CHAPTER III: RESEARCH METHODOLOGY

This chapter gives the basis structure of the research study conducted. Following are the aspects of research methodology:

3.1. Type of research

3.2. Research objectives

3.3. Sampling technique

3.4. Overview of pilot study

3.5. Sample size

3.6. Sample composition

3.7. Sources of data

3.8. Analysis of data and tools used

3.9. Limitations of the research study

3.1. Type of Research

A descriptive study is one in which information is collected without changing the environment (i.e., nothing is manipulated). Sometimes these are referred to as “observational” studies. A descriptive study can provide information about the naturally occurring health status, behaviour, attitudes or other characteristics of a particular group. Descriptive studies are also conducted to demonstrate associations or relationships between things in the world around. Descriptive studies involve interaction with groups of people or a study that can follow individuals over time.

Descriptive studies, in which the researcher interacts with the participant, may involve surveys or interviews to collect the necessary information. Descriptive studies in which the researcher
does not interact with the participant include observational studies of people in an environment and studies involving data collection using existing records (e.g., medical record review).

This research relies on reviewing available literature and/or data, or qualitative approaches such as informal discussions with consumers, employees, management or competitors, and more formal approaches through in-depth interviews, focus groups, projective methods, case studies or pilot studies.

In the present research, a primary pilot survey was conducted in a few selected traditional textile clusters. Primary data were collected through personal interviews and surveys of the textile artisans, suppliers, entrepreneurs, government officials, NGO’s and experts, while secondary data were obtained from the internet sources and past records. This facilitated a field survey on the prevalence/identification of the vulnerabilities of the traditional Indian textile sector especially at the grass root level. At the next stage, it maps the process of encouraging and materializing the adoption of best innovative practices in the textile clusters by a systems approach to capacity building based on the Blue Ocean Strategic framework.

The following diagram broadly depicts the overall methodology and research approach used in the study to fulfill the research objectives:

**Figure 3.1. A Diagrammatic Illustration of the Conceptual Research Plan of Present Work**
A Research process consists of series of actions or steps necessary to effectively carry out research. The desired sequencing of these steps followed in the present work is-

Figure 3.2. Research Design of the study
3.2. Research Objectives

The purpose of research is to discover answers to questions through the application of scientific procedures. The main aim of research is to find out the truth which is hidden and which has not been discovered as yet. The research objectives of this study fall into the following broad groupings:

The overall objective of the present research is to create a model for innovative capacity building for traditional Indian textile clusters that can equip artisans/weavers grow consistently multi-dimensionally.

The cluster-based systemic approach provides answers to the question of devising a policy with a view to achieve optimum profitability, growth, productivity and sustainable consistent development and minimizing causes of vulnerabilities in the traditional Indian textile sector. In view of the above, the present research is aimed at accomplishing the following objectives:

1. To Identify and evaluate critical vulnerability factors (Cause-Effect variables) of selected traditional textile clusters of India.

   **Justification:** The critical vulnerability factors are needed to be identified because it is only then that the problems at the grass root level can be addressed and further measures for sustainable growth and development can be worked out.

2. To examine the prospect and areas for Innovative Capacity Building in the Unorganized Traditional textile clusters of India.

   **Justification:** After identification of the vulnerabilities present in the traditional Indian textile clusters, areas where potential for implementation of measures for improvement was possible had to be highlighted so that effective allocation and utilisation of resources could be planned.
3. To identify the critical ‘competitive gap’ existing between the organized and the unorganized textile sectors for their mutual enrichment.

Justification: It was required to identify the current practices in the organised textile sector which made it competitive and explore the possibility of those practices/processes being replicated in the unorganised textile clusters for capacity building.

4. To recommend a holistic systems model (Decision-Framework) of Policy Initiatives and Value Innovation for selected Clusters under the study based on value-inputs from various stakeholders.

Justification: A model for capacity building is required to be developed for the policy makers to create an all encompassing framework for sustainable growth and development of the traditional Indian textile clusters.

The vulnerability analysis enables the researcher to be in a position to recommend a model based on the Blue Ocean Strategy keeping in mind the strengths, weaknesses, opportunities and threats of the clusters studied.

3.3. Sampling Technique

Research techniques refer to the behaviour and instruments used in performing research operations such as making observations, recording data, techniques of processing data and the like.

A sample design is a definite plan determined before any data are actually collected for obtaining a sample from a given population. Samples can be either probability samples or non-probability samples.

Probability samples are those based on simple random sampling, systematic sampling, stratified sampling, cluster/area sampling whereas non-probability samples are those based on
convenience sampling, judgement sampling and quota sampling techniques. A brief mention of the important sample design of this study is as follows:

**Purposive-Cluster Sampling:**

**I. Purposive Sampling** is also known as deliberate or non-probability sampling. This sampling method involves purposive or intentional selection of particular units of the universe for constituting a sample which represents the universe.

The researcher chooses the sample based on who they think would be appropriate for the study. This is used primarily when there is a limited number of people that have expertise in the area being researched.

**II. Cluster Sampling** involves grouping the population and then selecting the groups or the clusters rather than individual elements for inclusion in the sample. The clustering approach can, however, make the sampling procedure relatively easier and increase the efficiency of field work, especially in the case of personal interviews.

Under cluster sampling, we first divide the total area into a number of smaller non-overlapping areas, generally called geographical clusters. Then a number of these smaller areas are randomly selected, and all units in these small areas are included in the sample.

Hence, Cluster Sampling is the technique adopted for the study in which population is divided into clusters and random sample has been drawn from all or selected clusters. In other words, the population is divided into a number of strata or sub-groups and a sample is drawn from each stratum.

In the present study, a multi-stage sampling process as an extension of cluster sampling has been followed in order to inquire a considerably large geographical area. Under multi-stage sampling, the first stage was to select large primary sampling units such as states, then districts and finally the clusters of textile units at the village/town level.
For the present study, six states were selected for a vulnerability analysis in the traditional textile clusters where then cities/towns/villages were identified comprising maximum number of artisans/weavers/respondents appropriate for data collection through a schedule in which fifty-three vulnerabilities were mentioned.

These six clusters were selected owing to their popularity in the traditional textile industry or the intensity of vulnerability being faced by a cluster for example the Chamba Rumal Cluster which has already been established as ‘Languishing’, the Chanderi and the Banaras Brocade Cluster which are languishing owing to powerloom, the Block Printing Cluster which is in danger due to screen printing, the Madhubani and the Phulkari Cluster which are also becoming extinct due to machine printing. All these art forms also belong to the northern part of India and each cluster is a major art form / traditional textile of that state.

The respondents had to give their views about the types and extent to which those vulnerabilities are prevailing in the industry (qualitative) and how critical they were (quantitative- on a five point Likert scale; 1 being least critical and 5 being most critical). Field interviewing was thus conducted. The qualitative responses were further clubbed into frequency based rank order.

3.4. Overview of Pilot Study of Delhi, Rajasthan and Uttar Pradesh: (Conducted during first six months of Synopsis Preparation, Year 2011)

A pilot survey of the traditional Indian textile industry in the Sanganer of Rajasthan, Varanasi of Uttar Pradesh and Delhi Region was conducted initially to ascertain the present working conditions, operating practices, the problems being faced by the artisans, the supply chain and the value chain aspects of the industry.

The aim was to identify the clusters’ overall vulnerabilities prevalent related to financial aspects, technology/market/product advancements, workforce building, environmental consciousness, socio-cultural impacts, government institutions, legal interventions, macro
environment etc. This was done based upon the practitioners’ judgment and views of experts/artisans/weavers/suppliers/entrepreneurs/buyers in the industry.

Objectives of the Pilot Survey: The primary survey was aimed to identify and evaluate critical vulnerability factors (Cause-Effect variables) of selected traditional textile clusters of India.

3.5. Sample Size

**Proposed Sample Composition (Respondents):**  
(Sample Size: 100)

Various categories of respondents in the industry like:

- Craftsmen / Weavers/ Artisans (50)
- Suppliers (10)
- Entrepreneurs (10)
- Middlemen (10)
- Government agencies (05)
- NGOs (05)
- End users/Clients/ Buyers (10)
THE SIX TRADITIONAL TEXTILE CLUSTERS SURVEYED FOR A VULNERABILITY ANALYSIS FOR INNOVATIVE CAPACITY BUILDING:

![Map of India showing clusters](image-url)
Table 3.1. Geographical Area Coverage (Textile Clusters): Sample Size: 95

<table>
<thead>
<tr>
<th>Name of the Traditional Textile:</th>
<th>Name of State:</th>
<th>Name of City/Village:</th>
<th>No. of Respondents:</th>
<th>Population:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHULKARI</td>
<td>Punjab</td>
<td>Patiala, Tripuri, Nabha, Galwatti, Sohali</td>
<td>25</td>
<td>-</td>
</tr>
<tr>
<td>MADHUBANI</td>
<td>Bihar</td>
<td>Patna, Madhubani, Ranti</td>
<td>9</td>
<td>20,000 (According to DC Handicrafts Office, Ministry of Textiles as on 6/11/12)</td>
</tr>
<tr>
<td>BLOCK PRINTING</td>
<td>Rajasthan</td>
<td>Jaipur, Sanganer, Bagru</td>
<td>14</td>
<td>9600 (According to UNIDO-CDP, New Delhi, 1997)</td>
</tr>
<tr>
<td>CHANDERI</td>
<td>Madhya Pradesh</td>
<td>Chanderi</td>
<td>18</td>
<td>10977 (According to UNIDO-CDP, New Delhi, 2004)</td>
</tr>
<tr>
<td>CHAMBA RUMAL</td>
<td>Himachal Pradesh</td>
<td>Chamba</td>
<td>14</td>
<td>60 (According to AIACA – All India Artisans and Craft Workers Welfare Association)</td>
</tr>
<tr>
<td>BANARAS BROCADE</td>
<td>Uttar Pradesh</td>
<td>Varanasi, Ram Nagar, Lalla Pur, Pili Kothi, Rasoolpur</td>
<td>12</td>
<td>40,000 (According to Entrepreneurship Development Institute of India, 2007)</td>
</tr>
<tr>
<td>GOVT/END USERS</td>
<td>Delhi, Bombay</td>
<td></td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL RESPONDENTS</td>
<td></td>
<td></td>
<td>95</td>
<td>Proposed sample size 100</td>
</tr>
</tbody>
</table>

3.6. Sample Composition (Respondents)

Various Stakeholders in the industry like Craftsmen, Weavers, Artisans, Suppliers, Entrepreneurs, Middlemen, Government Agencies, NGOs, End users/ Clients/ Buyers were taken.

In the present study, the schedule was constructed on a five point Likert scale for rating how critical vulnerability is according to the respondent apart from a qualitative feedback on the effect caused by each corresponding vulnerability. This schedule was constructed after the first
field visit to two states after which the vulnerabilities prevalent in the traditional textile clusters were identified.

Each vulnerability was spread over broadly seven factors. In the second phase, field-visit to all six clusters was conducted. On the spot photography was done wherever needed and deemed appropriate. Artisans and other stakeholders were interviewed personally in the clusters.

Note: The researcher, while doing field work, found that for the work force which was performing in the industry; tasks were not mutually exclusive. It was more of multi tasking and one unit was performing most of the processes unlike the organized sector where one unit indulges generally in only one process like either spinning or weaving or dyeing or stitching. It thus brought change in the sample composition where artisans, suppliers, entrepreneurs, middlemen etc were included in one group of multi tasking people.

3.7. Sources of Data

There are several ways of collecting the appropriate data which differ considerably in context of money costs, time and other resources at the disposal of the researcher. Primary data can be collected either through experiment or through survey. But in the case of a survey, data can be collected by any one or more of the following ways:

3.7.1. PRIMARY DATA

A range of tools were used in the present study to collect the required information. The following is a break-up of the data collection methodology used:

- Field Scan (Pilot Study) in 2 phases.
- Interviews: The investigator follows a rigid procedure and seeks answers to a set of pre-conceived questions through personal interviews. This method of collecting data is usually carried out in a structured way.
- Schedules: Schedules containing relevant questions are taken to the respondents. Data
are collected by filling up the schedules on the basis of replies given by respondents.

- **Observation:** This method implies the collection of information by way of investigator’s own observation, without interviewing the respondents. The information obtained relates to what is currently happening. This method is no doubt an expensive method and the information provided by this method is also very limited. As such, this method is not suitable in inquiries where large population is concerned.

- **Demographic Survey.**

- **Ethnography.**

Execution of this methodology included:

I. **Initial pilot field visit** to interact with the artisans, organizations, and agencies working in the area selected for study.

II. **Identifying and interviewing local cluster members** and promoting agencies to carry out an objective and issue-based assessment.

Note: The results obtained from the pilot survey of the industry led to formulation of a good schedule with 53 vulnerabilities which were reliable and valid as it was based on first-hand information from all industry stakeholders, specially the skilled artisans. Next stage was to extend the sample size to cover all six clusters in central India.

III. **Observation / business profile review:** Collection of samples from cluster was done to review design, quality of product, marketability, and overall business prospect.

IV. **Demographic Survey:** Classification and analysis of respondents based on demographic parameters.

V. **Ethnography:** Ethnography is a potent tool for primary data collection. This includes a keen and detailed observation of the study site or field where the required information can be obtained directly. The traditional textile clusters were personally visited by the researcher and thoroughly observed regarding the material, equipments being used, and the operational
practices taking place, the state of the skilled artisans, the working conditions, the marketing outreach, the buyers and the like.

**VI. Field Surveys**: The sites of the textile units were visited to obtain first hand information, to know the location and actual working conditions of the clusters and to interact with the artisans. Photographs were taken on the spot.

**VII. Interviews**: The concerned artisans, entrepreneurs and the concerned workforce were interviewed about the aspects related to finance, HR, production, market, socio-economic status, the institutional, IT and the macro environment for identifying problem areas at the grass root level.

**VIII. Questionnaires**: Questionnaires with both descriptive and objective items were constructed to collect quantitative and qualitative information from government officials, academicians, business owners, NGOs, entrepreneurs etc in the first phase of the study to identify vulnerabilities across the traditional textile clusters on the basis of which the schedule for the second phase for data collection was commenced.

**a. Questionnaire Design**

**b. Schedule Design**

a. Questionnaires were designed separately for different categories of respondents.

- Questionnaire: Designed for Government Officials and NGOs.

- Questions were framed to investigate the organisations’ activities and identify the vulnerabilities in the traditional textile clusters.

**b. Schedule**: The schedule was further designed to collect quantitative as well as qualitative data. The vulnerabilities were identified after the first field visit was conducted and the questionnaire from government officials and NGOs were filled.
The quantitative part of the schedule comprised of the vulnerabilities prevalent in the traditional textile clusters which had to be assigned a weight on a 5 point Likert Scale from least critical to most critical by the respondent. Corresponding to each vulnerability, the respondents’ qualitative comment on the effect of the vulnerability was asked for developing the causal loop diagram and establishing relationships between variables.

The required data and information was gathered through the following methods:

Questions were constructed on the basis of 5 point Likert Scale to measure the quantitative responses, filled up by all stakeholders (95 Respondents). The Schedule also focussed on qualitative data aiming at the exposition to the effects caused by the vulnerabilities in the system.

The researcher interviewed the owners, experts, artisans, weavers, suppliers, entrepreneurs, buyers, contractors etc associated with the industry. This gave an idea about the institutional framework under which these clusters function in addition to their basic structure, the process of production used, the sources of raw materials, etc and the prevalent vulnerabilities.

The researcher also spoke to the experts and officers at different institutions like the Delhi Crafts Council, NIFT, TRIFED, Ministry of Textiles etc. Websites of these offices were also consulted for the same. Similar organizations were interviewed in Agra (Tajmahotsav 2011-12) and Delhi Haat (New Delhi) as well. Selected sample of a few representative units were personally visited and interviewed.

3.7.2. SECONDARY DATA

It included of gathering of information on cluster actors and contacts with a range of institutions such as:

- Crafts Council India
- Dastkar- A Society for Crafts and Craftspeople
- Crafts Revival Trust
- National Institute of Design-NID
- National Institute of Fashion Technology-NIFT
- Asian Heritage Foundation
- Ministry of Textiles
- Textile Committee, Mumbai
- The Nabha Foundation
- TRIFED (The Tribal Cooperative Marketing Development Federation of India Limited)
- Weavers’ Service Centers
- DC Handicrafts

**Others**: Journals, trade magazines, Government of India Textile Ministry Reports, Indian Textile and Clothing Exports Association Reports, Indian Chambers of Commerce and Industry (FICCI) Reports, Confederation of Indian Industries (CII) Reports and various other related private and public reports.

Six clusters were selected that were conveniently approachable in central India for the study. Artisans of these clusters were interviewed personally. A structured Schedule was administered where vulnerabilities in the pilot visit; effects with their critical strength in the second phase of the field visit were extracted by interactive investigation. Unstructured open-ended questions were also put up to the under/uneducated artisans for a better understanding of the complex and dynamic nature of the industry.

Different samples from various categories of target respondents were selected mostly on convenience basis and in the case of the experts, sampling was mostly on referral basis. There was a sample of 95 people who were personally interviewed.
3.8. Analysis of data

After the data have been collected, the researcher turns to the task of analysing them. The analysis of data requires a number of closely related operations such as establishment of categories, the application of these categories to raw data through coding, tabulation and then drawing statistical inferences. The unwieldy data should necessarily be condensed into a few manageable groups and tables for further analysis. Thus, researcher should classify the raw data into some purposeful and usable categories. Tabulation is a part of the technical procedure wherein the classified data are put in the form of tables.

Analysis work after tabulation is generally based on the computation of various percentages, coefficients etc. by applying various well defined statistical formulae. The researcher analysed the collected data with the help of various statistical measures as depicted below in table 3.2-

<table>
<thead>
<tr>
<th>Tools Used:</th>
<th>Short Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Descriptive Statistics</strong></td>
<td>Descriptive statistics provides simple summaries about the sample and about the observations that have been made. Such summaries may be either quantitative, i.e. summary statistics, or visual, i.e. simple-to-understand graphs. These summaries may either form the basis of the initial description of the data as part of a more extensive statistical analysis, or they may be sufficient in and of themselves for a particular investigation.</td>
</tr>
<tr>
<td><strong>Likert Scaling assessing magnitude of responses</strong></td>
<td>A Likert scale is a psychometric scale commonly involved in research that employs questionnaires. It is a bipolar scaling method, measuring either positive or negative response to a statement. Likert scales may be subject to distortion from several causes. Respondents may avoid using extreme response categories (central tendency bias); agree with statements as presented (acquiescence bias); or try to portray themselves or their organization in a more favourable light (social desirability bias).</td>
</tr>
<tr>
<td><strong>Frequency/Ranking</strong></td>
<td>Frequency is the number of occurrences of a repeating event per unit time. A ranking is a relationship between a set of items such that, for any two items, the first is either 'ranked higher than', 'ranked lower than' or...</td>
</tr>
<tr>
<td>Ranked equal to' the second. In mathematics, this is known as a weak order or total pre order of objects. It is not necessarily a total order of objects because two different objects can have the same ranking.</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td></td>
</tr>
<tr>
<td><strong>Weighted Average</strong></td>
<td>An average in which each quantity to be averaged is assigned a weight. These weightings determine the relative importance of each quantity on the average. Weightings are the equivalent of having that many like items with the same value involved in the average.</td>
</tr>
<tr>
<td><strong>Factor Analysis</strong></td>
<td>Factor analysis is a statistical method used to describe variability among observed, correlated variables in terms of a potentially lower number of unobserved variables called factors. In other words, it is possible, for example, that variations in three or four observed variables mainly reflect the variations in fewer unobserved variables. Computationally this technique is equivalent to low rank approximation of the matrix of observed variables.</td>
</tr>
<tr>
<td><strong>Two Sample Z Test</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>ANOVA</strong></td>
<td>The ANOVA test is the initial step in identifying factors that are influencing a given data set. After the ANOVA test is performed, the analyst is able to perform further analysis on the systematic factors that are statistically contributing to the data set's variability. In its simplest form, ANOVA provides a statistical test of whether or not the means of several groups are all equal, and therefore generalizes t-test to more than two groups. Doing multiple two-sample t-tests would result in an increased chance of committing a type I error. For this reason, ANOVAs are useful in comparing three, or more means.</td>
</tr>
<tr>
<td><strong>Causal Loop Diagrams</strong></td>
<td>A Causal Loop Diagram (CLD) is a diagram that aids in visualizing how inter-related variables affect one another. The diagram consists of a set of nodes representing the variables connected together. The relationships between these variables, represented by arrows, can be labelled as positive or negative. (<a href="http://www.investopedia.com">http://www.investopedia.com</a>)</td>
</tr>
</tbody>
</table>

**DURATION OF THE STUDY: Year 2011-2013** (2 years / 24 months)
3.9. Limitations of the Research Study

- Information from government officials was not always latest and updated.
- Time and resources constraint also limited quantity/magnitude of data collection.
- Language, culture, gender and status also reflected in the comfort level of respondents.
- Time/Duration of study: Two years period was not ideal enough for the researcher to observe all of the artisans’ problems and real working conditions.
- Design of Schedule: The schedule might not have provided enough evidence of the artisans’ actual interactions with their work environment.
- Personal Perceptions and Bias: Since the field visits were conducted by the author herself, certain degree of subjectivity would be found.
- Sample size: The sample size is small in number which might not represent the majority of population. It is difficult to be considered representative for our results and findings.
- Lack of available and/or reliable data: Lack of data and reliable data has likely limited the scope of analysis.
- Some of the resources consulted were a few years old, and did not contain the most relevant, up-to-date information.
- One of the best ways to learn about the vulnerabilities was to study previous case studies and organizations throughout time. Gaining a historical context for current organizational problems and procedures was strength of the research. While the researcher consulted a variety of literature, interviewed several experts to aid in the understanding of where the field currently is and where it is we want it to go, the main limitation facing was that a holistic non traditional approach towards capacity building has never been done before.

Therefore, there were no established standards or defined processes. While this can be viewed as a limitation, this particular aspect of the research may also be its greatest strength. There is thus the freedom and ability to fully immerse in research and design, and ultimately, create a system to better the field without being confined to a pre-existing format.
• Likert scales used in the study may be subject to distortion from several causes. Respondents may avoid using extreme response categories (central tendency bias); agree with statements as presented (acquiescence bias); or try to portray themselves or their organization in a more favourable light (social desirability bias).

• Self-reported data: Self-reported data/explaining issues from the schedule to artisans is a potential source of bias that should be noted as limitations: (1) selective memory (2) telescoping (3) attribution and (4) exaggeration.

• Access: The study depended on having access to people, organizations, and documents. Difficult access to people was a big limitation during data collection.

• Fluency in a language: Most of the artisans did not speak fluent Hindi or English. This might have resulted in the lack of their comfort level while answering the schedule further resulting in scoring imperfections.

• Accessibility and readiness on the part of the target respondents were the major concerns in the study which limited the survey to six clusters only. Hence, a systematic networking and sensitization was done by the researcher prior to the selection of the clusters together with a pilot survey. The Blue-Ocean Framework invoked as a model for recommendation is in fact a generic model applicable to effectively resolve the issues faced by the textile clusters in general.