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FROM THE EDITOR'S DESK

Millions of chemicals are handled in industry. Some of them, while handling, are liable to cause harm to human beings, other living creatures, plants, micro-organisms, property or the environment. Such chemicals are referred to as hazardous chemicals. Industrial installations handling these chemicals have the potential to give rise to serious injury or damage beyond the immediate vicinity of the workplace. These are known as major accident hazards.

The Ministry of Labour, Government of India, responsible for administering the Factories Act, 1948 amended it in the year 1987. Important objectives of the amendment were, inter alia, to regulate the location of hazardous process industries in such a manner that they do not cause adverse effects to the public in the vicinity and provide measures for safe handling of hazardous substances. Also, the Ministry implemented through DGFASLI and Inspectorates of Factories an ILO Project: 'Establishment and Initial Operation of a Major Accident Hazards Control System in India' in the manufacturing sector in the later part of 1980s. A great deal of awareness was created through this project among all concerned about the prevention of major accidents and mitigation of adverse effects of such an accident, should one occur.

The Ministry of Environment and Forests, Government of India is the nodal Ministry for chemical accidents. The set of Rules notified under the Environment(Protection) Act, 1986 provide statutory requirements to prevent major accidents and handle emergencies arising out of chemical accidents. The Ministry has taken several initiatives to prevent major accidents with the cooperation of all the stakeholders.

Government, local authorities, industry, non-governmental organisations and community have respective roles to play in major accident hazards control. The cover feature of this issue of *INDOSHNEWS* is focused on the National perspective on the system of major accident hazards control. It highlights important initiatives taken in this regard by the Government and industry.

I hope the information disseminated through this issue of the Newsletter will be useful in understanding these initiatives taken in strengthening safety systems in industry to make it safer.

(S.K. SAXENA)

MAJOR ACCIDENT HAZARDS CONTROL – A NATIONAL PERSPECTIVE

1. INTRODUCTION

More emphasis on efficiency, production, growth and progress puts a strong commercial pressure on the chemical industry to use modern technology, large size plants, larger inventory of materials and faster processes of production. In order to meet the demand and keep the production costs as low as possible, many large processing and storage plants have been constructed and complex processes developed which sometimes operate under extreme processing conditions. Of all the industries, chemical, petrochemical and allied industries have the potential of causing major accident hazards leading to serious consequences to the plant installations and neighbouring community. Proliferation of human settlements surroundings such industrial nuclei cause serious concern for human safety, protection of other life, property and the environment.

Today industrialisation is no more viewed as a harmless tool for progress and prosperity. The world's worst industrial tragedy of Bhopal, recent fire in a refinery in Visakhapatnam and several other incidents involving release of toxic and flammable gases in different parts of the country have raised considerable doubts in the minds of public about the safety and reliability of chemical process industry. Therefore, a strong need was felt necessary that the existing system of safety should be strengthened and a nationwide awareness and competence building developed to contain major emergencies arising out of industrial accidents.

2. MEASURES TAKEN BY THE GOVERNMENT OF INDIA

Before the Bhopal tragedy and also as an aftermath of it, a series of legislative and

organisational measures have been instituted by the Government of India to control major accidents and safeguard public life and

property from hazards of the chemical industry.

2.1 Legislative Measures

The concern of the Government of India has been reflected in amending the Factories Act, 1948 in 1987 and enacting the Environment (Protection) Act, 1986. The following are the main three objectives of the amendments besides strengthening many other provisions of the Factories Act – (a) to regulate the location of hazardous process industry in such a manner that it does not cause adverse effects to its neighbourhood; (b) to involve workers in safety management; and (c) to provide measures for safe handling of hazardous substances.

Clause(iv) of Sub-Section 3(2) of the Environment (Protection) Act lays emphasis on the responsibility of the Central Government for prescribing procedures and safeguards for prevention of accidents which may cause substantial damage to life and to take remedial measures in case of such emergencies. In view of this, an inter-Ministerial Working Group was constituted in October, 1986 by the Government of India to discuss various related issues and recommend necessary policies and procedures for implementation.

Subsequently the following regulations came into effect :

- ❖ The Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 and its amendments in 1990 and 1994.
- ❖ The Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996.
- ❖ The Hazardous Wastes (Management & Handling) Rules, 1989.
- ❖ The Environment Impact Assessment Notification, 1994

The above Rules outline the role and responsibilities for prevention and control of

major accident hazards by various Central and State Government agencies and the community.

- ❖ The Public Liability Insurance Act, 1991 and Amendment, 1992.

Some important provisions of the MSIHC Rules, 1989 are –

Notification of sites, notification of major accidents by the occupiers; preparation and filing of safety report and safety audits by occupiers; preparation of on-site and off-site emergency plans; and collection, development and dissemination of information on hazardous chemicals.

The responsibility of emergency management has been delegated to the occupiers of the concerned for installation preparation and the implementation of on-site emergency plan and the District Collector concerned for the preparation and implementation of off-site emergency plans.

2.2 Establishment of a Major Accident Hazards Control System in India: Role of DGFASLI

The Ministry of Labour, Government of India with the technical assistance of ILO implemented a project on “Establishment and Initial Operation of a Major Accident Hazards Control System in India” during 1987-1991, initially in 12 States/U.Ts through the Directorate General Factory Advice Service & Labour Institutes (DGFASLI). Important achievements of the project are –

- ❖ Setting up under DGFASLI a three-tier Major Accident Hazards Control Advisory Division in Central Labour Institute (CLI), Mumbai and its cells in the Regional Labour Institutes, Calcutta, Chennai and Kanpur.
- ❖ Identification of Major Accident Hazard (MAH) Installations in different States and Union Territories and bringing them under a programme of intensive inspection.

- ❖ Establishing Computerised Data Bank at CLI for storage, retrieval and dissemination of information on hazardous chemicals, MAH installations, specialists on MAH Control, Major Accidents, CIS Database on OSH etc. The Data Bank has two softwares WHAZAN and TNO for calculation of physical effects and consequence of release of toxic and flammable chemicals.

- ❖ Expansion of the Factory Inspection Services and enhancing their capabilities through setting up of laboratories and training of inspectors.

- ❖ Training of the inspection and advisory staff and key personnel from industry to develop their competence on HAZOP study, Risk Assessment, Safety Audit, etc.

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- ❖ Extended the system of MAHC to the port sector.

The project had succeeded in enhancing general awareness of major accident hazards control system at the national level and it is now widely accepted and well-understood by the policy makers, regulatory agencies, industry and trade unions.

2.3 Identification of MAH Factories/Installations

MAH Factories/Installations in India have been identified based on specified substances and their threshold quantities as per the MSIHC Rules, 1989. As on date, there are 1,212 MAH factories and 127 hazardous chemicals in those units. The state-wise distribution of the MAH factories, hazardous chemicals and on-site emergency plans is shown in Annex.

2.3 Formation of Crisis Groups

Government of India launched a programme of pocket-wise industrial hazard identification and risk analysis with the objective of risk reduction and development of risk minimisation plans for MAH installations in identified industrial pockets in the country. This would enable the Government to arrive at an acceptable and pragmatic delineation of vulnerable zones and develop suitable off-site emergency plans.

A Scheme is under formulation for giving training for first level responders of emergencies. DGFASLI, has also been requested to formulate the scheme.

The Government of India also initiated a project for Nation-wide training of personnel on Chemical Safety and Emergency Preparedness.

All these measures taken by the Government of India have succeeded in bringing about an awareness at the national level in industrial management and employers' and employees' associations. But there is a need for further percolation of the message to all levels and all persons connected with industry. This is possible only with the co-operation and involvement of everyone in the society.

2.6 Role of Industrial Management

In controlling major accident hazards it is the industry to take a lead as they have the means to prevent and control any major incident at its source and at the inception stage. The action at the individual enterprise level is the ultimate objective of the control system and its success will no doubt be proportional with the extent of the preventive measures taken. There has been a considerable progress in the safety management systems in the chemical industry after the enactment of different statutes. However, there are many areas where management should put more efforts to provide total safety and minimisation of loss. Some of the important action areas are

- Hazard Communication System
- Risk Assessment in terms of damage distances for various identified scenarios
- Operation and Maintenance of plant
- Emergency plans and mock drills
- Safety training
- Management Information System

2.7 Management Information System in MAH Factories/Installations

In prevention and control of major accidents adequate information regarding the properties and characteristics of chemicals, past experience such as the unwanted emissions, their causes and control measures adopted in similar units plays a vital role. Therefore, in addition to analysing all the incidents leading to major or minor emissions, finding out the causes and control measures adopted in similar units plays a vital role. Therefore, in addition to analysing all the incidents leading to major or minor emissions, finding out the causes and taking corrective actions, the information must be categorised, indexed and stored properly for retrieval, when needed at short notice, for use of the plant authorities and advising the District Emergency Authorities in taking proper action for any off-site emergency situations. Such information should be regarding the topography, the population surrounding the installations, dispersion models worked out for various chemicals constituting major hazard for various weather conditions etc.

2.8 Role of NGOs/Voluntary organisations

MAH installations in India are spread throughout the country. Naturally the control of hazards and emergency response may sometimes become a difficult task by the Government alone. NGOs and voluntary organisations can play a major role in this respect. Areas where these can render their services are:

- ❖ Information, education, communication and mass-awareness program-me,

- ❖ Co-ordination with the District/Local Authorities in emergency management programme, and
- ❖ Rehabilitation and Reconstruction. The Government of India is encouraging NGOs and voluntary organisations to take active part by providing financial and technical support.

2.9 Community Involvement

Community involvement of the community cannot be ignored while planning for emergencies having potential for off-site consequences. A good deal of interactions among the industry, local authorities and community is essential for drawing up an emergency plan that works. By involving community much of the misconceptions in public will also disappear when they know what the industry uses and manufactures, that it has a good safety plan and safety records, and that an effective emergency plan exists.

3. CONCLUSION

Manufacture and storage of hazardous substances with a potential for major accidents has become a matter of deep concern to the Government, industry and public. The Government has taken several legislative and administrative measures to prevent and control major accidents. What is needed today is an assurance from the occupiers of MAH installations that they have correctly identified and evaluated all the hazards, and taken adequate control measures to prevent major accidents. This will greatly help in instilling a sense of confidence in the public and community

ANNEX

STATE-WISE DISTRIBUTION OF NUMBERS OF MAH FACTORIES, HAZARDOUS CHEMICALS AND ON-SITE EMERGENCY PLANS

STATE	MAH FACTORIES	HAZARDOUS CHEMICALS	ON-SITE EMERGENCY PLANS
ANDHRA PRADESH	82	41	80
ASSAM	11	15	8
BIHAR	12	10	0
DELHI	15	5	15
GOA	6	8	5
GUJARAT	260	56	89
HARAYANA	16	7	16
JAMMU & KASHMIR	7	4	0
KARNATAKA	34	11	34
KERALA	31	20	28
MAHARASHTRA	322	57	249
MADHYA PRADESH	73	16	71
NAGLAND	1	1	1
ORISSA	20	20	20
PONDICHERY	7	3	7
PUNJAB	31	8	27
RAJASTHAN	90	23	61
TAMIL NADU	86	34	86
UTTAR PRADESH	43	13	23
WEST BENGAL	65	25	58

1. HAZARD & OPERABILITY STUDY OF LPG STORAGE & HANDLING FACILITIES IN AN AUTOMOBILE PARTS MANUFACTURING FACTORY

A HAZOP study of LPG storage and handling facilities in an automobile parts manufacturing factory was conducted by the Major Accident Hazards Control Advisory Division of the Central Labour Institute, Mumbai. Its objective was to critically examine the processes/operations and engineering intentions and assess the hazard potential due to maloperation and/or malfunction of the individual items of equipment/component available in the LPG storage facility. LPG is used as fuel in the melting and holding furnaces and in ladle preheater.

The HAZOP study covered the following sections of the storage and handling facilities :

- i) Transfer of LPG from road tanker to the storage bullet with the help of a pump.
- ii) Transfer of LPG from the LPG bullet to a vaporiser, and
- iii) Transfer of LPG from the vaporiser to service point (furnace).

Based on the study, 45 recommendations were given to strengthen the inbuilt safety system. Some of the important recommendations are :

- Preparation of standard operating procedures.
- Periodic inspection and maintenance of critical equipment like pumps, strainer, pipelines, vaporisers, non-return valves, etc.
- Preparation of on-site emergency plan.
- Installation of a high level alarm for LPG bullet.
- Quality monitoring of LPG.
- Installation of proper earthing and bonding of pipelines and bullets, and
- Introduction of work permit system.

2. VENTILATION STUDY IN THE WORKSHOP OF AN AIRLINES

A consultancy study was conducted on ventilation in the workshop of an airlines by the Safety Division of the Central Labour Institute, Mumbai. In all, 12 locations were selected and except air movement at two locations, other thermal parameters in the workshop were meeting the standards. In general, the air movement in the workshop ranged between 23.6 and 143.6 metres/minute and the relative humidity between 54.4 and 61.6%.

In relation to the Dry Bulb temperature, the Wet Bulb temperature did not exceed the prescribed values. The rise in air

temperature ranged between -1.5 °C and 0.31°C and was within the recommended limit. The effective/ corrective effective temperature (ET/ CET) ranged from 25.6°C to 27.7°C, and did not exceed the upper tolerable limit.

The following recommendations were made to improve ventilation for heat control :

- Provision of two air circulators (18", 10,000 cfm) in the heavy items area of the workshop to improve air movement at two locations.
- Opening of the main door in the welding area while any welding work is being carried out, and
- Re-locating an exhaust fan in the Gear Box Assembly section.

5-DAY SPECIALISED TRAINING COURSE ON WORKING ENVIRONMENT - IT'S EVALUATION, CONTROL & MANAGEMENT

Working environment has direct effect on productivity, safety and health of industrial workers. Non-conducive working environment and non-harmonious human relations during hot and cold have always contributed human fatigue in shop floor.

Improvement of working environment has beneficial effect on both workers and occupiers. The main aim of the course is to keep working conditions in safe limits for higher productivity and reduced accident rates.

CONTENTS

- * Different physical conditions of working environment
- * Physical parameters to be measured for evaluation of working environment
- * Remedial measures to be taken to control working environment

PARTICIPANTS

Industrial Engineers, Plant Medical Officers, Safety Professionals, Production Engineers, etc., from different industries, and Factory Inspectors and ESIC Doctors, academicians, managers, planners, etc.

DURATION : 5 Days

Conducted by Physiology Division, CLI, Mumbai

5-DAY TRAINING PROGRAMME ON IMPROVING QUALITY OF WORK & WORKING LIFE FOR SAFETY COMMITTEE MEMBERS (IN HINDI)

Industrial activities are associated with risk. A general responsibility is statutorily placed on the occupiers to ensure occupational safety and health of workers. Safety Committees constituted with equal number of representatives from workers and management play an effective role in helping the management to adopt safe practices and assist and co-operate with management in fulfilment of the organisational objectives, commitments and intentions with regard to Safety, Health and Environment. Acquainting the Safety Committee Members with related aspects on occupational safety and health will enable

them to understand the issues in the proper perspective and to play a constructive role. Keeping this objective in mind the programme is designed.

CONTENTS

- * Important provisions under the Factories (Amendment) Act, 1987
- * Functions & role of Safety Committee
- * Hazard identification techniques
- * Safety audit
- * Material handling-manual & mechanical
- * Accident investigation
- * Work permit system
- * Fire prevention & protection
- * Safety in handling & storage of chemicals
- * Personal protective equipment
- * Emergency preparedness

PARTICIPANTS:

Safety Committee Members representing management and workers from factories, ports and construction industries.

DURATION: 5 Days

Conducted by Industrial Safety Division, CLI, Mumbai

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 86 affiliated National Centres and 23 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)
- ILO CIS 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: The management of occupational health and safety where subcontractors are employed.

CIS ACCESSION NUMBER :
CIS 97-1855

ABSTRACT :

Adverse occupational health and safety (OHS) effects associated with the use of subcontractors are identified and ways in which organizations have sought to control OHS risks are described. Factors to be considered include: consideration of the costs and benefits of employing subcontractors; senior management commitment; tender and contract requirements; OHS management policies; subcontractor OHS management system; subcontractor participation in decision making; and control over subcontractor OHS behaviour.

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

IDENTIFICATION

Product Name(s) : Chlorine

HAZARDOUS INGREDIENTS

Chemical Identity	Concentration	CAS #
Chlorine	99+%	7782-50-5

LD(50): None

LCLo: Inh'l.-Human 500 ppm/5M

PHYSICAL DATA

Physical State: Gas and Liquid under pressure

Odour And Appearance : Amber colored liquid; gas is greenish yellow with a sharp, pungent odor.

Odour Threshold : Unknown

Specific Gravity : Liquid @ Boiling Point = 1.56 (H₂O @ 15.5 deg C)

Vapour Pressure : @ 21.1 deg C = 700 kPa

Vapour Density (air=1) : 2.48 @ 21.1. 1 Atm

Evaporation Rate : Unknown

Boiling Point : -34.1 deg C

Freezing Point : -101 deg C

pH : Unknown

Density (g/ml): 2.979 kg/m³ @ 20 deg , 1 Atm

Coefficient Of Water/Oil Distribution : @ 20 deg C Bunsen Coefficient = 2.260

FIRE OR EXPLOSION HAZARD

Conditions of Flammability:

Nonflammable gas

Means of Extinction: Nonflammable gas

Flashpoint And Method of Determination:

Nonflammable gas

Upper Explosion Limit (% BY VOL):

Nonflammable gas

Lower Explosion Limit (% BY VOL):

Nonflammable gas

Auto-Ignition Temperature:

Nonflammable gas

Flammability Classification:

Nonflammable gas

Hazardous Combustion Products: Non-flammable gas

Explosion Data : Nonflammable gas

Sensitivity To Static Discharge: No

REACTIVITY DATA

Chemical Stability : Stable

Incompatible Materials: Hydrocarbons, amm-onia, ether

Conditions of Reactivity : High reactivity with organic and inorganic compounds may cause explosions and can cause or aggravate fires. Most hazardous reactions are with OF₂, O₂F₂, F₂, NH₃, phosphorus and arsenic.

Hazardous Decomposition Products : None

TOXICOLOGICAL PROPERTIES

Routes of Entry: Skin Contact : Corrosive and irritating to all mucousal tissue, skin and eyes.

Skin Absorption : No

Eye : See Skin Contact, above

Inhalation : Corrosive and irritating to the upper and lower respiratory tract. Initial symptoms are irritation of the eyes, nose and throat becoming steadily worse, suffocating and painful. The irritation extends to the chest causing a cough reflex which may be violent and painful and may include the discharge of blood or vomiting with eventual collapse. Other symptoms may include headache, general discomfort and anxiety.

Ingestion : No

Acute Over Exposure Effects: Irritating and corrosive to all living tissue. Toxic level exposure to dermal tissue causes acid-like burns and skin lesions resulting in early necrosis and scarring. Chemical pneumonitis and pulmonary edema result from exposure to the lower respiratory tract and deep lung. Burns to the eye result in lesions and possible loss of vision.

Chronic Over Exposure Effects: None known

Exposure Limits : TWA = 0.5 Molar PPM; STEL = 1 Molar PPM

Irritancy Of Product : Irritating to all living tissues

Sensitization To Material : Unknown
Carcinogenicity, Reproductive Effects :
None known
Teratogenicity, Mutagenicity: Cyt-human
lymphocyte @ 20 Molar PPM
Toxicologically Synergistic Products:
Unknown

HANDLING PROCEDURES AND EQUIPMENT

Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure (<250 psig) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Do not tamper with (valve) safety device. Close valve after each use and when empty.

STORAGE REQUIREMENTS:

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of non-combustible construction away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 52 deg C. Cylinders must be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in - first out" inventory system to prevent full cylinders being stored for excessive periods of time.

TDG Classification : 2.4
HP Classification (WHMIS): A, D1, E

SPECIAL SHIPPING INFORMATION:

Always secure cylinders in an upright position before transporting them. NEVER transport cylinders in trunks of vehicles,

enclosed vans, truck cabs or in passenger compartments. Transport cylinders secured in open flatbed or in open pick-up type vehicles.

FIRST AID MEASURES

Specific first aid procedures: Prompt medical attention is mandatory in all cases of overexposure to chlorine. Rescue personnel should be equipped with self-contained breathing apparatus.

Inhalation: Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Unconscious persons should be moved to an uncontaminated area and given assisted respiration and supplemental oxygen. Keep the victim warm and quiet. Assure that mucus or vomited material does not obstruct the airway by positional drainage.

Eye Contact: Persons With Potential Exposure To Chlorine Should Not Wear Contact Lenses.

Flush contaminated eye(s) with copious quantities of water. Part eyelids with fingers to assure complete flushing. Continue for minimum of 15 minutes.

Skin Contact: Flush affected area with copious quantities of water. Remove affected clothing as rapidly as possible.

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 1,00,000 chemicals/materials are available with Central Labour Institute. Computer printout will be supplied on nominal charge basis.

LIBRARY AND INFORMATION CENTRE

The Library-cum-Information Centre of Central Labour Institute has unique and rare collection of different kind of publications in the field of Occupational Safety, Health and Management. It also has a good collection of different standards, codes, regulations and publications on allied subjects. In the current year the centre is subscribing to 28 Indian & foreign journals, besides receiving complimentary copies of different periodicals from all over the world. The centre provides facilities for study and research and at the same time supplies authentic and up-to-date information on Occupational Safety, Health and Management. It also extends reading facilities to students & scholars attending different training programmes & courses conducted by CLI. From January 1998 till date a number of publications in the field of OS&H have been added to Library. Some of them are :

SAFETY, HEALTH AND WELFARE ON CONSTRUCTION SITES - A TRAINING MANUAL BY INTERNATIONAL LABOUR OFFICE, GENEVA

Publisher: Oxford & IBM Publishing Co.Pvt.Ltd, New Delhi

The need for a training manual for those engaged in or concerned with the construction industry was recognised early in the implementation of the ILO/UNDP project by the policy makers from the participating countries. This manual - a revised and expanded version of a 1990 edition - has been elaborated through the project and developed primarily for construction site workers, their representatives and the workers' immediate supervisors. This manual - Safety, Health and Welfare on construction sites will help you to consider

safety, health and welfare conditions on construction sites and to learn about possible solutions to the problems you encounter.

PREPARING FOR EMERGENCIES (TECHNOLOGICAL & NON-TECHNOLOGICAL) BY V.G. BUKKAWAR & P.R. MANDE

Publisher: Golden Jubilee Publications, New Panvel (Dist. Raigad), India

The book is based on the practical experience of the authors and deals with emergency preparedness, emergency planning, hazard assessment techniques and also the psychological rehabilitation of the workers. The book is very useful for planners, managers, safety professionals in the industry and also for off-site responders, authorities, medical professionals, civic fire brigades.

HUMAN RIGHTS: THE CONSTITUTION AND STATUTORY INSTITUTIONS OF INDIA BY PROF. RAJA MUTTHIRULANDI

Publisher: Soorya Pathippkam, Tiruchirappalli, Tamil Nadu

The book is aimed to create increased awareness and understanding of human rights. The subject of human right is dealt with comprehensively. The book focuses on existing constitutional provision, protection of human rights, Act 1993 and the decision taken by courts and Human Rights Commission of India. The book could serve as a ready reference for all constitutional provision and other statutes cited in the Acts. A variety of information relatable to human right has been provided in capsule format in the annexure to facilitate "quick swallows".

BLAST IN A BOISAR FACTORY KILLS FIVE WORKERS

At least five workers were killed in an explosion in a chemical factory at Boisar in the Thane rural area on Wednesday afternoon (1st April, 1998).

The accident took place in the Neutron Plus factory located on plot number 92 in the Maharashtra Industrial Development Corporation (MIDC) area at 1 p.m. when a reactor exploded. This led to the two storey factory crumbling and the workers being trapped under the debris.

The Fire Brigade extricated the workers from the debris. Five of them succumbed to their injuries. Meanwhile, the police have registered an offence against factory owner.

According to the police, although the reason for the explosion was not known, the magnitude was so enormous that the two-storey building collapsed.

Twenty-five workers were inside the premises when the tragedy took place.

After the explosion, fireman tried to remove the debris in the area. "This was a slow and laborious process because of the enormity of the task," opined one bystander. "Some chemicals which were found also further aggravated matters," said another.

Experts from the Tarapore plant and elsewhere were also summoned to help the fire in relief operations.

Source: Times of India dated 02-04-1998

WELFARE CESS' ON BEEDI UNITS DOUBLED

The Government has decided to double the rate of welfare cess charged from beedi manufacturers.

This will increase the corpus of the beedi workers' welfare fund to Rs.42 crore.

The corpus is supposed to provide medical care and other facilities to 45 million beedi workers spread across 12 States in the country.

The increase will be Re 1/- per thousand beedis against the prevailing rate of 50 paise per thousand beedis manufactured by unit.

The Labour Ministry is working on a Bill to amend the Beedi Workers' Welfare Cess Act which will be presented in the next session of Parliament to give effect to the decision.

The additional funds collected through the cess hike will be utilised to complete a 50-bed hospital in Dhuliyan in Murshidabad district of West Bengal that is under construction.

The funds will also be used to construct 30-bed hospitals in Mukkadaland Triunelveli in Tamil Nadu and Sagar in Madhya Pradesh.

Source: Business Standard dated 28-04-1998

1. ONE-DAY SEMINAR ON OCCUPATIONAL SAFETY, HEALTH & INDUSTRIAL POLICY

To commemorate the Institute Day of the Central Labour Institute, Mumbai and 50th Year of Independence, a one-day Seminar on "Occupational Safety, Health and Industrial Policy" was conducted on 10th February, 1998. The seminar was organised jointly by the students of the Advanced Diploma Course in Industrial Safety at the Central Labour Institute, Mumbai and the Thane Belapur Industries Association, Mumbai. Shri S.K. Saxena, Director General, DGFASLI inaugurated the seminar and Shri Dinesh T. Parekh, President, Thane Belapur Industries Association delivered the keynote address. Shri S.K.G. Sundram, Prof. & Head of Department SNDT Womens University presented a theme paper on "Economic and Industrial Policy" in the technical session. Further, diploma students presented 12 technical papers.

2. TWO-DAY WORKSHOP ON SAFETY AUDIT

The Central Labour Institute conducted a Workshop on "Safety Audit" on 23rd-24th April, 1998. The workshop was organised and conducted for the benefit of safety professionals. Participants from 14 organisations attended the workshop. The Deputy Director General of the organisation inaugurated the workshop. Six sessions including one full day for group exercises and discussions were held. Officers from Directorate General Factory Advice Service and Labour Institutes were the faculty and facilitators.

3. ONE-DAY SEMINAR ON HEALTH AND SAFETY - FUTURE CHALLENGES

To commemorate the 50th Anniversary of

India's Independence a one-day seminar: "Health & Safety - Future Challenges for Representatives from Industrial Sectors" was conducted at RLI, Kanpur. The Deputy Director General of the organisation inaugurated the seminar and 44 Health and Safety representatives from industries alongwith all the technical officers of the Institute attended it.

4. VISITS/TALKS/MEETINGS

* ILO Expert Mr. Balasubramanian visited Inspectorate Dock Safety, Calcutta

* ILO Delegation on Port Workers Training Project visited Inspectorate Dock Safety, Chennai.

* A special talk on "Human Rights Issues" was organised by the Central Labour Institute. During the programme, Prof.Dr.(Ms.) Kannama S. Raman, Reader in Public Administration, Department of Civics & Politics, University of Mumbai, Dr. Pritam Phatanani, Hon.Professor of Forensic Medicine and Toxicology of Lokmanaya Tilak Municipal Medical College, Sion, Mumbai and Miss Ruchi Sinha, Department of Criminology and Corrective Administration, Tata Institute of Social Sciences, Mumbai delivered talks on the above subject.

* A meeting was held with DGLW officers along with the Director General and officers of the organisation for finalisation of Draft Rules framed under the Building and Other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996. The officials finalised issues on certain policy matters, (a) Appointment of Authority u/S 39 (b) Competent Persons (c) Safety Committee (d) National Standard (e) Constitutions of Central Advisory Committee, etc.

**TRAINING PROGRAMMES
OCTOBER '98 - MARCH '99**

CENTRAL LABOUR INSTITUTE , SION, MUMBAI - 400 022

Programme Title	Period	Contact Person
Diploma Course in Industrial Safety 1998-99	01 June 1998 - 31 March, 1999	Director (Safety) & Incharge Indl.Safety Division
Managing Stress at Work	06-08 October, 1998	Director (Psychology) & Incharge Indl.Psychology Division
2-Day Workshop on Safety Committee-Failure & Success	22 -23 October, 1998	Director (Safety) & Incharge Indl.Safety Division
Over use of Syndrome & Muscule-Skeletal Disorders	19-23 October, 1998	Director (Physiology) & Incharge Indl.Psychology Division
Work Study & Work System for Higher Productivity	09-13 November, 1998	Director (Productivity) & Incharge Productivity Division
2-Day Seminar on "Environmental Management System"	10-11 November, 1998	Director (Staff Trg.) & Incharge Staff Training Division
Evaluation & Control of Hazards in Chemical Industry	16-20 November, 1998	Director (Indl.Hygiene) & Incharge Indl.Hygiene Division
Leadership Effectiveness for Safety, Health & Productivity	17-20 November, 1998	Director (Psychology) & Incharge Indl.Psychology Division
Working Environment - Its Evaluation & Control	23-27 November, 1998	Director (Physiology) & Incharge Indl.Psychology Division
Team Building	16-20 November, 1998	Director (Staff Trg.) & Incharge Staff Training Division
Wage & Salary Administration	30-04 December, 1998	Director (Productivity) & Incharge Productivity Division
Training Workshop on Hazard & Operability Study	01-02 December, 1998	Director(Indl.Hygiene) & Incharge MAHCA Division

Programme Title	Period	Contact Person
Industrial Ergonomics/Human Factor for augmenting Safety, Health & Productivity at work	07-11 December, 1998	Director (Physiology) & Incharge Ergonomics Division
Advanced training programme on Occupational Health & Environmental Medicine	07-18 December, 1998	Director (Medical) & Incharge Indl. Medicine Division
Monitoring of work Environment & Control of Harmful Exposure	07-11 December, 1998	Director(Indl.Hygiene) & Incharge Indl.Hygiene Division
Managerial Excellence	14-18 December, 1998	Director (Staff Trg.) & Incharge Staff Training Division
Handling Problem Behaviour of Employees	14-18 December, 1998	Director (Psychology) & Incharge Indl.Psychology Division
Selection & Quality Assurance for Effective use of PPE	21-23 December, 1998	Director (Indl.Hygiene) & Incharge Ind.Hygiene Division
Construction Safety	21-23 December, 1998	Director (Safety) & Incharge Construction Safety Division DGFASLI
Occupational Physiology	21 -24 December, 1998	Director (Physiology.) & Incharge Indl.Physiology Division
CIS Programme	28-30 December, 1998	Director (Safety) & Incharge Indl.Safety Division
3-month Post Graduate Certificate Course in Industrial Health (AFIH)	01 January-31 March, 1999	Director(Medical) & Incharge Indl. Medicine Division
Wage & Salary Admin.	11-15 January, 1999	Director(Productivity) & Incharge Productivity Division
Participative Approach for Safety & Health	19-22 January, 1999	Director (Psychology) & Incharge Indl.Psychology Division
Working Environment - its evaluation, control & management	18 -22 January, 1999	Director (Physiology) & Incharge Indl.Physiology Division
Seminar on Environmental Management System	27-28 January, 1999	Director (Safety) & Incharge Indl.Safety Division

Programme Title	Period	Contact Person
Workshop on HAZOP	27-28 January, 1999	Director(Incl.Hygiene) & Incharge MAHCA Division
Conference of Safety Officers	08-09 February, 1999	Director (Safety) & Incharge Incl. Safety Division
Team Building	01-05 February, 1999	Director (Staff Trg.) & Incharge Staff Training Division
Specialised Post Graduate Course on Occupational & Envl.Medicine for students of D.E.T.R.D. Course	01-12 February, 1999	Director (Medical) & Incharge Incl.Medicine Division
Work Study & Work System Design for Higher Productivity	15-19 February, 1999	Director (Productivity) & Incharge Productivity Division
Safety & Health in Textile Industry	23-25 February, 1999	Director (Incl.Hygiene) & Incharge Incl.Hygiene Division
Industrial Ergonomics/Human Factor for augmenting Safety, Health & Productivity at Work	22-26 February, 1999	Director (Physiology) & Incharge Incl.Physiology Division
Safety Engineering & Management	08-11 March, 1999	Director (Safety) & Incharge Incl.Safety Division
Seminar on Ventilation	30 March, 1999	Director (Safety) & Incharge Incl. Safety Division
Safety & Health in the use of Pesticides at workplace	17-19 March, 1999	Director (Incl.Hygiene) & Incharge Incl.Hygiene Division
Developing on the Job Counselling	09-12 March, 1999	Director (Psychology) & Incharge Incl.Psychology Division
Preparation of Safety Report in MAH Installation	25-26 March, 1999	Director (Incl.Hygiene) & Incharge MAHCA Division
Selection criteria of Industrial Workers	15-19 March, 1999	Director (Physiology) & Incharge Incl.Physiology Division
Industrial Ergonomics/Human Factor for augmenting Safety, Health & Productivity at Work	22-26 March, 1999	Director (Physiology) & Incharge Incl.Physiology Division

**TRAINING PROGRAMMES
OCTOBER ' 98 - MARCH '99**

REGIONAL LABOUR INSTITUTE, SARDAR PATEL ROAD, CHENNAI-600 113

Programme Title	Period	Contact Person
Management of Occupational Stress for increased productivity	05-09 October, 1998	Director Incharge
Safety in Chemical Industries	27-29 October, 1998	Director Incharge
Management of Hazardous Substances	09-13 November, 1998	Director Incharge
Maintenance & Testing of Lifting Machinery & Tackles	24-26 November, 1998	Director Incharge
**Identification Assessment & Control of Major Accident Hazards in Chemical Industries	09-15 December, 1998	Director Incharge
Productivity Techniques for Effective Employee participation	04-08 January, 1999	Director Incharge
Maintenance & Testing of Lifting Machinery Tackles	05-7 January , 1999	Director Incharge
Safety in Chemical Industries	10-12 February, 1999	Director Incharge
Management of Hazardous Substances	08-12 March, 1999	Director Incharge
Hazard Operability Studies	23-25 March, 1999	Director Incharge

** This programme is exclusively for Sr.Inspectors of Factories and not a Public programme.

**TRAINING PROGRAMMES
JANUARY '99 - MARCH '99**

REGIONAL LABOUR INSTITUTE, SARVODAYA NAGAR, KANPUR - 208 005

Programme Title	Period	Contact Person
Training Programme on Industrial Safety & Hygiene	18-22 January, 1999	Director Incharge
Training Programme on Safety & the Law	3-5 February, 1999	Director Incharge
Training Programme on Supervisory Development with Exposure to TQM & ISO 9000	15-19 March, 1999	Director Incharge

INDOSHNET

Ministry of Labour, 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 (OSH) 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, institutes, industry associations, trade unions, professional bodies and non-governmental organisations having information on OSH 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 Shri S.K. Saxena, Director General, Directorate General Factory Advice Service & Labour Institutes, 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, for 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, Private Practitioners and Consultants can refer suspected cases of occupational diseases to N.R.D.C. for diagnosis and advice. The communication should be addressed to the Director(Medical) & Incharge, Industrial Medicine Division, Central Labour Institute, N.S. Mankikar Marg, Sion, Mumbai 400 022 for further details.

**GOVERNMENT OF INDIA, MINISTRY OF LABOUR
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, Government of India. DGFASLI organisation 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 Calcutta, 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 past 33 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 organisation 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 organisation is well prepared to meet the challenges of tomorrow. It is committed to the goal of making the workplace safer.

Visit us at : <http://www.dgfasli.nic.in>