency and may be defined as the value which we get by dividing the total of the values of various given items in a series by the total number of items. Mean is the simplest measurement of central tendency and is a widely used measure. Its chief use

consists in summarizing the essential features of a series and in enabling data to be compared. It is amenable to algebraic treatment and is used in further statistical calculations. It is a relatively stable measure of central tendency. But it suffers from some limitations viz., it is unduly affected by extreme items; it may not coincide with the actual value of an item in a series, and it may lead to wrong impressions, particularly when the item values are not given with the average. However, mean is better than other averages, especially in economic and social studies where direct quantitative measurements are possible.

Median is a positional average and is used only in the context of qualitative phenomena, for example, in estimating intelligence, etc., which are often encountered in sociological fields. Median is not useful where items need to be assigned relative importance and weights. It is not frequently used in sampling statistics.

Mode is the most commonly or frequently occurring value in a series. The mode in a distribution is that item around which there is maximum concentration. In general, mode is the size of the item which has the maximum frequency, but at items such an item may not be mode on account of the effect of the frequencies of the neighboring items. Like median, mode is a positional average and is not affected by the values of extreme items. It is, therefore, useful in all situations where we want to eliminate the effect of extreme variations. Mode is particularly useful in the study of popular sizes.

**Spearman’s Rank Correlation:**

For expressing the degree of relationship quantitatively between two sets of measures of variables usually the help of an index that is known as coefficient of correlation is taken. It is a kind of ratio which expresses the extent to which changes in one variable are accompanied with changes in the other variable. It involves number of units and varies from -1 (indicating perfect negative correlation) to + 1 (indicating perfect positive correlation). In case the coefficient of correlation is zero; it indicates zero correlation between two sets of measures (Singh, 2006). In computing coefficient of correlation with the help of this method ranks are i.e. positions of merits of these individuals in the possession of certain characteristics. Charles Spearman’s coefficient of correlation (or rank correlation) is the technique of determining the degree of correlation between two variables in case of ordinal data where ranks are given to the
different values of the variables. The coefficient of correlation is computed by this method as it considers only the ranks of the individuals in the characteristics A and B and is known as Rank correlation coefficient and is designated by Greek letter (Rho). Sometimes it is also known as Spearman's coefficient of correlation after the name of its inventor (Singh, 2006). The main objective of this coefficient is to determine the extent to which the two sets of ranking are similar or dissimilar. As Spearman’s rank correlation is a non-parametric technique for measuring relationship between paired observations of two variables.

**Kendall’s Co-efficient of Concordance:**
Kendall’s coefficient of concordance, represented by the symbol W, is an important non-parametric measure of relationship. It is used for determining the degree of association among several (k) sets of ranking of N objects, we generally work out Spearman’s coefficient of correlation, but Kendall’s coefficient of concordance (W) is considered an appropriate measure of studying the degree of association among three or more sets of rankings. This descriptive measure of the agreement has special application in providing a standard method of ordering objects according to consensus when we do not have an objective order of the objects. The basis of Kendall’s coefficient of concordance is to imagine how the given data would look if there were no agreement among the several sets (Kothari, 2004).

**Z-test:**
A statistical test used to determine whether two population means are different when the variances are known and the sample size is large. The test statistic is assumed to have a normal distribution and nuisance parameters such as standard deviation should be known in order for an accurate z-test to be performed. A z-test is used for testing the mean of a population versus a standard, or comparing the means of two populations, with large (n ≥ 30) samples whether you know the population standard deviation or not. It is also used for testing the proportion of some characteristic versus a standard proportion, or comparing the proportions of two populations. A Z-test is any statistical test for which the distribution of the test statistic under the null hypothesis can be approximated by a normal distribution. The Z-test has a single critical value (for example, 1.96 for 5% two tailed) which makes it more convenient. For the Z-test to be applicable, certain conditions must be met. Z-tests focus on a
single parameter, following steps are followed. There are the following basic steps to completing a hypothesis z-test.

1. State the Null Hypothesis and the alternative hypothesis
2. State the decision criteria
3. Selection of confidence level: Confidence interval (CI) is a kind of interval estimate of population parameter and is used to indicate the reliability of an estimate. It is an observed interval and differs from sample to sample that frequently includes the parameter of interest, if the experiment is repeated. How frequently the observed interval contains the parameter is determined by the confidence level or confidence coefficient. Confidence intervals consist of a range of values that act as good estimates of the unknown population parameter. The level of confidence of the confidence interval would indicate the probability that the confidence range captures this true population parameter given a distribution of samples. Researcher has selected the confidence level equal to 95% which reflects a significance level of 0.05.
4. Determine the critical value of z. Do this for the chosen significance level. For \( \alpha = 0.05 \) we look up a \( Z \) that has \( 0.025 \) of the distribution beyond it. This is a \( Z \) of \( +1.96 \) and \( -1.96 \).
5. Interpret the data
6. Evaluate the hypothesis - Determine the standard error of the mean.
7. Calculate the Test Statistic: To determine how unusual the mean of a sample is, use the following Z formula to calculate the Z value for our sample mean under the assumption that the null hypothesis is true.
8. Decision Making Time: obtained Z value up in a Z table to find the corresponding \( P \), and compare it to the Critical Z value. If the obtained \( P \) is less than \( \alpha \), we reject the null hypothesis.

Test of Reliability:
One widely accepted classification of validity consists of three major forms: Content, criterion-related, and Construct. Reliability of measure indicates the extent to which it is without bias and hence ensures consistent measurement across time and across the various items in the instrument. Thus, reliability of a measure is an indication of the

\(^3\)http://brandalyzer.wordpress.com/z-test
stability and consistency with which the instrument measures the concept and helps to assess the goodness of measure. SPSS has the reliability analysis procedure. This reliability procedure is executed on the data to assess its reliability. In reliability analysis, the analyze menu is considered. The descriptive statistics menu is further considered and the polar to polar plot is plotted for different variables. Reliability analysis is carried out where the Cronbach's alpha is tested. Ideally, the Cronbach's alpha should be in between 0.5 and 1.

3.8 Chapter Scheme:
The research study is presented as follows:

CHAPTER I: INTRODUCTION
This chapter presents an introduction to the research study and presents the world scenario, the Indian scenario, the Maharashtra scenario and the Pune scenario regarding the slum.

CHAPTER II: CONCEPTUAL BACKGROUND AND LITERATURE REVIEW
This chapter covers the conceptual background and the review of related literature.

CHAPTER III: OBJECTIVES, HYPOTHESES AND RESEARCH METHODOLOGY
This chapter includes the background of the study, statement of problem, objectives of the study, the research premise, the research hypotheses, scope of the study, the limitations of the study, the research methodology used for the study and the chapter scheme of the study.

CHAPTER IV: DATA ANALYSIS AND INTERPRETATION: SLUM DWELLERS
This chapter provides the data analysis and interpretation of the data collected from the residential slum dwellers, health practitioners in the slum and the business persons in the slum.

CHAPTER V: DATA ANALYSIS AND INTERPRETATION: OPINION SURVEY AND TESTING OF HYPOTHESES (THROUGH STATISTICAL TESTS)
This chapter discloses the data analysis and interpretation of the data collected from the NGO’s, social workers, slum rehabilitants, corporators, MLA’s and government
office bearers and the chapter also presents the testing of hypotheses done through statistical tests.

CHAPTER VI: FINDINGS AND CONCLUSIONS
This chapter details the findings of the data analysis of the residential slum dwellers, health practitioners in the slum, business persons in the slum, non-governmental organization, social workers, slum rehabilitants, corporators, and MLA and government office bearers. The chapter also provides the conclusions of the study.

CHAPTER VII: SUGGESTIONS AND RECOMMENDATIONS
This chapter includes the suggestions and recommendations made by the researcher. It also includes the scope for further research.