OHS Practice in Different Industries as Per Indian Prospective Point of View

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Abstract - **The enforcement of laws and regulations concerning occupational safety and health and the working environment shall be secured by an adequate and appropriate system of inspection as the workers or the employees safety is the top most priority for every industry. The purpose of this paper is to review research in the health effects and risks associated with the construction industries, mining and power plant and to analyze the industries and to rank them with respect to the occupational health and safety practice with the analytical hierarchy process tool.**

I. INTRODUCTION

In this competitive world almost every industries are concerned about occupational health and safety (OHS) to achieve the advantage of sustainability . This may also be useful for the purpose of policy formulation on improving OHS in Indian industries .the main motto of any employee is to get job satisfaction and that's the reason why organisation engage themselves in the quality improvement activities for the development of the corporate. every corporate main ambition now how a employee will feel secured and motivated so their main concern is on human safety and sound health of the workforce. The review begins with a brief historical introduction to risks associated with the construction mining and power plant. it may be the work of dam, hospitals factories or roads every where The construction industry is an essential contributor where construction works are the physical foundation on which development efforts and improving living standards are established. Most of the entrepreneur are establishing themselves in the construction field as it is a good source of investment and to get good revenue and making employment for a huge mass there. However there are some health hazard issues arises with the construction industries. as per survey the employment in construction sector is expected to touch 43 Million by the year 2015. Different health hazard issues are found with Construction workers as the workplace is attached with physical hazards to mechanical injuries as the surrounding is exposed to outcome like noise and vibration. The construction work field is extreme heat or cold, rainy windy sometime its foggy weather . Most of the health issues exposed with the employee there due to the ultraviolet radiation due to sun and electric arc welding .The construction environment is also attached with some Chemical hazards as it is accompanied with dusts, fume, mists and also with vapor or gases. The biggest risk the construction work force is Silicosis and asbestosis. In construction the projects are temporary that duration is for a year or even less than that so no recreational facilities, poor sanitary facilities and lack of safe drinking water. Similarly if we will give a look towards the power plant it has some health hazard within it. The highest rate of pollution is produced by Coal-fired power. pollutants emitted by the thermal power plants are like coal dust , fly ash, hot water, heat radioactive substances affect the skin lungs and heart of a worker . Some of the diseases are like damage to nasal lining , asthma tuberculosis cancer inflation or chronic bronchitis are the most commonly occurring due to the hazardous environment. 80,000 to 1,15,000 premature deaths and asthma cases are exposed from last couple of year due to the air pollution in coal plants. so there are the same safety problem in coal mining too. The dust and heat and use of some heavy equipment which may cause to fatal death. Mineworkers face a constantly changing combination of workplace circumstances. most of the mine works without natural light or ventilation inside tunnel or a high depth inside producing holes in the earth or extraction ores so there will be no immediate reaction from the surrounding strata. Some common diseases occurring in the mining areas are like pneumoconiosis, hearing loss which is mostly due to the effects of vibration. However this can be avoidable with effective and efficient safety practice in industry. Almost every industry is focusing on bringing legislative stability to employment status, risk reduction by onsite safety management and imparting training and skill development as demanded by the type of construction sector or other sector like mining and power plant, health protection and promotion through preventive vaccination and family welfare programs.

II. LITERATURE REVIEW

S.Mahendran and ML.Mahadevan has determined the Prioritization of Plastic Recycling Process Using Analytical Hierarchy Process [2014]. Rommelfanger has determined the Fuzzy Utility Value Analysis and Fuzzy Analytic Hierarchy Process [2001].Occupational health and safety (OHS) issues in thermal power plant [2014] Prof. S. Sathpathy and Prof. S.K PATEL important factors related to

occupational health and safety issues in thermal power plant . Occupational Health and Safety (OHS) Issues in Social Marketing, 1-162 Gouri Shankar Beriha (2012). discussed about how the OHS working in industries and giving benefit to the workers. McCloskey, E. (2008) Canadian perspective. International Journal of Workplace Health Management 1(1), 41-49. enlighten about the health and safety of young people at work

., "Assessing influence of social marketing on occupational health and safety": Quality function deployment and interpretive structural modelling approach. International Journal of Nonprofits and Voluntary Sector Marketing, Inter science, Wiley Publication Beriha, G.S., Patnaik, B., Mahapatra, S.S., Sahu, R. and Deshpande, S disused briefly about OHS.(2010). "A data envelopment analysis approach for benchmarking of safety performance. Management Technology and Application" Research Publishing, Singapore (2010). Beriha, G.S., Patnaik, B narrated the theory of safety performance in industries.

Analysis of Construction-Related Research Compared to the Needs of Industry Professionals Sterling T. Graham Justin M. Reginato, Jay P. Christofferson demonstrated training/human resources, followed by management/risks, and technology/innovation.

Abudayyeh, O., Dibert-DeYoung,A., & Jaselskis, E. (2004). Analysis of Trends in Construction Research: Journal of Construction Engineering and Management,

Jha and Devaya have presented a hierarchal model showing the interrelationships between international construction risk factors from the Indian construction professionals' viewpoint using ISM [2008]. Lin et al. have proposed that factors like safety awareness and competency, safety communication, organizational environment, management support, risk judgment, safety precautions and safety training represent safety climate as these factors explains 70.5% variance in a questionnaire survey analysis using factor analysis. The study also identifies the significant difference in some safety climate scales among accidental involvements and organizations[2010]. Vinodkumar and Bhasi have studied the safety climate factors in a chemical industry in India using principal component factor analysis with varimax rotation. Qinqquo and Jinqpenq have proposed that safety performance constitutes factors such as safety climate, management support, risk management, safety communication, employee's safety competency and safety training through a broad based questionnaire survey in manufacturing firms[2009]. Flin et al. have pointed out that direct comparison between safety climate factor levels and safety items across industries and countries are not justifiable because of inconsistencies existing in methodologies used for the purpose and cultural and language difference across countries and industries.[2012]. Gupta and Tyagi have studied the influence of stressors on employees' attitudes Occupational Health Safety Administration (OSHA), implemented by many organizations, encourages employers and employees to put efforts for reduction of number of accidents at places of employment and to stimulate employers and employees to perfect existing programs for providing safe and healthy working conditions[2011]

III. RESEARCH METHODOLOGY

The study was initiated with the identification of criteria for the health and safety issues and selection of appropriate MCDM methods. Based on the decision makers' inputs, weights of criteria were computed using AHP and further computations were also done using AHP to prioritize the three different industries with respect to the OHS practice. six criteria has taken in to consideration here and a set of questionnaire made to establish the relationship between them. Hence the objective of the survey is to prioritizing the industries of different sector for the Indian scenario. People that are focus of my study are operators, manager, supervisors of construction mining and power plant.

Questionnaire

Sl no	Questions									
1	Sufficient amount is allotted for health care expenses in the organization									
2	Alarms/beeping sound/alarming light and emergency lights work effectively when a crisis situation arises									
3	A Safety equipment's are supplied by the organization to avoid accidents									
4	The employees works in healthy and safety condition									
5	Safety training programs are conducted in the organization on regular basis									
6	Instruction manuals being followed before executing any hazardous job activity									
7	Flammable liquids and bottles are used in your company are taken care									
8	Immediate medical facilities are provided for personal injuries									
9	Danger symbols or boards and funny pictorial representation are made to avoid accidents									

Standard preference table

PREFRENCE LEVEL	NUMERICAL VALUE
Equally preferred	*1*
Equally to moderately preferred	*2*
Moderately preferred	*3*
Moderately to strongly preferred	*4*
Strongly preferred	*5*
Strongly to very strongly preferred	*6*
Very strongly preferred	*7*
Very strongly to extremely preferred	*8*
Extremely preferred	*9*

IV. IMPLEMENTATION OF AHP MODEL

AHP is a process of developing numerical score to rank each decision how alternative meets the decision making criteria. It's a qualitative technique here the attributes are the three industry power plant (A) construction (C) mines(B) and variables are the preventive measure(PM) emergency plan(EP) injury avoidance(IA) health plan(HP) ohs training(OHS) periodic plan(PP).

Alternative criteria comparison matrix

	PM	**EP**	**IA**	**HP**	OHS	**PP**
A	0.501	0.281	0.178	0.155	0.571	0.170
B	0.118	0.059	0.684	0.619	0.095	0.57
C	0.379	0.658	0.135	0.223	0.331	0.218

pair wise comparison matrix

	PM	**EP**	**IA**	**HP**	OHS	**PP**
PM	1	1/6	2	3	1/2	4
EP	6	1	7	1/3	1/6	1/4
IA	1/2	1/7	1	3	5	3
HP	1/3	3	1/3	1	1/2	1/8
OHS	2	6	1/5	2	1	4
PP	1/4	4	1/3	8	1/4	1

Ranking Table

INDUSTRY	WEIGTH	RANK
A(power plant)	0.322	2
B (mines)	0.317	3
C (construction)	0.347	1

Consistency test

Consistency Index = (λmax - n) / (n-1)

Consistency Ratio = CI / RI

N	1	2	3	4	5	6	7	8	9	10
RI	0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.49

CR<0.1

V. CONCLUSION

Every industry is following the policy of employee safety that's the reason why Presently, many industries are focusing attention on occupational health and safety (OHS) ,because it will help to achieve competitive advantage. This may also be useful for the purpose of policy formulation on improving OHS in Indian industries. Now, safety and green environment are treated as two vital elements to develop or retain the goodwill in the marketplace. The industries normally use continuous improvement approaches to progress in both aspects as an image building strategy so that competition may become easier. The analysis of the given alternatives is done using AHP and the relative weights are calculated. Alternatives are ranked accordingly. The three different sector that is mining construction and power plant are taken in to consideration here and the ranking is done as per its occupational health and safety practice. the result that we got with the implementation of AHP that the highest rank is mines sector where the accidental rate is quiet high. Then the highest safety precautions are taken care in the thermal power plant as the worker has to work in a environment of heat and fire.

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