Chapter - III

METHODOLOGY

Methodological approach followed to fulfill objectives of the study has been described under following sections:

3.1 Locale of the Study
3.2 Population of the study
3.3 Sample size and sampling procedure
3.4 Preparation of tool for data collection
3.5 Collection of data
3.6 Data base
3.7 Strategy for attaining objectives
3.8 Method of analysis
3.9 Statistical analysis

As apparent from an overview of previous studies, recycling of rags in India has invited only a little attention from scholars, textile engineers, as well as, from government and non-government organisations. However, in developed economies like U.S.A, U.K, and Europe this has attracted the attention of scholars, industrialists as well as, from the general public, mainly after 1990’s, thanks to Environmental awareness and green economy. However, in Indian Society environmental awareness is not developed at a rapid pace alike Western society where people are ready to pay for green economy, whereas in developing economies like India such tendency is yet to develop. But in Indian
scenario environmental consciousness is increasing day-by-day though at a slower pace particularly in 21st century and this is why, some studies are coming up. Therefore, in present study an attempt is being made to incorporate and analyze economic, as well as, ecological benefits of ‘shoddy’ industry at Panipat.

The present study is based upon empirical research which mainly depends upon primary source of information; therefore, primary data has been utilized. The ‘shoddy’ in Panipat has not developed in an organized sector and, this is why, secondary data is not available in published or compiled form. Therefore, to derive information regarding this unorganized sector industry an intensive field survey has been done by the investigator and beside data collection the whole process of making ‘shoddy’ yarn has been witnessed by the investigator in various industries visited for study. Moreover, it is evident from overview of the literature that recycling of rags has been studied mainly in U.S.A and European countries, while in Indian context not much literature is available on recycling process.

Although, eco-design models and environmental considerations in clothing and textiles have found considerable importance in Western Society, yet these findings cannot be implemented in Indian society due to following reasons –

1. Behavioural aspects of human vary from space to space and from time to time in response to environmental and cultural situations. Clothing being dependent on human choices essentially varies from culture to culture and simultaneously on purchasing power of the society (economy aspect). Thus western society and Indian traditions cannot be equated.
2. Environmental awareness is not common in Indian masses, though lot of attempts are being made to create consciousness among masses in terms of eco-friendly endeavours yet the results are still to be seen.

3. In Western society much expenditure is done on research and development while in India this tendency has yet to develop.

4. Rags from Western society imported in India become raw-materials for ‘shoddy’ yarn, while in India clothing are used to its full strength and, this is why, no local pool for recycling can be developed.

An attempt had been made to develop a local pool for collection of old clothing in Panipat with the help of local people by distributing leaflets in houses (a sample leaflet in Appendix IV) and in posh localities, as well to deposit their old clothing for recycling in specific locations, as it was an eco-friendly technique for disposal of used clothing (This was done with the help of local shopkeepers). But there were only a few takers of the proposal and even industrialists were also not that enthusiastic for the same owing to factors mentioned above.

Owing to above mentioned factors application of Western models has not been done in present study rather own conclusions have been derived on the basis of empirical research. Moreover, the earlier studies undertaken by various scholars on this aspect, though with a different perspective have also been taken into account for deriving conclusions. For example, Norris’ studied it from anthropological perspective, while Aiyar’s study was with a market potential perspective (reviewed in chapter 2).
3.1 LOCALE OF THE STUDY

The present study has been based upon an intensive survey of the various plants of ‘shoddy industry’ located at Panipat and in its surroundings, the leading centre of Haryana, in terms of handloom, power-loom and ‘shoddy’ yarn-production as well as survey of consumers. Panipat has been purposely selected by the researcher, as there are more than 300 units engaged in shoddy yarn-making. Panipat is a Class-I town according to the Census of India and located at about 90 kms north of Delhi at NH-1 within National Capital Region (NCR). Moreover NH-1 provides it linkage with Ludhiana, Phagwara, Goraya, Jalandhar and Amritsar which are leading clothing-textiles production centres of Punjab and purchase yarn from Panipat. In other words, Panipat is raw material source centre for these industrial centres. The location of Panipat in Haryana and its accessibility is evident from:
3.2 POPULATION OF THE STUDY

Population of the study comprised of (a) shoddy yarn making units (b) workers of industry and (c) consumers. As it is not feasible to collect data from each and every unit; every worker and consumer, samples had been selected from each.

3.3 SAMPLE SIZE AND SAMPLING PROCEDURE

A sample of 20% was taken for the purpose of data collection on the basis of purposive sampling out of 300+ industries, located in Panipat and its surroundings. A list of plants was taken from industries department Panipat, but ‘shoddy’ industry being in an unorganized sector, complete data was not available from the industries department. Therefore, supplementary information was also derived from ‘shoddy’ industry union office and export units of ‘shoddy’ industry through internet. Thus 60 industries were selected out of 300+ industries at Panipat and its surroundings which were visited and thoroughly surveyed to derive significant information. The number of workers working in these industries who were available at the time of visit were asked questions out of schedule for survey of workers. The health survey was based upon interviews with these workers in which about 200 males and 100 females out of the total labour was taken for investigating health hazards, if any. As most of the labour engaged in sorting, rag tearing, removal of buttons and zips and other manual works is contractual and not regular employees in industrial units, no entries of total labour were available with the industrialists. Therefore, the sample of labour was not taken but whosoever was available at the time of visit to the industry were interviewed. As far semi-skilled labour is concerned who work on machines, their record was available with the industrialists as they were treated as regular labour.
For selection of consumers purpose random sampling was done out of three categories of respondents based upon their academic standards. A sample of 100 respondents each for three classes, i.e., below matriculation, graduates, and above graduate degree, thus a total sample of 100×3=300 persons was taken to analyze the responses. The reasons behind taking the academic standards for this purpose was the underlying notion that persons with high educational standard were more aware about environment and eco-friendly measures as compared to persons having lower qualifications. The consumers were selected from the city of Panipat from various localities and institutions located at Panipat.

3.4 PREPARATION OF TOOL FOR DATA COLLECTION

Data has been collected with the help of self constructed questionnaire and interview schedule. Separate questionnaire have been prepared for the collection of information from shoddy yarn making units and consumers. Interview schedule has been mainly prepared to gather information from consumers. Questioner and interview schedule consisted of combination of close ended and open ended questions. Likert type scale was used for some questions.

**Questionnaire for industry**- In this questionnaire the data regarding shoddy units were derived on the basis of various questions related to profile of the industrial units, production data, disposal pattern of yarn, eco-friendly measures, profitability, and sustainability aspects. The data collected through this survey has been tabulated and graphical representation has been done accordingly. The inferences derived out of these quantifiable aspects have been analyzed in Chapter IV, Results and Discussions. (Appendix I)
Questionnaire for consumers - Questionnaire II meant for the general public (Appendix II) containing questions on various attributes of the shoddy industry was got filled from the various sections of the society, who were aware about the shoddy industry and its products. The consumers were classified as per their educational standards with a notion in mind that higher qualified consumers are having a better understanding of the things.

Interview schedule for workers - The schedule was used for the health survey of the workers engaged in shoddy industry (Appendix III). Here Schedule was used instead of a Questionnaire as most of the workers engaged in shoddy industry were having a low level of literacy and were not able to fill the questionnaire at their own. Therefore, interviews and schedules were used to supplement the data. Moreover, industrialists were of the view that shoddy yarn making process is not responsible for any significant health hazard. But questions were asked directly from the labour to find out the reality.

Besides, information regarding common ailments of shoddy industry workers has also been substantiated by interviews with local medical practitioners, who were having a direct interaction with these workers.

Reliability and validity of questionnaire and interview schedule

To make the tools to be reliable and authentic the tools were pilot tested on 10% units and respondents from each group of the sample. On the basis of analysis of responses in pre-testing stage necessary modifications were made to make these tools more functional and purposeful. In addition the tools were given to textile experts for evaluation and their suggestions and corrections were included in the questionnaire.
3.5 COLLECTION OF DATA

The final draft of tool was distributed to two groups of samples namely (a) industrialist or managers of shoddy yarn making units and (b) consumers. Workers were personally interviewed by researcher. The industries selected through purposive random sampling have been visited by the researcher personally and first questionnaire has been distributed to industrialists or their managers to derive significant information about industrial units.

The second questionnaire (Appendix II) has been distributed among general public to derive feedback of the shoddy industry. In this survey attempt has been made to include the responses from various segments of the society, i.e., rich, poor, housewives, labour class, students, businessmen, service-class, marginal workers, literate, illiterate, environmentally conscious and unaware of environmental concerns and so on. The purpose has been to find out that whether shoddy yarn products are popular or not. Similarly, worth of the industry and its products are also studied and analyzed through this survey.

3.6 DATA BASE

As already mentioned the data used for present study is mainly primary, which has been derived through three questionnaires (APPENDIX I, II and III), one for the industry, second from the general public of Panipat and third for labour’s health survey. The questions in questionnaire for the industry persons were formed in the manner that information may be extracted regarding production, working, variety of yarn products and eco-friendly devices, is the industry beneficial or not. The questions were asked regarding sustainability of the industry and how the masses preferred to dispose-off their old clothing. An attempt was made to work out that a local pool for old clothing can be developed or
not. The feasibility of pool and responses from industrialists were also assessed. The results have been analysed in chapters to follow.

### 3.7 STRATEGY FOR ATTAINING OBJECTIVES

Strategy to obtain these objectives includes visit to the shoddy industrial units, interviews with industry owners, labour, consumers, and general public as discussed before. The major stress has been put upon eco-friendly implications, sustainability and utilitarian aspects along with studying the potentials of developing a local pool for rags and health problems, if any, on labour working in this industry. The objectives of utilitarian aspects, health survey and potentials for development of local pool for raw material was also studied on the basis of various questionnaires and schedules.

### 3.8 METHOD OF ANALYSIS

If every object in the world would have been taken as distinct and unique than our perception of the world would have been disintegrated into complete meaninglessness. This is why, generalizations are must which may be derived out of specific case studies. These generalizations lead to deductive logic and this deductive logic becomes the basis for scientific investigation. However, objective analysis and precise and accurate derivations are necessary for a purposeful analysis. Therefore, the industries visited were not taken as distinct unit rather generalizations were derived out of data collected, classified, tabulated and analysed through logical derivations and statistical comparisons. Maps, tables and diagrams have been incorporated where it was necessary, as visual impression is more lasting in minds as compared to theoretical descriptions. Photographs have also been taken as tools for complete comprehension of the process of ‘shoddy’ yarn making, and these have been incorporated wherever necessary. Moreover, some industrialists and their work in-charges were
interviewed to derive information regarding sources of raw-material, end-products, sustainability and waste-management measures. The process of production and flow chart has been discussed in next chapter under the head, ‘the Process of Shoddy Yarn making’.

3.9 STATISTICAL TOOLS OF ANALYSIS

The analysis has been based upon results of the survey done through these questionnaires which have been mentioned above (Appendix I to III). The process of making shoddy yarn, as elaborated in section was witnessed by the researcher and photographs of each stage in the process have been incorporated in the form of plates/photographs, as visual impression is more lasting in our minds and easy for comprehension, as compared to descriptive expression. Moreover, statistical tools have been used where these were necessary. Graphs, Histograms and tables have also been incorporated to reveal the analysis of results. Means and Averages have also been used as statistical tools for objective analysis. Attributes of shoddy industry have been explained through $3 \times 3$ contingency table using $\chi^2$ test. The applied aspect of these statistical methods has been given in Chapter 4.