

Chapter 1. Executive Summary

1.1 Problem Statement:

Industrial Accidents are invariably caused due to unsafe acts and unsafe conditions at works. Though the technology is advanced, the human behavior is not coping with the industrial hazards. The frequency / severity of the accidents are increasing day by day.

1.2 Definitions:

Essentially HSE-Culture depends on the following basic parameters:

I .Employee Engagement:

Engagement is how deeply an employee is “Engaged” in his organization, his work and his colleagues i.e. Commitment to his organization, his work and his colleagues. Employee Engagement is a new concept now for quantifying and evaluating employee HSE-Culture and Work Environment Stresses and Strains leading to Chronic Occupational diseases.

II. Employee Satisfaction:

- Employee satisfaction has three parameters:
 - **Intrinsic Satisfaction:** This is how intrinsically the employee likes his work.
 - **Extrinsic Satisfaction:** This is how the employee is satisfied with the facilities, powers, recognition, growth opportunities are provided,
 - **General satisfaction:** Comes from standing of the organization where he works, in regard to growth, competition etc. of the organization.
- The works environmental factors namely heat, dust, noise; illumination etc. play a vital role in improving the works HSE Culture. Basically, the accidents are caused due to unsafe acts and unsafe conditions. The HSE Culture Evaluation eliminates the unsafe condition and unsafe acts.
- There is always a scope for improving the HSE culture in works.

1.3 Need/ Motivation/Objectives for Research:

Need/ Motivation for Research

- The Technology associated with all types of Hazards is being well advanced in Safety Management.
- Human factor, however, is by far the most important factor in safety management,

- The Human Factor is mainly attributable to Values, Attitudes and Beliefs which constitute Individual and Group Culture,
- Evaluation of Individual and Group Culture specifically with respect to HSE in turn influences the safe behavior of the employees and subsequently improves the productivity of the organization.
- Hence, I as a technocrat Professional, having vast experience in the field of Safety with lot of practical experience at different types of industries, am convinced that HSE culture can be improved through advanced Research work based on Evaluation and improvement of HSE-Culture along with evaluation and improvement of Occupational Stresses and Strains using advanced Software which should enable realizing high levels of HSE-Performance and Productivity..

Objectives for Research:

- To study existing level of Quantified HSE culture from lower level to higher level in the Plant.
- To Study existing level of quantified HSE culture of the Contract employees in the Plant.
- To determine existing levels of Occupational Stresses and Strains arising out of Work Environment Factors like Heat stress, Pollution stress, Noise stress, Poor/excessive illumination stresses and so on.
- To develop improvement plan for HSE culture and work Environment stresses and strains for the Plant employees.
- To realize the results of these improvements in HSE-Culture and Work Environment Stresses and Strains, in improved Productivity and high levels of Employee Morale.

1.4 Research Methodology:

A) Theoretical framework -

- The model or the set of theories related to the phenomenon of HSE-Culture is being studied.
- These theories have been put into practice and new HSE Model will be developed through the appropriate Software for Works environment improvement.
- Software dealing with observation of unsafe acts, safety standards, Occupational Stresses both Physical and procedure is being studied and existing levels of standards shall be evaluated using the software and improvements made to reduce/control these Stresses and Strains.
- These R& D efforts involving evaluating and improving employee HSE-Culture and work Hygiene should result in high employee morale and productivity.

B) Source Data -

- The source data are collected through the employee's questionnaires, observation cards, unsafe acts which qualify their extrinsic / intrinsic / General Satisfaction about the job engagement.
- Develop a Proforma Questionnaire, to determine existing HSE-Culture. To develop an advanced software to quantitatively evaluate existing HSE-Culture in an Industry.
- To collect data by interviewing 300 number of employees of the Industry and contractors and record data in the standardized questionnaire.
- The Works Environment Data namely – Heat level, Noise Level, Dust / pollution Sampling and illumination level are measured by using the latest equipment and used to evaluate stresses and strains using Software.

C) Sampling -

- The sampling includes the collection of HSE – Culture data from same level of employees at shop-floor through the questions developed to suit the Industry context. These answered questions will be analyzed through the advanced HSE Software Product.
- The Works Environmental sampling data are collected at various works area. Stresses and Strains evaluated using appropriate Software.

D) Statistical Tools -

- i. Softwares
- ii. Questionnaire
- iii. Work Environmental -Heat Stress monitoring Equipment,
- iv. Personal Sampler,
- v. Noise Dosi-meter,
- vi. Personal Detectors,
- vii. Exposimeter and
- viii. Lux-meter, etc. etc.

E) Approach –

- i. Collecting all the information including unsafe act for data input.
- ii. Develop a Proforma Questionnaire, with specific Industry context and culture, to determine existing HSE -Culture including the Technical Data Analysis.
- iii. To collect data by interviewing all employees of the Industry and Contractors and record technical data and improve to meet the international standards.

- iii. Entering data in the Software.
- iv. Obtaining results of the vast data by the Software, analyzing the results, interpreting and determining strengths and weaknesses in HSE-Culture with respect to technical data analysis.
- v. To develop an effective program to improve weak areas in HSE-Culture and to strengthen the works environment.
- vi. Reduce Works Environment Stresses and Strains below minimum acceptable levels.

The Methodology Adopted Is Shown Below Diagrammatically:

