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# Essentials of Employee Safety Measures in Organization

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**Abstract:** *The Occupational Safety Act of 2007 was established after multiple amendments to the Manufactories Act of 1951. These amendments expanded its scope beyond just industrial workplaces, applying to all working environments and individuals, whether temporary or permanent employees. The main objective of this Act is to ensure the safety and well-being of individuals at work, as well as providing protection to non-employees who may be affected by work-related hazards. Employers are obligated to comply with all safety regulations, rules, instructions, and procedures outlined in the Act. They must take necessary precautions to safeguard their own safety, as well as that of their employees, by implementing appropriate systems of work, preventive measures, and control mechanisms. The purpose of this study is to examine the safety measures implemented by a mining company for its workers. The aim is to assess the level of satisfaction among workers regarding these safety measures. The analysis and findings from this study will be valuable in improving the existing safety measures. Ultimately, the results will contribute to an overall sense of satisfaction among the workforce in relation to the company's safety practices.*

**Keywords:** *Occupational Hazards, Risk, Human Health, Safety Measures, Precautions, Policies.*

## 1. INTRODUCTION

The Occupational Safety Act, 1993, requires the employer to bring about and maintain, as far as nicely practicable, a work terrain that's safe and without threat to the workers. This means that the employer must insure that the plant is free of dangerous substances, similar as benzene, chlorine and microorganisms, papers, outfit, processes, etc. that may beget injury, damage or complaint. Where this isn't possible, the employer must inform workers of these troubles, how they may be averted, and how to work safely, and give other defensive



measures for a safe work place. However, it isn't anticipated of the employer to take sole responsibility and safety. The Act is grounded on the principle that troubles in the plant must be addressed by communication and cooperation between the workers and the employer. The workers and the employer must partake the responsibility and safety in the plant. Both parties must pro- laboriously identify troubles and develop control measures to make the plant safe.

### **Occupation Safety**

The concept of occupational health and safety was officially adopted by the International Labor Organization (ILO) and the World Health Organization (WHO) in 1995. According to the ILO, over 2 million individuals lose their lives due to work-related accidents or conditions every year. Additionally, there are an estimated 270 million occupational accidents and 160 million cases of occupational complaints worldwide. Occupational injuries alone result in more than 10 million Disability-Adjusted Life Years (DALYs). The level of occupational safety varies significantly across countries, industries, and social groups. Developing nations, where a large number of individuals are involved in hazardous occupations such as agriculture, textiles, construction, logging, mining, and explosives handling, face a particularly high risk of deaths and injuries. In fact, developing countries bear more than 80% of the global burden of occupational injuries and conditions. However, these figures provided by the ILO are merely the tip of the iceberg, as the actual number of work-related conditions in developing countries is much higher than what is officially reported.

Occupational hazards give rise to various problems for both workers and employers. Workers experience the physical pain and suffering caused by injuries or illnesses, as well as the loss of income and potential job loss. They also face additional expenses for medical care. Employers, on the other hand, have to bear the costs of paying workers who are unable to perform their duties, as well as compensating them for medical expenses. They may also need to invest in repairs or replacements of damaged equipment and machinery, face a decrease or temporary halt in production, incur higher training and administrative costs, and potentially witness a decline in the overall quality of work. Furthermore, poor safety conditions within a workplace can also negatively impact public perception and damage the company's reputation.

### **Different Categories of Work-Related Dangers**

Workplace hazards can be classified into six distinct groups:

1. Mechanical hazards involve the potential dangers associated with confined spaces and injuries caused by equipment
2. Physical hazards encompass various risks such as noise, vibration, inadequate lighting, and electricity
3. Biological hazards refer to the potential threats posed by bacteria, viruses, and tuberculosis
4. Chemical hazards involve the presence of acids, bases, heavy metals, fire hazards, as well as particulates like dust or fiber materials
5. Psychosocial hazards are related to stress and violence in the workplace
6. Ergonomic issues include concerns regarding material handling, machine design, and



personal factors.

### **It is Imperative to Appoint Safety Representatives.**

Each workplace with a staff of 20 or more individuals must have a representative assigned to it. Therefore, if there are only 19 employees, there is no need to appoint a representative. In the case of shops and offices, one representative should be assigned for every 100 workers or any portion of that number. For example, if there are 21 to 100 workers, one representative should be designated. However, if the workforce ranges from 101 to 200 employees, two representatives must be assigned, and so forth. In other types of workplaces, one representative needs to be designated for every 50 workers or any part of that number. For instance, if there are 21 to 50 employees, one representative should be appointed. However, if the workforce ranges from 51 to 100 workers, two representatives need to be designated. Depending on the circumstances, an inspector may require additional representatives to be designated, even if the number of workers is below 20. For example, if the layout of a plant necessitates more than one representative for every 50 workers due to its unique nature..

### **Objective**

To know the satisfaction level of workers in job and to check whether the working conditions are favorable to the workers. To study the safety facilities existing in mining industries and to suggest ways and means to improve safety activities provided to employees.

### **Review of Literature**

In response to the economic downturn that occurred after the recent financial crisis, the mining industry made a switch to a practice known as "re-insourcing". The focus of this analysis is to investigate the underlying motives that lead to decision-making processes involved in mining strategy, particularly regarding re-insourcing within the mining industry. While there has been extensive research on the concept of "outsourcing", the opposite practice has not been thoroughly studied. Although there are some existing papers on the mining manufacturing industry, there is a lack of in-depth knowledge regarding re-insourcing. Due to the increased implementation of re-insourcing during the economic crisis, it presents an ideal opportunity to gain a comprehensive understanding of this phenomenon

In this paper, we present a comprehensive report on the Environmental Protection Agency's (EPA) voluntary energy star program. We also evaluate the efforts made by the mining manufacturing industry to enhance energy management, specifically focusing on the updated Energy Performance Indicator (EPI). To estimate the distribution of electricity and fossil fuel efficiency in assembly plants, we employ a stochastic single-factor input frontier estimation method and utilize data from the years 2003 to 2005. By comparing these results with a prior analysis conducted for the period of 1997-2000, we can assess the industry's progress over time.

The analysis reveals that there has been a modest improvement in the best practices for electricity consumption, indicating a reduction in energy wastage. Additionally, there has been a more significant improvement in fossil fuel efficiency, suggesting that the industry



has made effective efforts to optimize energy usage in this area. Moreover, the study shows a notable decrease in the variability of the fossil fuel efficiency distribution, indicating a more consistent and efficient use of fossil fuels across assembly plants.

These findings provide compelling evidence of a shift in the industry's energy management practices, with a certain level of improvement observed in previously underperforming plants over time. This indicates that the EPA's voluntary energy star program, along with the industry's initiatives, has had a positive impact on enhancing energy efficiency and reducing environmental impact.

Sunil Luthra et al (2017) Sustainability has emerged as a crucial area of study for researchers and practitioners aiming to achieve ecological, societal, and financial advantages. Currently, the implementation of sustainable mining practices in developing countries like India is in its nascent stage due to various challenges. The objective of this research is to identify and evaluate these obstacles in the Indian mining sector. A combination of literature review and expert inputs has been employed to determine the hurdles faced. To understand the contextual relationships, interdependence, and hierarchy levels of these obstacles, the researchers have utilized the Interpretive Structural Modeling (ISM) methodology. Moreover, an analysis has been conducted to categorize the identified hurdles based on their significance. The most influential hurdle identified is "Political Instability" in the implementation process, while "Unawareness among society about social practices" is found to be the most dependent hurdle.

On a separate note, Rastislav Rajnoha et al (2018) highlights the growing interest in mining using electric motors as a viable alternative to combustion engine vehicles, considering its positive impact on the environment and economic factors such as the rising cost of fossil fuels. The European Union and its member countries are striving to minimize the environmental impact of their activities. One sector that significantly affects the environment is transportation, specifically road transport. Consequently, efforts are being made to reduce the environmental footprint of road transport, and a popular trend is the promotion of electric cars as a replacement for conventional combustion vehicles. The aim of this paper is to analyze the environmental and economic effects of producing, operating, and disposing of mining vehicles powered by electric motors versus combustion engines. The paper provides a comprehensive description of the direct and indirect environmental impacts of different mining methods, with a particular focus on air pollution.

P. Arunagiri (2019) Lean methodologies play a crucial role in the industrial setting, specifically in the mining industry. There are over 30 lean tools that are regularly utilized in production activities. Each organization adopts specific lean tools to address unique challenges and achieve optimal production outcomes. To determine the most influential lean tools, a survey was conducted within the mining industry using a 5-point likert scale. The survey results indicate that approximately 5 tools out of the 30 are highly effective. Thus, this study primarily focuses on ranking these lean tools and their positive impact on the mining industry. It also explores the flexibility of these tools and how they can be effectively utilized



to increase production rates in manufacturing industries.

R.J. Orsato (2020) This article presents the underlying rationale supporting the "technological regime" of the mining industry, along with its potential for inertia, transformation, and decline. It introduces key concepts related to mining design, material selection, and the economic principles that guide current mining practices and commercialization. The article briefly discusses the rationalization strategies employed by automakers to streamline production systems, such as platform consolidation, architectures, and modular assembly. It then delves into the complexities associated with material selection and its environmental impact throughout the lifecycle of mining activities. Lastly, by questioning the efficiency levels of the current mining industry and identifying the core competences of automakers, the article highlights the significant challenges currently faced by the mining industry.

Zafar Husain and his colleagues conducted a research study to examine how technology is managed by mining firms in India. The study focused on three firms that collaborated during the post-Indian independence period and after economic reforms were introduced. By utilizing interviews and observations, the researchers prepared detailed case studies. In order to evaluate the financial health of these firms, profitability, liquidity, and turnover ratio analyses were carried out. Additionally, the researchers presented input from a questionnaire survey to compare the firms' perceived performance with industry standards on specific variables. To analyze the cases, the researchers utilized the situation-actor-process-learning-action-performance (SAP-LAP) paradigm. This framework allowed them to delve into various learning issues that were identified.

Overall, this study provides valuable insights into the technology management practices of mining firms in India through the examination of real-life cases, financial analysis, and the application of the SAP-LAP paradigm.

### **Research Design**

A research design serves as the fundamental framework or blueprint for a study, providing guidance for the collection and analysis of data in employee surveys. In this particular study, a descriptive research design is employed for both data collection and analysis. The sampling technique utilized in this study is known as "convenience sampling," whereby the selection of population elements to be included in the sample is based on their ease of accessibility. This approach can be referred to as convenience sampling. The sampling design chosen for this study is convenient sampling, with a sample size of 150 employees. The researcher allocated a duration of 3 months for the collection and analysis of data pertaining to employee engagement.

This research incorporates both primary and secondary sources to augment the study.

### **Data Collection**

To gather primary data, we engaged in direct communication with employees. Questionnaires were administered to the employees during interviews, ensuring that the data collected was firsthand. On the other hand, secondary data, commonly known as reference



data, was gathered from pre-existing sources. These sources included reports from the personnel department, company journals from the welfare department, yearbooks, the company's website, and other relevant information.

**Data Analysis and Interpretations Chi-Square Analysis**

The table depicts the analysis between the age of the respondents and nature of the work environment

**Null Hypothesis**

Hypothesis: The age of the respondents does not hold any significance in relation to the nature of the work environment.

H1: The age of the respondents and the nature of the work environment are interconnected and hold importance.

**Alternative Hypothesis**

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
AGE OF THE RESPONDENTS * NATURE OF THE WORK ENVIRONMENT	150	100.0%	0	.0%	150	100.0%

**Age of the Respondents \* Nature of the Work Environment**

**Cross tabulation**

Count		ATURE OF THE WORKENVIRONMENT				Total
		Happy	Good	Average	Force to work	
AGE OF THE RESPONDENTS	20 – 30	89	0	0	0	89
	30 – 40	7	32	0	0	39
	40 – 50	0	7	9	0	16
	Above 50	0	0	2	4	6
Total		96	39	11	4	150



**Chi-Square Test**

	value	d.f	Asympt.Sig. (2-sided)
Pearson Chi-Square	2.819E2 <sup>a</sup>	9	.000
Likelihood Ratio	210.958	9	.000
Linear-by-Linear Association	128.737	1	.000
N of Valid Cases	150		

a. 10 cells (62.5%) have expected count less than 5. The minimum expected count is .16.

**Symmetric Measures**

	Value	Asymp. Std. Error <sup>a</sup>	Approx. T <sup>b</sup>	Approx. Sig.
Ordinal by Ordinal      Gamma	1.000	.000	14.436	.000
Measure of Agreement      Kappa	.804	.044	13.409	.000
N of Valid Cases	150			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

The calculated value is greater than the table value. So we reject the null hypothesis. There is no significance between the age of the respondents and nature of the work environment.

**Correlation**

The table shows that the relationship between experience of the respondents and safety measures in the organization

**Correlations**

		EXPERIENCE OF THE RESPONDENTS	SAFETY MEASURES IN THE ORGANISATION
EXPERIENCE OF THE RESPONDENTS	Pearson Correlation Sig. (2-tailed)	1	.857** .000



	N	150	150
SAFETY MEASURES IN THE ORGANISATION	Pearson Correlation	.857**	1
	Sig. (2-tailed)	.000	
	N	150	150

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Nonparametric Correlations**  
**Correlations**

		EXPERIENCE OF THE RESPONDENTS	SAFETY MEASURES IN THE ORGANISATION
Kendall's tau_b	EXPERIENCE OF THE RESPONDENTS	Correlation Coefficient	1.000
		Sig. (2-tailed)	.749**
		N	.000
		150	150
Spearman's rho	SAFETY MEASURES IN THE ORGANISATION	Correlation Coefficient	.749**
		Sig. (2-tailed)	1.000
		N	.000
		150	150
Spearman's rho	EXPERIENCE OF THE RESPONDENTS	Correlation Coefficient	1.000
		Sig. (2-tailed)	.791**
		N	.000
		150	150
Spearman's rho	SAFETY MEASURES IN THE ORGANISATION	Correlation Coefficient	.791**
		Sig. (2-tailed)	1.000
		N	.000
		150	150

\*\* . Correlation is significant at the 0.01 level (2-tailed).

This is a positive correlation. There are relationships between experience of the respondents and safety measures in the organisation.





**Anova**

**Null Hypothesis Ho:**

There is no significant relationship between educational qualification of the respondents and accommodation and opinion about personal feeling.

**Alternative Hypothesis H1:**

There is a significant relationship between educational qualification of the respondents and accommodation and opinion about personal feeling.

**Descriptive**

EDUCATIONAL QUALIFICATION OF THE RESPONDENTS	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
					Lower Bound	Upper Bound			
High satisfaction	85	1.09	.294	.032	1.03	1.16	1	2	1.265
Satisfaction	33	2.00	.000	.000	2.00	2.00	2	2	
Neutral	17	2.88	.332	.081	2.71	3.05	2	3	
Not satisfaction	15	3.67	.488	.126	3.40	3.94	3	4	
Total	150	1.75	.926	.076	1.60	1.90	1	4	
Fixed Effects			.291	.024	1.71	1.80			
Random Effects				.705	-.49	4.00			

**Test of Homogeneity of Variances**

Educational Qualification of the Respondents

Levene Statistic	df1	df2	Sig.
16.568	3	146	.000

**Anova**

EDUCATIONAL QUALIFICATION OF THE RESPONDENTS	Sum of Squares	df	Mean Square	F	Sig.
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Between Groups	(Combined)	115.528	3	38.509	455.434	.000
Linear Term	Unweighted	93.030	1	93.030	1.100E3	.000
	Weighted	115.439	1	115.439	1.365E3	.000
	Deviation	.089	2	.045	.527	.591
Within Groups		12.345	146	.085		
Total		127.873	149			

**Robust Tests of Equality of Means<sup>b</sup>**

Educational Qualification of the Respondents

	Statistic <sup>a</sup>	df1	df2	Sig.
Welch	.	.	.	.
Brown-Forsythe	.	.	.	.

a. Asymptotically F distributed.

b. Robust tests of equality of means cannot be performed for EDUCATIONAL QUALIFICATION OF THE RESPONDENTS because at least one group has 0 variance.

**Post HOC**

**Multiple Comparisons** Dependent Variable: Educational Qualification of the Respondents

(I) ACCOMMODATION AND OPINION ABOUT PERSONAL FEELING	(J) ACCOMMODATION AND OPINION ABOUT PERSONAL FEELING	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
LSD	High satisfaction	-.906*	.060	.000	-1.02	-.79
	Neutral	-1.788*	.077	.000	-1.94	-1.64
	Not satisfaction	-2.573*	.081	.000	-2.73	-2.41
Satisfaction	High satisfaction	.906*	.060	.000	.79	1.02
	Neutral	-.882*	.087	.000	-1.05	-.71



		Not satisfaction	-1.667*	.091	.000	-1.85	-1.49
	Neutral	High satisfaction	1.788*	.077	.000	1.64	1.94
		Satisfaction	.882*	.087	.000	.71	1.05
		Not satisfaction	-.784*	.103	.000	-.99	-.58
	Not satisfaction	High satisfaction	2.573*	.081	.000	2.41	2.73
		Satisfaction	1.667*	.091	.000	1.49	1.85
		Neutral	.784*	.103	.000	.58	.99
	High satisfaction	Satisfaction	-.906*	.032	.000	-.99	-.82
		Neutral	-1.788*	.087	.000	-2.04	-1.54
		Not satisfaction	-2.573*	.130	.000	-2.96	-2.18
	Satisfaction	High satisfaction	.906*	.032	.000	.82	.99
		Neutral	-.882*	.081	.000	-1.12	-.64
		Not satisfaction	-1.667*	.126	.000	-2.05	-1.28
Tamhane	Neutral	High satisfaction	1.788*	.087	.000	1.54	2.04
		Satisfaction	.882*	.081	.000	.64	1.12
		Not satisfaction	-.784*	.150	.000	-1.21	-.36
	Not satisfaction	High satisfaction	2.573*	.130	.000	2.18	2.96
		Satisfaction	1.667*	.126	.000	1.28	2.05
		Neutral	.784*	.150	.000	.36	1.21
Dunnett T3	High satisfaction	Satisfaction	-.906*	.032	.000	-.99	-.82
		Neutral	-1.788*	.087	.000	-2.04	-1.54



	Not satisfaction	-2.573*	.130	.000	-2.96	-2.19
Satisfaction	High satisfaction	.906*	.032	.000	.82	.99
	Neutral	-.882*	.081	.000	-1.12	-.64
	Not satisfaction	-1.667*	.126	.000	-2.05	-1.29
Neutral	High satisfaction	1.788*	.087	.000	1.54	2.04
	Satisfaction	.882*	.081	.000	.64	1.12
	Not satisfaction	-.784*	.150	.000	-1.21	-.36
Not satisfaction	High satisfaction	2.573*	.130	.000	2.19	2.96
	Satisfaction	1.667*	.126	.000	1.29	2.05
	Neutral	.784*	.150	.000	.36	1.21

\*. The mean difference is significant at the 0.05 level.

**Homogeneous Educational Qualification of the Respondents**

ACCOMMODATION AND OPINION ABOUT PERSONAL FEELING		N	Subset for alpha = 0.05			
			1	2	3	4
Student-Newman-Keuls <sup>a</sup>	High satisfaction	85	1.09			
	Satisfaction	33		2.00		
	Neutral	17			2.88	
	Not satisfaction	15				3.67
	Sig.		1.000	1.000	1.000	1.000

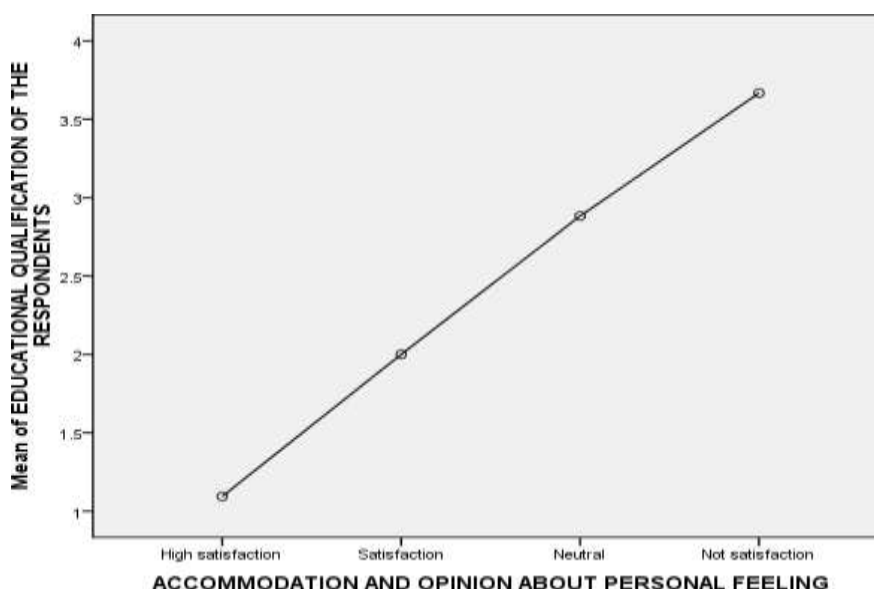


Tukey B <sup>a</sup>	High satisfaction	85	1.09	2.00	2.88	3.67
	Satisfaction	33				
	Neutral	17				
	Not satisfaction	15				

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 23.872.

**Means**



After conducting the aforementioned analysis, it has been determined that the calculated F-value is a positive 455.434 value. Therefore, we can accept the alternative hypothesis (H1). This indicates a meaningful correlation between the educational qualification of the respondents and their accommodation preferences, as well as their opinions regarding personal feelings.

**Suggestions**

The management is responsible for overseeing recreational activities. It is essential for the organization to enhance the benefits and services offered to employees in order to ignite their interest. The company has the ability to make the benefits and services appealing to the staff. It is crucial for the company to strategically organize safety activities to enhance its reputation among the public.



## **2. CONCLUSION**

The safety amenities offered to the employees were deemed satisfactory. The research indicates that workers possess a favorable disposition towards their job as well as management. Additionally, the study uncovers that a significant majority of Organization Solutions' workers feel content with their job and the overall work atmosphere. The relationship between supervisors and colleagues also contributes to a conducive work environment for the employees. Therefore, the study underscores the diverse elements that contribute to employee satisfaction regarding safety provisions.

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