



**IJRREM**



**Scribd impact Factor: 4.7317, Academia Impact Factor: 1.1610**

**ISSN NO (online) : Ap No : 19702**

**RNI -Application No 2017103794**

**“A study on Employee Safety with special reference to Ashok  
Leyland Pvt Ltd, Hosur, Krishnagiri district “**

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**ABSTRACT**

This study is an outcome of the title called “A study on Effectiveness of Employees Safety and Health” with reference to Ashok Leyland company which has undertaken at Ashok Leyland. Employees Safety and Health look upon prevention of accidents basically as an engineering problem to be tackled through proper designing of mechanical safety devices. In fact, accident prevention and safety are inter related and, therefore require a multi dimensional approach. Its importance has increased because of large-scale industrialization in which human beings are subjected to mechanical, chemical, electrical and radiation hazards. .” Total

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Tamilnadu-636121, India

Indexed by



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population is 369; from that 100 employees were selected using simple random sampling method and a well structured questionnaire was framed in order to extract the required information from the respondents. Questionnaires were collected through personal interview. the various statistical tools like percentage method, chi square test and correlation analysis were used in this study. The findings of the study reveal that major cause for the work place accident is unsafe handling of material. So the vestibule training method can be included in employee training program. Ergonomics method enables better employees safety and health.

**Keywords: Employees Safety, prevention of accidents, importance,**

## CHAPTER I

### 1.1. INTRODUCTION TO THE STUDY

An organization is made up of four resources, namely men, material, money and machinery. Of these, the first one is living one and the other three are non-living i.e., non-human. It is the human or people that make use of non-human resources. Hence, people are the most significant resources in an organization. It is man who makes all the difference in organizations. According to Peter F. Drucker, "man, of all the resources available to man, can grow and develop".

Human resources are heterogeneous in Since the begging of the present century, employee safety and health problems at work have been engaged attention of the psychologists, sociologists and the industrial engineers. Psychologists are concerned with the theoretical considerations of accident causation and the research into accident control, through proper selection, training and the education of the employee; and the social and psychological factors that influence the individual's behaviour in general.

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Engineers and safety officers usually render necessary practical advice on certain aspects of safety in industry. They look upon prevention of accidents basically as an engineering problem to be tackled through proper designing of mechanical safety devices. In fact, accident prevention and safety are inter related and, therefore require a multi-dimensional approach. Its importance has increased because of large-scale industrialization in which human beings are subjected to mechanical, chemical, electrical and radiation hazards.

## NATURE OF ACCIDENT

The nature of an accident may vary from industry to industry. The employee may fall from a height while engaged on a particular assignment; or he may be caught in a machine while working on it; or he may fall against a machine; or parts of a machine having a horizontal protruding motion may cause strike against him; or an explosives used carelessly may explode, and injure an employee. Such accidents may result in disablement or death.

**Disablement** - whether partial or total - may take a form of a loss of ability to work or to move. Such incapacity may be partial or total. Both types of disablement may be temporary or permanent.

- A temporary partial disablement reduces the earning capacity of an individual in the employment in which he was engaged when he sustained an injury at the time of accident.
- Permanent partial disablement reduces his ability to earn an income from any employment which he was capable of undertaking at the time of the accident occurred.

**Total disablement**, on the other hand, is a disablement, whether temporary or permanent, which incapacitates a workman and makes it impossible for him to engage in any



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work.

## **CAUSES OF ACCIDENT**

Nature and causes of accident may vary from organization to organization. Basically industrial accidents will arise either due to technical faults or due to human follies or errors. Therefore the causes of accidents may be attributed to work related causes and worker related causes.

### **1. Work related Causes**

Unsafe working conditions are the prime causes for any industrial accident and these include all engineering deficiencies. These mainly include improper lighting, inadequate safety devices, polluted work place, poor machine guarding and unsafe and careless housekeeping. These factors will create psychological and physical problems for the workers and will invite industrial accident.

### **2. Worker related Causes**

These are human factors responsible for accidents due to their unsafe acts. Lack of adequate skill or knowledge in handling the machine, disturbed mental condition, neglecting safety devices and instruction, using unsafe machine, working at unsafe speed are some of the causes due to which workers become victims as industrial accidents.

## **3.ACCIDENT PREVENTION IN THE WORK PLACE**

Let us discuss some of the important steps that an organization has to take in implementation safety and health programs to prevent accidents at the workplace and provide a safe working environment for its employees. When an organization is successful in implementing the following steps, the accident rate will be automatically decrease.

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- Educating and training the employees
- Frequent inspections by the top management
- Tabulating and analyzing the causes of accidents
- Conducting regular employee wellness program
- Designing mental health program
- Making the right start and get going
- Apart from the above mentioned steps it is also the duty of the employer to understand the following issues:

## Safety

Safety, in simple terms, means freedom from the occurrence or risk of injury or loss. Industrial safety or Employee safety refers to the protection of workers from the danger of industrial accidents.

## Accidents

An Accident, is an unplanned and uncontrolled event in which an action or reaction of an object, a substance, a person, or a radiation results in personal injury.

## 4. Causes of Accidents

The industrial safety experts have classified the various causes of accidents into three broad categories:

1. Unsafe Conditions
2. Unsafe Acts
3. Other Causes

## 5. STATUTORY PROVISIONS FOR INDUSTRIAL SAFETY

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The International Labour Organization (ILO) organized a Tripartite Technical Conference in 1948 to formulate a 'Model Code' of Safety Regulations for Industrial Establishments for the guidance of governments and industry. The code covers various areas of unsafe conditions and unsafe acts.

In India, The Factories Act, 1948 lays down safety provisions contained in Sections 21 to 41. These provisions are obligatory on the part of industrial establishments. A brief resume of these is presented as follows.

- **Fencing of Machinery (Section 21):**

It is obligatory on the part of the management to fence machinery with guards of a substantial construction. The same shall be constantly maintained and kept in its proper position when any part of the machine is in motion or movement.

- **Work on or Near Machinery in Motion (Section 22):**

A trained adult male worker wearing tight fitting clothing should examine and operate the machine in motion. He should not handle a belt on a moving pulley more than fifteen centimeters in width. No young children or women should handle a machine which is in motion.

- **Employment of Adolescents on Dangerous Machines (Section 23):**

Young persons should not be allowed to work on dangerous machines unless he has been fully instructed as to the dangers involved and he has received sufficient training to work on the machine under the supervision of a person having thorough knowledge and experience of working on that machine.

- **Striking Gear or Device for Cutting off Power (Section 24):**

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Every factory must provide suitable striking gear to move driving belt to and from fast and loose pulleys which form part of transmission machinery. There should also be a locking device to prevent accidental starting of transmission machinery to which the device is fitted.

- **Self-Acting Machines (Section 25):**

No traversing part of a self-acting machine and no material carried thereon shall be allowed to run within a distance of 45 centimeters from any fixed structure which is not a part of the machine.

- **Casting of New Machinery (Section 26):**

All machinery driven by power and installed in any factory after April 1 1949, every set crew, bolt or key, spindle shall be sunk or securely guarded to prevent any danger. Further, all spur, worm and toothed or friction gearing while in operation shall be completely unuse unless it is safely situated.

- **Prohibition of Employment of Woman and Children near Cotton Openers (Section 27):**

Women and children shall not be employed in any part of a factory for pressing cottons when cotton opener is in operation. However, women and children may be employed in a room which is separated from opener.

- **Hoists and Lifts (Section 28):**

In every factory, hoists and lifts should be in good condition and should be examined once in every six months.

- **Lifting Machines, Tackles, Chains and Ropes (Section 29):**

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Similarly, in every factory, lifting machines chains, ropes and lifting tackles must be in good construction and should be examined once in a year.

- **Revolving Machinery (Section 30):**

In every room where grinding work is going on, a notice indicating the maximum safe working peripherals speed of the machine shall be affixed near it. Effective measures will also be taken in every factory to ensure that the safe working peripheral speed of every revolving vessel, cage, basket, flywheel, pulley, or similar other appliances driven by power is not exceeded.

- **Pressure Plants (Section 31):**

If in any factory, any plant or its part is operated at a pressure above atmospheric pressure, the pressure should not be allowed to exceed by taking effective measures in this regard.

- **Floors, Stairs and other means of Access (Section 32):**

In every factory, all floors, steps, stairs, passage and gangway shall be of sound construction and be properly maintained.

- **Pits and Openings in Floors (Section 33):**

Since every fixed vessel, sumps, tank, pit, or opening in a floor may be a source of danger, therefore, shall be securely covered or fenced.

- **Excessive Weights (Section 34):**

No person shall be employed in the factory to lift or carry excess load/weight so as to cause him/her physical injury.

- **Protection of Eyes (Section 35):**

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In every factory, adequate provisions of goggles or screen to protect persons working on machine which might cause damage to their eyesight, shall be made.

- **Precaution against Dangerous Fumes (Section 36):**

No employee in any factory shall be allowed to enter any chamber, tank, pit, vat, pipe, flue or such other confined place in which any gas or fume is present.

- **Explosive or Inflammable Gas or Dust (Section 37):**

In any factory which produces through its manufacturing process dust, gas, fume or vapour of such nature exploding on ignition, effective measures such as enclosure of the plant or machinery used in the process, removal of accumulated dust or fume and effective enclosure of all possible source of ignition, should be taken to prevent explosion likely to be caused by gas or fume.

- **Precaution in case of Fire (Section 38):**

In every factory, effective measures to be taken to prevent outbreak of fire and its spread. These may include exit door to escape in case of fire, necessary equipments and facilities for extinguishing fire and adequate arrangement to raise alarm in case of fire, preferably a siren.

- **Power to Require Specification of Defective Parts or Tests of Stability**

**(Section 39):**

If it appears to the factory inspector that any building or part of it is in such a condition that it is dangerous to human life, he/she may ask for details about them or insist on suitable tests to determine their safety.

- **Safety of Building and Machinery (Section 40):**

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Where unsafe condition of building and machinery is reported, the inspector having being satisfied may ask the occupier or manager to repair it suitably.

- **Power to Make Rules (Section 41):**

The State Government is empowered to make rules requiring the provision in any factory of such further devices and measures for securing safety of persons employed therein.

**The other acts covering statutory provisions of safety are:**

- Mines Act, 1952
- Plantation Labour Act, 1961
- Bidi and Cigar Workers (Conditions of Employment) Act, 1966.
- Contract Labour (Regulation and Abolition) Act, 1970
- Motor Transport Workers Act, 1961

## CHAPTER II

### 2.1.OBJECTIVES OF THE STUDY

- ❖ To study and analyze the effectiveness of Employee Safety and Health at Ashok leyland company.
- ❖ To trace the causes of accident in the work place.
- ❖ To study to which extent employees are practicing safety and health in the real work situation.
- ❖ To assess the management commitment towards employees safety and health.
- ❖ To suggest suitable measures for improving employees safety and health.

### 2.2.SCOPE OF THE STUDY

International Journal of Research Review in Engineering and Management (IJRREM), Volume - 2, Issue -11, November -2018, Page No: 20-38, Impact Factor :2.9463, Scribd Impact Factor :4.7317, Academia Impact Factor :1.1610

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- The project throws light on the need for learning Employees Safety & Health.
- The project was developed based on the employees expectation.
- It will be helpful for the management to improve the Employees Safety & Health measures in the organization.
- This study would be a base for the researchers who are carry survey for the same.
- The study also helps the concern for the further enhancement for their manufacturing with employees safety & health by elaborating the current survey.

## 2.3.LIMITATIONS OF THE STUDY

- The study is based upon the small population size of 100 samples at Ashok Leyland company.
- Some false information might be given by the employees due to fear of their superiors.
- Time available for this research work was a limiting factor.
- The study is based on the effectiveness of Employees Safety & Health measures. It does not explore the pros and corns on the side of employers.

## CHAPTER III

### RESEARCH METHODOLOGY

#### RESEARCH

Research is a process in which the researcher wishes to find out the end result for a given problem and thus the solution helps in future course of action. The research has been defined as “A careful investigation or enquiry especially through search for new fact in any branch of knowledge”.

#### RESEARCH METHODOLOGY

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The procedure using, which researchers go about their work of describing, explaining and predicting phenomena, is called Methodology. Methods comprise the procedures used for generating, collecting, and evaluating data. Methods are the ways of obtaining information useful for assessing explanation.

## TYPES OF RESEARCH

The type of research used in this project is descriptive in nature. Descriptive research is essentially a fact finding related largely to the present, abstracting generations by cross sectional study of the current situation. The descriptive methods are extensively used in the physical and natural science, for instance when physics measures, biology classifies, zoology dissects and geology studies the rock. But its use in social science is more common, as in socio economic surveys and job and activity analysis.

## DESCRIPTIVE RESEARCH AIMS AT

- To portray the characteristics of a particular individual situation or group (with or without specific initial hypothesis about the nature of this characteristics).
- To determine the frequency with which something occurs or with which it is associated with something else (usually, but not always, with a specific initial hypothesis).

Research is essentially creative and demands the discovery of facts in order to lead a solution of the problem. A second limitation is associated whether the statistical techniques dominate. The desire to over emphasize central tendencies and to fact in terms of Average, Correlation, Means and dispersion may not always be either welcome.

This limitation arises because statistics which is partly a descriptive tool of analysis can aid but



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not always explain casual relation.

### **DESIGN OF DESCRIPTIVE STUDIES:**

Descriptive studies aim at portraying accurately the characteristics of a particular group or solution. One may under take a descriptive study about the work in the factory, health and welfare. A descriptive study may be concerned with the right to strike, capital punishment, prohibition etc.

A descriptive study involves the following steps:

1. Formulating the objectives of the study .
2. Defining the population and selecting the sample .
3. Designing the method of data collection .
4. Analysis of the data .
5. Conclusion and recommendation for further improvement in the practices.

### **RESEARCH DESIGN**

Research design is the specification of the method and procedure for acquiring the information needed to solve the problem.

The research design followed for this research study is descriptive research design where we find a solution to an existing problem. The problem of this study is to find the effectiveness of Employees Safety & Health at Rane Madras Limited.

### **UNIVERSE AND SAMPLING:**

This study was restricted to the blue collar employees. Out of the universe of 500 blue collars, a sample of 100 respondents was selected by simple random sampling method. All the opinions expressed herein are the contribution by the respondents only.

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## DATA COLLECTION METHOD

Survey method is considered the best method for data collection and the tool used for data collection are Questionnaire. Private individuals, research workers, private and public organizations and even government are adopting it. In this method a questionnaire is collected through personal interview. A questionnaire consists of a number of question involves both specific and general question related to Employees Safety & Health.

## SOURCES OF DATA

The two sources of data collection are namely **primary & secondary**.

- **Primary data**

Primary data are fresh data collected through survey from the employees using questionnaire.

- **Secondary data**

Secondary data are collected from books, internet and various journals, magazines etc.

## STATISTICAL TOOLS USED

- **PERCENTAGE METHOD**

In this project percentage method test and used. The following are the formula

$$\text{Percentage of Respondent} = \frac{\text{No. of Respondent}}{\text{Total no. of Respondent}} \times 100$$

- **CHI - SQUARE Analysis**

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In this project chi- square test was used. This test is used to test significance of association between two attributes. Chi- square, symbolically written as  $\chi^2$  (pronounce as Ki-square), is a statistical measure used in the context of sampling analysis for comparing a variance to a theoretical variance. Formula for finding chi square is

$$\chi^2 = \sum(O-E)^2 / E$$

In this study chi-square is to find the association between respondents gender and respondents accident proneness, respondents accident proneness and enough training for the employees & employees work load and the approach of the organization .

## • CORRELATION ANALYSIS

Correlation Analysis is a statistical technique used to measure the magnitude of linear relationship between two variables. Correlation Analysis is not used in isolation to describe the relationship between variables. To analyze the relation between two variables, two prominent correlation coefficient are used –the Pearson product correlation coefficient and Spearman’s rank correlation coefficient .

In this study the Pearson product correlation coefficient is used to find the correlation coefficient between respondents awareness level at the time of joining with employees participation in suggestion scheme & respondents awareness level at present and the counseling .

This is also known as simple correlation coefficient and is denoted by “r”.The “r” value ranges from -1, through 0, to +1.It is calculated using the formula

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}}$$



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## CHAPTER

### FINDINGS OF STUDY

- It is found that 75% of the respondents are Male.
- It is evident that 49% of the respondents are belonging to the age group of 35 & above.
- It is found that 54% of the respondents are unmarried.
- It is found that 43% of the respondents are studied P.G.
- 40% of the respondents are having above 20 years of experience.
- It is found that 27% of respondents are expecting medical facilities on first aid, ambulance & treatment charges.
- Most of the respondents are satisfied with working environment condition.
- Most of the respondents are having 5000 and above bonus.
- 38% of the respondents says that, they are dissatisfied working in night shift.
- Most of the respondents are not satisfied with the quality of food
- It is found that 89% of the worker based accidents due to unsafe material handling.
- It is found that 96% of the respondents have no awareness concerning Employees Safety & Health at the time of joining..
- It is evident that 59% of the respondents acquired the knowledge regarding Employees Safety & Health through motion pictures.
- It is found that 58% of the respondents have satisfactory level of work load in the organization.

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- It is evident that most of the respondents states that they have inadequate first aid facilities.
- It is found that 39% of the respondents states appreciating employees for their work as a stress relief measure.
- It is evident that 54% of respondents state that they have no recreational facilities.
- It is found that 98% of the respondents said that they are not practicing the method of Ergonomics.
- It is found that 93% of the respondents said that they have no counseling for the employees pertaining to personal and technical problems.
- It is found that 63% respondents states that they have no pre employment and post employment medical check.
- It is evident that most of the respondents feels that the organization approach is mainly towards production.

## SUGGESTIONS AND RECOMMENDATIONS

- The major cause for the workplace accidents that occur in the organization is unsafe handling of material. So the vestibule training method can be included in employee training program.
- The frequency of safety training for the employees on safety and health can be altered to monthly once instead of yearly twice.
- Proper maintaining of adequate First aid facilities should be ensured.
- The rest room should be reconstructed with sufficient space and the sports center facility

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can also be extended to temporary labours.

- Ergonomics method should be followed. In an ergonomic workplace tools are designed to fit individual capabilities and limitation so that people can do their job without being injured.
- Work environment causes number of problems, counseling enables to overcome personal and technical problems.
- A careful Pre employment and Post employment medical check up can also be extended to temporary labours.

## CHAPTER VII

### CONCLUSIONS

This analysis will give a clear idea as to the situation of a large number of accidents that occur in the organization and the steps that an organization should take to reduce these accidents and to prevent them from occurring in future.

Some of the suggested measures for improving employees safety and health include vestibule training method, first aid facilities, recreational facilities, counseling program, pre employment and post employment medical check up for improving the effectiveness of employees safety and health. The findings of the survey will be utilized to bring about the necessary changes in **Employees Safety** procedures in the company. The above concept could be better envisaged to bring about the better safety and health for the employees by inculcating the concept of **Ergonomics**.

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International Journal of Research Review in Engineering and Management (IJRREM), Volume - 2, Issue -11, November -2018, Page No: 20-38, Impact Factor :2.9463, Scribd Impact Factor :4.7317, Academia Impact Factor :1.1610

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