CHAPTER IV

SOCIAL SURVEY AND PERSONAL OBSERVATIONS

4.1 Social survey

Three types of questionnaires were designed for the target groups i.e. workers, owners and residents. Through interview schedule information was collected and recorded on a pre-designed and pre-tested questionnaire. This information comprised the details about location of brick kiln, production capacity, manpower, fuel used, source of raw material, workers problems, problems faced by residents in the vicinity of the industry, etc. The objective of the interviews was also to assess the awareness level among the brick workers and industry owners about the environmental issues associated with brick kilns. The English version of the Marathi language interview schedule administered during the study is given in the Annexture I, II and III. Though the response received to different questions from the five sites was diverse, it had some commonality, the same discussed below. The number of the respondents at each of the five sites is given in the Table No. 3.15.

Table No. 3.15 Number of respondents in the three categories from the five field study sites.

Sr. No.	Study Sites	Questionnaire (Related to brick kilns)		
		Owners	Workers	Residential
1.	Bapat Camp	05	10	10
2.	Shiroli Naka	05	10	10
3.	Gandhinagar	05	10	10
4.	Walivade	05	10	10
5.	Uchgaon	05	10	10
	Total	**25**	**50**	**50**

Plate V

a) Child labour continuous unabated in brick kilns dispite legislation, a major social problem. (Shiroli Naka)

b) Solid waste pollution due to brick kilns is a common site. Attempts needed to be made to reuse the same. (Uchgaon Site)

Plate VI

a) Permanent chimney brick kilns in West Bengal.
Safer type to reduce air pollution.

b) Cement block bricks as an alternative to traditional clay bricks
(Uchgaon Site)

I) Questionnaires for brick industry owners:

The present status of brick kiln in and around the identified sites of Kolhapur city was studied with reference to the impact on environment and human beings. The study generated information on profile of the brick kilns based on, education, source of raw soil, licence, production capacity awareness about soil and air pollution etc. In study sites total 50 number of respondents were interviewed and observations are given in following discussions.

a) Age group of owner: The average age of the owners ranged from 15-30(16%), 30-45 (52 %), 45-60(28%) and above 60 (4%). This indicates that the owners are mostly young entrepreneurs. It was also revealed that the brick kiln business is gender biased as all the brick kiln owners (n=25) were males.

b) Literacy level of the brick kiln owners: The literacy level of the respondents was divided in to five categories i.e. illiterate, literate, primary, secondary, and undergraduate and post graduate. The data generated revealed that a good percentage of the owners were literate i.e. the illiterates (32%), and literate (68%). Among the literate group primary and secondary school literate were 65% and graduates were 35%. No postgraduate was involved in the brick making business.

c) Awareness about rules and regulation of brick kilns It was expected that the owners would be aware about the major environmental legislation concerning brick kilns. However, almost 85% of the owners were not aware of the existence of any environmental legislation either of the state (MPCB) or Centre (CPCB). Only 15% had some idea about the prevailing legislation. This clearly reflects the ignorance and apathy on part of the brick kiln owners to undertake any measures to minimise pollution due to brick kilns.

d) Sources for Raw material (Soil): It was one of the important aspects of this study to determine the source and the ownership of the agriculture soil used as brick kiln raw material. It was revealed that almost 80% of the soil was from the riverside fertile top soil. And about 12% were from other agriculture lands. Potter's co-operative supplied only 8% of the raw material soil.

e) License for Soil purchase: It was interesting to note that only 24% had the necessary license to purchase the soil and almost 76% did not have any official permission. Out of the owners (n=6) 50% each had personal and co-operative licence respectively. This revealed that most of the owners were acquiring the raw material illegally and this resulted in to rapid and wide spread excavations from the fertile soils.

f) Fuel material in brick firing process: Fuel materials used for brick making, their quality, type and composition not only decide the efficiency of brick making and its economics but also the pollution caused at the end of the process. The data revealed that the major fuel used is coal almost 88% and second was fuelwood 12%. This resulted into ash problem, which gets aggravated due to poor quality coal often used for brick firing.

g) Use of bagass as raw material : From the survey it was revealed that in Kolhapur region, due to easy availability, nearly all the brick industries used sugarcane waste bagasses as one the major raw material for brick making. It was reflected in the survey that over 80% use bagass, rice husk 10% and the remaining 10% used both the agricultural waste products.

h) Production Capacity: - i.e. number of brick manufactured / year

There were several brick kilns in and around the study sites. According to the production capacity, the brick industries are generally classified locally as,

Small-scale industry: - less than 70,000 bricks/year

Medium scale industry: - between 70,000 to 1,00,000 bricks/year

Large scale industry: - more than 1,00,000 bricks/year

Largely the brick kilns around Kolhapur are small (56%), followed by medium (28%), and large (16%) respectively.

i) Awareness about air pollution: Though a good number (64%) were aware of some kind of pollution due to brick kilns almost 36% were not aware of any pollution due to brick kilns. This is reflected in their plans of expanding brick kilns operations in neighbouring agriculture or semi residential areas around Kolhapur.

j) Opinion about suitability of soils for brick making: - Most owners (64%) strongly believed that soils from riverbank make good raw material for brick making, it was followed by agriculture soils from other areas (24%) and red soil (8%). About 4% recommended river as well as agriculture soils. It was interesting to note that none suggested any other option as an alternative to the traditional soils as brick raw material for bricks.

II) Questionnaires for brick industry Workers

a) **Age Group:** It was revealed that child labour is employed in the brick industry (10%), which included male and female children. The youth and young men/ women group i.e. 16-30 yr. was the largest group (60%), 31-45 age group was the second (28%) and only 2% were above this age.

b) **Literacy:** It was shocking to note that the literacy rate was extremely poor and that too among the young i.e. illiterate (84%) and literate 16% only. Among the literate most were only up to primary-secondary (88%) and the remaining 12% were up to 12^{th} standard.

c) **Years of experience** when asked to the respondents how long they were working in brick kilns the response was up to five years(28%), 5-10 yr.(40%), 10-25yrs (28%) and above 25yrs (4%). The statistics shows that most of the workers started working in the kilns as child labour

d) **Children working in brick kilns :** when enquired only 18% accepted that hey work in kilns, rest denied child labour. Out of the children in the worker's families 54% go to school and 46% do not.

e) **About native place**: Most of the workforce was migrated (80%) as expected.

f) **Working time in industry:** About 22% people more than 12 hrs a day on kilns, 42% work for 8-12 hrs/day, 30% work for 5-8 hrs/day and only 6% work for below 5 hrs. the work hours in the industry reflect non existence of working regulations and work culture. The workers seem to exploit by the owners.

g) **Behaviour of owner with worker:** This question being tricky could not generate the right kind of response. As the workers totally depend for livelihood on the owners, it was also not expected that they will be bold enough to tell the truth in front of others as only 2% mentioned the relations being bad, almost 54% gave luck warm answers and 44% felt the relationship was good.

h) **Working in off-season:** The brick kilns are in operation for about 6-8 months. the off season(monsoon) work for the workers is mainly farm labour (60%), pottery making (16%) other including petty jobs (24%).

i) **Daily wages/day:** Normally the daily wages are Rs 30-60/day (48%), Rs 60-100 (46%) and above Rs 100/-(6%) only.

j) **Total workers in brick kilns:** On an average 20-30 people work in most kilns (36%), 31-40 (34%) and above (14%). In small kilns the work force is around 10-20 (16%).

k) **Source for raw soil:** As contrary to the owner's response the workers revealed that all the raw material i.e. clay soil is either from river bank or agriculture field.

l) **Residence of worker:** Most of the workers (68%) stay on site during season rest stays little away from the brick kilns.

m) **Awareness about air pollution**: Only a few (22%) were aware about the pollution caused by the brick kilns and almost 78% were ignorant about the seriousness of the air pollution at their working place. However, most agreed that they suffer from smoke and related health problems.

III) Questionnaires for brick industry residential people

The residents were the people living in the vicinity of the brick kilns and who are likely to be affected by the pollution due to the kilns.

a) Age Group: The largest group of respondents was the age groups 31-45 (32%) followed by 16-30 (28%) and 46-55 (22%) and above 45 (14%). The individuals were familiar with the neighbourhood and ~~were about~~ the recent changes, including brick industry, which have been taking place in the area.

b) Literacy: The entire respondent population was literate. Up to 10 std. were (26%), up to 12^{th} (34%), graduate (34%) and post graduate (6%). The general response of the respondents about the questionnaire was much positive

c) Total brick kilns: The number of brick kilns up to 5 was (4%), 6-10 (34%), 10-25 (32%) and above 25 (30%). This response was since site specific, there was a wide range in the number quoted. Since the kiln operation lasts for 8-9 months a year therefore the total number of actual kilns could be more than the estimate.

d) Many years: According to the residents the brick kilns exist in their area for above 15 years (30%), 11-15 yr. and 6-10 (28%) each and up to 5years (14%). This indicates that the kiln operations are very site specific and are existing for over decades. There is also addition of the new kilns in the recent years, indication growing demand for the basic building material.

e) Pollution awareness level: Pollution awareness was not much striking among the local citizens. the respondents were evenly divided on the issue of pollution due to brick kilns with over 50% stating there was pollution due to the kilns. Among these they specified the types of pollution as air (48%), land (20%), water (4%), noise (4%). Some felt that there was mixture of more than one type of pollution (24%).

f) About complaints: When enquired whether complaints about the pollution due to brick kilns were lodged with the owner, about 44% said yes. The larger proportion of the people (56%) was passive and has not registered their complaints. Almost 36% people had approached the Sarpanch/ Grampanchayat and 17% to the Collector about the complaints. Only a small fraction (8%) had received any response to their complains indication apathy on the part of the concerned, or administration about seriousness of the environmental pollution by brick kilns and their adverse impact on the health of the local people.

g) About health: Even when asked about adverse environmental impact of the brick kilns, 48% people felt that there is positive/negative impact observed. However, 52% of the respondents were not very sure of the

environmental impact. This is reflected to almost half (50%) of the respondents who could not directly correlate brick kiln pollution with diseases. However, around 30% complained about respiratory diseases and 20% about gastric diseases. Children and the old suffering equally i.e. 40% each.

4.2 Personal Observations:

During the initial survey, it was revealed that Bapat Camp had its origin since the time of Shahu Maharaj. He awarded this land to the poor potters for their occupation at that time. Later, the potters settled down in the area. Subsequently due to rapid rate of urbanisation, residents from old Kolhapur city migrated to the area and settled down in the newly constructed residential area , which is now being called as Bapat camp. Also many of the potters have changed their traditional occupation to brick making. This is why the brick kilns in Bapat camp are found situated in the residential area. However, the original potters due to poverty and many of the workers live in the slum areas.

The brick kilns at Walivade, Uchgaon are located in agricultural land while other remaining three namely Bapat camp, Shiroli naka, Gandhinagar are located in residential area. In cities like Kolhapur it is very difficult to make investment in land for the purpose of making bricks due to higher costs. For the same reason, the brick industry owners purchase the fertile soil from the needy farmers. Due to ignorance and quicker profits, the farmers are choosing the easy option of selling fertile topsoil of field to the brick industry. This has led to degradation of agriculture lands in villages around Kolhapur, which has a potential threat in decline in crop production in the near future.

The brick industries in Shiroli and Gandhinagar are located along the roadside, which is though illegal. According to Maharashtra Pollution Control Board circular (dated 18/02/1997) the district Collectors are not to

issue brick manufacturing permissions to entrepreneurs who do not follow the said Brick Regulations. It also gives the guideline that the site of brick kiln should be at a safe distance from human settlement, village and highway (about 500 metres). MoEFs, as per its guidelines, has suggested 500 metres as the 'safe distance' for setting up an industrial unit. This guideline of the safe distance never seems to have been followed by any of the brick kiln owners in the region.

Generally it is observed that bagasse, rice husks, clay soil, etc. are the commonly used raw materials while coal, firewood are the commonly used fuels in most of the brick kilns. The process of brick making is still traditional besides much of modernisation and development of new technologies. No innovative technique was observed in the kilns. This was perhaps due to ignorance or more probably due to high cost of investment involved in newer technologies. The bricks manufactured from the industry are either handed to the local middle man or trader at the wholesale rates for sell. Some of the kiln owners sell them in Kolhapur market directly on their own.

No waste management system is observed in the brick industry area. The worn out bricks are sold at low prices or left out in very scattered conditions in the surrounding areas of the brick kilns as waste materials.(Plate V (b)). As expected the workers gave very poor co-operation to the personal interviews due to the pressure from the kiln owners. This is why, they were unable to share their problems with other people. In fact, the workers are the basic human resource and the building blocks of the brick industries. But still the industry owners deprived them from their real share of the justified income or profit and are given poor treatment and are often exploited.

In spite of working for so many years, there was no desirable or expected change in their daily wages or life conditions. Most of the

workers are still illiterate, while few had studied only up to third to fourth standard. Many of the workers had migrated from different districts like Dhule, Nanded and also from neighbouring states like Karnataka. Due to illiteracy and poverty they live in very low level conditions. They had shelters in slums with unhygienic condition due to absence of water and sanitary facilities. As a result of this the workers and their families face several health problems. Diseases like jaundice, gastro etc. are very common in these areas due to unhygienic conditions. The level of Respirable Suspended Particulate Matter (RSPM) was higher in and around brick kilns and was mostly responsible for the pulmonary diseases in workers and residential peoples. Lack of awareness of about environmental pollution and knowledge about diseases is observed commonly amongst the workers.

Child labour is another important problem observed amongst the workers in the brick industries. Due to poverty, the workers allow their children to work in the industries.(Plate V (a)) But they are paid with much less salary than their parents, despite the quantum of work. There is no fixed time schedule for working hours for the brick kiln workers. Some times the workers are expected to work continuously for 18 hours without any extra compensation or payment.

The brick industry owners extend ill treatment to the workers due to their illiteracy and helplessness. There is no facility of unions for the workers or any management system, which can represent their problems before the industry owners or the government administration. It was also observed that the chimney less brick kilns spread smoke and dust particles all around in the air. The obnoxious gases like SO_2, NO_x released from the smoke caused serious ambient air pollution in the residential and semi-residential areas creating health problems amongst the workers and residents. The most commonly reported respiratory diseases are bronchitis, asthma and TB ~~are common~~.

Also the dust particles get deposited on the leaves of the trees in the vicinity of the brick kilns. This reduced the total chlorophyll content in the leaves on the trees in the region seriously affecting their productivity. The smoke due to the incomplete combustion of the coal spreads a peculiar foul smell in the vicinity of the kilns, which is also repulsive and dangerous to health. Finally, the foregoing discussion on the personal observations, during the study shows that there is no awareness about environmental as well as health problems created by brick kilns either with the owners, concerned government agencies or even general public. This problem is soon likely to grow in the magnitude and would create serious environmental, social and economic issues.
