CHAPTER II
RESEARCH AND ANALYTICAL FRAMEWORK

2.1 STUDY AREA

Firozabad till few years back was a tehsil in Agra district, is now a full fledged district of Uttar Pradesh since 1989. It is the home of glass bangle and glass ware Industries which is a multi-crore business. The factories of Firozabad process a great variety of glass products: bangles (thin glass bracelets), bulbs, tumblers, jugs, chandeliers, cut glass and various other utility items. It has one of the largest concentrations of child labour in India, especially in the production of glass bangles.

The Firozabad district which has a total geographical area of 2352 sq.kms., comprises of three tehsils and nine development blocks. In 1981, the total population of Firozabad district was 12.60 lakhs, out of which 75.63 per cent resides in the rural areas. The scheduled castes and scheduled tribes population constitute 20 per cent of the total population in the district (SC: 19.81 per cent and ST: 0.03 per cent). The literates constitute 33.17 per cent (males: 43.17 per cent and females: 20.91 per cent) and the total workers constitute 27.4 per...
cent of the total population. The percentage of marginal workers to total population was only 0.06 per cent. The density of population of the district in 1981 was 412 persons per sq.km..

The district is famous for glass making and bangle manufacturing work, and is infamous for the widespread (ab)use of child labour in these units. Initially, the glass industry was not included in the Child Labour (Prohibition and Regulation) Act, 1986 among the list of occupations hazardous to children. It has been included later on by a government notification on 5th October 1993, which covered all the processes mentioned in the Section 87 of the Factories Act\textsuperscript{1}. The government has designated the glass industry as a prohibited industry for child labour mainly because of the heavy concentration of child labour and the serious health hazards involved in it.

The glass industry is technologically primitive and the pressure on the workers is tremendous. No effort has been made so far to modernise and improve the working conditions in the industry. The floor of the glass factory, where the primary activity of the manufacturing of the glass bangles is done is always littered with broken glasses. The work environment inside the factory is heavily

\textsuperscript{1}The Gazette of India (EXTRAORDINARY) - Part II - Section 3, Sub-Section (ii), No. 593, New Delhi, October 5, 1993.
polluted with heat, chemical fumes and coal dust all around. According to one report, the home of the glass bangle Industry in Firozabad ranks first in tuberculosis. Statistics show that 76 per cent of tuberculosis patients in Uttar Pradesh hail from Firozabad. Quoting the District Magistrate of Firozabad, another media report mentions that a survey done by Indian Council of Medical Research (ICMR) in 1989 found that 70 per cent of the town’s population had respiratory problems. Doctors in Firozabad said that 90 per cent of the workers contract pneumoconiosis, a condition which leads to T.B. One doctor has been quoted as saying that it takes just three or four years to destroy the lungs of the workers in the dangerously polluted atmosphere of the glass factories. Much of the work that children do here is hazardous. They are exposed to risks of burns from open furnaces where the temperatures range from 700 to 1800 c. The working children here are frequently exposed to jobs that are morally or psychologically damaging, hours that are excessive, conditions that are unsafe,

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3 The Hindustan Times, New Delhi, August 5, 1993.

4 Aditi Kapoor, ‘Playing with hot glass for Rs 30 per day’, (The Times of India, New Delhi) March 26, 1993.


or employment contracts that equate with economic exploitation.

The problem, though extant in a vast number of occupational areas, is most blatantly visible in the glass industry of Firozabad. Within the glass industry, the production of glass bangles is most notorious for the widespread (mis)use of child labour. The bangle industry caters mainly to the domestic market. The production for even the domestic market runs into crores. According to one report, the Firozabad glass industry produces bangles, utensils, electric bulbs and show pieces worth about Rs. 50 lakhs every day\(^7\). Even with such a large turnover, the industry is still very primitive and without any consideration for labour in general and child labour in particular, which is ruthlessly exploited. The present study is a modest attempt to understand the problem in this area.

The glass bangle factories and the bangle cutting units at Firozabad are registered with the government under the Factories Act. In Firozabad, there are 150 registered glass bangle factories and 53 bangle cutting units\(^8\). There are many unregistered glass bangle cutting units also. The glass bangle manufacturing carried out at the non-household as well as the household level. 


\(^8\)Labour Office, Firozabad, January, 1993.
The units are scattered in different localities of the city. The main or the primary activity is done at the factory level. Except in the factories, the payment to the labour is done on piece-rate system. The work in the factories is divided in three eight hours shift and the daily wages are paid on shift basis. Security to the workers is an alien concept in this industry. The production of bangles involves a number of processes performed at various places. The children work both at the factory level as well as at the household level. They are employed almost at all the levels of production.

The exact figure of children in the work force in the glass factories of Firozabad is not known. According to one estimate, one-fifth of the work force consists of children from 8 to 14 year age-group. According to the Labour Department of the Government of Uttar Pradesh, 13 per cent of the 65,000 to 70,000 workers employed in these glass units are children. But Neera Burra who visited the glass factories at Firozabad, puts the number of child workers higher than reported by the Labour Department. According to her, there are almost 50,000 children below the age of 14 years. Another study sponsored by the

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9P.M. Bakshi, *op. cit.*


Planning Commission and conducted by the Giri Institute of Development Studies, estimates the number of child workers at the factory level in the glass industry of Firozabad to be around 30,000\(^\text{12}\). At the household level, this study estimates their number to be about two and half times more than the children working at the factory level. A media report quoting Mr Kailash Satyarthi, chairperson of the South Asian Coalition on Child Servitude mentions that about 50,000 child labourers are engaged in glass and bangle industry\(^\text{13}\). An investigative report published in a national daily mentioned that there are 20,000 child labourers involved in the manufacture of glass bangles\(^\text{14}\). Though there are varying estimates of the child labour in Firozabad, but there is no denying to the fact that child labour in the district is rampant and their number is swelling.


\(^{13}\) *The Hindustan Times*, New Delhi, August 5, 1993.

\(^{14}\) Srawan Shukla, ‘Childhood goes up in smoke in the land of glass’, *The Times of India*, November 19, 1994.
2.1A Historical Background of the Glass Industry

The glass Industry of Firozabad that dates back to the Mughal period has an important place in the industrial map of India. This place is considered to be the home of the glass bangle and the glassware Industry. A wide range of glass products are manufactured here. There appears to be no unanimity about the historical origin of the glass Industry at Firozabad. There are conflicting versions about its origin. A Planning Commission sponsored study has traced its origin to Akbar’s reign. Firozeshah who belonged to Akbar’s court as one of the security in-charge was camping at a place where he settled a satellite village that came to be known as Firozabad. While camping there, Firozeshah noticed some glassmakers (Muslim glassmakers were referred as sheeshgrahs and Hindu glassmakers as kancher) manufacturing glass from silica (locally referred as reh). It is reported that later on Akbar encouraged this work for royal purposes.

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Another study\textsuperscript{17} conducted by the Centre for Operation Research and Training (CORT) in collaboration with ILO, mentions that its development dates back to 1910. According to this study, while the development of glass industry started around 1910 and the belan (where the glass is rolled or ‘spun’ prior to making bangles) developed around 1932-35. In the early 1950s there were said to be around 20-22 factories with Ustad Qadir Bux and Rustam Ustad acknowledged as among the developers of the modern system of glass bangles manufacturing\textsuperscript{18}.

Despite a long history of its existence, over the years, the industry has not changed to make use of innovative methods or modern machinery that would reduce the hazards involved in this Industry. The thriving Industry that has developed over a period of time, still employs traditional methods of production.

2.1B Processes Involved in Glass Bangle Manufacturing

The bangle production at Firozabad involves dual form of production, i.e. formal and informal. The primary work is done at the factory level. From here, the units functioning at the household level are supplied with the semi-finished bangles. These unfinished bangles pass through several different stages at the household level before reaching the market in a finished form.

The raw material used for manufacturing glass is not available locally. The silica sand was reportedly arranged from Gangapur, Rajasthan, *kalmi* soda from Jalesar in Agra district, soda ash from Gujarat, Marble and Felspark powder again from Rajasthan and broken glass from Ghaziabad, Delhi and Calcutta.

The traditional way of making glass involve heating a mixture of silica (sand), soda ash and lime till the ingredients fuse into a transparent mass. Other ingredients are sometimes added to make coloured glass with special properties. The temperature where this mixture is heated up is as high as 1600°C and though oil furnaces are also there but mostly coal is used as the fuel.

The mixture is gradually taken out in small quantities from the furnace by the workers (generally a child worker), with the help of iron rods about six feet in
length. After this, the rod in dipped in the hot mixture, it is carried to another worker who gives a cylindrical shape to the molten glass. It is again carried back to the furnace to put on more molten glass. Then, another worker adds on different colour of glass according to the requirements. The sekai makes it soft at the small furnace and it is taken by the worker at the belans (rollers) fixed over a small furnace. The workers involved in these activities depending on the nature of their jobs are locally referred to as gundiwala, bubblewala, battiwala, gulliwala, muthaiya, giniya, etc. Every belan, is mainly managed by three workers, locally referred as Belania or Belanwala, Tarkash and Muthaiya. A belan cannot function without proper coordination of these workers. Belania and Tarkash are considered to be highly skilled workers and this is clearly reflected in their wages, which are the highest amongst all the workers in the factory.

The processing at the belan results in the glass getting the shape of a spring. One spring of bangles on each belan (rod) contains more than 200 bangles. This spring of bangles is cut uniformly in a straight line with the help of a diamond cutter by another worker (kataia). The job of a kataia is considered to be a semi-skilled job. After cutting, the split spiral rings are counted and tied together by two workers referred as giniya and puriya respectively.
The semi-finished bangles are sent to the household level from the factory godown. The processes involved in the manufacture of glass bangles after it comes from the factory in a semi-finished state are as follows:

A. *Jhalai* (Straightening)

B. *Judai* (Joining)

C. *Pakai* (Hardening)

D. *Katai* (Cutting)

E. *Hill Chaddhana* (Colouring)

F. *Pakai* (Hardening)

The *pakai* (hardening) is done at the *pakai bhatti* (a small unit where bangles are baked in layers on metal sheets covered with silica sand). After *pakai*, *chhatai* of bangles is done to remove the broken bangles and also to put them according to the sizes. For *chhatai*, the worker puts the bangles in his arm and by the sound it detects the broken bangles. After this, it is ready to be sent to the market.

2.1C Nature of work of Children

In the bangle Industry, Children work both at the factory level as well as at the household level. All workers in the factories involved in the production of glass
bangles are employed on a daily wage basis except the manager, cashier and the security guard. Children who are employed in the factories are arranged either from the labour mandi's or through jaggaiya. Jaggaiya works as an agent who arranges labour for the factory. These agents periodically visit the nearby villages to look for the labour and this includes children also.

Among the various activities involved in the making glass bangles mentioned earlier, the child labour is generally involved at all the stages, though the proportion varies. In the factories, where the primary activity is done, children work with fire and handle molten glass. Neera Burra in her study, mentioned that 'they (child labour) were seen carrying molten glass on a seven-foot iron rod called labya from the furnace to the adult worker and back to the furnace. Nearly 85 per cent of the total child labour force was engaged in this activity and these are Labour Department figures'.

It needs to be mentioned here that the work done by the children in the factories though hazardous in nature, requires the least skill. In the factories, children can be seen running barefoot across broken glass and also carrying hot glass from the furnace where the temperature is so high that it is difficult to tolerate the heat. In the factories, children are mainly employed as gundhiwala (takes block of glass from the

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furnace) and \textit{thandi battiwal}a (carriers).

Children perform a variety of jobs at the household level also. Children are employed in large numbers in back breaking processes, which include \textit{Jhalai} (bringing the cut ends in level with each other) and \textit{Judai} (joining the cut ends). The female child labour is concentrated in these two activities. In \textit{Katai} (creating grooves on the bangles), mainly adult labour (male) is employed. The hardening process (\textit{pakai}) is done at the \textit{pakai bhatti}. Children are employed here also. Their job is to arrange the bangles on the trays which are then placed on the furnace for \textit{pakai}. At the household level, children work for long hours because of the prevalence of the piece-rate system. The low payment under the piece-rate system forces the children to work much beyond their capacity to earn at least a minimum amount to fulfil their daily needs. This adversely affects the growth process of children.

The conditions under which the child labour works in the glass bangle Industry of Firozabad are quite shocking. Despite the Government’s efforts, improvement in the working conditions appears to be a distant dream. The children working in the glass Industry also run the risk of fire burns, injuries, damage to the respiratory system, and even death. Due to inhalation of silica and carbon dust, children in glass and bangle industry contract asthma, bronchitis and infection.
The presence of child labour in the glass bangle industry in large numbers shows that this problem continues to defy the various legislative measures adopted by the Central and the State Government to reduce its incidence. Moreover, the Child Labour (Prohibition and Regulation) Act, 1986, provisions do not apply to those units that employ family labour. The Planning Commission study\textsuperscript{20} mentions that in Firozabad, nearly fifty eight per cent of the children work in the family run units and as such are working legally. However, the present study concentrates on those children who are working with employers only.

2.2 OBJECTIVES AND HYPOTHESES OF THE STUDY

The overall objective of this study is to explore the socio-economic determinants which play a significant role in pushing children into the labour force in the glass bangle industry of Firozabad. The other specific objective of the present analysis is to examine the status of child workers vis-a-vis adult workers. This study also attempts to examine Government’s policies and programmes launched for the

\textsuperscript{20}G.P.Mishra and P.N.Pande, \textit{op.cit.}
betterment of child workers.

This study attempts to portray true picture of the prevailing conditions of child workers in the glass bangle Industry and its possible socio-economic determinants, which may prove beneficial for improving their lot.

Keeping these objectives in mind, this investigative inquiry is designed to test the following hypotheses considering the glass bangle Industry of Firozabad:

1. The age at which a child takes to employment depends upon the household income. Thus, higher the income of the household, higher the entry age into employment.

2. Higher the literacy level (measured in terms of schooling), lower the prevalence of child labour. Many studies have revealed the existence of an inverse relationship between child labour and education.

3. Higher the number of children per family, higher the incidence of child labour. Several studies in this field have linked fertility behaviour to the prevalence of child labour and the economic contribution made by it.

4. Incidence of child labour is proportionately higher in the age group 5-10 years than the age group 11-14 years. As the child grows older and needs to earn more, he may face displacement by another child worker, much younger, prepared to work for a paltry or lesser sum. When a
worker gets sick due to over-work or some injury in that case too, he may be replace by another child much fitter and ready to work for same or a lesser amount. Once they 'grow out' of their usefulness they are thrown out of their jobs.

5. Child labour is paid lower wages than the adult labour for the same amount of unskilled hazardous work in the bangle factories.

6. Transfer of skill and knowledge from highly skilled workers to the child labour is hereditary.

2.3 SAMPLE DESIGN AND METHODOLOGY

Notwithstanding the fact that about 92 per cent of child labour exists in the rural areas, this study limits itself to hazardous Industries only, because it is here, that children are exploited and have to face greater occupational hazards and attendant evils. The study is further restricted to the glass bangle Industry of Firozabad where the studies have shown that thousands of children work for survival in unhealthy surroundings and unsuitable conditions. The manufacturing of glass bangles involves widespread use of child labour and this makes this industry significant for the present analysis.
Constructing an operational definition of child labour too posed a problem. There seems to be no consensus based definition of the working child. There have been several legislative enactments having a bearing on the working children but the minimum age of employment varies from Act to Act. To overcome this difficulty in this study, the age of 14 years has been fixed as the uppermost age limit. Similarly, the labour age limit fixed at 5 years on the belief that any child below this age would not be able to perform any manual work. Thus, child labour in this study refers a working child between 5 and 14 years of age.

The methodology adopted in this study is quite broad-based as both the primary as well as secondary information has been collected and analysed. The production of the glass bangles as already mentioned includes both the factory form of production and the household form of production. The male workers are employed in both forms of production. On the other hand, the female workers are found at the household level only where wages are linked to the piece-rate system. Thus, two sets of production system operate in the glass bangle Industry in Firozabad, i.e. formal and informal. Initially, it was decided to interview the child workers at the work site inside the glass bangle factories, but this was thwarted due to denial of access inside the factory for interviewing the child workers employed there. The employers were very apprehensive of the interviews as they doubted identity of the person conducting the interviews and
nature of the information being extracted from it. They suspected that the information was being collected for some government agency deputed for collecting information about abuse of child labour in the glass Industry. Due to mounting pressure from various quarters to dissuade the employers from employing the child workers, they do not take such chances. Though they employ child labour but no one really admits it. Even child workers appeared to be very scared meeting the outsiders inside the factory premises. The child workers employed here were interviewed with lot of difficulties, it was possible only after the end of a shift in the factories. However, the child workers employed at the household level were easily accessible for interviews. Child workers were interviewed mainly to ascertain the extent of exploitation in terms of wages and work hours. Their households were also covered in the survey. Special care was taken to see that not more than one working child in the sample is included from the same family to avoid duplication of the information. Interviews of the adult workers, skilled as well as non-skilled workers were conducted inside the glass bangle factories. Adult workers were interviewed to ascertain the status of a child worker vis-a-vis adult worker. No problems were encountered in conducting the interviews of adult workers inside the factory premises as there was no resistance and resentment as was visible in the case of child workers.
This study has attempted to highlight the problems of working children within a perspective on the basis of a selected sample of 450. It describes various facets of their work life and lays bare the factors that compel children to join the labour force when they should be at school. The break-up includes 200 child workers, 150 head of the households, 80 adult workers (skilled as well as non-skilled) and 20 employers. In the present study, 20 glass bangle factories were covered, selected by pure random sampling selected with the help of tippets. Discussions were also held with the concerned local government officials to ascertain their views about the problem of child labour. Also to highlight the structural, organisational and operational difficulties faced in the implementation of government's policies and programmes and mechanics of meeting these difficulties.

The required data for the study was gathered during the months of November and December, 1994. Documentary data were collected by surveying the available material on the subject. After collecting the information from the field, the schedules were rechecked in order to put all the information in proper and suitable order. This was done mainly to ensure that all the required information had been gathered and irrelevant information omitted. After editing, the collected data were classified and coded. After developing codes, the data were subjected to computer analysis after which necessary tables instrumental in the
attainment of the study objectives were prepared.

Processed data were statistically and logically analysed in relation to various desired correlates and the findings that emerged from the analysis were subjected to corroboration with those already available in other studies undertaken in respect of child labour in other areas and fields. Besides cross-tabulation of data, regression and correlation, wherever possible, has been done to strengthen the arguments. Information pertaining to various variables has also been depicted graphically.

2.4 PLAN OF THE STUDY

This study has been divided in seven chapters. The contents of these chapters are as follow:

Chapter I includes an introduction of the problem of child labour. It also discusses the concept of child labour with a detailed account of its different definitions. Under magnitude of the problem, the focus is mainly on the demographic aspect of child labour and the extent to which it spreads in the country. The review of literature presented in this chapter has attempted to cover all the major studies done in this field.
Chapter II contains a broad outline of the research and analytical framework adopted for this study. Besides mentioning the objectives and hypothesis of the Study, it also describes the socio-economic characteristics of the study area Firozabad, giving a detailed account of the Glass Industry, covering the historical aspect and the present state of the Industry. The complex process involved in the manufacture of the glass bangles has also been discussed in this chapter. The glass bangle Industry is notorious for the widespread (mis)use of child labour and the children perform a variety of tasks in it. This chapter includes a detailed account of the nature of work performed by the child workers in the glass bangle Industry. The selection of the sample and the methodology employed in this analysis has also been discussed in this chapter. The plan of the study has also been incorporated under the second chapter.

Phenomenon of child labour in different perspectives is explained in chapter III. The historical perspective tries to trace the origin of the child labour to its present form. The legal perspective covers all the major laws concerning the employment of children. The Child Labour (Prohibition and Regulation) Act, 1986 and the National Policy on Child Labour is also discussed in it. Under the demographic perspective, child labour data from the last two Census, 1971 and 1981 is analysed.
Chapter IV attempts to establish empirically, the relationship that exists between selected social, economic and demographic factors and the incidence of child labour in India. It is based on the secondary data. Due to non-availability of the 1991 Census data, the analysis has been restricted to the 1981 Census. The correlation and regression results are also presented in this chapter.

The primary information collected during the field survey on the socio-economic aspects is discussed in chapter V. The information pertaining to the sample households supplying child labour is analysed in detail. The chapter also includes socio-economic information on the child labour, and adult labour (skilled and unskilled) employed in the manufacturing of glass bangles. Employer's perception of child labour and awareness about the child labour schools among the head of the households supplying child labour, is also presented here.

Main emphasis of chapter VI is to ascertain the socio-economic determinants of child labour in the glass bangle industry of Firozabad on the basis of the results of the information gathered at the primary level. Employment of children is a reflection of numerous social, economic and demographic factors. This chapter explores the nature of the relationship that exists among the different socio-economic factors in the light of the hypotheses conceived in this study.
The concluding chapter of the study focuses on the major findings of the study and a brief summary of these are presented in it. Any study based on evaluation of the socio-economic situation remains incomplete unless certain solutions are also offered to improve the situation. This chapter includes recommendations based on the findings of this study. This chapter is followed by Appendix that contains salient features of the Child Labour (Prohibition and Regulation) Act, 1986.