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FROM THE DESK

With the advancement of science and technology in the industries, the work environment at large and the working population in particular has changed dramatically. Each issue of the INDOSHNEWS is designed to give a thrust on a particular problem or an important issue, which at the given point of time is agitating the minds of the people concerned with the management of safety and health at the workplace.

Over the years, the number of women employees in the industries has increased many folds. In other words, this has increased the vulnerability of women workers to industrial injuries. Hence, the occupational safety, health and welfare of the women employee in particular, in industries need to be examined.

The cover feature of this issue is aimed at a gender based study of injuries in the manufacturing industries in India. The concentration of female employees varies over states and the type of industries. In some of the states and industries the occupational injury to the women workers has been found to be high. The article indicates the need for appropriate data base at states and national level for generating comprehensive and comparable gender-based data on employment and injuries to develop an effective accident prevention programme.

I hope the information carried by the article 'INDUSTRIAL INJURIES & WOMEN WORKERS' will be useful to the users.

A handwritten signature in blue ink, which appears to read 'S.K. Saxena', written over a horizontal line.

(S.K. SAXENA)
EDITOR -IN- CHIEF

INDUSTRIAL INJURIES & WOMEN WORKERS

Supriya Roy

INTRODUCTION

Industrial injuries have always been one of the major concerns for the policy makers. Various measures are being constantly evolved and implemented to prevent the injuries and to protect the human capital. Some industries are inherently risk-prone than others. Indian industry is dominated by male workforce. Women workers comprise a tiny percentage of total industrial work-force. The proportions of female employee to their male counterparts across the states are asymmetric and so are the proportions of injuries to male and female across the states and industries.

In this paper, an attempt has been made to analyze the distribution and trend of injuries (both fatal and non fatal injuries) for female employee vis-à-vis male employee across the different industry groups and states.

PROCEDURE

This study has been done based on the information furnished by Chief Inspector of Factories (CIF) of States/ Union Territories in Annual Returns (based on the factories submitting returns in prescribed forms) in respect of the 13 States viz. Chandigarh, Haryana, Punjab, Madhya Pradesh, Rajasthan, Tripura, Assam, Orissa, Andhra Pradesh, Karnataka, Tamil Nadu, Maharashtra and Goa during the three consecutive years (2002 to 2004). The data from 'all manufacturing industries' i.e., industry groups with National Industrial

Classification 1998 (NIC) Codes (Annex I) have been included within the purview of the study.

FINDINGS

Gender ratio of employment: In the 13 States studied, the total workforce is found to be 32, 92,786. Out of this, 27, 28,609 are male (83%) while 5, 64, 177 (17%) are female workers. Most of the female employment is evidenced in Tamil Nadu (61%) followed by Karnataka (16%), Andhra Pradesh (9%), Maharashtra (8%) and rest of the states (less than 2% each). Similar to their female counterpart, the male employment is highest in Tamil Nadu (30.6%). However, this similarity remains restricted to Tamil Nadu only as the proportion of male workers in other states namely Maharashtra (24.9%), Andhra Pradesh (12%), Karnataka (9.6%) and rest of the states (less than 4% each) are found to be different.

On further analysis of the four states with high female employment, it is found that major share of female employments are in Textiles (NIC 17), Chemicals & Chemical Products (NIC 24), 'Wearing Apparel; Dressing & Dyeing of Fur' (NIC 18) and Tobacco Products (NIC 16) in Tamil Nadu; Manufacturing of 'Wearing Apparel; Dressing & Dyeing of Fur' (NIC 18) and Food Products and Beverages (NIC 15) in Karnataka; Manufacturing of Food Products and Beverages (NIC 15) in Andhra Pradesh; and Manufacturing of Chemicals & Chemical Products (NIC 24), Food Products and Beverages (NIC 15) and Textiles (NIC 17) in Maharashtra.

COVER FEATURE

Table 1 shows the state-wise comparison of the ratio of male and female employment. It is evidenced that proportions of female employment in Tamil Nadu, Karnataka, Goa, Assam and

Andhra Pradesh is higher compared to male employment in other states namely Assam, Haryana, Maharashtra, Orissa, Punjab and Rajasthan.

Table 1: State-wise Ratio of Male /Female Employment:

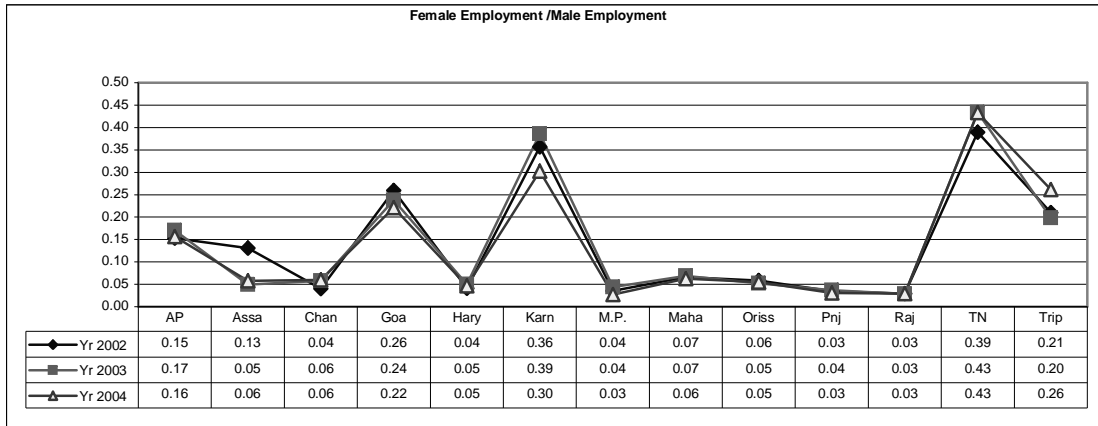
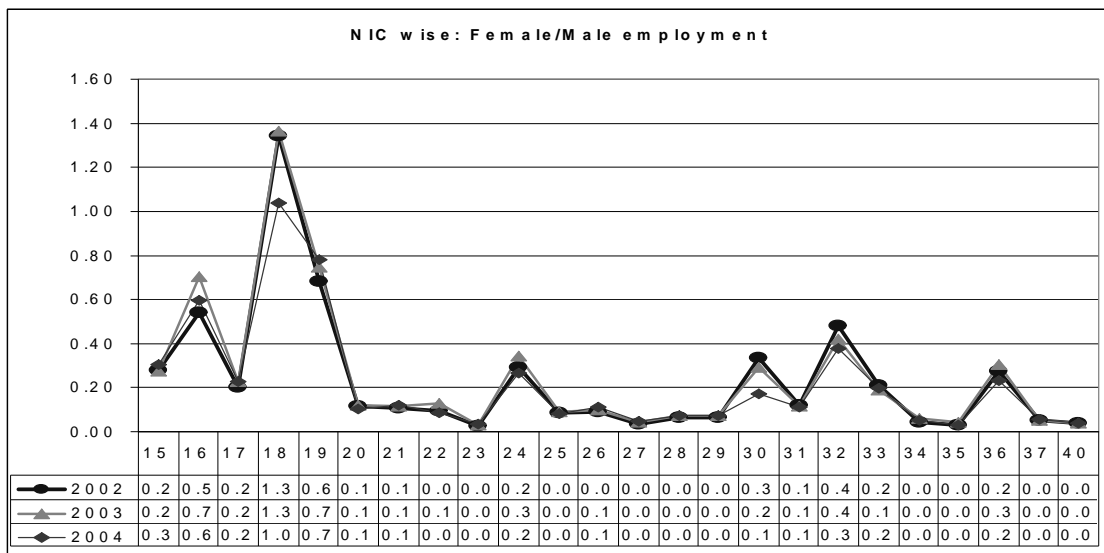


Table 2 shows the Industry-wise (NIC-wise) comparison of the ratio of female employment to male employment. In the case of 'Manufacturing of Wearing Apparel and Dressing & Dyeing of Fur' (NIC 18)

female employees are more than male employees. This is due to the fact that in the states of Karnataka, Orissa and Tamil Nadu, female employees are more in number than male employees in NIC 18.

Table 2: NIC-wise Ratio of Male and Female Employment



COVER FEATURE

GENDER DIFFERENCES IN INDUSTRIAL INJURIES:

Number of reportable injuries to female workers is found to be less than their male counterparts. Female Injuries accounted for 1.57 per cent of the total injuries whereas female workforce is 17 per cent of the total workforce. However, more than 200 injuries of women workers were reported in each of the years 2002 to 2004. For male workforce, overall injury ratio (total male injury/ total male workforce) over the period 2002 to 2004 is 0.63%

whereas for female workforce, it is 0.05%. A t-test of the data shows that the overall male injury ratio is significantly higher ($t = p < .05$) than the overall female injury ratio. However, in the state of Orissa, for all the three years (2002 to 2004), it is found that the female injury ratio is not significantly different from the male injury ratio; and in the states of Andhra Pradesh, Maharashtra and Karnataka, the male and female injury ratios are not significantly different in 2004. An overview of the industrial injuries on the collected data is presented in Table 3.

Table 3: An overview of the industrial injuries and employment

| Year | 2002 | 2003 | 2004 |
|----------------------------------|---------|---------|---------|
| * Male Employment | 2683949 | 2626784 | 2771868 |
| * Female Employment | 533072 | 576219 | 583384 |
| % Female Employment | 16.57% | 17.99% | 17.39% |
| Male Injuries | 19693 | 16817 | 14521 |
| Female Injuries | 252 | 334 | 227 |
| % of Female Injury | 1.26% | 1.95% | 1.54% |
| Male injury/*male workforce | 0.73% | 0.64% | 0.52% |
| Female injury/ *female workforce | 0.05% | 0.06% | 0.04% |

* Workforce is based on factories submitting returns

GENDER DIFFERENCES IN FATAL INJURIES:

As shown in Table 4, fatal injuries comprise of around 3 per cent of injuries among total male injuries (2002 to 2004) and 5 percent of injuries among total female injuries (2002 to 2003). On analysis of the consolidated data for three years (2002 to 2004), it is found that the severity of injury (total injury) among males is not significantly different ($t = p > .05$) from the severity of injury among

females. However, on analyzing data of 2004, it is found that in the states of Madhya Pradesh and Karnataka, severity of injury among females is significantly higher ($t = p < .05$) than male. Again in 2004, in case of Andhra Pradesh, Maharashtra and Orissa, severity of injury among males is not significantly different. In the case of Tamil Nadu in 2004, the severity of injury among males is significantly more ($t = p < .05$) than female severity of injury.

Table 4: An overview of the Fatal Industrial Injuries

| Year | 2002 | 2003 | 2004 |
|---|-------|-------|--------|
| Male fatal injuries | 519 | 521 | 514 |
| Female Fatal injuries | 13 | 15 | 32 |
| Male fatal injuries / Male injuries | 2.65% | 3.10% | 3.54% |
| Female Fatal injuries / Female injuries | 5.16% | 4.49% | 14.10% |

COVER FEATURE

**INDUSTRY-WISE CLASSIFICATION
OF INJURIES:**

Since the type or nature of job influences the injury, an analysis of the effect of industry type (NIC) on injuries has been done. It is found that for both men and women, the maximum number of industrial injuries occurred in Textiles (NIC 17) and it is significantly higher than other industry types. NIC 17 accounts for 33% of the total male injuries and 35 % of the total female injuries. In Graph - 1 & Graph – 2, the distribution of female and male reportable and fatal injuries across different NIC has been shown.

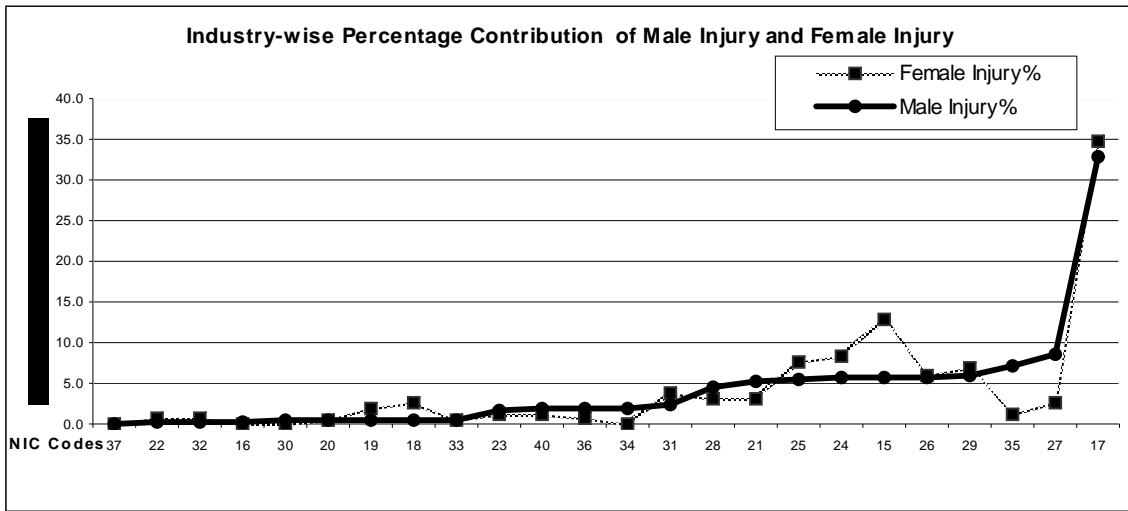
In case of fatal injuries, for both men and women, maximum number of fatal injuries occurred in Food Products and Beverages

(NIC15) and it accounts for 17% of the fatal injuries occurring to the male workforce and 37% of the fatal injuries occurring to the female workforce. The Basic Metals (NIC 27), Chemicals & Chemical Products (NIC 24) and Textiles (NIC 17) industries have the next share of fatal Injuries among males whereas the Industry groups - Chemicals & Chemical Products (NIC 24), Textiles (NIC 17) and Other Non-Metallic Mineral Products (NIC 26) have the next share of fatal Injuries among women workers.

As Manufacturing of Textiles (NIC 17) and Food Products and Beverages (NIC15) accounted for the highest share of total and fatal injuries respectively, a state-wise analysis of injuries in these industry groups has been done in section 5.0.

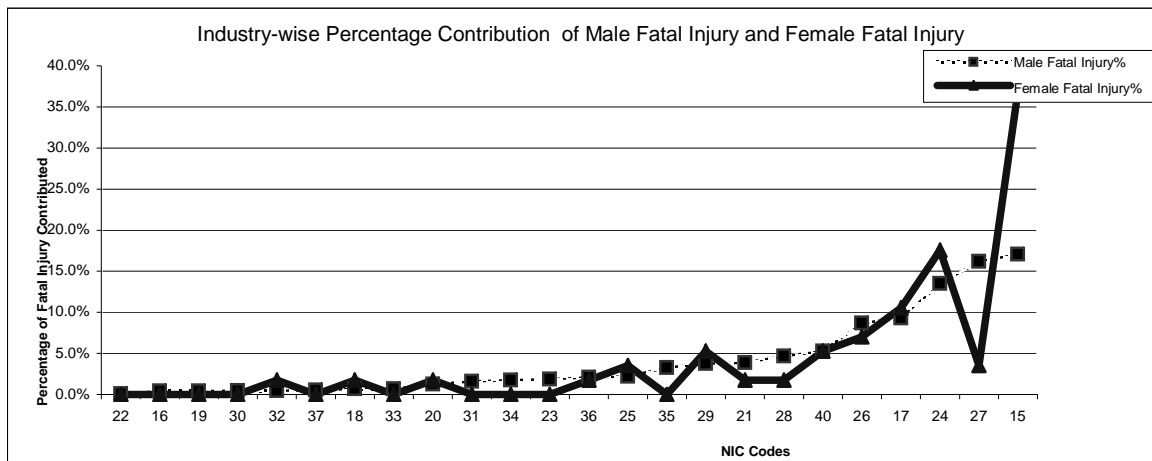
Graph 1: Industry wise contribution of Male and Female injuries averaged over the period 2002 to 2004

COVER FEATURE



Female Injury% = Female Injury in a particular industry / Female Injury in all the industries (NIC 15 to NIC 40); *Male Injury%* = Male Injury in a particular industry / Male Injury in all the industries (NIC 15 to NIC 40).

Graph 2: Industry-wise contribution of Male and Female Fatal Injuries averaged over the period 2002 to 2004



COVER FEATURE

Female Fatal Injury% = Female Fatal Injury in a particular industry / Female Fatal Injury in all the industries (NIC 15 to NIC 40); *Male Fatal Injury%* = Male Fatal Injury in a particular industry / Male Fatal Injury in all the industries (NIC 15 to NIC 40))

STATE-WISE ANALYSIS OF INDUSTRIAL INJURIES TO FEMALE AND MALE WORKERS:

The average total industrial injury to male workers during the three years (2002 to 2004) for the state of Maharashtra was 6300 (37%) and tops the list. Male injury was 1996 (12%) in Andhra Pradesh, 1925(11%) in Tamil Nadu, 1734(10%) in Karnataka, 1707(10%) in Madhya Pradesh, and 2666 (10%) in Rajasthan. In the remaining states (Orissa, Punjab,

Haryana, Goa, Assam, Chandigarh and Tripura) male injury is below 5%. In the case of female employees there were 69 injuries in Tamil Nadu (26%), 57 injuries in Karnataka (21%) and 50 injuries in Maharashtra (18%). In Maharashtra state both male and female injuries are significantly high compared to other states in India. The table 5 shows the top three states contributing to injury and the top three industries within the states contributing to injury.

Table 5 Top three states contributing to injury and the top three industries within the states contributing to injury.

| Male Injuries | | Female Injuries | |
|----------------------------------|----------------------------------|-------------------------------------|----------------------------------|
| Fatal+Non-Fatal | Fatal | Fatal+Non-Fatal | Fatal |
| Maharashtra (NIC 17,35,27) | Maharashtra (NIC 4,15,17) | Karnataka (NIC 17,25,26) | Andhra Pradesh (NIC 15,26,24) |
| Andhra Pradesh (NIC 17,21,27) | Orrisa (NIC 27,15,26) | Tamil Nadu (NIC 17,24,29,15,19) | Tamil Nadu (NIC 24,17,15) |
| Rajasthan (NIC 17,26,29) | Andhra Pradesh (NIC 24,15,27) | Maharashtra (NIC 17,29,15,24,23) | Haryana (NIC 29,15,24) |

STATE-WISE ANALYSIS OF INJURIES IN MANUFACTURING OF TEXTILES (NIC 17):

Out of total 15924 injuries in Manufacturing of Textiles sector, Maharashtra tops the number of injuries to

COVER FEATURE

males with 4796(30%) cases in three years followed by the states Andhra Pradesh (3521), Rajasthan (2934), Madhya Pradesh (1758), Tamil Nadu (1366), Karnataka (968) and Orissa (429). During the three years (2002 to 2004), out of total 275 female injuries in the Textile industry, Karnataka tops the list of number of injuries with 97 (35.3%) cases followed by the states Tamil Nadu (20.4%), Maharashtra (17.5%), Orissa (9.1%), Andhra Pradesh (8%), Haryana (6.9%) and Madhya Pradesh(2.9%). In the case of Fatal Injuries in the Textile industry, Maharashtra (58), Rajasthan (38) and Tamil Nadu(17) account for 113 male fatal injuries in three years whereas fatalities among females had occurred in Madhya Pradesh(3), Tamil Nadu(2) and Maharashtra(1) only.

ANALYSIS OF INJURIES IN MANUFACTURING OF FOOD PRODUCTS AND BEVERAGES (NIC 15):

Out of total 2770 male injuries in this sector, during three years (2002 to 2004) Maharashtra contributed the most with 842 (i.e. 30%) and is followed by Madhya Pradesh(540, 19.5%), Tamil Nadu (418, 15%), Karnataka (346, 12.5%) and Andhra Pradesh (285, 10%). In the case of female injuries, out of total 101 injuries, Andhra Pradesh accounted for 35 and topped the list followed by the states Tamil Nadu (23), Maharashtra (22), Haryana (11), Orissa (5) and Madhya Pradesh (3). In the case of fatal injuries, out of 255 male fatal injuries, Maharashtra tops the list with 82 fatal injuries followed by Andhra Pradesh (53), Karnataka (31), Madhya Pradesh (21) and Rajasthan (16) and among females, out of 21 fatal injuries, Andhra Pradesh tops the list (13) followed by

Maharashtra (2), Haryana (2), Orissa (2), Tamil Nadu (1) and Madhya Pradesh (1).

CONCLUSION:

Female employees constitute 17 per cent of the total workforce in registered industries. Proportion of female injury to total injury is small around 1.5%. However, based on the submitted returns in respect of the 13 states studied during 2002 to 2004, it is observed that every year more than 200 female employees are injured. The severity of injury (fatal injury to total injury) for female is not significantly different from their male counterparts. However, in 2004, in the case of Madhya Pradesh and Karnataka, severity of injury for female employee is significantly ($t=p<.05$) more than male injury.

The industry groups Textiles (NIC 17) and Food Products and Beverages (NIC 15) account for majority of injuries to both males and females. The state of Maharashtra accounts for maximum male injuries both fatal and non-fatal whereas the states of Karnataka, Tamil Nadu and Andhra Pradesh have the maximum female injuries. Wholesome effort is required to bring out the details about injuries specific to female workforce so that they can be interpreted to facilitate in understanding of trends in the injuries experienced by female workforce and thereby develop effective preventive measures. The estimated employment in the factories not submitting returns were not given gender-wise and hence computation of genderwise injury rates for different industry groups was difficult. In addition to the above issues on data inadequacy, there is lack of data on female injury classified by age, location of injury, cause and nature of accident leading to difficulty in understanding the injuries experienced by women. Further the

COVER FEATURE

proformae prescribed for the Annual Returns to be submitted by the States/ UTs to Labour Bureau needs revision to include data on female injury classified by age, location of injury, cause and nature of accident.

REFERENCE

[1] Annual Returns under the Factories Act, 1948 for the years 2002 to 2004.

[2] Correll, Marie (1932), Industrial Injuries to women in 1928 and 1929 compared with injuries to men, Bulletin No.102, Women's Bureau, United States Department of Labour.

ANNEXURE

| NIC Code | Industry Group |
|----------|---|
| 15 | Mfg of Food Products and Beverages |
| 16 | Mfg of Tobacco Products |
| 17 | Mfg of Textiles |
| 18 | Mfg of Wearing Apparel; Dressing & Dyeing of Fur |
| 19 | Tanning and Dressing of Leather; Mfg of Luggage, Handbags, Saddlery, Harness & Footwear. |
| 20 | Mfg of Wood & of products of Wood & Cork, except Furniture; Mfg of Articles of Straw and Plaiting Materials |
| 21 | Mfg of Paper & Paper Products |
| 22 | Publishing, Printing and Reproduction of Recorded Media |
| 23 | Mfg of Coke, Refined Petroleum Products and Nuclear Fuel |
| 24 | Mfg of Chemicals & Chemical Products |
| 25 | Mfg of Rubber & Plastic products |

| | |
|----|--|
| 27 | Mfg of Basic Metals |
| 28 | Mfg of Fabricated Metal Products, except Machinery & Equipment |
| 29 | Mfg of Machinery & Equipment NEC |
| 30 | Mfg of Office, Accounting and Computing Machinery |
| 31 | Mfg of Electrical Machinery & Apparatus NEC |
| 32 | Mfg of Radio,TV and Communication Equipment and Apparatus |
| 33 | Mfg of Medical, Precision and Optical Instruments |
| 34 | Mfg of Motor vehicles, trailers & semi trailers |
| 35 | Mfg of other Transport Equipment |
| 36 | Mfg of furniture;manufacturing N.E.C |
| 37 | Recycling |
| 40 | Electricity Gas Steam & Hot water supply |

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CONSULTANCY/RESEARCH

SAFETY AUDIT IN THE BAGASSE UNIT OF A PULP AND PAPER MANUFACTURING INDUSTRY

INTRODUCTION

The Regional Labour Institute, Kanpur carried out safety audit in the bagasse unit of a pulp and paper manufacturing industry.

The factory was administratively divided into two units i.e. RGP & WPP and Bagasse unit.

OBJECTIVE

The objectives of the safety audit were to identify the hazards originating from the deviations from the applicable statutes, standards and safe operating procedures and to suggest the remedial measures to improve the safety and health conditions.

METHODOLOGY

The bagasse plant made use of the bagasse (cellulosic waste from the sugar mills) instead of wood or bamboo used in other units. The bagasse was received from the sugar mills either in compressed pellets or loose in the trucks. It was unloaded into the yard which was provided with mobile water sprinkling system. The bagasse was first treated to remove the pith which was non-fibrous. De-pithed bagasse was transferred to the digester for further processing for making paper. The remaining process of paper making was similar to the process in other units. The bagasse unit was associated with the chemical recovery plant which makes use of producer gas for heating the lime kiln.

RECOMMENDATIONS

The audit revealed some areas where the improvements on safety and health system can be done.

Accordingly, twenty recommendations related to the protection of workers were mentioned.

Some of the recommendations made were - working on unprotected platforms at height, housekeeping to ensure railings and toe boards on the raised platforms, use of respirators, proper use of PPE, labeling of hazardous properties of substances and keeping the MSDS available at the place of work, adequate number of explosion vents in the pipelines carrying explosive mixtures, ventilation to remove coal dust, talc dust from the place of work, use of local exhaust system, occupational health and environmental monitoring, proper storage of Oxygen cylinders and proper machine guarding etc.

It was suggested that the area should be periodically monitored to assess the concentration of chlorine to ensure that the concentration was within the permissible limit. To maintain the occupational health and hygiene, it was suggested that health monitoring of the workers should be done periodically irrespective of whether they are company employee or contract labourer.

In Tank and storage vessels area, it was suggested that overflow pipe should be provided to avoid spillage of the tank contents from the opening on the top of the tank. Providing high and low level alarms should also be considered. The tank should also be provided with double earthing at two opposite sides. It was also suggested that the entire glass tube level indicators in the plant should be kept guarded to avoid breaking due to external impact.

It should also be ensured that the V-belt guards provided in various equipments are properly guarded.

EDUCATION/TRAINING

EFFECTIVE MANAGEMENT OF SAFETY, HEALTH AND ENVIRONMENT AT WORKPLACE

INTRODUCTION

Chemical industry occupies a very important position in meeting the basic human needs and desires. The growth of chemical industry will continue to be faster, year after year, in view of the recent industrial policy of liberalisation and globalisation in the country. Over the past decade, there has been a vast increase in the use of chemicals and this trend will continue, as chemicals have a direct impact on the improved quality and standard of human life. The increasing sophistication of modern industry may generate inherent hazards associated with hazardous chemical processes.

The manufacturing processes entail the use of hazardous chemicals such as acids, alkalis, hydrocarbons and their derivatives, organic solvents, etc. As such, virtually at every workplace, workers are exposed to chemical hazards like dust, fumes, gases, vapours, etc. The harmful exposures need to be evaluated and controlled by using a variety of control measures. This needs knowledge, skill and competence on Chemical Safety and Industrial Hygiene Aspects.

OBJECTIVES

Now-a-days, there is a need to develop a structured process for the achievement of continual improvement in products, processes and services. This can be achieved by identifying environmental aspects, legislative requirements and establishing a structured programme for the implementation of the company's policy and achieving objectives and targets.

The three days' training programme on

Effective Management of Safety, Health and Environment at Workplace to be conducted at the Central Labour Institute, Sion, Mumbai, would provide practical guidance to the working personnel and develop knowledge and skills among them.

HIGHLIGHTS

- Health & Safety Provisions in the Factories Act
- Health Hazards due to Chemical Exposure and their control
- Evaluation of Workplace Environment - Air Monitoring
- HAZOP Studies
- Safety Audit
- Fire and Explosion Hazards and their control
- Noise Hazard and Control
- Medical Surveillance
- Environment Management System - ISO 14000 & Environment Audit.
- Personal Protective Equipment

TARGET GROUP

This programme is designed for the industrial personnel such as Managers (SHE), Safety Officers, Industrial Hygienists, Chemists, Safety Committee Members and OSH personnel concerned with prevention and control of chemical hazards/pollutants and protection of the environment.

Conducted by:

**INDUSTRIAL HYGIENE DIVISON
CENTRAL LABOUR INSTITUTE
Sion, Mumbai – 400 022**

MSDS

The Library & Information Centre of Central Labour Institute has unique collection of Material Safety Data Sheet of about 1,20,000 chemicals/materials taken from Canadian Centre for Occupational Health & Safety. MSDS provides extensive coverage over safety perspective with detailed evaluation of health, fire and reactivity hazards. It also provides precaution as well as recommendation on handling, storage, personal protective equipment, accidental release etc.

MATERIAL SAFETY DATA SHEET ON ASCORBIC ACID

Synonyms: L-ascorbic acid; vitamin C; L-3-Ketothreohexuronic acid lactone

HAZARDS IDENTIFICATION

As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing.

POTENTIAL HEALTH EFFECTS

Ascorbic acid is relatively non-hazardous in routine industrial situations. It is not expected to present significant health risks to the workers who use it.

Inhalation: May cause mild irritation to the respiratory tract.

Ingestion: Large oral doses may cause gastrointestinal disturbances.

Skin Contact: May cause mild irritation.

Eye Contact: May cause mild irritation.

Chronic Exposure: No information found.

Aggravation of Pre-existing Conditions: No information found.

FIRST AID MEASURES

Inhalation: If inhaled, remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion: Give several glasses of water to drink to dilute. If large amounts were swallowed, get medical advice.

Skin Contact: Wash exposed area with soap and water. Get medical advice if irritation develops.

Eye Contact: Wash thoroughly with running water. Get medical advice if irritation develops.

FIRE FIGHTING MEASURES

Fire: As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source.

Explosion: Not considered to be an explosion hazard.

Fire Extinguishing Media: Use any means suitable for extinguishing surrounding fire.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face-piece operated in the pressure demand or other positive pressure mode.

ACCIDENTAL RELEASE MEASURES

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust.

MSDS

HANDLING AND STORAGE

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from any source of heat or ignition. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

EXPOSURE

CONTROLS/PERSONAL PROTECTION

Airborne Exposure Limits: None established.

Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Personal Respirators (NIOSH Approved):

For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter.

For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection: Wear protective gloves and clean body-covering clothing.

Eye Protection: Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

STABILITY AND REACTIVITY

Stability: Stable under ordinary conditions of use and storage. Aqueous solutions are rapidly oxidized by air.

Hazardous Decomposition Products: May produce acid smoke and irritating fumes when heated to decomposition.

Hazardous Polymerization: Will not occur.

Incompatibilities: Strong oxidizers and alkali hydroxides, alkalis, iron, copper, sodium salicylate, sodium nitrite, theobromine and methenamine.

Conditions to Avoid: No information found.

NOTE

The above details constitute part information of MSDS taken from Canadian Centre for Occupational Health and Safety. For complete MSDS write to MIS division, Central Labour Institute, Sion, Mumbai- 400 022. MSDS on about 1,20,000 chemicals/materials are available with Central Labour Institute. Computer printout will be supplied on nominal charge.

INTERNATIONAL OCCUPATIONAL SAFETY AND HEALTH INFORMATION CENTRE (CIS)

CIS (from the French name, Centre International d'information de securite et d'hygiene du travail) i.e. International Occupational Safety and Health Information Centre, is a part of the International Labour Office, Geneva, Switzerland. The mission of CIS is to collect world literature that can contribute to the prevention of occupational hazards and to disseminate this information at an international level. CIS imparts to its users the most comprehensive and up-to-date information in the field of Occupational Safety and Health. The work of CIS is supported by a worldwide Safety and Health information exchange network, which includes over 91 affiliated National Centres and 38 CIS collaborating Centres. Central Labour Institute, Mumbai has been designated as the CIS National Centre of India.

CIS can offer you rapid access to comprehensive information on occupational safety and health through:

- Microfiches on original documents abstracted in CIS-DOC (CISILO)
- "ILOCIS Bulletin" "Safety and Health at Work"
- Annual and 5-year indexes
- The CIS Thesaurus
- The list of periodicals abstracted by CIS

EXCERPT FROM CIS DOC

Title: Fair globalization - safe workplace: Policies, strategies and practices for sustainable development.

CIS ACCESSION NUMBER

CIS 06-1309

ABSTRACT

Proceedings of a conference on fair globalization, safety at work and policies, strategies and practices for sustainable development held in Düsseldorf, Germany, 24-26 October 2005. The theme of the conference was strategies for reaching the goal of decent work for all through consolidated commitments at all levels and stronger labour inspection services worldwide. Topics covered include: experiences in technical cooperation for sustainable development; OSH economics and social balance in a globalized world; OSH and corporate social responsibility; corporate health policy; musculoskeletal prevention; regulation of dangerous substances; innovative concepts for safety at work; OSH in small enterprises; work safety culture building; ILO strategies for labour inspection; effective enforcement of integrated labour inspection policy; occupational health and equity. (105772)

NOTE

For details write to CIS National Centre for India, Central Labour Institute, Sion, Mumbai 400 022.

CLIPPING

IT'S A BACK-BREAKING LIFE FOR 56% MUMBAIKARS

Call it the bane of economic progress and an occupational hazard of emerging as a leading port for outsourcing. A survey across eight Indian cities has revealed that one out of every two Indians is a victim of back pain.

The cities that have been covered are Delhi, Mumbai, Kolkata, Chennai, Ahmedabad, Hyderabad, Bhopal and Lucknow. Mumbai, with a backache incidence of 56% is the worst hit, followed closely by Chennai and Kolkata. In Delhi, the percentage of backache stands at 51.

The survey, covering 400 respondents from the eight cities, has been done by the NGO Health India. An interesting finding has been the fact that 87% respondents said their back problems have been traced to long and uncomfortable commuting, with public transport and two-wheelers emerging as the biggest villains.

Hardly surprising then that Mumbai which had the highest incidence of backache, also had the highest number of people - 77% - using the public transport system, compared to just 41 % of the respondents who do so in Delhi.

The two biggest culprits when it came to urban commuting and backache, the study has revealed, are the public transport system, which 34.5% of the respondents used and two wheelers, which 34.25% used.

Says Dr Puneet Dilawari, consultant orthopaedic surgeon at Fortis Hospitals: "The findings certainly reflect what we see in our clinical practice. Backache has become very common and the main reason

for this is the fast-paced lifestyle which leaves people with little time to exercise and economic prosperity, which means that people drive even to the neighbourhood market. Some 90% of back pain patients we see are professionals with sitting jobs. A faulty posture while sitting can wreck havoc because that's when the spine is under maximum stress."

While expanding cities and longer commuting hours have definitely complicated matters, back-pain which is believed to have a substantial psychosomatic overlay, has been fallout of the rising stress levels too.

The connection between an altered circadian rhythm - as is common in BPO employees - and backache has not been quite made but most doctor talk about a positive correlation between the two.

Says Dr Pradeep Sharma, consultant orthopaedic surgeon at Rockland Hospital: "Back pain is definitely a big problem. Lack of exercise is the leading cause because in rural areas, one can hardly see any case while it is rampant in the urban set-up. Social or work-related stress aggravates back problems, at least 10% patients who come to us are victims of stress."

Doctors at AIIMS say there is an annual increase of 15-20% in the number of back-pain patients who visit the OPDs every year.

Alcoholism, smoking and coffee - all of which are known to cause calcium depletion from the bones - often act as additional contributory factors, they say. With the advent of computers in the workplace, back pain has graduated from being a problem of the 'working class' to

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being the bane of the young executive. An estimated 27.6 lakh Delhiites fall prey to it every year, the commonest form being lower backache.

WHAT CAUSES BACK PAIN?

The most common cause is postural defect, which accounts for 60-70% of the cases. Thus, a huge number of cases are preventable.

Other causes include degenerative disorders, especially of the disc in between two vertebrae; inflammatory disorders like tuberculosis; trauma; hormonal problems like osteoporosis and congenital defects.

CAUSATIVE FACTORS

A whopping 87% of the respondents said back pain arises due to long and tiring commuting. About 67% said they sat in front of computer for 2-5 hours a day.

Of those reporting back problems due to transportation, 34.5% used public transport and another 34.2% commuted on 2-wheelers. Only 16.6% had problems like arthritis or had hurt themselves in the course of faulty workouts.

DOS AND DON'TS

Have a comfortable bed and mattress. Use a pillow and avoid sleeping on the floor.

Place the monitor above eye level to ensure correct posture.

Exercise regularly and keep your weight under control.

When lifting, bend your knees instead of back. This way, you reduce stress on your back.

Prolonged sitting in one position is a back hazard you might not suspect.

Lumbar support and periodic breaks to move around are essential.

Source: The Times of India, Mumbai Edition, Published on 07.02.2007.

INSTITUTE NEWS

Research studies on occupational health and safety have established the role of unsafe acts of individuals in the causation of injuries and occupational illnesses beyond doubt. Lack of information, proper skill and appropriate motivation are the identified factors for such injuries and diseases. Appropriate training, therefore, is the essential element at all the levels right from the shop floor workers to the top most management level, for prevention and control of accidents and occupational illnesses in the industry. It is needless to over emphasise its impact on quality of life and overall national prosperity. In view of the above fact, this organization conducted the following training programmes.

1. Training programme on Accident Investigation
2. Safety in Cargo handling Operation and Dock Safety Statutes
3. Impact of Environmental Pollutants and their Control at Workplace
4. Heat Stress & Ventilation, a Statutory requirement for ensuring Safety, Health
5. Hazard identification and Assessment Techniques for Executives of Industry
6. Basic Training Course for Inspectors of Factories, West Bengal
7. Chemical Hazards in Industries
8. Industrial Safety (in collaboration with NSC Maharashtra Chapter)
9. Safety in Cargo Handling and Dock Safety Statutes
10. Orientation to Industrial Psychology and allied Areas
11. Safety Audit
12. Concept of Occupational Physiology, its application in Industry for promotion of Safety, Health and Productivity at work
13. Ergonomics – A Tool for ensuring Safety, Health & Productivity at work
14. Personal growth & Group Dynamics
15. Training Programme on Mentoring and Facilitation
16. Safety in Construction Industry
17. Application of Industrial Ergonomics in relation to Psychological contribution
18. One Day Special Training Programme On Work Physiology

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19. Advanced Training Programme on Occupational Health & Environmental Medicine
20. Environmental Hazards, its Evaluation and Control in Industries
21. Prevention & Control of Fire in Industries
22. Making Safety Committee More Effective
23. Industrial Fatigue – its Evaluation & Management for Improving Safety, Health & Increased Productivity at work
24. Chemical Safety for Work Members of Safety Committee
25. Basic Course for Inspector of Factories Inspectors
26. Testing Examination of Lifting Machinery, Tackles and Pressure Vessels

Industrial accident has always been one of the main concerns of all. Human failure is a known attribute for causation of industrial accident beside many other factors. Effective evaluation and control of harmful exposures of the workers are essential to ensure their optimum productivity and reduce the risk of accident and their health. To achieve this goal, DGFASLI organization has been carrying out studies/surveys, safety audits since its establishment. In this quarter, the organization has done the following studies, surveys and safety audits.

1. Ergonomic Study
2. Industrial Hygiene Survey
3. Two Safety Audits
4. Safety, Health Ergonomic study of Child Labour (ILO Project)
5. Investigation of accident in Sodium Chlorate storage area of a Board & Paper Mills Industry
6. Assessment of compressed Breathing Air Quality
7. Industrial Hygiene Study
8. Use of PPE in Ship-breaking units in the state of Gujarat

Name of Seminar/Workshop conducted during the quarter

1. Up-date on the 47th Conference of Chief Inspectors of Factories

ANNOUNCEMENT

TRAINING PROGRAMMES OCTOBER TO DECEMBER 2007 **CENTRAL LABOUR INSTITUTE, SION, MUMBAI-400 022**

| Programme title | Contact person |
|---|---|
| Industrial Fitness, a Key to Improve Safety, Health & Productivity at work | Director (Ind. Physiology) & In-charge |
| Workshop on Environmental Audit | Director (Ind. Hygiene) & In-charge |
| Refresher Course for Sr. Inspectors of Factories | Director (Ind. Safety) & Incharge |
| Team Building for Safety & Health at Work | Director (Staff Training/Productivity) & In-charge |
| Storage & Handling and Management of Hazardous Substances in Process Industries | Director (Ind. Hygiene) & In-charge |
| Handling Problem Behaviour of Employees | Deputy Director (Ind. Psychology) & In-charge |
| Occupational Hazards in Use of Computer & VDT Appliances on Shop-floor, its Evaluation & Management for Safety, Health & Productivity at Work | Director (Ind. Physiology) & In-charge |
| Effective Management of Safety, Health and Environment at Workplace | Director (Ind. Hygiene) & In-charge |
| Work-shop on Disaster Management | Director (Ind. Hygiene) & In-charge |
| Effective Leadership for Safety, Health and Productivity | Deputy Director (Ind. Psychology) & In-charge |
| Industrial Safety for NSC, Maharashtra Chapter | Director (Ind. Safety) & In - charge |
| Air Contaminants & Lung Function in Health and Disease | Director (Ind. Physiology) & In-charge |
| Productivity OHSMS | Director (Staff Training/ Productivity) & In-charge |

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TRAINING PROGRAMMES OCTOBER TO DECEMBER 2007
**REGIONAL LABOUR INSTITUTE, NO.1, SARDAR PATEL ROAD, ADYAR,
CHENNAI-600 113**

| Programme title | Contact person |
|---|--------------------|
| Certificate Course in Safety & Health for Supervisory Personnel of Hazardous Industries | Director In-charge |
| Identification, Assessment & Control of Major Hazards | Director In-charge |
| Safety in Chemical Industries | Director In-charge |

TRAINING PROGRAMMES OCTOBER TO DECEMBER 2007
REGIONAL LABOUR INSTITUTE, LAKE TOWN, KOLKATA-700 089

| Programme title | Contact person |
|---|-----------------------------|
| Safety, Health and Environment Audit | Deputy Director & In-charge |
| Specialised Certificate Course in Safety & Health for Engineers working in Construction Industries | Deputy Director & In-charge |
| Safety and Health for Workers | Deputy Director & In-charge |
| One Month Specialised Certificate Course in 'Safety & Health' for Supervisors Working in Hazardous Industries | Deputy Director & In-charge |

TRAINING PROGRAMMES OCTOBER TO DECEMBER 2007
REGIONAL LABOUR INSTITUTE, SARVODAYA NAGAR, KANPUR- 208 005

| Programme title | Contact person |
|--|--------------------|
| One Month Certificate Course on Safety & Health | Director In-charge |
| Personal Growth and Group Dynamics for Safety and Health at Work | Director In-charge |



ANNOUNCEMENT

INDOSHNET

Ministry of Labour & Employment, Government of India, is developing a National Network on Occupational Safety and Health information system known as INDOSHNET. Directorate General Factory Advice Service & Labour Institutes (DGFASLI), an attached office of the Ministry of Labour will act as a facilitator of the network system. The objective of the network is reinforcement and sharing of national occupational safety and health (OS &H) information on no-profit no-loss basis with a view to pooling our information resources for mutual benefit. The sharing of information will not only confine to the national level but also includes international sources. The communication of information will be through E-mail as well as postal/courier service. DGFASLI invites industrial organisations, institutions, industry associations, trade unions, professional bodies and non-governmental organisations having information on OS&H and willing to share the same with others at the national and international level to participate as members in the network. Interested agencies may please write for proforma of organisational profile to Director General, DGFASLI, Central Labour Institute Bldg., N.S. Mankikar Marg, Sion, Mumbai 400 022.

Note: Those who have responded to our earlier communication and sent organisation profile in the prescribed format need not write again.

NATIONAL REFERRAL DIAGNOSTIC CENTRE

Early detection and diagnosis of occupational health disorders and occupational diseases is one of the most important factors in the prevention and control of adverse health effects on workers due to various factors - physical, chemical, biological and psycho-social. The Industrial Medicine Division of Central Labour Institute, Mumbai runs a National Referral Diagnostic Centre (N.R.D.C.) for early detection and diagnosis of occupational diseases and recommends necessary measures for prevention/control of occupational health problems/occupational diseases. The diagnostic centre is well equipped for medical examination of the exposed workers and facilities are available for carrying out special investigation, e.g. Pulmonary function tests, Audiometry, ECG, Titmus vision test, Biological monitoring, etc. Medical professionals including Factory Medical Officers, ESI Doctors, Medical Inspectors of Factories and Certifying Surgeons, Doctors from Medical Colleges and Hospitals can refer suspected cases of occupational diseases to N.R.D.C. for diagnosis and advice. The communication should be addressed to the Director General, DGFASLI, Central Labour Institute Bldg., N.S. Mankikar Marg, Sion, Mumbai 400 022 for further details.

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INDOSHNEWS is a quarterly newsletter that facilitates exchange of ideas and data developed through research, study and surveys in the areas of occupational safety and health. DGFASLI invites articles from individuals, industry, industrial associations, trade unions, professional bodies etc. having information on OS & H and willing to share the same with others at the national and international level.

- 1. Manuscripts for publication should be typed in double space within 3 to 4 A4 size sheets only on one side of the paper and sent in duplicate to the Editor-in-Chief. No photographs can be published.**
- 2. Once the manuscripts are accepted for publication, publisher reserves the right to make editorial changes as may be necessary to make the article suitable for publication; and publisher reserves the right not to proceed with publication for whatever reason.**
- 3. Authors should take care to ensure the accuracy of data and reference.**

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GOVERNMENT OF INDIA, MINISTRY OF LABOUR & EMPLOYMENT DIRECTORATE GENERAL FACTORY ADVICE SERVICE & LABOUR INSTITUTES

The Directorate General Factory Advice Service & Labour Institutes (DGFASLI) is an attached office of the Ministry of Labour & Employment Government of India. DGFASLI organization was set up in 1945 under the Ministry of Labour, Government of India to serve as a technical arm to assist the Ministry in formulating national policies on occupational safety and health in factories and docks and to advise State Governments and factories on matters concerning safety, health, efficiency and well-being of the persons at workplace. It also enforces safety and health statutes in major ports of the country.

The Directorate General Factory Advice Service & Labour Institutes (DGFASLI) comprises:

- * Headquarters situated in Mumbai
- * Central Labour Institute in Mumbai
- * Regional Labour Institutes in Kolkata, Chennai, Faridabad and Kanpur

The Central Labour Institute in Mumbai functions as a socio-economic laboratory and is a national institute dealing with the scientific study of all aspects of industrial development relating to the human factors.

Over the years the Central Labour Institute has constantly grown not only in size but also in stature and has earned national and international recognition. It has been recognised by the International Labour Organisation as a Centre of Excellence in training on Occupational Safety and Health in the Asian and Pacific Region. It also functions as a National Centre for CIS (International Occupational Safety and Health Information Centre) and the Centre for National Safety and Health Hazard Alert System. At the national level, apart from providing research and training support to the Government and functioning as a technical arm of the Ministry of Labour, the institute provides comprehensive and multi-disciplinary services to the Industrial Port sector through studies, technical advice, training and dissemination of information. It also runs National Referral Diagnostic Centre for early detection of occupational disorders and thereby controls and prevents them. It has a modern Audio Visual Studio fully equipped with sophisticated video production equipment to produce quality U-matic video films on Safety and Health. The Regional Labour Institutes are a scaled-down version of the Central Labour Institute and cater to the needs of their respective regions.

The organization is poised to grow further, and meet the increased demands on it. In a developing country with a large number of industries having diverse and complex nature, the task of protecting safety and health of workers is an uphill task. Armed with the technology, good will of the industrial society and the strength of the dedicated staff, the organization is well prepared to meet the challenges of tomorrow. It is committed to the goal of making the workplace safer.

Visit us at : www.dgfasli.nic.in