Occupational Safety of Workers in Cement Industry

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ABSTRACT

The cement industry is an energy-intensive and significant contributor to climate change. The major environmental, health and safety issues associated with cement production are emissions to air and energy use. Cement manufacturing requires huge amount of non-renewable resources like raw material and fossil fuels. Safety of the Workers, while working with the machines in the plant or factory is essential, which protect the workers from accidents, hazards and such other harmful events. Hence, the corporate organizations and companies should maintain different safety measures so as to avoid industrial accidents.

The main objectives of the studies are to study the socio-economic status of the cement industry workers. To know whether management of cement industries is serious about health and safety of their workers. To study the occupational safety for the workers in cement industries and to know about the safety equipments provided by management at their work places. The methodology of the study is the present research work is mainly based on primary data collected from workers in cement industries of Kalaburagi district. Hence, the primary data was collected from the workers working in cement industries located in Kalaburagi district. Vasavadatta Cement is one of the modern and efficient cement plants in India, producing best quality of cement to the complete satisfaction of its

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customers. It produces Gold 53, Super 43 Grade Cement and Birla Shakti Cement. The company possesses ISO-9002 and ISO-14001. This company is introducing latest management methods like Total Productive Maintenance (TPM) from Japan. Further, there are more than 10 cement industries in the Kalaburagi district, of which 3-4 are large scale industries. Hence, due to limited time frame, it was decided to select four large scale cement industries in Kalaburagi district and even the number of workers is also more and hence, totally 70 Cement industry workers selected in Vasavadatta cement industry in Sedam Taluka were surveyed. Due to such preventive measures, there are no records of death of any workers in the last five to ten years at cement industries. But there are minor security threats incidents which made a few of the workers disabled.

KEYWORDS: *Environment, Organizations, Management, Measures.*

Introduction:

The cement industry is an energy-intensive and significant contributor to climate change. The major environmental, health and safety issues associated with cement production are emissions to air and energy use. Cement manufacturing requires huge amount of non-renewable resources like raw material and fossil fuels. It is estimated that 5-6% of all carbon dioxide greenhouse gases generated by human activities originates from cement production. Raw material and Energy consumption result in emissions to air which include dust and gases. The exhaust gases from a cement kiln contains nitrogen oxides (NOx), carbon dioxide, water, oxygen and small quantities of dust, chlorides, fluorides, sulfur dioxide, carbon monoxide, and still smaller quantities of organic compounds and heavy metals. Toxic metals and organic compounds are released when industrial waste is burnt in cement kiln. Other sources of dust emissions include the clinker cooler, crushers, grinders, and materials-handling equipment (Mishra and Siddiqui, 2014). Safety of the Workers, while working with the machines in the plant or factory is essential, which protect the workers from accidents, hazards and such other harmful events. Hence, the corporate organizations and companies should maintain different safety measures so as to avoid industrial accidents. The

Factories Act 1948 stated in Chapter 4, several safety measures such as Fencing of Machinery, Employment of Young workers on dangerous machines, etc in an industry. During roof work, a safety harness is used as a means of protecting the person from falling. However, it is not always practical for roofers to be continuously clipped on, due to the lack of a secure point. The actual use of the harness system by construction workers on such roof work is quite low – this is due to the discomfort and restrictions in using the harness. Failure to use the harness is a common complaint on construction work at our sites. To counter these problems the use of Safety nets should be considered. These are installed under the entire area at which work at height is taking place. It is important to note that the harness system should still be in use and that edge protection is still required on roofing work. The installation of the nets should only be carried out by a competent contractor.

Review of Literature:

Omogoroye and Oke (2007) in their paper entitled "A Safety Control Model for An Offshore Oil Platform" published in 'Disaster Prevention and Management', described that over the past several decades, the need for safety on offshore oil platforms has attracted significant attention from all its stakeholders. This paper seeks to present a mathematical model that could be used to control unsafe conditions on oil platforms. The model is based on the intuitive notion of safety underlying practices on an offshore platform. The theory of control system combines the human/operator factor gain, maintenance function effectiveness, the component safety quality assurance system, and the safety measurement system in a holistic manner to attain a controlled status of the oil platform. It is observed that these components relate in a mutually interlinked system that guarantees maximum safety control if all the components are holistically managed. Practically, the control of an offshore oil platform guarantees the lives and properties of those who utilize the oil platform. The work is perhaps the first to advance a model of safety on oil platforms with the use of control systems. The work would be of value to safety managers, employees of oil companies and researchers interested in the control of accidents on oil platforms.

Pitt (2007) discussed on violence in the workplace in his

paper entitled "Keeping the Workplace Safe" published in 'Human Resource Management International Digest'. The Home Office and Health and Safety Executive produced a joint report which showed that by far the highest "at risk" group in terms of actual physical violence were workers in the security and protective services. They were closely followed by nurses, care workers, public-transport workers and people working in the hotel and catering trade, education and retail.

Loven (2007) conducted an exploratory empirical examination to determine if collectivists experienced a higher psychological sense of community at work than individualists. He has written paper entitled "Security in an Insecure World: An Examination of Individualism-Collectivism and Psychological Senses of Community at Work" published in 'Career Development International'. Survey data were obtained from 264 non-supervisory respondents. Correlation and regression analyses were performed to examine the relationship among individualism-collectivism and psychological sense of community at work, while controlling for age, gender, marital status, education, and position. Results showed that while controlling for demographic and job related variables, collectivists experience higher levels of psychological sense of community at work than individualists. Because this investigation was a cross-sectional research design, causality cannot be determined although reverse causality is unlikely due to individualism-collectivism being a relatively stable individual difference variable. In the uncertainty of our current economic and labor landscape, collectivists may feel more secure and ride the waves better than individualists. Organizations should work to communicate values that encourage building a sense of community among their employees. Managers should include relationship building with subordinates among their many daily tasks. The paper examines an under-researched area by incorporating concepts from the field of community psychology to examine individualism-collectivism as one predictor of which individuals may better navigate the turbulent nature of the current job landscape.

Dey and Gupta (2012) published an article on "Development of Safety and Productivity Correlation Model for Tea Industries of Barak Valley, Assam" in 'IOSR Journal of Engineering'. The tea

industries of Assam, India, are more than 150 years old. Though tea is an important class of industry in terms of employment and foreign exchange earnings, the industry faces challenges from work place safety and declining productivity. A poor safety standard primarily originates from the belief that safety and productivity are mutually exclusive objectives, one eating away the other. But in practice they are correlated. The knowledge of exact nature of dependence of productivity with safety and health in a tea industry is therefore highly significant in the context of efficient tea production. In this paper, a quantitative relation between safety and productivity has been developed for tea industries of Barak valley, Assam. For this, safety and health in a tea industry have been modeled as function of four inputs such as occupational safety (OS), occupational health (OH), behavioral safety (BS) and competency (C). Models for the assessment of the levels of these four inputs in a scale of 0 to 10 have been proposed. Data collected from 40 nos. of CTC tea manufacturing units situated in different locations of Barak valley, Assam, India. These data were regressed using regression software E-Views 3.1 to develop the correlation model between safety and productivity. The developed correlation, which is otherwise not available in the existing literature, would definitely contribute to change the management's erroneous mindset of treating safety as a liability to the business.

Pingle (2012) writes on "Occupational Safety and Health in India: Now and the Future" in 'Industrial Health'. India is a growing economy and world's largest democracy has population exceeding 1.2 billion. Out of this huge number, 63.6% form working age group. More than 90% work in the informal economy, mainly agriculture and services. Less than 10% work in the organized sector; mainly industry, mining and some services. New service industries like Information Technology (IT), Business Process Outsourcing (BPO) are increasing rapidly; so is the proportion of females in the workforce. The Occupational Safety and Health (OSH) scenario in India is complex. Unprecedented growth and progress go hand in hand with challenges such as huge workforce in unorganized sector, availability of cheap labour, meager public spending on health, inadequate implementation of existing legislation, lack of reliable OSH data, shortage of OSH professionals, multiplicity of statutory

controls, apathy of stakeholders and infrastructure problems. The national policy on OSH at workplace, adopted by the government in 2009, is yet to be implemented. Some of the major occupational risks are accidents, pneumoconiosis, musculoskeletal injuries, chronic obstructive lung diseases; pesticide poisoning and noise induced hearing loss. The three most important OSH needs are: (i) legislation to extend OSH coverage to all sectors of working life including the unorganized sector; (ii) spreading the awareness about OSH among stakeholders; (iii) development of OSH infrastructure and OSH professionals. Other issues include integration of occupational health with primary health care.

Objectives of the Study

- To study the socio-economic status of the cement industry workers.
- To know whether management of cement industries is serious about health and safety of their workers.
- To study the occupational safety for the workers in cement industries and to know about the safety equipments provided by management at their work places.

Methodology:

Secondary Data: Totally two types of data was collected for the present study. Secondary data was collected from books, research papers, journal articles, web sites, etc. The secondary data is mainly used to derive theoretical background and research gap for the present study.

Primary Data: The present research work is mainly based on primary data collected from workers in cement industries of Kalaburagi district. Hence, the primary data was collected from the workers working in cement industries located in Kalaburagi district.

Study Area and Sample Size: Vasavadatta Cement is one of the modern and efficient cement plants in India, producing best quality of cement to the complete satisfaction of its customers. It produces Gold 53, Super 43 Grade Cement and Birla Shakti Cement. The company possesses ISO-9002 and ISO-14001. This company is introducing latest management methods like Total Productive Maintenance (TPM) from Japan. Further, there are more than 10

cement industries in the Kalaburagi district, of which 3-4 are large scale industries. Hence, due to limited time frame, it was decided to select four large scale cement industries in Kalaburagi district and even the number of workers is also more and hence, totally 70 Cement industry workers selected in Vasavadatta cement industry in Sedam Taluka were surveyed.

Results and Discussion:

Table No. 1.1 Age of the Respondents

Particulars	Frequency	Percentage
19 to 25 Years	13	18.57%
26 to 40 Years	25	35.71%
41 to 55 Years	18	25.71%
More than 55 Years	14	20%
Total	70	100%

Above table on the age of the respondents made it clear that, considerably major portion, that is, 25 (35.71%) of the respondents belongs to age group of 26 to 40 years followed by, 18 (25.71%) belongs to 41 to 55 years, 13 (18.57%) of the respondents are between 19 to 25 years and the remaining only 16 (4.00%) are of more than 55 years respectively. It shows that, a great majority of the workers working in cement industries are of middle age group.

Table No. 1.2 Educational Qualifications

Particulars	Frequency	Percentage
Primary	28	40
Secondary	11	15.71
Graduation/ PG	21	30
Technical	10	14.28
Total	70	100

The educational qualifications of all the respondents disclosed that, 137 (34.25%) of the respondents are possessed only secondary education followed by, 106 (26.50%) are with technical qualifications such as ITI, Diploma, etc, 84 (21.00%) of the respondents have completed only primary education and the remaining 73 (18.25%) have completed their graduation or post-graduation respectively. It shows that, though there is majority of the workers who are with lower education, still the workers with technical qualifications are

more in cement industries.

Table No. 1.3 Marital Status of the Respondents

Particulars	Frequency	Percentage
Unmarried/ Single	11	5.5
Married	26	74.25
Widow/ Widower	19	8.75
Divorcee/ Separated	14	11.5
Total	70	100

Among the total respondents covered under the present study, it is highlighted that a great majority that is, 26 (74.25%) are married followed by, 19 (8.75%) are widows or widowers, 14 (11.50%) are divorcees or separated and the remaining only 11 (5.50%) are unmarried and living single.

Table No. 1.4 Safety Threats at Work Place

Particulars	Frequency	Percentage
Slips, Trips & Falls	19	27.14
Electrocution	11	15.71
Explosives	14	20
Fire/ Excess Heat	15	21.42
Any Other	11	15.71
Total	70	100

On the safety threats at their work places, it is noted that many of the respondents have mentioned more than one type of safety threats at their work places. Specifically, of all the respondents, 19 (27.14%) have mentioned the slips, trips and falls are main safety threats, 11(15.71%) have mentioned the electrocution is safety threat faced at the work place, 14 (20%) have stated that explosives are safety threats at their work places, 15 (21.42%) have expressed that there is safety threat from fire or excess heat and 11(15.71%) have also given other types of safety threats at their work places.

Table No. 1.5 Safety Tools and Equipments Provided at Work Places

Particulars	Frequency	Percentage
Hard Hats/ Helmets	13	100
Gloves	10	78

Safety Nets	14	23.5
Eye Glasses/ Goggles	12	30.25
Welding Shields	11	16.5
Safety Harness	10	11.25
Total	70	100

It is observed from the above table that, the companies are providing more than one type of safety tools and equipments at their work places. Particularly, all the 70 (100%) of the respondents have agreed that they have got hard hats or helmets, 12 (30.25%) of the respondents have stated that they have got gloves, 14 (23.50%) of the respondents have mentioned that they have safety nets at their work places, 12 (30.25%) have remarked that they have got eye glasses or goggles at their work places, 10 (16.50%) have expressed that they have got safety harness at their work places and 10 (11.25%) have also mentioned that they have got other types of safety tools and equipments.

Table No. 1.6 Company Rule to Wear Safety Tools and Equipments at Work Places

Particulars	Frequency	Percentage
Yes	47	67.14
No	23	32.85
Total	70	100

It is clear from the above table that, almost that is, 47 (67.14%) of all the respondents have agreed that the company made rule to wear safety tools and equipments at work places, whereas only 23 (32.85%) have not agreed to the same.

Suggestions:

1. Initial and periodic medical examination.
2. Training of medical officers in Occupational health and hygiene.
3. Hierarchy of controls for prevention of Occupational diseases.
4. Rehabilitation of affected persons. Equipment and other arrangements to safe guard from occupational illness.
5. All disease that created inside plant due to cement dust, fumes and gases, Noise must be investigated and preventing measure must be taken to avoid similar future diseases.

Conclusion:

To ensure safety of workers at the work places, even safety nets and safety fencing are maintained against fire and dangerous places. As stated by many of the workers, safety personnel is also present at the work places and even ambulance or health centre is maintained by few of the cement industries. Due to such preventive measures, there are no records of death of any workers in the last five to ten years at cement industries. But there are minor security threats incidents which made a few of the workers disabled. Slips, trips, falls and electric shocks are reasons for such incidents at cement industries.

References:

1. Dey, S. K., & Gupta, R. (2012). Development of safety and productivity correlation model for tea industries of Barak Valley, Assam. IOSR Journal of Engineering, 2(12), 21–28. https://doi.org/10.9790/3021-021232128
2. Edwards, D. J., & Holt, G. D. (2007). Perceptions of workplace vibration hazards among a small sample of UK construction professionals. Engineering, Construction and Architectural Management, 14(3), 261–276. https://doi.org/10.1108/09699980710744908
3. English, J., Haupt, T. C., & Smallwood, J. J. (2006). Women, construction and health and safety (H&S): South African and Tanzanian perspectives. Journal of Engineering, Design and Technology, 4(1), 18–28. https://doi.org/10.1108/17260530610818624
4. Omogoroye, O. O., & Oke, S. A. (2007). A safety control model for an offshore oil platform. Disaster Prevention and Management, 16(4), 588–610. https://doi.org/10.1108/09653560710817066
5. Pattie, M. (2006). Making a difference in the workplace: Future directions in diversity, IPV, and occupational stress. Equal Opportunities International, 25(3), 219–223. https://doi.org/10.1108/02610150610687863