



Working Conditions of Women Workers in the Unorganised Sector: A Case Study of Stone Crushers of Lower Balason in the Darjeeling District of West Bengal

Nanigopal Kapasia^{1*} and Avijit Roy²

¹*Department of Geography, Malda College, Malda, West Bengal, India*

²*Department of Geography, University of Gour Banga, Malda, West Bengal, India*

KEYWORDS Women. Stone Crushers. Socio-economic Status. Occupational Health Hazard

ABSTRACT The present study depicts women stone crushers in River Balason especially in its lower course. It is one of the prime sources of occupation. An attempt has been made to find out the socio-economic background of women stone crushers of River Balason and also examine the nature of work, wage patterns and occupational health problems of women stone crushers. Majority of women stone crushers involved in the river bed material extraction activities who are from depressed or backward classes and mostly belong to nuclear family are compelled sell the materials to middlemen or agents. During work, they also suffer from different diseases. Educationally they are much poor and around twenty-eight percent of the stone crushers are illiterate and residing mostly in semi-pucca and pucca houses because such are the house building materials that are available. The empirical findings may be useful to researchers and policymakers as well as officials to frame suitable policies and programmes for the developments of unorganised women workers of the Darjeeling district in general and the Matigara block in particular.

INTRODUCTION

The workers of the unorganised sector such as those in a plantation, small scale cottage industry, mining and crushing play a vital role in the Indian economy. Although the Indian economy is mainly based on agricultural activities (Roy and Chouhan 2017), a major portion of the people are engaged in such types of unorganised sectors. Stone crushing is a significantly small sector in the country (Vinod et al. 2012; Sen 2013) engaged in crushing stones of various sizes. This industry exists in the locality of nearly all major cities or towns all over the country for the reason that the building activities go on throughout the nation (Ahmad 2014, 2015). The stone crushers also require electricity and a vast amount of manpower. It also requires access to roads for the movement of crushed stone products. Therefore, most of the stone crushers are to be found by the side of the periphery of cities and often they are nearer to the source of the raw material such as stone mines and river beds. This small scale crushing provides employment to people living in neighbouring rural areas and in the cities (Ahmad 2014). They are

socio-economically backward relative to other industrial workers. The majority of the workers are uneducated and they receive a very stumpy amount of wages. The wages depend on their work competency and there is a complete absence of monthly wages for this type of manpower dependent jobs. The workers cannot sell finished material directly to customers. Either they sell the materials to suppliers or middlemen. That is why the workers are deprived of their real working wages or benefits. Most of these employees are from rural and economically backward areas where employment opportunities are inadequate (Yeboah 2008; Ahmad 2015), and therefore it carries superior implication in terms of social importance in the rural-urban periphery. It is a source of earning for uneducated, poor and inexperienced workers (Singh et al. 2006). Males and females, both are engaged in this sector, where men are engaged in dragging or extracting boulders from river beds (Tamang 2013; Tamang and Mandal 2015), and women and children are engaged in breaking as well as crushing the boulders. The poor women workers have to perform a dual role for their livelihood as a worker and as a manager of their home. Even women workers are compelled to work in unhealthy unorganised sectors because of their poverty. Child labour is commonly seen

^{*}Address for correspondence:
E-mail: avijitr407@gmail.com

in this unorganised sector (Lahiri-Dutt 2006). There is no rule to prevent child labour. Most of the children are dropouts from school and a small portion of them are helping their family while continuing their studies. The workers work in the open sky throughout the day at least seven to eight hours with a usual break. The crushing labour experiences hindrance and restriction in respiration by working and the essential capacity of lungs reduces considerably (Gohtker et al. 1995; Mathur 1996). They usually suffer from many health hazards such as cuts, bloodied wounds, body pain, backbone pain, headache, respiratory disease and seasonal fever. They become unable to work after due course of time in stone crushing (Chattopadhyay et al. 2006). Ultimately, the labours become not capable to earn a livelihood at some stage in his or her sickness, and as a result economical pressure is generated on their family (Mathur et al. 1996; Ilyas and Rasheed 2010), and they turn into socio-economic trouble on others for the remaining lives. Even though a large number of employees are acknowledged concerning the disease and related problems, yet it is not perfectly known to workers, and even if some of them are known, they cannot leave the job due to scarcity issues. The housing conditions of workers are semi-permanent in nature and most of the households are without safe drinking and proper sanitation facilities. Although, the country is promoting the Swachha Bharat Abhiyan presently, workers habitually defecate in open space continuously. They are not properly aware of human health and environmental health (Yadav 2011), which is of utmost importance in the present day's context.

Objectives of the Study

The objectives of the study are as following:

1. To study the socio-economic background of women workers engaged in riverbed material extraction of stones in River Balason.
2. To examine the nature of work, wage pattern and occupational health problems of women workers.

METHODOLOGY

Due to proper investigation of the concern objectives, the necessary information and data

related to stone crushing have been collected by a primary survey, which has been collected from 40 women stone crushers from three stone crushing stations of lower Balason river, that is, Matigara, Himul and Tarabari, and finally, 120 women stone crushers were surveyed as an aggregate. The simple random sample without replacement technique has been adopted for collecting the data with the help of interview schedules. After the collection of the whole range data, it was coded, edited and tabulated, and finally the data has been synthesised, analysed and interpreted with the help of percentage methods and descriptive analysis.

Problem of the Study Area

The workforce in unorganized sectors, that is, cultivators, agricultural labours, household industries, manufacturing other than households, mining and quarrying are the signs of alleviating large scale unemployment in the rural and urban areas in the Darjeeling District. In this sense, women play a key role not only in family affairs but also in their traditional work because of good skills. There are a large number of household women workers fully engaged in riverbed material extraction activities along with lack of awareness on social security, health conditions and so on. The status of these households is economically poor and deeply in debt, and hence, the author has chosen to study the women workers as a burning theme.

RESULTS AND DISCUSSION

Socio-economic Status (SES) of Stone Crusher Women

The socio-economic condition of women workers engaged in stone crushing of lower Balason River is poor and vulnerable. So the details are presented in the following manner.

Age

The age of the respondents who are still working, is an important indicator to assess effectively any sector of the economy. The age of sample respondents varies from 15 years to 65 years approximately. It is reported from the in-

tensive survey that in Matigara station, the average age of female workers is about 36.08 years whereas the maximum age of the respondents is 65 years and the minimum age is 15 years, which indicates the women workers are compelled to work for food to live with high age group (65+) and engaged along with low age group of 15 years. On the other hand, in Himul station, the average age of the female workers is around 42.68 years, which is higher from the other two stations where the maximum and minimum ages are 65+ and 18 years, respectively. In Tarabari station, the average age of women respondents is about 35.53 years, and the maximum and minimum ages are 55 and 23 years, respectively.

Marital Status

Traditionally, India is a male dominated society, and women depend on men in all aspects. However, here the women are able to earn an income for their existence after marriage due to the poor situation of their family. The survey reported that most of the sample respondents are married. In Matigara station, a majority of women stone crushers are married at 87.50 per-

cent, while the least percentage of respondents are unmarried at 10 percent and around 2.50 percent respondents are widows. Table 1 represents in Himul station about 82.50 percent women workers are married and around 10 percent are widowed respondents. On the hand, around 7.50 percent women workers are unmarried, and they are just dropout students engaged in these activities due to poverty. In Tarabari station, around 90.00 percent sample respondents are married, while the sample respondents who are widowed and unmarried are about 7.50 percent and 2.50 percent, respectively.

Religion

Although religion is not a prime factor for selecting occupation of any sectors of the economy, from the depth of the survey, it is found that the study is mostly dominated by Hindu communities. The workers belong to varied religious groups. The survey shows that in Matigara station, most of the women stone crushers are Muslims at 52.50 percent while rest are (47.50%) from Hindu communities, but in both Himul and Tarabari stations, all the stone crushers belong to Hindu communities.

Table 1: Demographic characteristics of women workers

	<i>Matigara</i>	<i>Himul</i>	<i>Tarabari</i>
<i>Religion</i>			
Hindu	19 (47.50)	40 (100.00)	40 (100.00)
Muslim	21 (52.50)	0 (00.00)	0 (00.00)
<i>Caste</i>			
General	2 (5.00)	2 (5.00)	0 (00.00)
OBC	21 (52.50)	0 (00.00)	0 (00.00)
SC	16 (40.00)	38 (95.00)	36 (90.00)
ST	1 (2.50)	0 (00.00)	4 (10.00)
<i>Marital Status</i>			
Married	35 (87.50)	33 (82.50)	36 (90.00)
Unmarried	4 (10.00)	3 (7.50)	1 (2.50)
Widow	1 (2.50)	4 (10.00)	3 (7.50)
<i>Age of the Workers (Years)</i>			
Average	36.08	42.68	35.53
Maximum	65	65	55
Minimum	15	18	23
<i>Educational Level</i>			
Illiterate	28 (7.00)	20 (50.00)	16 (40.00)
Up to primary (I-IV)	10 (2.5)	15 (37.50)	21 (52.50)
Up to elementary (V-VIII)	2 (5.00)	4 (10.00)	3 (7.50)
Up to secondary (IX-X)	0 (00.00)	1 (2.50)	0 (00.00)

Source: Calculation based on primary survey, 2016

Ethnicity

The women stone crushers involved in riverbed materials extraction are from different ethnicities. In Matigara station, it is found that large numbers of women workers belong to Other Backward Classes (OBC) at 52.50 percent, followed by Scheduled Castes at 40 percent. On the other hand, the least percentage of women stone crushers are General and Scheduled Tribes at 5 percent and 2.50 percent, respectively. In Himul station, a majority of women stone crushers belong to Scheduled Castes at 95 percent and rest are general at 5 percent, while in Tarabari station, most of the respondent women stone crushers are SC at 90 percent and around 10 percent belong to ST. From this table, it is cleared that most of the women stone crushers engaged in these activities are either minority or depressed classes, while a negligible percentage of 5 percent are from poor socio-economic conditions.

Education

Education plays a vital role in the socio-economic conditions of human life and it is a better way to eradicate poverty. If women are educated, the entire family would be developing directly or indirectly. From the survey, it is found that respondents of women workers who are engaged in these activities are educationally very poor. In Matigara station, about 70 percent respondents workers are illiterate and the rest are literate living in poor conditions, whereas 25 percent respondents are literate up to the primary grades, and only 5 percent respondent women are literate up to the upper primary level. On the other hand, in Himul station, around 50 percent women stone crushers are illiterate and the remaining 50.00 percent are literate. Among them, around 2.5 percent women workers attain education up to middle primary and the rest are educated up to primary and upper primary levels at 37.5 percent and 10 percent, respectively.

In Tarabari station, about 40 percent women respondents are illiterate while respondents are literate at 52.50 percent whereas only 7.5 percent respondent stone crusher are literate up to the upper primary level. From Table 1, it is clear that a majority of women workers are illiterate.

The least percentage are literate with poor education hardly up to the upper primary level, so their educational empowerment is very low to be able to improve their occupational structure in the future.

Family Structure

From the intense survey it is found that most of the respondents belong to a nuclear family and the least percentage of respondents belong to a joint family. In Matigara station, most of the sample respondent at 65 percent belong to a nuclear family and only 35 percent belong to joint families. In Himul station, around 77.50 percent women stone crushers belong to a nuclear family and the rest at about 22.50 percent are in joint families. On the other hand, in Tarabari station, about 85.00 percent respondents are from a nuclear family while only 15 percent respondents belong to a joint family. It is also reported from the survey that most of the joint families are broken into nuclear families because of a small space of their homestead or due to personal interests.

Family Status

For the family status of workers' households engaged in riverbed materials extraction, from the table, it is clear that in Matigara station, most of the households at 67.50 percent are APL categories and only 32.50 percent households are in BPL categories. In Himul station, 70.00 percent surveyed households are in APL and around 30 percent households are in BPL categories. On the other hand, around 60 percent households having APL and 40.00 percent households have APL in Tarabari station. From the table, it is clear that in every station most of the surveyed households' status is APL category than BPL.

Housing Conditions of Stone Crushers Women

Houses

The type of houses of the respondents indicate the social upgradation and health environments of residences. The majority of the respondents (47.50%) dwell inside semi-pucca and Katcha houses in Matigara. While only 5.00 per-

cent respondents said that they reside in purely pucca houses. In Himul, around 57.50 percent respondents reside in semi-pucca houses and only 10 percent respondents responded that they reside in Katcha houses, while about 32.50 percent respondents have pucca houses. In the case of Tarabari station, a major percentage of women stone crushers at 65 percent reside in semi-pucca houses while around 12.50 percent and 22.50 percent respondents reside in semi-pucca and Katcha houses, respectively. During the survey, it is observed that most of the households have pucca houses and semi-pucca houses because of the availability of raw materials for buildings houses. Table 2, it is observed that most of the households of the respondents are their own at about 92.50 percent whereas only 3.70 percent respondents replied that they reside in rental houses in Matigara station. On the other hand, all the respondent women workers reside in their own houses in Himul and Tarabari stations.

Electricity Connection

Electricity connection of the respondent houses is one of the essential factors for house-

hold infrastructure and adaptation in the modern infrastructure of society. From the intensive survey, it is found that there is an electricity connection in all respondents' households in Matigara station. In Himul station, most of the households at 85 percent have an electricity connection while only 15 percent respondent's households do not have these facilities because they reside in Naya Basti where electricity connection is unavailable at present. On the other hand, in Tarabari station, a majority of households at about 95 percent have electric facilities and rest are cut off from these facilities.

Nature of Defecation

In Matigara station, most of women stone crushers at 52.50 percent responded that a proper sanitation system is present in their home, and some of them benefitted from the government scheme of *Swachha Bharat Abhiyan*. On the other hand, around 15 percent respondents' houses do not have any sanitation system, and they defecate in open spaces outside their homes, while only 32.50 percent respondent's

Table 2: Household characteristics of women workers

	<i>Matigara</i>	<i>Himul</i>	<i>Tarabari</i>
<i>Family Structure</i>			
Jointly	14 (35.00)	9 (22.50)	10 (25.00)
Nuclear	26 (65.00)	31 (77.50)	30 (70.00)
<i>House Type</i>			
Katcha	19 (47.50)	4 (10.00)	5 (12.50)
Semi-pucca	2 (5.00)	13 (32.50)	9 (22.50)
Pucca	19 (47.50)	9 (22.50)	26 (65.00)
<i>Electricity Connection</i>			
Electric	40 (100.00)	34 (85.00)	38 (95.00)
Kerosene	0 (00.00)	6 (15.00)	2 (5.00)
<i>Poverty</i>			
Above poverty line(APL)	27 (67.50)	28 (70.00)	24 (60.00)
Below poverty line(BPL)	13 (32.50)	12 (30.00)	16 (40.00)
<i>Sources of Drinking Water</i>			
Tube well	10 (25.00)	16 (40.00)	3 (7.50)
Dug well unprotected	17 (42.50)	2 (5.00)	5 (12.50)
Dug well protected	13 (32.50)	22 (55.00)	32 (80.00)
<i>Type of Kitchen</i>			
Separate	32 (80.00)	38 (95.00)	40 (100.00)
Within same room	4 (10.00)	2 (5.00)	0 (00.00)
In open space	4 (10.00)	0 (00.00)	0 (00.00)
<i>Defecation Pattern</i>			
Open space	6 (15.00)	0 (00.00)	0 (00.00)
Insanitation latrine	13 (32.50)	5 (12.50)	9 (22.50)
Sanitation latrine	21 (52.50)	35 (87.50)	31 (77.50)

Source: Calculation based on primary survey, 2016

households have the insanitation or septic latrine. In Himul station, most of the households (87.50%) have a proper sanitation system whereas only 12.50 percent households have an insanitation system. On the other hand, in Tarabari station, a majority of households have a good and proper sanitation system, and the rest (22.50%) have an insanitation system.

Source of Drinking Water

Since the water level is very near to the earth's surface, the drinking water facilities are available in the surveyed area. From the table, it is noted that in Matigara station, about 25.00 percent households take the drinking water facilities from tubewells while most of the households at 42.50 percent get their drinking water from almost unprotected well dug by them and 32.50 percent households collect their drinking water from protected wells dug by them. In Himul station, a majority of households (55%) take their drinking water facilities from protected wells dug while only 40 percent households collect drinking water from deep tubewells. In Tarabari sta-

tion, most of the households at 80 percent get their drinking water from protected wells and around 75 percent households collect drinking water from the tubewell.

Kitchen Pattern

According to respondents, 80 percent have a separate kitchen. On the other hand, around 10 percent respondents' houses have an attached kitchen within their bedroom whereas about 10 percent households cook in an open space throughout the year. In Himul, in a majority of households at 95 percent have a separate kitchen, and only 2 percent cook in the same room. In Tarabari, all households have a separate kitchen.

Employment Status of Women Workers

Nature of Work

The working pattern of women stone crushers engaged in Balason riverbed extraction of materials is varied because of the availability of

Table 3: Nature of employment of women workers

	Matigara	Himul	Tarabari
<i>Mode of Operation</i>			
Boulder Lifting	0 (00.00)	0 (00.00)	39 (97.50)
Stone crushing	3 (7.50)	0 (00.00)	0 (00.00)
Boulder lifting and stone crushing	30 (75.00)	40 (100.00)	0 (00.00)
Stone crushing, boulder lifting and car loading	7 (17.50)	0 (00.00)	0 (00.00)
Boulder lifting and car loading	0 (00.00)	0 (00.00)	1 (2.50)
<i>Reason for Work in Stone Crushing</i>			
Poverty	14 (35.00)	32 (80.00)	36 (90.00)
Poverty, Better earning	17 (42.50)	3 (7.50)	2 (5.00)
Poverty, lack of opportunities	0 (00.00)	4 (10.00)	0 (00.00)
Poverty, Husband not alive	2 (5.00)	1 (2.50)	0 (00.00)
Poverty, own interest	6 (15.00)	0 (00.00)	0 (00.00)
Poverty, lack of capital	0 (00.00)	0 (00.00)	1 (2.50)
Poverty, lack of agriculture	0 (00.00)	0 (00.00)	1 (2.50)
Poverty, inspired by others	1 (2.50)	0 (00.00)	0 (00.00)
<i>Duration of Works (hours)</i>			
Average	5.97	5.3	6.73
Maximum	8	6	8
Minimum	4	4	5
<i>Job Card holders (MGNAREGA)</i>			
Yes	24 (60.00)	29 (72.50)	31 (77.50)
No	16 (40.00)	11 (27.50)	9 (22.50)
<i>Working Performance in Days (MGNAREGA)</i>			
Average	14.8	16.93	19.55
Maximum	45	42	42
Minimum	0	0	0

Source: Calculation based on primary survey, 2016

riverbed materials in all places is not the same. So, along the lower course of river Balason, the women workers are engaged in different activities.

Table 3 presents that near the piedmont zone of Balason river at Tarabari, 97 percent women workers are involved in boulder lifting whereas only 2.50 percent women workers are engaged in both boulder lifting and car loading. On the other hand, in Himul station, all the surveyed women workers are involved in stone crushing and boulder lifting from riverbeds. In the case of Matigara bridge, a large number of women workers are involved in both stone crushing and boulder lifting at 75 percent while around 17.50 percent are engaged in stone crushing, boulder lifting, and car loading and unloading. On the other hand, only 7.50 percent women workers are involved in stone crushing activities.

Reason for Work

It is important to note that the environment is the prime reason for taking on these activities by local workers by both males and females. It is clear that in Matigara station, around 35 percent respondents responded that they are earn while 42.50 percent respond that they are poor and earning better. Around 5 percent respondents are compelled to work because their husband is not alive and 2.50 percent women workers are poor and inspired by others to engage in these activities. In Himul station, most of the respondents responded that the poor economic condition is the main factor for being involved in these jobs, followed by poor and lack of other opportunities, while only 7.50 percent respondent workers respond to poor economic and better earning as the causes behind these activities. In Tarabari, most of the respondent women workers (90%) respond to poor economic conditions

and the least percentage of women workers respond to lack of agricultural and other opportunities as causes of involvement in the activities.

Duration of Work

The workers engaged in these activities work differently, so the devotion of time is different from place to place. In Matigara station, they work an average of 5.97 hours whereas the maximum is 8 hours and the minimum is only 4 hours. In Himul, the average is 5.3 hours whereas the maximum and minimum is 6 and 4 hours respective. In Tarabari, they work on an average of 6.73 hours whereas the maximum is 8 hours and the minimum is 5 hours.

MGNREGA Scheme Beneficiaries

Although there is no job security for the stone crusher workers of unorganised sectors, they have the MGNREGA job cards of 100 days of work security and RSBY card. It is reported from the survey that in Matigara about 60 percent, in Himul about 72.5 percent and in Tarabari 77.50 percent are NREGA beneficiary households. The workers who have the job card have worked a maximum of 40 to 45 days out of 100 days in the year 2014.

Income of Respondents

The respondents' income throughout the year, keeping in mind that the survey was conducted in April and May of 2015.

The respondents received INR 1982.50 in the last month whereas in a normal month, the respondent workers' income is an average of INR 2180 and in peak season, it is about INR 3025. In Himul station, the respondent workers' income

Table 4: Monthly income (Rupees) of the respondents throughout the year

Income in INR	Matigara			Himul			Tarabari		
	Last month	Normal month	Peak month	Last month	Normal month	Peak month	Last month	Normal month	Peak month
Mean	1982.5	2180	3025	2522.5	2655	3737.5	2892	2870	3850
Max.	3000	3000	4000	3000	3200	4500	3500	3000	5000
Min.	1500	1500	2000	1200	1500	2500	2000	2500	3500

Source: Calculation based on primary survey, 2016

is an average of INR 2522.50 in the last month whereas in a normal month it is INR 2655 and during the peak month it is INR 3737.50. In Tarabari, the average income of the last month is about INR 2892 and in a normal month and peak month is it INR 2870 and INR 3850, respectively. In Matigara, the respondents' income is high as INR 4000 per month whereas in Himul station, it is INR 4500 per month. In Tarabari, in the peak season the income rises a little bite to INR 5000 per month. Yet it is important to note that the income in peak season also depends on the availability of materials. The materials are available more from Matigara to Tarabari (Table 4).

Mode of Payment

Payment is done by suppliers to workers weekly on Tuesday in all surveyed stations. The workers are compelled to sell their extracted materials to suppliers because they cannot directly contact the consumers for selling their materials. If this were possible, the workers would gain much more benefit than what they receive now. Here suppliers take the role of middlemen for selling these materials outside.

Wage and Prices of Materials

Crushed stone is segregated into various sizes for different uses, generally for construction of roads, bridges, housing, industrial building construction and other cement based products and roads. The demand for crushed stone will continue to grow with the growth of its user industry. The prices of different materials, it is reported from the intensive survey at the different stations, depend on the extraction activities available in different stations and their selling cost also varies in the different stations. In Matigara station, the sand prices are fixed at INR 400/100 cft while in Tarabari it varies from INR 200/100 cft and where they sell 100 cft sand, it is INR 162.25 on average. In the case of pebbles, locally called Bajri, it varies from place to place. In Matigara station, from the survey, it is found that workers sell it at an average of INR 240/100 cft wherein maximum and minimum values are about INR 5000 and INR 200, respectively. In Himul station, the average rate is INR 280 wherein the maximum and minimum rate is INR 400 and

INR 200, respectively. In Tarabari, it is very costly, and they sell it at an average of INR 735 wherein the maximum value is INR 1000 and minimum is INR 600, respectively. In the case of grit, locally named *Metel*, it varies and is found only in Matigara and Himul because grits are transformed from pebble by breaking into a sizable size. In both stations, the highest price of it is INR 900/100cft, and the lowest is INR 800/100cft. They sell at an average of INR 875/100cft. Another material is gritty, which is most priced at INR 1800/100 cft in both stations. It has the highest demand for concretation in buildings and roads. In the case of the boulder, it is found from survey that in Matigara station, they sell it at an average of INR 108.75 wherein the maximum and minimum values are INR 200 and INR 50, respectively. In Himul station, they sell it for INR 278 wherein the maximum and minimum values are INR 350 and INR 200, respectively. In Tarabari, other demandable materials are sized at ½" and only found in this station, and they sell at INR 1245 on average wherein they sell at maximum INR 1400 and minimum INR 1200.

Monthly Consumption Pattern

In the Matigara station, the average expenditure on food in the households is INR 3237.50, which is much more than the other two stations, that is, INR 2580 in station Himul and INR 2692.50 in Tarabari station. The average expenditure on education is much more at about INR 342.50 in Matigara than the other two stations. Table 5 also shows that the average expenditure on different items is comparatively more in Matigara Bridge. For clothing expenditure, Matigara shows INR 171.50 whereas Tarabari shows only INR 80 per month. For expenditure on others, Matigara positioned at the first rank with INR 1035 and lowest was Tarabari at INR 740 (Table 5).

Health Hazards of the Stone Crushing Women Workers

Mechanical Hazards

The women workers involved in this activity suffered from not only physical health hazards but also mechanical health hazards like cuts, in-

Table 5: Consumption pattern and expenditure on health of respondents

<i>Average consumption (Rupees)</i>	<i>Matigara</i>	<i>Himul</i>	<i>Tarabari</i>
Food	3105	2580	2692.5
Education	342.5	282.5	293.5
Dress	440	176.25	136.5
Medicals	171.25	87.5	80
Home repair	740	382.5	230.25
Others	1035	870	740
<i>Expenditure on Health (Rupees)</i>			
Monthly	93	92.25	78.63
Yearly	872.5	1365	1317.5

Source: Calculation based on primary survey, 2016

juries and sprains. So, injuries are common at all stations. In Matigara station, around 25 percent respondent workers suffered from sprains and cuts, while 10 percent respondents suffered from a cut, around 12.5 percent suffered from injuries and sprains, and 75 percent respondents suffered from a cuts, injuries and sprains during their work. In Himul station, the majority of workers at 60 percent suffered from cuts and injuries, 17.5 percent suffered from cuts and sprains, while only 2 percent suffer from cuts, injuries and sprains during work and 10 percent respondents suffered from only injuries. On the other hand, the majority of women workers suffered from both injuries and sprains, followed by 30 percent suffering from cuts and injuries, and 10 percent women stone crushers were affected by only injuries.

Physical Hazards

The workers engaged in river bed materials extraction were affected by a lot of physical hazards like heat, cold and rain. In Matigara station, most women workers were affected by heat, and hence they used a big umbrella while crushing the stones. Around 17.5 percent respondents' said that they suffered from both heat and cold while only 10.00 percent women workers were affected by heat, cold and rain. In Himul station, around 42.5 percent women workers suffered from heat, followed by 30 percent by cold and rain and only 27.5 percent women stone crushers responded that they suffered from heat, cold and rain while in the workplace. While in Tarabari station, a majority of women workers around 37.5 percent suffered from heat, cold and rain,

followed by 35 percent suffered from heat and cold, and only 7.5 percent respondents suffered from cold and rain.

Occupational Health Problems

The women workers engaged in these activities were affected by different types of diseases like body pain, chest pain, fever, respiratory disease cough, etc. There is a common health problem of body pain for all stone crushers in all stations. In Matigara station, around 55 percent women stone crushers suffered from body pain, chest pain, and fever, followed by 27.5 percent suffering from body pain, respiratory disease and cough, while only 17.5 percent suffered from body pain and chest pain. In Himul station, 50 percent respondents suffered from body pain, chest pain and fever while only 37.50 percent were affected by body pain, and chest pain, and 12.50 percent women respondents suffered from body pain, respiratory disease and cough (Table 6).

On the other hand, in Tarabari station, a higher percentage of women workers suffered from body pain and cough because most women workers are involved in working in the water the whole day. Again, around 17.5 percent workers suffered from body pain, chest pain, and fever, and only 7.5 percent women workers suffered from body pain, respiratory disease and cough due to a low percentage of women workers involved in breaking the boulders or pebbles into grits.

Health Care Systems

To get remedies for suffering preambles or diseases and mechanical hazards, the workers

Table 6: Health hazards of the stone crushing women workers

<i>Health hazards</i>	<i>Matigara</i>	<i>Himul</i>	<i>Tarabari</i>
<i>Mechanical Hazards</i>			
Cut	4 (10.00)	0 (00.00)	0 (00.00)
Injured	10 (25.00)	4 (10.00)	4 (10.00)
Sprain	3 (7.50)	3 (7.50)	0 (00.00)
Injured ad sprain	5 (12.50)	0 (000.00)	24 (60.00)
Cut and sprain	10 (25.00)	7 (17.50)	0 (00.00)
Cut, injured and sprain	3 (7.50)	2 (5.00)	0 (00.00)
Cut and injured	5 (12.50)	24 (60.00)	12 (30.00)
<i>Physical Hazards</i>			
Heat	25 (62.50)	17 (42.50)	0 (00.00)
Heat and cold	7 (17.50)	0 (00.00)	14 (35.00)
Heat, cold and rain	4 (10.00)	11 (27.50)	15 (37.50)
Heat and rain	4 (10.00)	12 (30.00)	8 (20.00)
Cold and rain	0 (00.00)	0 (00.00)	3 (7.50)
<i>Occupational Health Hazards</i>			
Body pain, Chest pain and fever	22 (55.00)	20 (50.00)	7 (17.50)
Body pain, Chest pain	7 (17.50)	15 (37.50)	5 (12.50)
Body pain, fevers	0 (00.00)	0 (00.00)	0 (00.00)
Body pain and cough	0 (00.00)	0 (00.00)	25 (62.50)
Body pain, respiratory disease and cough	11 (27.50)	5 (12.50)	3 (7.50)
<i>Health Facility</i>			
Health centre	30 (75.00)	6 (15.00)	4 (10.00)
Health and Jishu Ashram	7 (17.50)	0 (00.00)	0 (00.00)
Govt. hospital and Private Pharmacists	3 (7.50)	4 (10.00)	0 (00.00)
Private medical practioners	0 (00.000)	30 (75.00)	36 (90.00)

Source: Calculation based on primary survey, 2016

go to health care centres. In Matigara site, most of the respondent workers, that is, 75 percent receive medical facilities (free of cost) from Matigara Health Centre and around 17.50 percent respondents received medical facilities from both Matigara Health Centre and Jishu Ashram, while about 7.50 percent respondents receive medical care from both, the government hospital and private medical practitioners whenever seriously ill.

In Himul site, the majority of respondents about 75 percent receive medical care from local private medical practitioners while around 15 percent receive it from Matigara Health Centre and the least percentage of respondents (10%) take services from the government hospital during serious illness. In the case of Tarabari, the majority of workers at 90 percent take services from private medical practitioners and 10 percent take medical facilities from Matigara Health Centres. It is reported that in case of serious illness they take services of the government hospital only.

Average Monthly and Yearly Expenditure on Health Care

Since the river bed materials extraction is hard and laborious work, the workers frequently

suffer from different diseases and they go to medical facilities for checking of expensive illnesses. From the intensive survey, it is observed that in Matigara station, the average monthly expenditure on health is INR 93 among surveyed women workers, and it is INR 872.5 per year approximately (Table 5). In Himul station, they responded that their monthly expenditure on health is about INR 92.25 and it is about INR 1365 in a year, which is much more than Matigara because the respondents receive their medical facilities from private medical practitioners. In Tarabari it is reported that the expenses are around INR 78.63 per month and INR 1317.5 per year.

Awareness and Social Security of the Women Workers

Today in India, only about eight percent of workers get the benefits available under social security Acts. The rest ninety-two percent, which is approximately over 30 crores workers, who are in the unorganised sector are not eligible for the coverage under these Acts, and these are just not implemented for them, with the re-

sult that these workers have insecure employments and low incomes.

The government is committed to improving the conditions of workers in the unorganised sector. Under the Unorganised Workers' Social Security Act, 2008, the *Rashtriya Swasthya Bima Yojana (RSBY)* was launched to provide a smart card-based cashless health insurance cover of INR 30,000/- per annum on a family floater basis to BPL families (a unit of five) in the unorganised sector. RSBY has been extended to building and other construction workers, street vendors, Beedi workers, and MGNREGA beneficiaries who have worked for more than 15 days during the preceding financial year and domestic workers. The government has launched the *Aam Aadmi Bima Yojana (AABY)* to provide insurance against death and disability. The Indira Gandhi National Old Age Pension Scheme has been expanded by revising the criteria of eligibility. All citizens above the age of 65 years and living below the poverty line are eligible for benefits under the scheme.

Major Findings

- ◆ The majority of the women workers engaged in riverbed material extraction activities belong to depressed or backward classes.
- ◆ Most women workers belong to nuclear families in the Hindu community and have an average age of more than 30 years in each working station.
- ◆ A majority of women workers (about 16 to 28%) are illiterate while for those who are literate, the educational attainment is very poor, that is, up to primary level (I-V) and a negligible percentage are educated up to upper primary level (V-VIII).
- ◆ Most of the respondent workers reside in semi-pucca and pucca houses with medium infrastructural households facilities.
- ◆ There is a difference in the availability of materials as well as materials' prices across all working stations.
- ◆ Almost all the workers are compelled to sell their material to agents or suppliers with a weekly payment condition.
- ◆ Most of the women workers suffer from different diseases and receive medical care either from private medical practitioners, retail

medical shops or government hospitals and Swastha Kendras.

- ◆ Although there is no social security for these workers like the organised sectors, most of the households are benefitted by some government schemes like the MGNREGA scheme job security, RSBY, IAY, etc.

CONCLUSION

Generally, the unorganised sector is an enterprise or place of work that is not registered by the government and does not even follow any rules and regulations. Although there are no terms and conditions of employment, workers do not enjoy the security of employment and there are no fixed number of hours for work. Moreover, workers are compelled to work in an unhealthy environment because of their vicious cycle of poverty. In the study area, women are mostly engaged in riverbed materials extraction activities and their income is very nominal, which is not proper for a healthy livelihood. Although their living houses are mostly pucca and semi-pucca types due to the availability of local raw materials for building, their living environment is not hygienic or well sanitized. Their income is more in the peak season although the cost of materials becomes less compared to the lean season. To overcome this situation of women stone crushers, they need to directly contact the customer and avoid the middlemen. They also need to be made aware of their working environment and situation. Finally, to uplift their livelihood, there should be emphasis on the awareness of different development schemes and activities for income generation. In this sense their involvement in microfinance such as Self Help Groups (SHG) and Bandhan Bank may assist with improving their livelihood.

REFERENCES

- Ahmad A 2014. A study of miners, demographics and health status in Jodhpur District of Rajasthan, India. *International Journal of Development Studies and Research*, 3(1): 113-121.
- Ahmad A 2015. Socio-economic and health status of sandstone miners: A case study of Sorya village, Karauli, Rajasthan. *International Journal of Research in Medical Science*, 3(5): 1159-1164.

- Chattopadhyay BP, Gangopadhyay PK, Bandopadhyay TS, Alam J 2006. Comparison of pulmonary function test abnormalities between stone crushing dust exposed and nonexposed agricultural workers. *Environmental Health and Preventive Medicine*, 11(4): 191-198.
- Gohtker VB, Maldhure BR, Zodpey SP 1995. Involvement of lung and lung function tests in stone quarry workers. *Indian Journal of Tuberculosis*, 42: 155-160.
- Ilyas M, Rasheed F 2010. Health and Environment Related Issues in Stone Crushing in Pakistan. South Asia Network of Economic Research Institutes. From <http://saneinetwork.net/Files/10_18_Farook_Rasheed.d.pdf> (Retrieved on 3 March 2017).
- Lahiri-Dutt Kuntala 2006. Gendered Livelihoods in Small Mines and Quarries in India: Living on the Edge. *Working Paper*. Rajiv Gandhi Institute for Contemporary Studies, New Delhi and Australia South Asia Research Centre, Canberra.
- Mathur ML 1996. Silicosis among sand stone quarry workers of a desert district Jodhpur. *Annals of the National Academy of Medical Sciences*, 32: 113-118.
- Mathur ML, Dixit AK, Lakshminarayana J 1996. Correlates of peak expiratory flow rate: A study of sand stone quarry workers in desert. *Indian Journal of Physiology and Pharmacology*, 40: 340-344.
- Roy A, Chouhan P 2017. Socio-economic profile and social well being of handloom industry weavers of Gangarampur Block in Dakshin Dinajpur District of West Bengal, India. *International Journal of Research in Geography*, 3(3): 1-15. <http://dx.doi.org/10.20431/2454-8685.0303001>
- Sen R 2013. Organizing the unorganized workers: The Indian scene. *Indian Journal of Industrial Relations*, 48(3): 415-427.
- Singh SK, Chowdhary GR, Purohit G 2006. Assessment of impact of high particulate Concentration on peak expiratory flow rate of lungs of sand stone quarry workers. *International Journal of Environmental Research Public Health*, 3(4): 355-359.
- Tamang L 2013. Quarrying activities along the lower Balason River in Darjeeling district, West Bengal. *Indian Journal of Spatial Science*, 4(1): 1-8.
- Tamang L, Mandal DK 2015. Bed material extraction and its effects on the forms and processes of the lower Balason River in the Darjeeling Himalayas, India. *Geographia Polonica*, 88(3): 393-405.
- Vinod N, Swarna L, Mahesh MK 2012. Morbidity profile of stone crusher workers with special reference to respiratory morbidity- A cross sectional study. *National Journal of Community Medicine*, 3(3): 368-371.
- Yadav SP, Anand PK, Singh H 2011. Awareness and practices about silicosis among the sandstone quarry workers in desert ecology of Jodhpur, Rajasthan, India. *Journal of Human Ecology*, 33(3): 191-196.
- Yeboah JY 2008. *Environmental and Health Impact of Mining on Surrounding Communities: A Case Study of Anglogold Ashanti in Obuasi*. A Thesis submitted to the Department of Geography and Rural Development in Partial Fulfilment of the requirements for the degree of Master of Arts. Kumasi, Ghana: Faculty of Social Sciences College of Art and Social Sciences, Kwame Nkrumah University of Science and Technology.

Paper received for publication in June, 2019
Paper accepted for publication in December, 2019