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STUDY AND ANALYSIS ON ENVIRONMENTAL HEALTH AND SAFETY MEASURES OF THE INDUSTRY

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ABSTRACT

Many people are interested in an organisation's approach to environmental health and safety (EHS) management including customers, clients, suppliers, shareholders, contractors, and agencies. More and more organisations attach the same importance to high standards in EHS management as they do to other key aspects of their activities. High standards demand a structured approach to the identification of hazards and the evaluation and control of work-related risks.The present status of industry EHS management is reviewed, with a focus on the Environment, Health and Safety in a management system. The review provides insight into the standards adopted by the industry, and it identifies trends and needs for improvement. It appears that most industries consider goal-based EHS management programs to be success and believe them to contribute to the profitability of the industry.From this project we conclude that EHS management would benefit greatly from guidance on how to use existing management systems efficiently.

LITERATURE REVIEW

1) **Johannson B; Rask K; Stenberg M (2010),** this study was to carry out a broad survey and analysis of relevant research articles about piece rate wages and their effects on health and safety. A total of 75 research articles were examined extensively and 31 of these were found relevant and had sufficient quality to serve the purpose of this study. The findings of

these relevant articles are summarized and analyzed in the survey. More recent research shows a clear interest for health, musculoskeletal injuries, physical workload, pains and occupational injuries. The fact that 27 of the 31 studied articles found negative effects of piece rates on different aspects of health and safety does not prove causality, but together they give very strong support that in most situations piece rates have negative effects on health and safety.

2) **Tompa, Emile PhD; Dolinschi, Roman MA; de Oliveira (2009),** we reviewed the occupational health and safety intervention literature to synthesize evidence on financial merits of such interventions. A literature search included journal databases, existing systematic reviews, and studies identified by content experts. We found strong evidence that ergonomic and other musculoskeletal injury prevention intervention in manufacturing and warehousing are worth undertaking in terms of their financial merits. The economic evaluation of interventions in this literature warrants further expansion. The review also provided insights into how the methodological quality of economic evaluations in this literature could be improved.

3) **Conor CO Reynolds; M Anne Harris; Peter A Cripton; Meghan Winters (2009),** Bicycling has the potential to improve fitness. Understanding ways of making bicycling safer is important to improving population health. We reviewed studies of the impact of transportation infrastructure on bicyclist safety. To assess safety, studies examining the following outcomes were included: injuries; injury severity; and crashes. Results to date suggest that sidewalks and multi-use trails pose the highest risk, major roads are more hazardous than minor roads, and the presence of bicycle facilities (e.g. on-road bike routes, on- road marked bike lanes, and off-road bike paths) was associated with the lowest risk. Street lighting, paved surfaces, and low-angled grades are additional factors that appear to improve cyclist safety.

4) **Lucia Artazcoz; Imma Cortes; Vincenta Escriba-aguir; Lorena Cascant (2009),** the objectives of this study was to identify family and job characteristics associated with long work hours. The sample was composed of all salaried workers aged 16–64 years (3950 men and 3153 women) interviewed in the 2006 Catalonian Health Survey. Factors associated with long working hours differed by gender. In men, working 51–60 h a week was consistently associated with poor mental health status, self-reported hypertension, job dissatisfaction, smoking, shortage of sleep. Among women it was only related to smoking and to shortage of

sleep. The association of overtime with different health indicators among men and women could be explained by their role as the family breadwinner.

5) **Dee W. Edington; Alyssa B. Schultz (2008),** The aim was to present the literature which provides evidence of the association between health risks and the workplace economic measures of time away from work, reduced productivity at work, health care costs and pharmaceutical costs. A search of PubMed was conducted and high quality studies were selected and combined with studies known to the authors. A strong body of evidence exists which shows that health risks of workers are associated with health care costs and pharmaceutical costs. A growing body of literature also confirms that health risks are associated with the productivity measures. The paper shows that measures of success will continue to be important as the field of worksite health management moves forward.

6) **David E. Cantor (2008),** The purpose of this paper was to review the literature and call for additional research into the human, operational, and regulatory issues that contribute to workplace safety in the supply chain. This paper identifies several potential research opportunities that can increase awareness of the importance of improving a firm's workplace safety practices. This paper identifies 108 articles which informs, how the logistics and transportation safety has evolved. The paper identifies 14 future research opportunities within the workplace safety in the supply chain, that have been identified can have a positive effect on practitioners confronted with safety issues.

7) **Lucia Artazcoz; Imma Cortes; Vincenta Escriba-aguir; Lorena Cascant (2007),** To provide a framework for epidemiological research on work and health that combines classic occupational epidemiology and the consideration of work in a structural perspective focused on gender inequalities in health. Gaps and limitations in classic occupational epidemiology, when considered from a gender perspective, are described. Classic occupational epidemiology has paid less attention to women's problems than men's. Research into work related gender inequalities in health has rarely considered either social class or the impact of family demands on men's health. The analysis of work and health from a gender perspective should take into account the complex interactions between gender, family roles, employment status and social class.

8) **Shouji Nagashima; Yasushi Suwazono; Yasushi Okubo; Mirei Uetani (2007),** The aim was to clarify the influence of working hours on both mental and physical symptoms of

fatigue and use the data obtained to determine permissible working hours. The survey of day-shift male workers, using the Self-Rating Depression Scale (SDS) and Cumulative Fatigue Symptoms Index (CFSI). A total of 715 workers participated. In the group working 260–279 h/month, the odds ratios for SDS and 'irritability' and 'chronic tiredness' of the CFSI were increased. In the group working 280 h/month, the odds ratios on CFSI for 'general fatigue', 'physical disorders', 'anxiety' and 'chronic tiredness' were likewise increased. The research clarified that working hours should be <260 h/month in order to minimize fatigue symptoms in male day workers.

9) A Baker; K Heiler; S A Ferguson (2002), The occupational health and safety implications associated with compressed and extended work periods have not been fully explored in the mining sector. Absenteeism and incident frequency rate data were collected over a 33 month period that covered three different roster schedules. The only significant change in absenteeism rates was an increase in the maintenance sector in the third data collection period. The current study did not find significant negative effects of a 12-hour pattern, when compared to an 8- hour system. However, when unregulated and excessive overtime was introduced as part of the 12-hour/5-day roster, absenteeism rates were increased in the maintenance sector.

10) N Nakanishia; H Yoshidaa; K Naganoa; H Kawashimob; K Nakamurac (2001), to evaluate the association of long working hours with the risk of hyper-tension. The work site is in Osaka, Japan. 941 hypertension free Japanese male white collar workers aged 35–54 years were prospectively examined by serial annual health examinations. 424 men developed hypertension above the borderline level. After controlling for potential predictors of hypertension, the relative risk for hypertension above the borderline level, compared with those who worked < 8.0 hours per day was 0.48, for those who worked 10.0–10.9 hours per day was 0.63. These results indicate that long working hours are negatively associated with the risk for hypertension in Japanese male white collar workers.

11) N. Haworth; C. Tingvall & N. Kowadlo (2000), In response to an increasing awareness of the role of work-related driving in crashes and the related costs, many private and government organisations have developed programs to improve fleet safety. The purpose of this project is to investigate the potential to introduce road safety based initiatives in the corporate environment. From the review, that the fleet safety initiatives which have potential

to be effective are, Selecting safer vehicles, Some particular driver training and education programs, Incentives, Company safety programs. It is assumed that the degree of influence is likely to decrease as the type of vehicle moves from the fleet towards the private end of the continuum.

12) Graves carol gevecker; Matanoski genevieve m; Tardiff robert g (2000), Carbonless copy paper (CCP), introduced in 1954. Its safety to workers who handle large amounts of CCP has been addressed in numerous studies and reports. This review encompasses the world's literature on CCP and provides a weight-of-evidence analysis of the safety of CCP to workers in the United States. Since 1987, has produced neither primary skin irritation nor skin sensitization under normal conditions of manufacture and use. Finally, very few published complaints have come from the manufacturing sector where the closest and most voluminous contact occurs. Based on the weight of the evidence, NIOSH is anticipated to conclude that CCP is not a hazard to workers and has only a small possibility of producing mild and transient skin irritation.

13) Karen J.M. Niven (2000), A literature review was described which aimed to evaluate economic evaluations of health and safety interventions in healthcare. Problems were identified with valuing benefits in health and safety because they frequently take many years to emerge and are difficult to measure. Understanding of economic techniques within the health and safety professions was limited, resulting in wide-ranging assumptions being made as to the positive economic impact of health and safety interventions. Healthcare managers, health economists, and health and safety professionals have not traditionally worked together and have inherent misunderstandings of each other roles. The review concludes that the aim of future research should be to assist the National Health Service (NHS) to make valid decisions about health and safety investment and risk control methods.

14) A Spurgeon; J M Harrington; C L Cooper (1997), The European Community Directive on Working Time, which should have been implemented in member states of the European Community by November 1996. This paper reviews the current evidence relating to the potential effects on health and performance of extensions to the normal working day. Research to date has been restricted to a limited range of health outcomes--namely, mental

health and cardiovascular disorders. Other potential effects which are normally associated with stress--for example, gastrointestinal disorders, musculoskeletal disorders, and problems associated with depression of the immune system, have received little attention. It is concluded that there is currently sufficient evidence to raise concerns about the risks to health and safety of long working hours.

15) Scandinavian Journal of Work, Environment, and Health, This article seeks toaddress a number of important questions concerning the potential health and workplace safety risks raised by the manufacturing, handling, and distributing of engineered neno particles. The article addresses the following questions; (1) the hazards classification of engineered neno particles, (2) exposure metrics, (3) the actual exposures workers may have to different engineered neno particles in the workplace, (4) the limits of engineering controls and personal protective equipment in protecting workers in regard to engineered neno particles, (5) the kind of surveillance programs that should be put in place to protect workers, (6) whether exposure registers should be established, and (7) if engineered neno particles should be treated as new substances and evaluated for safety and hazards.

RESEARCH METHODOLOGY

The research design of this study considering its objectives, scope & coverage was exploratory as well as descriptive in nature.

SOURCES OF INFORMATION PRIMARY DATA

The primary data has been obtained from the employees of ASHOK LEYLAND through circulation of the structured questionnaire.

SECONDARY DATA

The secondary data has been obtained from published as well as unpublished literature on the topic and from Books, Journals, News Papers, Research Articles, Thesis, Websites, Magazines etc.

DATA COLLECTION METHODS:

SAMPLING FRAME

The representative sampling units of 200 employees in the SHOP 4 of ASHOK LEYLAND who have availed HEALTH AND SAFETY MEASURES.

SAMPLE SIZE:

Appropriate number of sample size (i.e. 90) was put to use for the purpose of collecting primary data from the selected employees of the Innovative Cuisine Private Limited.

SAMPLING METHOD

Simple random sampling methods was used to collect the samples.

3.4 STATISTICAL TOOLS

The analysis is performed using SPSS software and the following tests are performed to analyse whether there is a statistically significant difference between the means in two unrelated groups. The following tests are performed

ONE WAY ANNOVA

The **one-way** analysis of variance (**ANOVA**) is used to determine whether there are any statistically significant differences between the means of two or more independent (unrelated) groups (although you tend to only see it used when there are a minimum of three, rather than two groups).

INDEPENDENT SAMPLE TEST:

The **independent t-test**, also called the two **sample t-test**, **independent-samples t- test** or student's **t-test**, is an inferential statistical **test** that determines whether there is a statistically significant difference between the means in two unrelated groups.

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CHI-SQUARE TEST:

A **chi-squared test**, also written as χ^2 **test**, is any statistical hypothesis test where the sampling distribution of the test statistic is a chi-squared distribution when the null hypothesis is true. Without other qualification, 'chi-squared test' often is used as short for *Pearson's* chi-squared test. The chi-squared test is used to determine whether there is a significant difference between the expected frequencies and the observed frequencies in one or more categories.

FREQUENCY ANALYSIS:

Frequency Analysis is a part of descriptive statistics. In statistics, **frequency** is the number of times an event occurs. **Frequency Analysis** is an important area of statistics that deals with the number of occurrences (**frequency**) and analyses measures of central tendency,

dispersion, percentiles, etc.

FINDING OF THE STUDY

- 75% of employees are male and 15% are female.
- 65% of respondents agree that effective health and safety communication arrangements exist, while 5% disagree.
- 60% of respondents are satisfied or highly satisfied with the medical facilities provided.
- 80% believe the workplace is suitable for visitors.
- 65% state that the organization has an updated health and safety policy.
- Health check-ups are mainly conducted monthly (65%).
- 60% of employees report no work-related stress, while 30% experience stress.
- 75% rate management's role in implementing health and safety as good or excellent.

Recommendations / Suggestions

- Improve communication of health and safety matters.
- Take measures to reduce employee stress through orientation and awareness programs.
- Provide regular safety training to prevent accidents.
- Encourage concentration and wellness practices such as meditation.
- Form a safety committee to monitor health and safety issues.
- Conduct regular workplace safety inspections.
- Maintain a cordial relationship between management and workers for effective implementation of safety policies.

CONCLUSION

The study reveals that health and safety measures at Ashok Leyland generally comply with the Factories Act. Most employees are satisfied with the existing health and safety practices, and management plays an effective role in implementation. However, employee awareness regarding workplace safety needs improvement. Regular training, effective communication, and stronger disciplinary procedures can further enhance workplace health and safety.

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