

Socio-Economic Impacts of Stone Quarrying

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Rajesh Kumar

Associate Professor,
Dept. of Zoology,
S. P. C. Government College,
Ajmer, Rajasthan, India

M.M. Ranga

Retd. Professor,
Dept. of Environmental Science,
Sarguja University, Ambikapur,
Chhattisgarh, India

P.C. Sharma

Assistant Professor,
Department of Zoology,
Dept. of Zoology,
S. P. C. Government College,
Ajmer, Rajasthan, India

Abstract

A large number of activities in operation of stone quarrying cause environmental degradation including noise pollution. These quarries are usually located in clusters in remote locations of mineral rich areas where living standards is lower and understanding of people towards environmental impact is also poor. These quarrying activities results in disturbance of land surface, altering drainage pattern and land use, besides the pollution problems, which may lead to the environmental problem of water, air, noise, solid waste pollution and dust pollution. Consequently want of suitable solutions to the problem were very much high on demand for eco-friendly quarrying.

Environmental degradation means lowering of environmental quality at local, regional and global scales by both natural processes and human activities. In the central Aravali region stone quarrying and processing units cause environmental degradation and health hazards to a great extent and another problem is socio-economic impact.

Keywords: Impact of Stone Quarrying, Socio-Economic Impact, Eco-Degradation.

Introduction

The physical degradation of environment is responsible for social degradation in other words for lower quality of life in an urban areas. The physical degradation of urban environment includes land degradation, air, water, noise pollution as well as loss of natural vegetation in and around city. While social degradation can be seen in the form of growth of slum areas, lower quality of housing, poor facility of drinking water, problems of health municipal waste and sanitation, etc. All these in turn resulted into lower quality of life (Northam, 1975).

Mining and quarrying activities have socio-economic impact, which ultimately result in ecological imbalance. Unfortunately, in most region of the earth, the underground geological resources are superimposed by biological resources. This is particular evident in India. Hence mining and quarrying operations necessarily involves deforestation, habitat destruction, biodiversity erosion and destruction of ores and minerals also lead to widespread environment pollution (Sinhaet al., 2000).

Material and methods

For the study of socio-economic status (SES) and occupational health hazards an extensive survey was made to explore the socio-economic impact of quarrying site. Workers were questioned on the basis of well-designed performa covering aspects like age group, sex, type of service performing in the quarrying site, economic status and many other aspects relevant to the study. The details were finally recorded in the Performa. The follow-up of the survey were taken for the study of diseases of incidence among the workers.

Methodology for the study of Socio-economic status

Questionnaire for Occupational Health Problems Assessment has been used.

Observation

A survey was done for medical history for three years (2011 – 2013) to study occupational diseases in workers involved in stone quarrying units. 200 workers of four quarrying units were asked to find out effect of stone dust and noise pollution. The results are represented in the table no. (1-2).

For the proper interpretation of the information collected in the questionnaires the entire work force was categorized in three groups as per the similarity in the role in work place and there socio-economic status.

Group first included unskilled workers (48%), group second included skilled workers (44%), group third

included supervisor and manager (8%).

Table: (1) Skill and Age Wise Distribution of Workers in Study Sites

Age (in year)	Percentage of Workers	Skillness	Percentage of Workers
Up to 18	15	Unskilled	48
18 – 36	49	Skilled	44
36 – 54	31	Supervisor	7
54 – 60	5	Manager	1

Table no. (1) Reveals that a large percentage of workers (49) belong to a young age group of 18 – 36 years, which is the highest

percentage among the workers in stone quarrying sites. Only a small percentage (5) falls into the old age group of 54 – 60.

Table: (2) Socio-economic Status of Workers in Study Sites (Parbatser -S1, Rajnagar - S2, Sedariya - S3 and Shrinagar - S4)

Socio-Economic Status	Unskilled Workers (%) in Study Areas				Skilled Workers (%) in Study Areas				Supervisor and Manager			
	S1	S2	S3	S4	S1	S2	S3	S4	S1	S2	S3	S4
1. Education level % Illiterate	44	43	45	42	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL
2. Primary	37	39	35	39	5	3	2	3	NIL	NIL	NIL	NIL
3. Secondary	18	16	19	17	94	95	97	95	99	98	99	98
4. Technical	1	2	1	2	1	2	1	2	1	2	1	2
Literacy %												
M	15	10	12	14	90	83	86	85	100	100	100	100
F	8	4	7	5	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL
Body Mass Index												
M	17.22	17.43	17.31	17.54	19.41	18.52	20.30	17.63	19.50	18.61	20.49	17.72
F	17.15	17.34	17.26	17.43	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL
Per capita income (in thousands)	22	18	20	19	52	50	48	50	90	80	86	84

Table no. (2) Reveals that the level of education would influence the nature of occupation and income. Illiterates constitute the maximum percentage and technical education constitutes the minimum percentage.

Result and Discussion

During the study of non-environmental parameter like socio-economic status it was found that the work force involved in mining and quarrying processing units directly or indirectly was stratified with reference to their nature of work, skillness and occupational risks. For the proper analysis of information collected in the questionnaire the entire work force was categorized in three groups as per the similarity in the role in work place and socio-economic status. Group first includes the unskilled workers which were socio-economically backward. Group second included the skilled workers which were in comparatively better condition than the group first. Group third included the persons that control the entire mining and quarrying units such as supervisor and managers and was found to be indirectly involved in the actual quarrying activities. The socio-economic status of the workers in the mining and quarrying units was not satisfactory and they were deprived of their basic needs like food, shelter and education etc. and suffered from several occupational health hazards.

A survey study carried out at stone quarrying sites in central Aravali region of Rajasthan state evaluates the adverse health impacts on workers employed in these sites. The study was directed to evaluate the gravity of problems and the serious nature of health impacts.

By the findings of the survey reveals that a large percentage of workers (52.83) belong to a young age group of 18-36 years, which is the highest percentage among the workers in mining and stone quarrying sites. Only a small percentage (4.72) falls into the old age group of 54-60, may be because the old age people cannot work in dusty conditions. It is believed that the level of education would influence the nature of occupation and income. Illiterates constitute the maximum percentage and technical education constitutes the minimum percentage. It can be concluded that education does not influence the output of stone quarrying sites.

Conclusion

The result of present study indicates that stone quarrying activities in central Aravali region has deteriorated the physical, chemical and biological environment to a great extent. In the present study it was revealed that the stone dust due to quarrying activities acts as an environmental pollutant causing pollution due to different quarrying activities also leads to lowering of socio-economic status of the workers in the quarrying units and lead them to severe occupational risks.

References

1. Chouhan, S.S. (2010). *Mining, Development and Environment. A case study of Bijoliya Mining Area in Rajasthan, India. J Hum Ecol, 31(1) 65-72 consequences and solution. M.D.S. University, Ajmer Abst. P.27*
2. Dhar, B.B. (1993). *Environment Management and Pollution Control in Mining Industry.*

3. Dutta, A. & Sharma, K.C. (2000). *Ecological Degradation of Ajmer aravali: Plants responses to surface mining activities. National conference of degradations of environment causes consequences and solutions. M.D.S. University, Ajmer Abst. P.11*
4. Geringer, W. and Berry, C. (2007). N.C. Department of Labor. *Mining and quarrying, Occupational Health & Safety Committee. Mine and quarry Bureau FY Annual report, Government of South Australia.*
5. James, L., Armstrong, Weeks, James, R., Menon and Raji (2011). *Mining and Quarrying. Encyclopedia of Occupational Health and Safety, Jeanne MagerStellman, Editor-in-Chief. International Labor Organization, Geneva. P.74*
6. Lad, R. J. and Samant, J. S. (2013). *Environmental and social impacts of stone quarrying. A case study of Kolhapur district. International Journal of Current Research Vol. 6, Issue, 03, pp.5664-5669, March, 2014 ISSN: 0975-833X*
7. NIOSH (2000). *Injuries, Illnesses, and Hazardous Exposures in the Mining Industry, 1986–1995: A Surveillance Report. NIOSH Washington DC.*
8. Ribeiro, F.S., Oliveira, S., Reis, M.M., Silva, C.R., Menezes, M.A., Dias, A.E., Moreira, J.E. and Kuryama, G.S. (2002) *.The work process and occupational health risks in a cement factory. Cad SaudePublica. Sep-Oct; 18(5): 1243-50.*
9. Sinclair, F. L. (2009). *Options for interventions that mitigate social and environmental impacts of stone quarrying in Rajasthan: School of the Environment and Natural Resources, Bangor University. P 11*