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Socio-Economic Plight and Occupational Health Hazards among Bricks Kiln Workers in Kaliachak-III block of Malda District, West Bengal (India): A Micro Level Analysis

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ABSTRACT:

Fire clay bricks are one of the most important buildings materials for the construction of buildings, bridges, homes, offices etc. in our country. The bricks kiln serves as source of livelihood for thousands of unskilled labourers in rural areas from across the country. This paper is an attempt to examine the socio-economic profile, health status and nature of works among the brick kiln workers in the study area, to highlight the major problems and challenges faced by brick kiln workers in the study area, to give valuable suggestion for better improvement of working profile and standard of living among the bricks kiln workers in Kaliachak III block of Malda district of West Bengal. Malda district has been selected as the study area which is known as Gateway of North Bengal or Valley of Mango. The study is based on both primary and secondary sources of data. The result from the study shows that poverty, low literacy levels and unemployment situation is the main reason to taken up this profession. The researchers suggested that there is urgent need to provide vocational training and skill development programmes like Tailoring, needlecraft, Poultry Farming and Dairy Farming by various NGO, Ministry of Women's and Child Development to provide supplement their income during off season.

Key Words (Index Term): Bricks Kiln, Income, Poverty, Standard of living, Constriction Activities, Occupational hazards,

Introduction:

Bricks are energy efficient, low maintenance, weatherproof, creative and colourful, sustainable materials, style and design of construction activities. Fire clay bricks are one of the most important buildings materials for the construction of buildings, bridges, homes, offices etc. in our country. Bricks are an indispensable component of each and every construction activity. So we can say that it is the basic construction materials. Indian bricks industry is the second largest producer of bricks in the world after China. The bricks kiln serves as source of livelihood for thousand of unskilled labourers in rural areas from across the country. In India, a significant numbers of people are working in bricks kiln in the outskirts of towns and cities. The Indo -Gangetic plains of North India comprising the states of Uttar Pradesh, Bihar, Assam and West Bengal account for about 65 per cent of the total brick production, where as peninsular and coastal India contribute the remaining 35 per cent.

In India, the history of making bricks is almost 5,000 years old which is as old as the earliest known Indian civilization that is Indus Valley civilization. Mohenjo-Daro had mud brick and baked brick buildings. It is the oldest industry in India. In India, Bricks kiln is wide spread small-scale industry. Over last 50 years construction of residential complexes, commercial complexes, corporate sections, roads, dams and factories are on increasing scale in India. In recent years annual production of bricks in India is 51,000 million from 45,000 small / cottage scale units distributed throughout the country and there are 2.5 million workers employed in the sector. The strength and durability of any houses depends upon quality of bricks. Bricks are manufactured in unique colours like dark red, dark brown or dull brown and it depends on the fire temperatures during manufacturing.

Steps Involved in brick making process:

Material Procurement: Clay is primary new materials for mud bricks. Selection of right raw materials is the key for business. Clay is mined and stored in the open. This makes the clay soft and removed unwanted oxides.

Tempering: Clay mixed with water to get right consistency for moulding.

Moulding: Clay is shaped into brick.

Drying: clay brick are kept in areas for drying in sunlight.

Firing: Dry brick are kept in kiln and ready for firing.

Arranging brick for firing: with the help of coals and woods brick are given firing.

Sorting: After proper firing with 7-10 days, brick are sorting for selling to customer.

In a brick kiln workers mainly supervisor, Contractor, Manager, Mud Cutter, Brick Maker, Fire man, Mud and brick carrier and loader, coalman, trolley driver etc.

Table1.1 Top 10 Major Bricks Manufacturing Countries of World

Sl. No.	Name of State
1.	Uttar Pradesh
2.	Haryana
3.	Punjab
4.	Bihar
5.	West Bengal
6.	Assam
7.	Meghalaya
8.	Tripura
9.	Tamilnadu
10.	Gujarat

Source: Bharat Bricks Pvt. Ltd., Report 2021

Table1. 2 Top 10 Bricks Manufacturers Brands of India 2021-22

Sl. No.	Top Brick Making Brands
1.	Bharat Bricks Pvt. Ltd.
2.	Sri Venkateshwar Bricks
3.	Fly Ash Bricks
4.	Gopi Krishna Fly Ash Bricks Industry
5.	Sohhamm Enterprises
6.	STD Bricks (Standard Bricks)
7.	AIMS Bricks
8.	NSP Bricks
9.	GK Bricks
10.	Gupta Bricks

Source: Bharat Bricks Pvt. Ltd., Report 2021

Review of Literature:

The review highlights the distinction areas covered by the many researchers and academicians which may be helpful to understand the issues relating to the present study and it also helps to find out the research gap. The basic sources of literature review of my study areas are- published research papers, articles in the journal of national and international repute, books, Government reports, Research agencies reports etc.

Rajendra Sitaram Pawar (2022) observed that socio-economic condition and health status is not satisfactory among the brick kiln workers of Ahmednagar district of Maharashtra. The study reveals that brick industry brick industry is one of the labour intensive industries. The results of the study shows that majority of brick kiln workers have low standard of living due to less income and poor nutrition. **Rufiat Kazi and Mangala Bote (2019)** assessed that in brick kiln industry there are mainly four types of workers are found such as Paatla, Mhaapa, Bigarii, Bhatkar etc. Their study reveals that majority of brick kiln workers are suffered from musculoskeletal problems, respiratory, skin problem, heat stress, cough and fever, eye complaints, burns etc. The results of their study shows that low literacy levels, poverty and lack of vocational job skills is the main reason for taking this profession. **Kumar Parimal Shrestha, Harihar Sahoo and Mrinmoy Pratim Bharadwaz (2021)** studied the level of treatment and behaviour among the azamgarh district of Uttar Pradesh. Most of the brick kiln factories are located far away from the locality. Their study reveals that in brick kiln workers there are mainly three types of workers are found such as Moulder, Loader and Firemen. The results of their study show that majority of brick kiln workers are suffered from asthma, cough and cold and cardiovascular diseases. **Thirupathi amd Anthonisamy (2015)** examined that health problem and socio-economic condition among the brick kiln workers in Salem district of Tamilnadu. Their study reveals that majority of brick kiln workers are facing various problems such as lot of work for rainy season, low level of wages, no bonus and gifts given by to the workers. The result of the study shows that most of the brick kiln workers are facing eye problems, headache, chest pain, backache etc. **Sumana Mondal (2019)** observed that fired clay bricks are one of the most important building materials for construction sectors in our country. The study reveals that housing condition of brick kiln workers is unhygienic, no kitchen, no electricity, no toilet facilities etc. The result of the study shows that occupational hazards among brick kiln workers are many such as respiratory problem, backache, chest pain, headache, eye problems etc.

Statements of Problems:

Bricks kiln works is significant activity related to the informal and unorganized sector in the Malda district of West Bengal. This seasonal nature of works attracts migrants labourers from Jharkhand, Bihar states. In a bricks kiln units consists of 15-20 members comprising with adults males and females and children's and all of them engaged in bricks kiln work. Majority of bricks kiln workers are illiterate or less educated, poor socio-economic conditions and suffered occupational health hazards problems. Majority of bricks workers are living in poor environment near to brick units. Bricks workers are known for poor health and poor access to health care. Work related illnesses are very common in the brick kiln workers as their job profile exposes them to adverse occupational health conditions and safety risks. The major problems faced by bricks kiln workers are lot of work for rainy seasons, low level of wages, no bonus and gifts during festivals, lack of water, mud, clay, no insurance policy for workers. Thus the working profile, socio-economic condition and health among the brick kiln workers are very pathetic.

Bricks kiln workers serve as a source of livelihood for thousands of unskilled migrant labourers. This seasonal nature of the work attracts migrants labour from neighboring states of Jharkhand, Bihar and Odisha state. Majority of bricks kiln workers are always remain under heavy work pressure to work and produce more number of bricks during peak seasons with limited facilities, resources and management skills. These combined basic problems and challenges faced by bricks kiln workers provoked the researcher to undertake this study in particular. The outcomes or findings from this study will be very helpful for administrators, policymakers, economists, sociologists, Researchers, Academicians, Journalists, NGO workers, and the Ministry of Labour and Employment, Ministry of Law and Justice, Ministry of Women and Child Development, Government of West Bengal as well as the Central Government of India for their various policy making.

Objectives of the study:

Keeping in the view of the socio- economic status, health condition and working profile among the bricks kiln workers in Malda district of West Bengal in particular, the following objectives have been taken into consideration:

1. To examine the socio-economic profile, health status and nature of works among the bricks kiln workers in the study area.
2. To highlighted the major problems and challenges faced by bricks kiln workers in the study area.
3. To give valuable suggestion for better improvement of working profile and standard of living among the bricks kiln workers in Kaliachak-III block of Malda district of West Bengal.

Database and Research Methodology:

The current research work is analytical, descriptive and empirical type of research work. The present study is based on both primary and secondary sources of data. Primary data were collected through interview schedule based on well structured questionnaire with regards to objective in mind. For the collection of primary data a near about 210 bricks kiln workers (respondents) among 20 bricks kiln of Kaliachak-III Block of Malda district has been selected based on simple random and convenience sampling method. The survey was conducted during the month of October 2022 to December 2022. The survey has been conducted at different bricks kilns sites (factories) of Kaliachak-III block (16 Miles, 18 Miles, Township, Birnagar, Rajnagar, Baishnabnagar, Akandabaria, Laxmipur, Jayenpur, Par Deonapur, Golapganj, regions).

The secondary data has been collected from Bureau of Applied Economics and Statistic Government of West Bengal, District Statistical Handbook, Malda Collectorate, Books, Research Paper, Journals, Newspaper, Researchgate, Google Scholar etc. After the collection of data for showing the result Simple Percentage Method, SWOT analysis and Computer Cartography has been used.

A Geographical Profile of the study area:

Malda district of West Bengal has been selected as research study area. Malda district is entirely located in North Bengal, it is also known as “**Gateway of North Bengal**”. It lies in North Bengal on lower Indo-Gangetic plain. The latitudinal range of Malda lies between 24°40'20" North and 25°32'08" North, and the longitudinal range is 87°45'50" East and 88°28'10" East. For administrative purpose the district has been divided into 15 Community Development Block and two sub-division namely Malda Sadar and Chanchal Sadar. The district is very much famous for Mango Production, Litchi production, Jute Production and Sericulture activity (Raw Silk production), school educational sectors. This district is also known as “**Valley of Mango**”. Majority of the male population of this district are migrants labour, agricultural labour and Hawkers due none availability of any large scale, medium scale industries, majority of female population in rural are engaged in bidi making household industries. According to 2011 Census of India still 86.14 per cent population are belong to rural area.

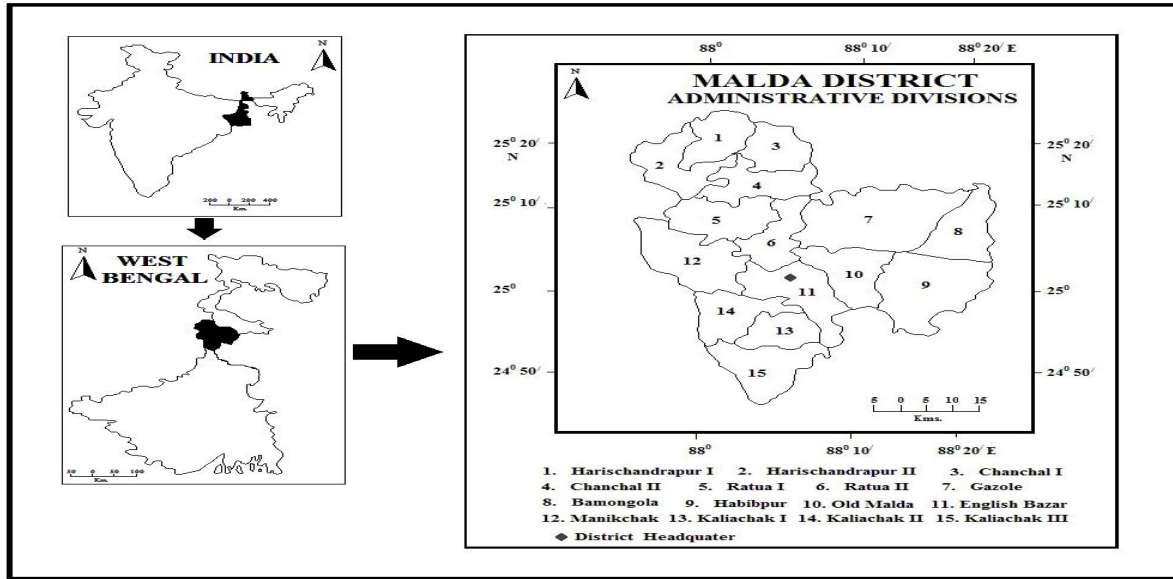


Figure 1: Location map of the Study Area

Result and Analysis:

Table 1.3 Age- Group among Sampled Bricks Kiln Workers

Age-Group	Number of Respondents	Percentage
14-18 Years	44	20.96
19-35 Years	106	50.48
36-59 Years	33	15.72
Above 60 Years	27	12.86
Total	210	100.00

Source: Computed by Researcher from Field Survey, October to November Month, 2022

Table 1.3 shows the age-group among sampled bricks kiln workers that 50.48 percent of the respondents are 19-35 years age which is percentage in the study areas and only 12.86 per cent are above 60 years of age which is lowest percentage. During the survey time it was also noticed that child labour is also engaged in bricks kiln activities.

Table 1.4 Gender-Wise Sampled Bricks Kiln Workers

Gender	Number of Respondents	Percentage
Male	115	54.76
Female	95	45.23
Total	210	100.00

Source: Computed by Researcher from Field Survey, October to November Month, 2022

Table 1.4 show that 54.76 percent are male and 45.23 per cent of the respondents are females.

Table 1.5 Educational Status among Sampled Bricks Kiln Workers

Educational Status	Number of Respondents	Percentage
Illiterate	42	20.00
Primary level	110	52.39
10 th	34	16.20
12th	22	10.48
Graduation and Above	2	0.95
Total	210	100.00

Source: Computed by Researcher from Field Survey, October to November Month, 2022

Table 1.5 shows that 52.39 percent of the bricks kiln workers are studied up to primary level that is highest percentage and only 0.95 percent are studied up to graduation and above.

Table 1.6 Income Level (Monthly) among Sampled Bricks Kiln Workers

Income level (Monthly)	Number of Respondents	Percentage
INR 0- 6000	31	14.77
INR 6001- 10000	119	56.67
INR 10001-150000	45	21.43
Above 15000	15	7.14
Total	210	100.00

Source: Computed by Researcher from Field Survey, October to November Month, 2022

Table 1.6 show that 56.67 percent of the bricks kiln workers are income INR 6001-10000 per month which is highest percentage and only 7.14 percent of the respondents are income Above INR 15000 per month.

Table 1.7 Marital Status among Sampled Bricks Kiln Workers

Marital Status	Number of Respondents	Percentage
Married	109	50.90
Unmarried	67	31.90
Divorced	21	10.00
Widow	13	6.19
Total	210	100.00

Source: Computed by Researcher from Field Survey, October to November Month, 2022

Table 1.7 shows that 50.90 percent of the respondents are married which is highest percentage and only 6.19 percent of the respondents are widow.

Table 1.8 Caste-Wise Sampled Bricks Kiln Workers

Caste-Wise	Number of Respondents	Percentage
General	58	27.61
OBC	33	15.71
SC	108	51.42
ST	11	5.23
Total	210	100.00

Source: Computed by Researcher from Field Survey, October to November Month, 2022

Table 1.8 shows that 51.42 percent of the bricks kiln workers are belong to Scheduled Caste (SC) Communities which is highest percentage and only 5.23 percent of the bricks kiln workers are Scheduled Tribes (ST) Communities.

Table 1.9 Major causes of taking this profession among Sampled Bricks Kiln Workers

Major causes of taking this profession	Number of Respondents	Percentage
Poverty	86	40.95
Unemployment	35	16.66
Traditional Profession	47	22.38
No Agricultural lands	23	10.96
Death of Husband	12	5.72
Education for children	7	3.33
Total	210	100.00

Source: Computed by Researcher from Field Survey, October to November Month, 2022

Table 1.9 depicts that 40.95 percent of the of bricks kiln workers are taken this profession due to poverty reason and only 3.33 percent of the respondents are taken this profession due to educating their children's.

Table 1. 10 Health Hazards among Sampled Bricks Kiln Workers

Health Hazards	Work causes diseases	Number of Respondents	Percentage
Respiratory Problems	Coal blending, loadings	21	10.00
Body Ache	Digging, Loading, Moulding, Driving Trolley	47	22.38
Eye Problems	Firing, Coal Blending	16	7.61
Skin Rashes	Moulding, Coal blending	19	9.04
Heat Stress	Firing	11	5.23
Fever	Moulding	21	10.00
Injuries	Digging, Loading, Moulding, Driving Trolley Digging, Loading, Moulding, Driving Trolley	49	23.33
Gastrointestinal	Firing, Coal Blending	12	5.71
Burns	Firing, Coal Blending	14	6.66
Total		210	100.00

Source: Computed by Researcher from Field Survey, October to November Month, 2022

Table 1. 10 shows that 23.33 bricks kiln workers are suffered from minor injuries during the performing of works such as Digging, Loading, Moulding, Driving Trolley Digging, Loading, Moulding, Driving Trolley etc. which is highest percentage and only 5.23 percent of the bricks kiln workers are suffered from heat stress.

Table 1. 11 Major Problems faced Sampled Bricks Kiln Workers

Major Problems	Number of Respondents	Percentage
Domestic violence	14	6.66
Consuming tobacco, alcohol and smoking	46	21.90
Timely wages are not payment	18	8.57
Sexual Harassment and Molestation by co-workers	21	10.00
No Toilet facility	24	11.42
Kaccha House (Huts) for living	22	10.47
No Electricity Supply in huts	24	11.42
Unable to full fill basic needs	35	16.66
Low standard of living	17	8.09
Total	210	100.00

Source: Computed by Researcher from Field Survey, October to November Month, 2022

Table 1. 11 shows that 21.90 percent of the bricks kiln workers are faced Consuming tobacco, drinking alcohol and smoking practices and only 6.66 percent of the bricks kiln workers are facing domestic violence.

Table 1. 12 Domicile Status among sampled Bricks Kiln Workers

Domicile Status	Number of Respondents	Percentage
Local / Native Residents	84	40.00
Migrants Labour from Jharkhand, Bihar, Odisha	126	60.00
Total	210	100.00

Source: Computed by Researcher from Field Survey, October to November Month, 2022

Table 1. 12 show that 60.00 percent of bricks kiln workers are Migrants Labour from Jharkhand, Bihar, Odisha states which is highest percentage and only 40.00 percent of the bricks kiln workers are local or native workers from Kaliachak-III block of Malda district.

Table 1. 13 Taking of Advance money from Contractors / Bricks Kiln Owners among Sampled Bricks Kiln Workers

Taking of Advance money (Indian Rupees)	Number of Respondents	Percentage
INR 0- 20000	23	10.95
INR 20001- 40000	48	22.85
INR 40001 - 50000	57	27.14
Above INR 50000	36	17.14
Taken no advance money	46	21.90
Total	210	100.00

Source: Computed by Researcher from Field Survey, October to November Month, 2022

Table 1. 13 shows that 27. 14 percent of Bricks Kiln Workers are taken advance money INR 40001-50000 from Contractors / Bricks Kiln owners and only 10. 95 percent of Brick Kiln Workers are taken advance money INR 0- 20000 which is lowest percentage.

Table 1. 14 Government Schemes Beneficiary among sampled Bricks Kiln Workers

Government Schemes Beneficiary	Number of Respondents	Percentage
Yes	56	26. 67
No	154	73.34
Total	210	100.00

Source: Computed by Researcher from Field Survey, October to November Month, 2022

Table 1. 14 depicts that 73.34 percent of Bricks Kiln Workers are not getting any Government Schemes Beneficiary and only 26. 67 percent of Brick Kiln Workers are getting help from Government Schemes.

Table 1. 15: SWOT Analysis among Sampled Bricks Kiln Workers

SWOT Analysis	
Strengths	Regular Employment Status, Advance payment, local area jobs.
Weakness	Lower wages, No electricity supplies, No drinking water facility, No first aid Services, Low standard of livings, Poverty, No bonus during festival
Opportunities	Taking advance money from Brick kiln Owners or Contractors,
Threats	Sexual Harassment and Molestation by co-workers, Suffered from respiratory symptoms and Diseases, physical-mental torture,

Major Findings of the study:

1. It is evident from the study that child labours are also engaged in bricks kiln the study area.
2. Majority of Bricks kiln workers are not covered under social security schemes like MGNREGA, Samajik Sourasha Yojna (SSY), Pradhan Mantri Garib Kalyan Yojna (PMGKY), Pradhan Mantri Awas Yojna Gramin (PMAY-Gramin), Pradhan Mantri Shram Yojna.
3. In this informal sector some labours are arranged by Contractors / Thikadaar / Sardar to the brick kiln owners by paying some money in advance. This advance giving money system treating them as bonded labourers.
4. Majority of bricks kiln workers are belong to Scheduled Caste (SC) community in the study area. Muslim religion peoples are not engaged in this activity.
5. It is evident from the field survey that 16. 66 percent of the respondents did not full fill their basic needs due to lower wages.
6. Among the 20 bricks kiln in the Kaliachak-III block, most of them are used coal, woods and sulphur for burning the bricks which causes environmental and air pollution.
7. Due to unavailability of works in off season they engage themselves in others activities like agriculture works and some of them are migrated to others state.

Suggestion and Policy Implication:

1. It has been observed that the standard of living and their quality of life among the bricks kiln workers is poor and not satisfactory thus Ministry of Labour and Employment, Government of West Bengal and others stakeholders pay a little attention to improve their condition.
2. Some technical assistance and machinery should be allowed by Bricks kiln owners for brick making thus it may reduce the work load among the brick kiln workers.
3. The researchers suggested on urgent basis that at the bricks kiln work sites there must be facilities of clean and potable drinking water, first aids facilities, clean toilet facilities, electric supply in the workers kaccha houses etc.
4. There is urgent need to provide vocational training and skill development programmes like Tailoring, needlecraft, Poultry Farming and Dairy Farming by various NGO, Ministry of Women's and Child Development to provide supplement their income during off season.
5. The bonus should be provided by the owners of the brick kiln workers during their festival time and protection of life insurance.

Conclusion:

Poverty, low literacy levels, unemployment, lack of vocational job skills, etc. are the major reasons for taking up this profession of brick kiln workers in rural areas of Malda district of West Bengal. The brick production process is mainly based on manual labour. The majority of the brick kiln workers suffer from health-related problems. It has been observed that building construction in India is estimated to grow at a rate of 6.6 percent per year between 2015 - 2023. One of the special features of brick kiln workers is that they may be one of the most vulnerable and marginalized communities in Indian society. Thus, there is an urgent need for social concern to frame measures to improve the living and socio-economic and good working conditions among brick kiln workers for inclusive growth.

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