DGFASLI'S PERSPECTIVES V*IS-A-VIS* DISASTER MANAGEMENT

S.S. Gautam & B.D. Dubey

ABSTRACT

The disaster management is an old concept but industrial disaster management has assumed importance only during the last few decades. The Directorate General Factory Advice Service and Labour Institutes (DGFASLI), Mumbai, a technical arm of Ministry of Labour & Employment, Government of India, advises the Government on the matters concerning occupational safety and health in industries and 12 Major Ports of the country. The department is also enforcing the safety & health related statutes in the major ports. The role of DGFASLI in respect of Disaster Control is primarily preventive in the sense that it can advise the Government for statutory changes to improve the safety and health conditions in the factories and carry out promotional activities through the Central Labour Institute, Mumbai and Regional Labour Institutes at Chennai, Kanpur, Kolkata and Faridabad. The Department was instrumental in bringing the concept of management of major industrial accidents in the country in collaboration with ILO and Government of Federal Republic of Germany. The draft regulations developed during this innovation were the basis for framing of Control of Industrial Major Accident Hazard (CIMAH) Rules Under The Indian Factories Act 1948 and Manufacture, Storage & Import of Hazardous Chemicals Rules 1989 under the Environment Protection Act. The special provisions for Hazardous Process Industries introduced in the Factories Act through Factories (Amendment Act) 1987 were also promulgated by DGFASLI. The present ongoing statutory and promotional activities includes the enforcement of MSIHC Rules in Ports and Docks and promotional activities by development of human resources and creating awareness among various target groups by their training and advisory activities. The paper concludes with suggestion that special efforts are required to educate communities around the MAH installations and demonstration by the managements that all reasonably practical measures have been taken to prevent major accidents in identified installations.

INTRODUCTION

Among the various types of disasters which have been drawing the attention of the Government, industrial disaster has assumed due importance only during the last three decades. The concern towards industrial disaster has started during late seventies in European countries after the accidents involving explosion in Flixborough, UK in the year 1974, in which 28 workers were killed and many were injured. The toxic release of TCDD (Tetra chloro dibenzo Dioxine) in Seveso, Italy, in the year 1976, caused extensive damage to the surrounding environment. When the efforts started by the European Union to identify the installations having the potential to cause such disasters and action required were still in progress, the two more industrial disasters i.e. Explosion of LPG storages in Mexico City and toxic release of Methyl Isocyanate in Bhopal took place in the year 1984, which shocked the whole industrial community, policy makers, industrial workers and public at large.

ROLE OF DGFASLI

The disasters involving hazardous chemicals invite the attention of various stake holders including Ministry of Environment & Forest, Ministry of Labour & Employment, Public administration, town planners, emergency response services, etc. The whole gamut of the disaster management involves three major components i.e. prevention of chemical accidents, containment & control systems and mitigation of damages from the accidents. The Government agencies have vital role in preventing the industrial chemical disaster by incorporating legislative measures in the statutes connected with safety and health aspects of workers and public at large. The Ministry of Labour & Employment has an attached department of Directorate General Factory Advice Service and Labour Institutes (DGFASLI), which acts as a technical arm of the Ministry on matters related with safety & health of workers, employed in manufacturing and port sectors. The role of DGFASLI in management of industrial disasters is primarily preventive in nature. DGFASLI assists Ministry of Labour & Employment in framing legislative measures on the subject of safety & health. DGFASLI enforces the Dock Workers (Safety, Health and Welfare) Act 1986 and the regulations framed there under and the Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 in 12 major ports of the country. The enforcement of safety & health statutes in the factories is carried out by the Labour Departments of concerned State Governments / Union Territories. The five labour institutes at Mumbai, Kanpur, Kolkata, Chennai and Faridabad under the DGFASLI offer technical services to the managements of the factories in the form of studies, surveys, audits, education, training programmes, seminars etc. in addition to carrying out the research and development work as per the current needs.

Soon after the event in Bhopal, the Chief of the Occupational Safety and Health Branch of the International Labour Organisation (ILO), Geneva visited India in February 1985. After consultations with senior officers of the Ministry of Labour, the Government of India and with other departments, need for technical assistance from ILO was agreed upon. Subsequently, the ILO sent a mission to India in April 1985 to identify and advise the Government on the early priorities for establishing a system for controlling major accident hazards in the country.

The Factories (Amendment) Act 1987

Ministry of Labour & Employment, with the assistance of DGFASLI, in the meanwhile, reviewed the existing statute dealing with safety and health of workers employed in factories. The extensive consultations were also held among the stake holders and it was agreed to amend the Factories Act 1948 by bringing in a concept of hazardous process industries into the Factories Act and inclusion of the provisions for prevention, control & mitigation of impact in an additional chapter IV-A in the Factories Act. Thus Factories (Amendment) Act 1987 was enacted, the salient features of which are as follows:

Salient features of the Factories (Amendment) Act 1987

S.No.	Section	Requirement
1	41 A	Constitution of a Site Appraisal Committee for examining applications for initial location or expansion of a factory involving a hazardous process
2	41 B	1. Compulsory disclosure of information by the occupier regarding dangers including health hazards and the measure to overcome such hazards and obligation of an occupier to draw up emergency plan and disaster control and management plan for a hazardous installation. 2. Laying down of health and safety policy. 3. Preparation of onsite and offsite disaster control plans. 4. Providing information of nature and details of process.
3	41 C	1. Medical examination and maintenance of accurate and up-to-date health records of the workers exposed to toxic or any other harmful substances in factories. 2. Appointment of competent supervisor.
4	41 D	1. Power of Central Government to appoint an enquiry committee to investigate accident and neglect in adoption of any measures and standards of safety.
5	41 E	Laying down emergency standards on safety & health.
6	41 F	Laying down of permissible limits of exposure to toxic substances
7	41 G	Promotion and cooperation of workers and the managements by constitution of safety committees.
8	41 H	Right of workers to warn about imminent dangers.
9	96 A	Enhancement of penalties for contravention of the provisions of Section 41-B, 41-C and 41-H (which may extend to Rs. 2 lacs and / or imprisonment for a term extending upto 7 years)

ILO Project on Controlling Major Accident Hazards in India

The Ministry of Labour & Employment implemented the ILO project on establishment and initial operation of a system for controlling major accident hazards first in 12 selected states. The Directorate General Factory Advice Service and Labour Institutes (DGFASLI), a department subordinate to the Ministry of Labour, conducted this work from December 1986 to December 1990 in the manufacturing sector (i.e., factories) and later extended the project to the port sector, where work was conducted from January 1991 to April 1993. The Central Labour Institute (CLI), Mumbai, the three Regional Labour Institutes (in Kolkata, Chennai and Kanpur) and the Inspectorates of Dock Safety, the subordinate offices of the DGFASLI and the Inspectorates of Factories of the 12 states participated in implementing the project. The immediate objective of the project was to strengthen the national system for preventing occupational accidents in certain industrial activities. This was done through identification, analysis and control of industrial activities involving hazardous chemicals and processes which have the potential to cause major accidents. The system for controlling major accident hazards in India, as established under the ILO project, consists of the following elements:

Three-Tier Technical Organisation on Major Accident Hazards Control

A three-tier technical organisation, incorporating the national, regional and state levels, was set up to control major accident hazards. At the national level, a multidisciplinary advisory division to control major accident hazards, staffed with relevant specialists, was set up in the Central Labour Institute, Mumbai. At the regional level, cells to control major accident hazards were set up in the three Regional Labour Institutes, i.e., in Kolkata, Chennai and Kanpur. Similarly, at the state level, specialist cells were set up in the headquarters of the Inspectorates of Factories. The advisory division and the cells function as the resource centres for the control of major accident hazards. Among other work, they provide technical advice and guidance on hazardous chemicals to industry; they investigate major accidents; they inspect major accident hazard works; they develop technical guidelines and training material, and conduct specialised training programmes on the control of major accident hazards and chemical safety to different target groups; and they conduct studies and safety audits of hazardous operations.

Rules for the Control of Major Accident Hazards

Draft regulations on the Control of Industrial Major Accident Hazards (CIMAH) were first prepared as model rules that were later on notified by the states under the Factories Act of 1948. Through extensive consultations between the Ministry of Labour and the Ministry of Environment and Forests, these regulations were later harmonised with the draft rules prepared by the Ministry of Environment and Forests. The Ministry of Environment and Forests included the rules, as the *Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989* under the Environment (Protection) Act of 1986.

These rules to control major industrial accident hazards aim at preventing major accidents in certain industrial activities. In all, eleven authorities have been entrusted with the responsibility of enforcing the provisions into their respective fields. For example, the Chief Inspectors of

Factories were assigned the duty of enforcing the relevant provisions of the rules in factories and the Chief Inspector of Dock Safety in ports. Major Accident Hazards Control Rules have been framed by DGFASLI at par with MSIHC Rules and have been notified for States for implementation under the Factories Act, 1948.

Computerised Data Bank

Computerised data banks having appropriate databases on the control of major accident hazards were established in the Central and the three Regional Labour Institutes. These data banks enable the storage, retrieval and dissemination of information. The databases include the inventories of the hazardous chemicals; the major accident hazard works/sites and the specialists in the field of major accident hazards control; the CIS database on occupational safety and health; the incidents involving major accident risk; The details of the specialised training programmes conducted for the control of major accident hazards among the seven target groups within the enforcement authorities and industry. The databases on the inventories of the hazardous chemicals, the major accident hazard sites/works and the incidents of major risk are updated continuously. The data banks are equipped with computer models for consequence analysis and identification hazard of chemicals. These databases constitute an important element of the system, providing information and guidance to both the enforcement authorities and industry. The advisory division for the control of major accident hazards and its cells (Now known as Major Hazard & Chemical Safety Division) has prepared technical guidelines on various aspects of hazard control. Important examples are checklists for the Inspectors to use when performing inspections of bulk storages of ammonia, chlorine, and liquefied petroleum gas (LPG). Similarly, guidelines on the provision of medical care in emergencies involving the ten most common hazardous chemicals were prepared in English and Hindi, and distributed to the management at major accident hazard sites.

Strengthening of the Labour Institutes and Inspectorates of Dock Safety

The Central Labour Institute and the three Regional Labour Institutes and the Inspectorates of Dock Safety have been strengthened in the field of chemical safety and the control of major accident hazards by recruiting/deploying officers with qualifications and experience in chemical engineering. The technical competence of these officers and other specialists was developed by providing them with appropriate training in the control of major accident hazards in India and/or abroad. This has enabled the Institutes and the Inspectorates of Dock Safety to develop technical guidelines and training materials, to carry out joint inspections with Inspectors of Factories, to perform studies and safety audits of hazardous operations, to conduct training programmes for the Inspectors of Factories, Inspectors of Dock Safety, and technical personnel from the industry, and to provide technical advice to the major accident hazard sites/works.

Strengthening of the Inspectorates of Factories

The Inspectorates of Factories of the states having a considerable number of major accident hazard factories were strengthened in the field of chemical safety by recruiting Inspectors with chemical engineering qualifications. All the Inspectors were trained in the control of major accident hazards abroad and/or in India. In addition, the Inspectors were given specialised in-service training in inspecting major accident hazard sites, and criteria were developed for prioritising the major accident hazard sites. Development of the technical competence of the Inspectors and equipping the Inspectorates with the necessary instruments has thus enhanced their preconditions to execute their tasks.

Training strategy

Keeping in mind the greater emphasis laid in the project on training, a three-fold training strategy was developed. The three focal points are to identify the target groups, to develop appropriate training material, and to conduct training programmes. The following target groups which need specialised training in the control of major accident hazards were identified: Inspectors from the Inspectorates of Factories and of Dock Safety; senior executives; safety officers; workers who are members of safety committees; supervisory trainers from the major accident hazard works and port authorities; and trade union leaders at both the national and regional levels. Training manuals were developed to provide the background reading material needed by these training programme participants. There are now manuals on techniques of inspecting chemical plants and on the control of major accident hazards that are meant for the senior Inspectors of Factories, as well as manuals on the control of major accident hazards that are meant for safety officers, supervisory trainers and workers who are members of safety committees.

Since then, a large number of specialised training programmes and seminars have been held for the participants from the various target groups. A notable feature is the input of several ILO experts in various aspects of the control of major accident hazards in these seminars and training programmes. The training material developed by the Central and the Regional Labour Institutes is highly significant, as it helps other institutions and bodies to organize training programmes on the control of major accident hazards, which is essential as there are many more people to be trained.

Ongoing Activities:

Enforcement: As stated earlier the DGFASLI is enforcing MSIHC Rules 1989 in the 12 Major Ports of the country. The MAH installations in the ports at present are presented in the following table:

MAH Installations in Major Ports

S. No.	Port	Substance	Type of Installation	Number	Maximum Quantity	Threshold Quantity
1.	Mumbai	Highly Flammable Liquid (HSD & SKO)	Storage	1	68800 MT	10,000

2.	JNPT	None	-	-	-	-
3.	Kandla	Flammable Liquid	Storage	1	24254 MT	15,000 MT
4.	Morumgao	Ammonia	Storage	1	5000 MT	60 MT
5.	Kolkata	None	-	-	-	-
6.	Paradip	None	-	-	-	-
7.	Vishakhapatnam	LPG	Pipeline	1	111 MT	15 MT
			Pipeline	1	31 MT	15 MT
			storage	1	7500 MT	15 MT
		Ammonia	Pipeline	1	70	60 MT
			Storage	1	10000 MT	60 MT
8.	Chennai	None	-	-	-	-
9.	Kochi	Ammonia	storage	1	10,000 MT	60 MT
		Highly Flammable Liquid (LSHF, HSD)	Storage	1	14100 MT	10000 MT
		Flammable Liquid (LVFO,LSFO, JP 5, FO)	Storage		31160 MT	15000 MT
10.	New Mangalore	Ammonia	Storage	1	10,000 MT	60 MT
		Very Highly Flammable Liquid	Storage	1	122,452 KL	7,000 MT
11.	Ennore	Very Highly Flammable Liquid (MS, Benzene, Hexane, IPA, Toluene, Naphtha, Styrine etc.)	storage	1	48442 MT	5000 MT

The department has issued the following directives to the inspecting officers in Docks to carry out:

1. Inspection of the identified MAH installations should be done once in a year.
2. The reports of inspections should be submitted to the Chief Inspector of Dock Safety (DGFASLI) within a fortnight.
3. Annual report of the inspectorate should be submitted.
4. Improvement advices should be given in consultation with Chief Inspector of Dock Safety (CIDS).
5. The documents submitted for identification of the installations as MAH should be done within 30 days after receipt of the applications.
6. The major accidents in the dock and port premises should be reported to CIDS. The analysis of the major accidents should be completed with 45 days after the accident.
7. Scrutiny of the mock drill reports should be done within 15 days.
8. Liaise with the District authority for preparation of off site emergency plan.

The onsite and offsite emergency plans of the identified MAH installations have been prepared and the external safety audits are being done as per the requirements.The guidelines for inspection of MAH installations in ports and checklists for inspection of specific installations have been prepared for use by the inspectors of dock Safety. In addition to the MSIHC Rules, the provisions on harmful environments and handling of dangerous goods, as provided in Dock Safety Act and Regulations are also being enforced.

Promotional: There are 1724 MAH installations in the country with 203 hazardous substances out of which, 1461 have prepared their onsite emergency plans till 31st July, 2009. The information on the status of MAH installations in the factories is kept updated on the basis of the information received from the Chief Inspectors of Factories of the States / UTs. The Major Hazard and Chemical Safety Divisions and Cells, functioning in Central and Regional Labour Institutes are carrying out following types of promotional activities in the field of prevention of major disasters and their mitigation:

- Consultancy services on Hazard identification and Assessment by HAZOP, PHA, Safety Audit, etc.
- Risk and Consequence analysis of potential major accidents.
- Training programmes on Chemical Process Safety for different target groups such as Safety Professionals, Factory Inspectors, Workers representatives of Safety Committee and management personnel etc.

CONCLUSIONS

The most important aspect of the disaster management is to minimize the possibility of a chemical disaster. The future strategies to this goal should be to ensure that the managements of identified MAH units have adopted all reasonably practicable means to prevent any accident in the plant which should be demonstrated to the enforcement authorities by suitable instruments like safety report. Community awareness is still a gray area. Adequate means should be discovered to educate public about the hazards and the emergency response procedures. Coordination amongst the various agencies dealing with the chemical disasters should be further promoted.

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INVITING ARTICLE FOR INDOSHNEWS

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.

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.

CIS: INTERNATIONAL OCCUPATIONAL SAFETY AND HEALTH INFORMATION CENTRE

CIS (from the French name, Centre International d'information dr 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 Centres. Central Labour Institute, Mumbai has been designated as the CIS National Centres of India. CIS can offer you rapid access to comprehensive information on occupational safety and health through its abstracts on latest OSH publications, the CIS Thesaurus and ILO Bulletin 'Safety and health at Work'.

QUOTES

- Broken tools can be replaced. You can't be.
- Don't let the light go out, wear eye protection.
- Informed is better than deformed.
- Living with your mistakes is harder than you think.... wear your safety gear.
- My job provides my paycheck, but safety takes me home.

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RECENT TRENDS OF ACCIDENTS IN DOCKS AND PORTS

B.N.Jha

ABSTRACT

India has a long coastline spanning 7600 kilometers forming one of the biggest penisulas in the world and the ports are the main centres of trade. There are twelve major ports at Kolkata (including Haldia), Paradip, Vishakhapatnam, Chennai, Ennore, Tuticorin, Kochi, New Mangalore, Mormugao, Mumbai, Kandla, Navi Mumbai. Other than these, there are many notified minor and intermediate ports. As a result of technical developments in the recent pasts, there has been introduction of sophisticated cargo handling equipment/machinery with greatly increased capacity and also there have been changes in cargo handling methods which have resulted in significant improvements /increase in volume/quantity of cargoes handled at the ports. But some of these changes have also introduced new hazards and work at dock & port is still regarded as an occupation with very high accident rates. In order to ratify the ILO Convention 152 and give statutory status, unified Act was enacted in India in the name of the Dock Workers (Safety, Health & Welfare) Act, 1986 and as provided by section 21 of this Act, the Dock Workers (Safety, Health & Welfare) Regulations, 1990 were framed which apply to all major Ports of India. Presently there is no administration of these Dock Safety Statutes in minor and intermediate ports as DGFASLI covers only major port and hence minor and intermediate ports remain unattended. Thus, the scope of this article, based on recent trends of accidents, covers only reportable accidents in major Ports. As a result of continuous efforts being taken by the inspectorates under the valuable guidance of the chief inspector of dock safety, the recent trend of total accidents has been found to be downward/decreasing.

INTRODUCTION

India has a long coastline spanning 7600 kilometers forming one of the biggest penisulas in the world. The ports are the main centers of trade. There are twelve major ports at Kolkata (including Haldia), Paradip, Vishakhapatnam, Chennai, Ennore, Tuticorin, Kochi, New Mangalore, Mormugao, Mumbai, Kandla and Navi Mumbai. Other than these, there are many notified minor and intermediate ports. The distinction between major and minor ports is not based on the amount of cargo handled as the classification of Indian ports into major, minor and intermediate has an administrative significance. The major ports are managed by Port Trusts which are administered/regulated by the Central Government and come under the purview of the major port Act, 1963 whereas the intermediate & minor ports are administered/regulated by the respective State Governments in the nine coastal states of West Bengal, Orissa, Andhra Pradesh, Tamil Nadu, Kerala, Karnataka, Goa, Maharashtra and Gujarat. As a result of technical developments in the recent past, there has been introduction of sophisticated cargo handling equipment/machinery with greatly increased capacity and also there have been changes in cargo handling methods which have resulted in significant improvements /increase in volume/quantity of cargo handled at the ports. But some of these changes have also introduced new hazards & work at dock & port is still regarded as an occupation with very high accident rate. In the light of development in the activities of the international ports and introduction of new hazards owing to sophisticated machinery/equipment and increase in the handling of containers and dangerous goods, the ILO decided to revise the then convention No. 32 in 1979. This revision resulted in adoption of convention No. 152 titled *Occupational Safety and Health (Dock Work) Convention, 1979*. In order to ratify this ILO convention 152 and give statutory status, unified Act was enacted in India in the name of the Dock Workers (Safety, Health & Welfare) Act, 1986 and as provided by section 21of this Act, the Dock Workers (Safety,Health & Welfare) regulations, 1990 were framed which apply to all major Ports in India. The administration of the aforementioned Act and the Regulations is carried out by the Inspectorate Dock Safety, functioning in all the major ports under the DGFASLI, Ministry of Labour and Employment, Government of India.

SCOPE

Presently, there is no administration of these Dock Safety Statutes in minor and intermediate Ports as DGFASLI covers only major Ports and hence minor and intermediate ports remain unattended. Thus, scope of this article, based on recent trends of accidents, covers/reflects only reportable accidents in major ports. For this, the reportable accident statistics for the period of five years from the year 2004 to the year 2008 have been taken into consideration.

DISCUSSIONS

According to Regulation 91 of the Dock Workers (Safety, Health & Welfare) Regulations, 1990, a reportable accident is one which either causes loss of life to a Dock worker or disables him from work for more than 48 hours from the time of accident. However, a notice to Dock Safety Inspector is required to be sent in all cases when a worker is disabled from work for the rest of the day or shift in which the accident occurred.

The recent trend of reportable accident for the last 5 years from 2004 to 2008, port wise, is shown in Table 1.

TABLE 1: PORT-WISE FATAL AND NON-FATAL ACCIDENTS

	2004	2005	2006	2007	2008
NAME OF PORT	**NO. OF ACCIDENTS**	**NO. OF ACCIDENTS**	**NO. OF ACCIDENTS**	**NO. OF ACCIDENTS**	**NO. OF ACCIDENTS**
Mumbai	79 (01)	82 (03)	57 (07)	42(03)	48 (04)

JN Port	06 (02)	17 (03)	07 (00)	11 (00)	09 (03)
Kandla	09 (04)	09 (05)	12 (07)	08 (03)	09 (07)
Mormugao	17 (01)	12 (02)	11 (01)	08 (01)	09 (02)
Kolkata	37 (04)	39 (05)	37 (01)	28 (03)	26 (04)
Paradip	06 (02)	06 (01)	11 (02)	10 (01)	04 (00)
Vishakhapatnam	04 (02)	05 (01)	07 (03)	06 (01)	06 (01)
New Mangalore	15 (02)	08 (03)	09 (02)	05 (01)	04 (01)
Chennai	15 (07)	11 (05)	16 (11)	18 (08)*	11 (07)
Kochi	11 (00)	12 (00)	17 (02)	13 (00)	11 (02)
Tuticorin	12 (03)	07 (02)	09 (00)	09 (02)	12 (02)
TOTAL	**211 (28)**	**208 (30)**	**193 (36)**	**158 (23)***	**149 (33)**

Note:- Figures in brackets show fatal accidents which are included in the Total.
*Including 2 fatal & 3 reportable accidents at ENNORE PORT.
Chart I and Chart II, as appended, gives the trend of total reportable accidents and fatal accidents respectively which occurred in all major ports.

Agency wise trend of total reportable accidents from 2004 to 2008 is shown in Table 2.

TABLE 2: CLASSIFICATION OF REPORTABLE ACCIDENTS – ACCORDING TO AGENCY

	2004	2005	2006	2007	2008
AGENCY	**NO. OF ACCIDENTS**	**NO. OF ACCIDENTS**	**NO. OF ACCIDENTS**	**NO. OF ACCIDENTS**	**NO. OF ACCIDENTS**
A. Lifting appliances	07 (03)	11(04)	08 (02)	08 (01)	13 (02)
B. Loose Gear& Ropes	27 (00)	38 (00)	27 (01)	16 (00)	26 (01)
C. Unitized and Break Bulk Cargo	91 (05)	78 (01)	81 (05)	61 (05)	44 (05)
D. Bulk Cargo	09 (02)	03 (03)	04 (03)	03 (02)	09 (01)
E. Electrical Equipments	03 (00)	02 (00)	02 (00)	---	01 (00)
F. Tools and implements	07 (00)	03 (00)	02 (00)	06 (01)	03 (01)
G. Means of Access	15 (01)	18 (04)	10 (01)	12 (01)	09 (04)
H. Means of Transportation	30 (14)	39 (15)	33 (14)	35 (08)	31 (15)
I. Other Agencies	22 (03)	16 (03)	26 (10)	17(05)	13 (04)
TOTAL	**211 (28)**	**208 (30)**	**193 (36)**	**158 (23)**	**149 (33)**

Note:- Figures in brackets show fatal accidents which are included in the Total.

Type wise trend of total reportable accident is a shown in Table 3.

TABLE 3: CLASSIFICATION OF REPORTABLE ACCIDENTS – ACCORDING TO TYPE

	2004	2005	2006	2007	2008
TYPE	**NO. OF ACCIDENTS**	**NO. OF ACCIDENTS**	**NO. OF ACCIDENTS**	**NO. OF ACCIDENTS**	**NO. OF ACCIDENTS**
A. Fall of persons	57 (05)	46 (08)	45 (05)	33 (06)	28 (06)
B. Fall of Objects	35 (05)	29 (03)	33 (08)	24 (03)	21 (05)
C. Stepping on, striking against or struck by objects excluding falling objects	90 (13)	102 (16)	85 (14)	73 (06)	65 (15)
D. Caught in or between	22 (05)	19 (03)	14 (02)	16 (04)	26 (04)
E. Over exertion or wrong movement	01 (00)	05(00)	--	05 (02)	02 (00)
F. Exposure to or contact with extreme	01 (00)	--	02 (01)	--	--

temperature					
G. Exposure to or contact with electric current	03 (00)	01(00)	01 (00)	--	--
H. Exposure to or contact with dangerous goods	01 (00)	01(00)	01 (01)	--	--
I. Explosion	--	01 (00)	04 (04)	--	--
J. Others	01 (00)	04 (00)	08 (01)	07 (02)	07 (03)
TOTAL	**211 (28)**	**208 (30)**	**193 (36)**	**158 (23)**	**149 (33)**

Note:- Figures in brackets show fatal accidents which are included in the Total.

ANALYSIS/ASSESSMENT

An analysis of the accident/statistics for the recent period from the year 2004 to the year 2008, shows that there was substantial decrease in number of total accidents (i.e. 211 accidents in the year 2004, 208 accidents in the year 2005, 193 accidents in the year 2006, 158 accidents in the year 2007 and 149 accidents in the year 2008) resulting into the downward trend in total accidents from the year 2004 to 2008 during the period of five successive years as depicted in chart – I.

The analysis of fatal accidents during the period from the year 2004 to the year 2008 shows that there were 28 fatal accidents in year 2004, 30 fatal accidents in the year 2005, 36 fatal accidents in the year 2006, 23 fatal accidents in the year 2007 and 33 fatal accidents in the year 2008. Among yearwise fatal accidents, no significant change was noticed as depicted in chart- II.

The analysis of year wise reportable accidents according to Agency, as highlighted in Table 2, for the period of five years from the year 2004 to the year 2008, shows that –

1. *Unitized and break bulk cargo* accounted for the highest number of 91 accidents (43.12 %) out of 211 total accidents whereas *Means of Transportation* accounted for the highest number of 14 fatal accidents (50 %) out of 28 total fatal accidents during the year 2004.

2. *Unitised and Break Bulk Cargo* accounted for the highest number of 78 accidents (37.5 %) out of 208 total accidents whereas *Means of Transportation* accounted for the highest number of 15 fatal accidents (50 %) out of 30 total fatal accidents during the year 2005

3. *Unitised and Break Bulk Cargo* accounted for the highest number of 81 accidents (42 %) out of 193 total accidents whereas *Means of Transportation* accounted for the highest number of 14 fatal accidents (38.88 %) out of 36 total fatal accidents during the year 2006.

4. *Unitised and Break Bulk Cargo* accounted for the highest number of 61 accidents (38.60 %) out of 158 total accidents whereas *Means of Transportation* accounted for the highest number of 08 fatal accidents (34.78 %) out of 23 total fatal accidents during the year 2007.

5. *Unitised and Break Bulk Cargo* accounted for the highest number of 44 accidents (29.53 %) out of 149 total accidents whereas *Means of Transportation* accounted for the highest number of 15 fatal accidents (45.45%) out of 33 total fatal accidents during the year 2008.

Thus the over-all analysis of above agency wise classifications of reportable accidents indicate that *Unitised and Break Bulk Cargo* accounted for the highest number of accidents, where as *Means of Transportation* accounted for the highest number of total fatal accidents during the aforesaid period.

The analysis of year wise reportable accidents according to Type, as highlighted in Table 3 for the period of five years from the year 2004 to the year 2008 shows that –

1. *Stepping on, Striking against or Struck by Object Excluding Falling Objects* accounted for the highest number of 90 accidents (42.65%) out of 211 total accidents and these also accounted for the highest number of 13 fatal accidents (46.42%) out of 28 total fatal accidents during the year 2004.
2. *Stepping on, Striking against or Struck by Object Excluding Falling Objects* accounted for the highest number of 102 accidents (49 %) out of 208 total accidents and these also accounted for the highest number of 16 fatal accidents (53.33%) out of 30 total fatal accidents during the year 2005.

3. *Stepping on, Striking against or Struck by Object Excluding Falling Objects* accounted for the highest number of 85 accidents (44 %) out of 193 total accidents and these also accounted for the highest number of 14 fatal accidents (38.88 %) out of 36 total fatal accidents during the year 2006.

4. *Stepping on, Striking against or Struck by Object Excluding Falling Objects* accounted for the highest number of 73 accidents (46.20%) out of 158 total accidents and these also accounted for the highest number of 06 fatal accidents (26 %) out of 23 total fatal accidents during the year 2007.

5. *Stepping on, Striking against or Struck by Object Excluding Falling Objects* accounted for the highest number of 65 accidents (43.62%) out of 149 total accidents and these also accounted for the highest number of 15 fatal accidents (45.45%) out of 33 total fatal accidents during the year 2008.

Thus, the over-all analysis of above Type wise classification of reportable accidents for the period from the year 2004 to the year 2008 indicates that *Stepping on,*

Striking against or Struck by Object Excluding Falling Objects accounted for both of the highest number of total accidents and the highest number of total fatal accidents during the said period.

CONCLUSION

1. Based on the analysis of reportable accidents statistics for the period from the year 2004 to the year 2008, the trend of accidents has been found to be downward / decreasing as depicted in chart – I. But in respect of trend of fatal accidents during period of five years from the year 2004 to year2008, the highest number of fatal accidents was registered to be 36 in the year 2006 and lowest number of fatal accident was registered to be 23 in the year 2007. Among fatal accidents there is no significant change as depicted in chart - II.

2. The Agency classification: *Unitised and Break Bulk Cargo* accounted for the highest number of total accidents whereas "Means of Transportation" accounted for the highest number of total fatal accidents during the aforesaid period.

3. The classification of Type: *Stepping on, Striking against or Struck by Object Excluding Falling Objects* accounted for both of the highest number of total accidents and the highest number of total fatal accidents during aforesaid period.

4. It is needless to mention here that continuous efforts are being taken, as before, by the Inspectorates under the valuable guidance of the Chief Inspector of Dock Safety to bring down the accidents still further. Suitable actions are required to be taken by all concerned to foresee the hazardous situations and take suitable precautionary measures to prevent accidents. As privatization in the port industry has led to considerable changes in the organization of ports and the employment of people in them, including increased use of private/casual/non-permanent workers, it is hardly necessary to stress that there is need for better planning/development of safe systems of work, training of Dock Workers and Supervisors, Supply and use of adequate PPEs, adequate supervision and development/maintenance of proper safety awareness programme, which would go a long way in controlling the trend of accident as well as in achieving higher productivity.

REFERENCES

1. Standard Reference Notes of DGFASLI, 2004 to 2008, Mumbai.
2. Dock Workers (Safety, Health & Welfare) Act, 1986 & Regulations, 1990, framed there-under.
3. ILO Convention Nos.32 & 152.
4. ILO Code of Practice on Safety & Health in Ports.
5. http://en.wikipedia.org/wiki/Port_in_India

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DGFASLI AT A GLANCE

The Directorate General Factory Advice Service & Labou nstitutes (DGFASLI) is an attached office of the Ministry f Labour & Employment Government of India. DGFASL rganization was set up in 1945 under the Ministry o abour, Government of India to serve as a technical arm o assist the Ministry in formulating national policies or ccupational safety and health in factories and docks and o advise State Governments and factories on matters oncerning safety, health, efficiency and well-being of the ersons at workplace. It also enforces safety and health tatutes in major ports of the country.

The Directorate General Factory Advice Service & Labou nstitutes (DGFASLI) comprises:

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

Vision* of *DGFASLI: DGFASLI envisions emerging as ar rganization of excellence in creating knowledge ormulating policies, standards and practices to ensure afe and healthy workplaces for all in factories and ports.

Mission of DGFASLI: The mission of DGFASLI is to ender its expertise in occupational safety and health fo volving safe and healthy workplaces in factories and orts through a process of partnership, guidance egulatory activities in specific sector and information haring.

DGFASLI organization comprises of its Headquarters situated in Mumbai, Central Labour Institute (CLI) in Mumbai, four Regional Labour Institutes (RLI) in Chennai Faridabad, Kanpur & Kolkata and eleven Inspectorate o Dock Safety (IDS) offices located at different ports situated all over the country.

DGFASLI organization consists of a multidisciplinary eam of around 129 officers (engineers, physicians ndustrial hygienists, physiologists, ergonomists, industria sychologists, commercial artists etc. and 81 technica taff members. Various specialty divisions/cells unde DGFASLI office and Central Labour Institutes in Mumba nclude a) Factory Advice Service, b) Dock Safety, c Construction Safety, d) Awards, e) Statistics, f) Industria Safety, g) Industrial Hygiene, h) Industrial Medicine, i ndustrial Physiology & Ergonomics, j) Staff Training Productivity & Small Scale, k) Industrial Psychology, l Major Hazards Chemical Safety, m) Managemen nformation Services; n) Environmental Engineering and) Communication Division. Armed with the technology ood will of the industrial society and the strength of the edicated staff, the organization is well prepared to mee he challenges of tomorrow.

Visit us at: www.dgfasli.nic.in

OUOTABLE QUOTES

- **Don't be a fool. Use the proper tool.**
- **Forgot your hearing protection? Forget about hearing!**

INSTITUTE DAY CELEBRATION AT CENTRAL LABOUR INSTITUTE ON 9TH FEBRUARY 2010

Delegates and the Officers & staff of CLI and DGFASLI attending the Institute Day Celebrations on February 09, 2010.

Institute day of Central Labour Institute was celebrated on 9-2-2010. During the day, certificates were awarded to the passed out students of Advanced Diploma in Industrial Safety (batch 2007-08) and the Associated Fellow in Industrial Health June 2009. A seminar on "Safety in the Use of Lifting Tackles" was conducted by the Industrial Safety Division of Central Labour Institute, Mumbai on this occasion. The seminar was attended by 304 delegates from various public and private sector industrial and other organisations including the officers and staff of DGFASLI organization.

The seminar was inaugurated by Prof. K.G. Narayankhedkar, Director, VJTI, Mumbai at 1000 hours. The seminar was conducted keeping in view that many material handling operations involve use of lifting machinery and lifting tackles. Improper selection, inadequate strength, patent defects and poor operating practices, etc. are some of the causes for failure of the lifting tackles, which can result in fatal or serious injuries and also damage equipment, material or other facilities. To prevent such events, it is essential that users of lifting tackles are familiar with the various safety requirements relating to the design, construction, testing, examination, maintenance, etc. of lifting tackles. This seminar has facilitated the delegates to understand various information of those lifting tackles with a view to ensure safe practices. The seminar was intended for the Safety Professionals, Maintenance Engineers, Competent Persons, Manufacturers and Users of Lifting tackles from Industries, Off-shore operations and Ports. During the seminar, three papers were presented. Shri G.M.E.K. Raj, Director (Safety) and Incharge, Dock Safety Division of DGFASLI, chaired the technical sessions. The first presentation was on the topic *Strategic Planning for Use and Care of Lifting Tackles – Status of Indian Legislations*. Shri C.M. Nigli, Dy. Director (Safety), Regional Labour Institute, Chennai presented a paper on the subject. Shri Huzefa Lehry, Director, Madras Hard Tools Ltd., Chennai presented a paper on *Safety in the Use of Loose Gears and Product Update* and a paper on *Best Practices in the use of Lifting Tackles and Material Handling Equipment* was presented by Shri S.D. Bharambe, Scientific Officer, BARC, Mumbai during the second and third technical sessions of the seminar respectively.

REGIONAL WORKSHOP TO OPERATIONALIZE NATIONAL POLICY ON SAFETY, HEALTH AND ENVIRONMENT AT WORKPLACE ON 19TH MARCH, 2010 AT REGIONAL LABOUR INSTITUTE, KOLKATA ORGANISED BY DGFASLI, MUMBAI

Seated from left Shri R. P. Chakraborty, Chief Inspector of Factories, West Bengal; Shri GMEK Raj, DDG, DGFASLI, Mumbai; Shri U.K.Das, Director (Safety) & In-charge RLI, Kolkata.

The Directorate General Factory Advice Service & Labour Institutes (DGFASLI), Mumbai organized a Regional Workshop to Operationalize National Policy on Safety, Health and Environment at Workplace on 19th March, 2010 at Regional Labour Institute, Kolkata to draw up the action plan as envisaged in the National Policy for the Stakeholders of the Eastern Region i.e West Bengal, Orissa, Bihar, Jharkhand, Assam, Tripura, Sikkim, Arunachal Pradesh, Nagaland, Manipur. The Workshop was tripartite in nature. Delegates of the Ministry of Labour & Employment, University/Institution, Chief Inspectors of Factories from States in the region, representatives from leading industries, employers' associations and the employees' associations actively participated in workshop.

Shri G. M. E. K. Raj, Director (Safety), DGFASLI, Mumbai, Shri U. K. Das, Director (Safety), RLI, Kolkata, Shri R. P. Chakraborty, Chief Inspector of Factories, West Bengal, Shri Samar Chakraborty, Secretary General, INTUC, Kolkata & National Safety Council, Kolkata Chapter, graced the seminar besides the presence of 60 dignitaries from Eastern and North Eastern parts of the country such as Government Department, Industries, Universities/Institutions, Trade Unions, etc.

Shri U. K. Das, Director (Safety), RLI, Kolkata welcomed the guests and the participants on behalf of DGFASLI, Mumbai, Govt. of India, Ministry of Labour and Employment and explained the importance of holding the Workshop by DGFASLI in view of declaration of National Policy on Safety, Health and Environment at Workplace. The key note address was delivered by Shri R. P. Chakraborty, Chief Inspector of Factories, Directorate of Factories, Government of West Bengal.The seminar was formally inaugurated by Shri G. M. E. K. Raj, Director (Safety), DGFASLI, Mumbai followed by inaugural address. The government officials, the executives from the industries, the trade union leaders and professors/educationist from the Universities, Institutions presented their action plans for implementation of the National Policy.

CENTRAL LABOUR INSTITUTE: MUMBAI

During the quarter from January 2010 to March 2010, Central Labour Institute carried out several activities of which important ones are given below.

Studies

Assessment of Airborne Contaminants in the Workzone of a Chemical Factory in Maharashtra (Mandre, M.K., Industrial Hygiene Division, Central Labour Institute, Mumbai)

Assessment of Airborne Contaminants in the Workzone of a Chemical Factory in Maharashtra (Mandre, M.K., Industrial Hygiene Division, Central Labour Institute, Mumbai)

Assessment of Airborne Contaminants in the Workzone of a Tyre Factory in Maharashtra (Mandre, M.K., Industrial Hygiene Division, Central Labour Institute, Mumbai)

Assessment of Airborne Contaminants in the Workzone of an Ordnance Factory in Maharashtra (Mandre, M.K., Industrial Hygiene Division, Central Labour Institute, Mumbai)

Assessment of Airborne Chemical Contaminants in the Work Environment of a Hair and Skin Care Products Industry in Maharashtra (Metkari, M.A., Industrial Hygiene Division, Central Labour Institute, Mumbai)

Assessment of Airborne Chemical Contaminants in the Work Environment of Painting Operations at a Service Station in Goa (Pal, P.B., Metkari, M.A., Industrial Hygiene Division, Central Labour Institute, Mumbai)

Assessment of Airborne Chemical Contaminants in the Work Environment of Painting Operations at a Automobile Corporation in Goa (Pal, P.B., Metkari, M.A., Industrial Hygiene Division, Central Labour Institute, Mumbai)

Assessment of Airborne Chemical Contaminants in the Work Environment of Painting Operations of Composite Canopies in Goa (Pal, P.B., Metkari, M.A., Industrial Hygiene Division, Central Labour Institute, Mumbai)

Assessment of Airborne Chemical Contaminants in the Work Environment of Painting Operations of Bus Bodies in Goa (Pal, P.B., Metkari, M.A., Industrial Hygiene Division, Central Labour Institute, Mumbai)

Assessment of Airborne Chemical Contaminants in the Work Environment of Painting Operations of Panels for Railway Coaches in Goa (Pal, P.B., Metkari, M.A., Industrial Hygiene Division, Central Labour Institute, Mumbai)

Safety Audit at a Paint Manufacturing Plant in Maharashtra (Gautam, S.S., Sharma, S.C., Major Hazards & Chemical Safety Division, Central labour Institute, Mumbai)

PHA Study at a Fibreglass Boat Manufacturing Industry in Goa (Gautam, S.S., Subhash Chandra, Major Hazards & Chemical Safety Division, Central labour Institute, Mumbai)

Dispersion Modelling for Instantaneous Release of Carbon Monoxide from Producer Gas Plant and Pool Fire in Furnace oil in an Engineering Industry in Orissa (Gautam, S.S., Sharma, S.C., Major Hazards & Chemical Safety Division, Central labour Institute, Mumbai)

Training Programme

Learning centre conducted five three-days training programmes during this quarter. They are as given below: *Personal Growth and Group Dynamics* from January 27 to 29, 2010. The programme was attended by five participants from three organisations.

Effective Participative Skills for Safety Committee Members from February 16 to18, 2010. The programme was attended by thirteen participants from four organisations.

Refresher Course for Safety Officers from February 17 to 19, 2010. The programme was attended by eleven participants from ten organisations.

Recognition and Evaluation of Chemical Hazards in Industries from February 22 to 24, 2010. The programme was attended by seven participants from three organisations.

Dispersion Modeling & Impact assessment of Major Toxic & Flammable Releases from February 23 to 25, 2010. The programme was attended by fourteen participants from eight organisations.

Industrial Psychology Division conducted a three-days training programme on *Making Safety Committee more Effective* from January 13 to 15, 2010. The program was attended by sixteen participants from one organizations.

Industrial Psychology Division conducted a three-days training programme on *Behaviour based Safety* from January 20 to 22, 2010. The programme was attended by twenty three participants from eleven organisations.

Industrial Psychology Division conducted a two-day training programme on *Making Safety Committee More Effective* at Tata Motors Ltd., Pune from February 02 to 03, 2010 and was attended by thirty three participants.

Industrial Psychology Division conducted a one-day training programme on *Behavioural Safety* at RCF Ltd., Thal Unit, on February 11, 2010 and was attended by thirty participants.

Safety Division conducted a three-days collaborative training programme with NSC Maharashtra Chapter on

Industrial Safety at CLI from March 10 to 12, 2010. Twenty two delegates from eight organisations participated in the programme.

Safety Division conducted one-day inplant training programme on *Accident Prevention in Construction Sites* at Reliance Energy Management Institute, Mumbai on January 19, 2010. Fifty management level delegates attended the programme.

Ergonomics Division conducted a three-days training programme on *Management of Health Hazards in use of Computer and VDT at Workplace* from March 17 to 19, 2010. The programme was attended by twelve participants from telecom services and banking industries.

Productivity Division conducted a three-days training programme on *Personnel Growth & Group Dynamics for Safety and Health* from January 27 to 29, 2010. The programme was attended by five participants from three organisations.

Productivity Division conducted a three-days training programme on *Dispersion Modelling for Impact Assessment of Major and Toxic substances and Inflammable Releases* from February 23 to 25, 2010. The programme was attended by five participants from three organisations.

Productivity Division conducted a two-days inplant training programme on *Enhancing Positive Work Environment to Enhance Productitvity* at Coromondel International Ltd., Vizag on March 25 and 26, 2010. The programme was attended by eighty-seven participants from various organisations.

Productivity Division conducted a one-day inplant training programme on *Higher Productivity and Better Place to Work for Workers and Supervisors of Small-Scale Industries* on February 04, 2010. The programme was attended by forty-three participants from twenty organisations.

Major Hazard & Chemical Safety Division conducted a two-days in-plant training programme on *Chlorine Safety* at NALCO Angul, Orissa from February 11 to 12, 2010. The programme was attended by thirty participants from the organization.

Workshops/Seminars/Conference

Productivity Division conducted a workshop on *Higher Productivity and Better Place to Work* for the owners and managers of small scale industries from February 01 to 05, 2010. The workshop was attended by sixty three participants from twenty organisations.

Paper/Presentation/Talks

Shri P.K. Mohanty, Deputy Director (Industrial Psychology), delivered talks on *Behaviour Based Safety* at two organizations namely Western Railway Workshop, Mumbai on March 05, 2010 and Nuclear Power Corpn. Ltd., Mumbai on March 09, 2010.

Shri P.K. Mohanty, Deputy Director (Industrial Psychology), delivered talks on *Humanization of Work Environment* and on *Creating Positive Work Environment* at Coromandel International Ltd., Visakhapatnam on March 25 and 26, 2010.

Shri S. Bharathi, Director (Safety), delivered a talk on *Machine Safety* in a training programme conducted by Bhabha Atomic Research Centre, Mumbai on January 12, 2010.

Shri S. Bharathi, Director (Safety), delivered a talk on *Accident Prevention* during the *Safety Week* celebration at Naval Dockyard, Mumbai on March 04, 2010.

Shri B.L. Bairwa, Dy. Director (Safety), delivered a talk on *Accident Prevention- Philosophy and Prevention* at Ordnance Factory, Ambernath during their *Safety Week* celebration on March 12, 2010.

REGIONAL LABOUR INSTITUTE, KANPUR

During the quarter from January 2010 to March 2010, Regional Labour Institute carried out studies, training programmes etc. which are described here.

Studies

Follow-up Safety Audit at Thermal Power Plant in New Delhi (Mathur, S.B., Brij Mohan and Chakraborty, A.K., Industrial Safety and Industrial Hygiene Division, Regional Labour Institute, Kanpur)

Monitoring of Work Environment at a Chemical Manufacturing Industry in Delhi (Brij Mohan, Industrial Hygiene Division, Regional Labour Institute, Kanpur)

Workshops/Seminars/Conference

The Institute conducted a regional workshop to operationalise *National Policy on Safety, Health and Environment* on March 03, 2010. The workshop was attended by one hundred delegates from sixty-five different organisations.

REGIONAL LABOUR INSTITUTE, CHENNAI

During the quarter from January 2010 to March 2010, Regional Labour Institute carried out following technical activities

Training Programme

Safety Division conducted an in-plant training programme for Safety Committee Members of Chennai Port Trust on March 11, 2010. The training programme was attended by twenty Safety Committee Members of Chennai Port Trust.

Workshops/Seminars/Conference

The Institute conducted a one day Regional Workshop on *Operationalizing the National Policy on Safety, Health and Environment at Workplace* for Stakeholders consisting of Inspectors of Factories, Trade Unions, Executives and officers from industries on March 25, 2010. The workshop was attended by eighty-one delegates representing fifty-four organizations.

Paper/Presentations/Talks

Dr.R.K.Elangovan, Director (Safety) & In-charge RLI, Chennai, delivered a talk on *Industrial Safety* for the benefit of 100 participants of M/s.Brakes India Ltd., Sholingur on the Safety Day Celebration organized by the company on March 04, 2010.

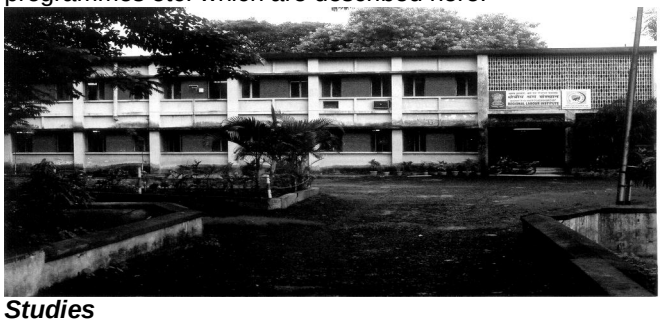
Dr.R.K.Elangovan, Director (Safety) & In-charge RLI, Chennai, delivered a talk on *Industrial Safety* for the benefit of 200 participants of M/s.Heavy Vehicles Factory, Avadi on the Safety Day Celebration organized by the company on March 05, 2010.

Dr.R.K.Elangovan, Director (Safety) & In-charge RLI, Chennai, delivered a talk on *Industrial Safety* for the benefit of 300 participants of M/s.Johnsons Lifts (P) Ltd., Chennai on the Safety Day Celebration organized by the company on March 10, 2010.

Shri C.M.Nigli, Deputy Director (Safety), presented a paper on *Statutory Support for the Care and Maintenance of Lifting Tackles* in the seminar organized by Central Labour Institute as a part of the Institute day on February 09, 2010.

REGIONAL LABOUR INSTITUTE, KOLKATA

During the quarter from January 2010 to March 2010, Regional Labour Institute carried out studies and training programmes etc. which are described here.



Studies

Occupational Health and Hygiene Study of a Stone Breaking Units in Tripura (Haldar S.K., Chattopadhyay H., Banerjee S.N., Bandopadhyay D., Regional Labour Institute, Kolkata)

Safety Audit at a Thermal Power Station in West Bengal (Banerjee S.N. & Bandopadhyay D., Regional Labour Institute, Kolkata)

Safety Audit at a Thermal Power Station in West Bengal (Das U. K., Sengupta D. K., Regional Labour Institute, Kolkata)

Training programmes

Industrial Medicine Division conducted training programme on *Refresher Course for Plant Medical Officers* from February 01 to 05, 2010. Twenty-three Medical Officers from seven private and ten public industries attended the programme.

Industrial Hygiene Division conducted training programme on *Management of Physical Hazards and Wastes in Workplace* from March 12 to 16, 2010. Thirteen Management/Executive Officers from two private and five public industries attended the programme.

Workshops/Seminars/Conference

The Institute conducted a one day seminar on *Safety, Health and Environment Hazard Management in Industries* held at Haldia on February 19, 2010. The seminar was organised by ICC, Kolkata in collaboration with DGFASLI.

The Institute organised a workshop for implementation of National Policy on Safety, Health and Environment at Workplace and increasing the OSH awareness of various agencies involved with *Silica Dust in Industries* on February 25, 2010 at Guwahati in Assam in collaboration with Inspectorate of Factories, Government of Assam.

The Institute conducted a seminar on *Safety & Productivity in Tea Manufacturing Industries* on January 26, 2010 at Guwahati in Assam by DGFASLI in collaboration with Chief Inspector of Factories, Govt. of Assam.

The Institute conducted a seminar on *Prevention of OSH Hazards in Petroleum Industries* on March 11, 2010 at Guwahati, Assam, by DGFASLI in collaboration with Chief Inspector of Factories, Govt. of Assam.

A regional workshop to operationalize *National Policy on Safety, Health and Environment at Workplace* was organized by DGFASLI on March 19, 2010 at Regional Labour Institute, Kolkata.

Paper/Presentations/Talks

Dr. S. K. Haldar, Dy. Director (Industrial Medicine), delivered a talk on *Occupational Health Hazards & its prevention in the Haldia Industrial Prospective* in the one-day Seminar on *Occupational Safety, Health & Environment Hazards Management in Industries* at Haldia, West Bengal conducted by ICC Kolkata in Collaboration with DGFASLI, Mumbai, ICC, Kolkata on 19-02-2010.

Dr. S. K. Haldar, Dy. Director (Industrial Medicine), RLI, Kolkata delivered a talk on *Silicosis- a concern for silica dust Industries* in the one-day *Workshop on Silicosis* at Guwahati, Assam organized by DGFASLI, Mumbai in Collaboration with Inspector of Factories, Government of Assam on February 25, 2010.

Dr. S. N. Banerjee, Dy. Director (Industrial Hygiene), delivered a talk on *Environmental Monitoring of Free Silica Dust* in the one-day workshop on *Silicosis* at Guwahati, Assam organized by DGFASLI, Mumbai in Collaboration with Inspector of Factories, Government of Assam on February 25, 2010.

Shri U. K. Das, Director (Safety), delivered a talk on *Implementation of National Policy on Safety, Health and Environment* in the one-day seminar on *Safety & Productivity in Tea Manufacturing Industry* at Guwahati, Assam organized by DGFASLI, Mumbai in Collaboration with Inspector of Factories, Government of Assam on February 26, 2010.

Dr. S. K. Haldar, Dy. Director (Med), delivered a talk on *Occupational Health Hazards & its Prevention in Tea Industries* in the one-day seminar on *Safety & Productivity in Tea Manufacturing Industry* at Guwahati, Assam organized by DGFASLI, Mumbai in Collaboration with Inspector of Factories, Government of Assam on February 26, 2010.

Shri H. Chattopadhyay, Dy. Director (Safety), delivered a talk on *Better Safety and Health Improves Productivity* in the one-day seminar on *Safety & Productivity in Tea Manufacturing Industry* at Guwahati, Assam organized by DGFASLI, Mumbai in Collaboration with Inspector of Factories, Government of Assam on February 26, 2010.

Shri U. K. Das, Director (Safety), Incharge, RLI, Kolkata, delivered a talk on *Implementation of National Policy on Safety, Health and Environment by OSH Stakeholders* in the seminar on *Prevention of OSH Hazards in Petroleum Industries* organized by DGFASLI in collaboration with Chief Inspector of Factories, Govt. of Assam at Guwahati, Assam on March 11, 2010.

Shri H. Chattopadhyay, Dy. Director (Safety), delivered a talk on *Preparation of On-site and Off-site Emergency Plan* in the seminar on *Prevention of OSH Hazards in Petroleum Industries* organized by DGFASLI in collaboration with Chief Inspector of Factories, Govt. of Assam at Guwahati, Assam on March 11, 2010.

QUOTES TO REMEMBER

Safety First, Avoid the Worst

INCIDENTS ARE A FREE LESSON - REPORT IT!

Safety is like a lock - But you are the key

BEFORE YOU DO IT, TAKE TIME TO THINK THROUGH IT.

Accidents hurt ---- Safety doesn't.

TOMORROW - YOUR REWARD FOR WORKING SAFELY TODAY.

SAFETY POSTER

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***Assessment of Airborne Contaminants in the Workzone of a Chemical Factory in Maharashtra* (by Mandre, M.K., Industrial Hygiene Division, Central Labour Institute, Mumbai)**

Factory is in the production of chemicals which are used for textiles and as packing materials. The study was carried out for evaluation of the levels of airborne contaminants such as Styrene, Phenol, formaldehyde, Naphathalene, sulphuric acid, in their workplace environment to which workers are exposed. Airborne concentration of all chemicals is well below their respective PLE/TLV permissible limits of exposure. The recommendations such as use of dust respirators and safety goggles while packing operation, easy accessiblity to eye fountains to the operators, education and training to workers regarding the use and maintenance of dust filters respirators and other personal protective equipment are given to management

***Assessment of Airborne Contaminants in the Workzone of a Chemical Factory in Maharashtra* (by Mandre, M.K., Industrial Hygiene Division, Central Labour Institute, Mumbai)**

The factory manufactures polyols and polyethers which are used for textiles and for various packing materials.These chemicals are also used for strengthening the cement in construction Industry. The study was carried out for evaluation of the levels of airborne contaminant such as Ammonia and Adipic acid to to which the the workers are exposed in the plant ,during mixing , heating , filling, loading and unloading of amines , adipic acid from storage to the reaction vessel. The airborne concentration of particulate matter of adipic acid and ammonia are well within the Permissible Limits of Exposure, The recommendations such as regular maintenance and inspection programme for exhaust systems to maintain their efficacy are given to management.

***Assessment of Airborne Contaminants in the Workzone of a Tyre Factory in Maharashtra* (by Mandre, M.K., Industrial Hygiene Division, Central Labour Institute, Mumbai)**

The factory at is in the production of tyres for radial, medium, commercial truck and earthmovers. The study was carried out for evaluation of the levels of airborne contaminant such as solvent naphtha, particulate matter, carbon black, airborne concentration of carbon black, particulate matter and solvent vapour of naphtha were found to be well within their respective PLE and TLV at all locations. Recommendation for use of dust respirators while carbon black handling operation, is suggested to the management.

***Assessment of Airborne Contaminants in the Workzone of Ordnance Factory in Maharashtra* (by Mandre, M.K., Industrial Hygiene Division, Central Labour Institute, Mumbai)**

Factory is in the production of shells metallic fuses, propellant, cartridge cases of different dimension & shapes which are required as defence material used with explosive for Rockets, Guns, Boforce tanks etc. The study was carried out for evaluation of the levels of airborne contaminant such as Carbon black, particulate matter, Aluminium dust, Iron dust, solvent vapours, sulphuric acid, Sodium Hydroxide, Sodium cyanide were found to be well within their respective PLE/TLV permissible limits of exposure except of Carbon Black Particulate matter which has exceeded its Permissible limit of Exposure at Forging operation, shot blasting operation in Shell forge shop. The recommendations such as use of dust respirators & safety goggles to the operators, education and training to workers regarding the use and maintenance of dust filters respirators and other personal protective equipment, regular maintenance and inspection programme for exhaust systems to maintain their efficacy are given to management.

***Assessment of Airborne Chemical Contaminants in the Work Environment of Hair and Skin Care Products Industry in Maharashtra* (Metkari, M.A., Industrial Hygiene Division, Central Labour Institute, Mumbai)**

The airborne concentrations of Nicotinamide, Methyl Paraben, Pyridoxine Hydrochloride, Ammonium Hydroxide, Sodium Hydroxide, Hydrochloric Acid, Vitamin-A, Amorphous Silica in work environment were found within their respective Occupational Exposure Limits. The recommendations on prevention of spillages /leakages of toxic chemicals, avoidance of mismatch of personal protective equipment and requirements of different industrial operations, imparting health & safety training to employees, regular workplace air monitoring, etc. are suggested.

***Assessment of Airborne Chemical Contaminants in the Work Environment of Painting Operations at a Service Station in Goa* (Pal, P.B., Metkari, M.A., Industrial Hygiene Division, Central Labour Institute, Mumbai)**

The airborne concentrations of Butyl Acetate, Xylene and Isobutanol in work environment were found within their respective Permissible Limit of Exposure and Threshold Limit Values. The recommendations on checking of exhaust efficiency of exhaust system, translation of MSDS in local language, regular workplace air monitoring, imparting Industrial Hygiene training to employees, etc. are suggested.

***Assessment of Airborne Chemical Contaminants in the Work Environment of Painting Operations at Automobile Corporation in Goa* (Pal, P.B., Metkari, M.A., Industrial Hygiene Division, Central Labour Institute, Mumbai)**

The airborne concentrations of Butyl Acetate, Xylene, Isobutanol and Particulate Matter in work environment were found within their respective Permissible Limit of Exposure and Threshold Limit Values. The recommendations on translation of MSDS in local language, checking of exhaust efficiency of exhaust system, regular workplace air monitoring, imparting Industrial Hygiene training to employees, use of essential PPE, etc. are suggested.

Assessment of Airborne Chemical Contaminants in the Work Environment of Painting Operations of

Composite Canopies in Goa **(Pal, P.B., Metkari, M.A., Industrial Hygiene Division, Central Labour Institute, Mumbai)**

The airborne concentration levels of Butyl Acetate in work environment were found to be within its Permissible Limit of Exposure (PLE) and Threshold Limit Value (TLV) of 150 ppm. The mean airborne concentration of Xylene was obtained to be 453.0 ppm which exceeded its PLE & TLV of 100 ppm. The recommendations on provision of proper spray booth, use of essential PPE, translation of MSDS in local language, treatment and disposal of waste, checking of exhaust efficiency of exhaust system, regular workplace air monitoring, imparting Industrial Hygiene training to employees, per-employment, periodic & post-employment medical examination of workers, etc. are suggested.

Assessment of Airborne Chemical Contaminants in the Work Environment of Painting Operations of Bus Bodies in Goa **(Pal, P.B., Metkari, M.A., Industrial Hygiene Division, Central Labour Institute, Mumbai)**

The airborne concentration levels of Butyl Acetate and Xylene in work environment were found to exceed their respective PLEs and TLVs. While the mean concentration of Butyl Acetate was obtained to be 154.0 ppm against its PLE & TLV of 150 ppm, the mean concentration of Xylene was obtained to be 134.1 ppm against its PLE & TLV of 100 ppm. The recommendations on provision of proper spray booth, use of specific PPE, translation of MSDS in local language, treatment and disposal of waste, regular workplace air monitoring, provision of local exhaust system, imparting Industrial Hygiene training to employees, per-employment, periodic & post-employment medical examination of workers, etc. are suggested.

Assessment of Airborne Chemical Contaminants in the Work Environment of Painting Operations of Panels for Railway Coaches in Goa **(Pal, P.B., Metkari, M.A., Industrial Hygiene Division, Central Labour Institute, Mumbai)**

The airborne concentration levels of Styrene in the temporary spray booth were found to be 29.3 ppm which exceeded its TLV of 20 ppm. The mean concentration of Styrene obtained during manual painting was 154.6 ppm against its PLE (50 ppm) & TLV (20) ppm. The recommendations on provision of proper spray booth, use of specific PPE, translation of MSDS in local language, regular workplace air monitoring, provision of local exhaust system, per-employment, imparting Industrial Hygiene training to employees, periodic & post-employment medical examination of workers, etc. are suggested.

Safety Audit in a Paint Manufacturing Plant in Maharashtra **(Gautam, S.S., Sharma, S.C., Major Hazards & Chemical Safety Division, Central labour Institute, Mumbai)**

The document is a report of safety audit of a paint manufacturing plant. The process involves use and storage of resins, pigments and solvents with some additives. The thinners are made to dilute the paints. The report covers the detailed methodology, process description, findings and observation of the safety audit and summary of recommendations. The objective of the audit was to identify the hazards in the plant arising due to deviations from the applicable codes, standards, statutes, and operating procedures and to suggest the appropriate remedial measures wherever required. The methodology followed during audit was basically as per the BIS-14489. Many OSH related points were identified during the audit where the need for intervention appeared to be desirable in order to improve the safety and health conditions in the plant. Based on the observations and discussions, it is noted that the long term safety aspects like appointment of qualified safety officer, proper housekeeping, electrical safety, safety in storage hazardous substances, pipe lines safety, proper ventilation, discharge of static electricity, machine guarding, etc. are some of the areas where perpetual attention is required. The management should keep a close watch over the changing statutes and keep a pace with the amendments. The report covers the detailed methodology, process description, findings and observation of the safety audit and summary of recommendations.

PHA Study in a Fibreglass Boat Manufacturing Industry in Goa **(Gautam, S.S., Subhash Chandra, Major Hazards & Chemical Safety Division, Central labour Institute, Mumbai)**

The document is a report of process hazard analysis of a fibre glass boat manufacturing plant. The process involves use of organic peroxide accelerator and resins containing styrene monomer and other solvents. The report covers the detailed methodology, process description, findings of the study in the form of PHA sheets, discussions and summary of recommendations generated through eh PHA analysis. The basic raw materials for fibre glass boat fabrication are polyester resin containing about 30% styrene monomer, moderated Methyl ethyl Ketone peroxide as accelerator and acetone as solvent for washing of brush and spray gun. The hazards identified are possibility of accumulation of flammable and toxic vapours of styrene in the stores and in the fabrication moulding shop. The ventilation is likely to be restricted due to air conditioning of the proposed storage and moulding areas. Suggestions have been given to improve the safety by inventory control, increased ventilation, and avoiding risk of ignition of flammable mixture.

Dispersion Modelling for Instantaneous Release of Carbon Monoxide from Producer Gas Plant and Pool Fire in Furnace oil in an Engineering Industry in Orissa **(Gautam, S.S., Sharma, S.C., Major Hazards & Chemical Safety Division, Central labour Institute, Mumbai)**

The report covers furnace oil storage tank and producer gas plant of steel & power plant. The report includes quantification of distances of various types of damages under different wind weather stability classes and different wind speeds to assist the managements to take guidance from the report for emergency preparedness and for guiding the emergency actions under emergencies. The findings & recommendations of the report are In case of release of carbon monoxide from the Producer Gas plant under different weather conditions the distances up to which the dangerous concentrations may reach have

been presented. The maximum distance of IDLH (1200 ppm) in wind direction is 84 M from source. Distance of STEL (400 ppm) in wind direction is 161 m from source. In furnace oil storage, it is observed that dyke wall is common for 2 tanks, but liquid is not flammable. The substance may not catch fire easily but if the pool gets ignited due to fire in vicinity or otherwise the heat radiation from the flame on the dyke wall may cause potential death up to a distance of 51M from dyke wall. Second degree burns may occur up to a distance of 81 M.

Occupational Health and Hygiene Study at Stone Breaking Units in Tripura **(Haldar S.K., Chattopadhyay H., Banerjee S.N., Bandopadhyay D., Regional Labour Institute, Kolkata)**

The objective of the study was to evaluate safety and health status of the stone breaking industries. About 15 stone breaking Units & 6 Units of Work Environment Monitoring on Air Borne Dust were covered in the state of Tripura in the month of January, 2010. The report has been sent to the Chief Inspector of Factories, Government of Tripura.

Safety Audit at Thermal Power Station in West Bengal **(Banerjee S.N. & Bandopadhyay D., Regional Labour Institute, Kolkata)**

The Thermal Power Station, is a State Government undertaking the first unit of which was commissioned on 1st January, 1974 , consisting of Thermal Power Plant and Water Works, Railway siding, ash pond & residential colony. It is under the administrative control of the Department of Power, Government of West Bengal. The Company's Plants and Administrative offices are located within 02 km from Santaldih Railway Station, in the Adra-Gomoh section of the South Eastern Railway. The Thermal Power Station possesses six power generating units, of which four units are of 120 MW capacity each, out of which No. 3 & 4 units were found closed during visit of the Audit team. The no. 1 unit was also found to be out of operation temporarily. The 6th one is under commissioning stage. Out of its six power units four units are with an aggregate capacity of 120 M.W each and 5th & 6th units are of 250 M.W. capacity. The 5th unit was found to be running at reduced load of 170MW. The methodology included Safety Audit Questionnaire adopted from BIS – 14489:1998, site tour, records study, discussion with personnel at various levels and analysis of data. The objective was to examine critically the working conditions in DPPS, which are unsafe in nature and have sufficient potentiality to cause accident during process, to identify and evaluate work practices and procedures which are hazardous in nature to cause human injuries and sickness and damage to the plant and machinery, to ensure existence and effectiveness of all the features and fittings connected with the manufacturing machinery and appliances, to increase the overall level of safety awareness carry-out systematic and critical appraisal of all potential hazards involving personnel, services and operational methods in order to suggest suitable recommendations for improvisation of the existing safety and health status. Recommendations were given to improve upon the deviations in the areas of Fire Fighting, Emergency Control Centre, Material Handling system, Housekeeping, Noise & Vibration, Electrical Safety, Control & Instrumentation, First Aids, Training and to suggest appropriate remedial measures for improvement of safety & health.

Safety Audit at Thermal Power Station in West Bengal **(Das U. K., Sengupta D. K., Regional Labour Institute, Kolkata)**

The Thermal Power Station is a Government Company. The Plant is situated on the banks of the Holy Ganges near Calcutta in the state of West Bengal in Eastern part of India. It is under the administrative control of the West Bengal Power Development Corporation Ltd., Government of West Bengal. The Company's Plants and Administrative Office are located within 25 km from Bandel Railway Station and 1 km from the G. T. Road. The company is generating power from its 5 power units distributing to its consumers of various categories located in its command area at Bandel and the surplus power is transmitted through the West Bengal State Electricity Board. The methodology included Safety Audit Questionnaire adopted from BIS–14489:1998, site tour, records study, discussion with personnel at various levels and analysis of data. The objective was to examine critically the working conditions in DPPS, which are unsafe in nature and have sufficient potentiality to cause accident during process, to identify and evaluate work practices and procedures which are hazardous in nature to cause human injuries and sickness and damage to the plant and machinery, to ensure existence and effectiveness of all the features and fittings connected with the manufacturing machinery and appliances, to increase the overall level of safety awareness carry-out systematic and critical appraisal of all potential hazards involving personnel, services and operational methods in order to suggest suitable recommendations for improvisation of the existing safety and health status. Recommendations were given to improve upon the deviations in the areas of Fire Fighting, Emergency Control Centre, Material Handling system, Housekeeping, Noise & Vibration, Electrical Safety, Control & Instrumentation, First Aids, Training and to suggest appropriate remedial measures for improvement of safety & health.

Follow-up Safety Audit at Thermal Power Plant in New Delhi **(Mathur, S.B., Brij Mohan and Chakraborty, A.K., Industrial Hygiene Division, Regional Labour Institute, Kanpur)**

The follow-up safety audit was done at the thermal power plant. During the audit it was observed that the management of the company has complied/initiated compliance on most of the recommendations of the main safety audit and certain recommendations are still to be complied. It has been suggested that the action on the point on which compliance has been initiated should be expedited. Early action for compliance should be taken on the recommendations, which are yet to be complied. Some of the recommendations of the main safety sudit on which compliance is yet to be done include displaying the safety policy, removing anomalies in the status and conditions of service of the safety officer, doing accident analysis for reportable and non-reportable accidents,

preparing lessons learned from past accidents, revising safety manual, doing the hazardous zone classification of the factory for use of electrical equipments accordingly, improvements in staircase at CHP, ensuring that at the lifting gears that are used at that erection site of Stage-II are properly tested etc.

Monitoring of Work Environment at a Chemical Manufacturing Industry in Delhi **(Brij Mohan, Industrial Hygiene Division, Regional Labour Institute, Kanpur)**

The plant is a bulk drug intermediates manufacturing unit. The purpose was for evaluation of different airborne contaminants such as airborne Ammonia, Chlorine, Acetone, Chloroform, Iso-propanol and Methanol vapours, Camphor, Sulphuric acid, cyanide, hydrochloric acid, nitric acid, phosphoric acid, sulphuric acid mist, nitric oxide and sodium hydroxide at work place. The workmen in plant areas are likely to expose with different chemical agents and therefore thorough evaluation was carried out. About one hundred and twenty five samples of different airborne contaminants were collected during the study. The levels of different airborne contaminants in plant areas except Hydrochloric acid and Chloroform ij PGCIJ plant and Sulphuric acid mist in PHPG plant were found to be within the prescribed permissible limits during the study. The main recommendations of the study are periodic evaluation of scrubbing systems provided in different plants to monitor their effectiveness, local exhaust arrangement for centrifuges in PGDS plant, suitable respirator preferablyairline respirator for the workers engaged on centrifuges in PGDS plant, sound inspection and maintenance practices to reduce levels of airborne contaminants in palnt areas, us eof personal protective equipment by the employees at the time of work, display of hazard information for the hazardous chemicals at the prominent places in the work areas and development of infrastructure at the plant level for periodic monitoring of different airborne conatminants at workplaces.

FILM ARCHIVE ON OCCUPATIONAL SAFETY, HEALTH & ENVIRONMENT AT CENTRAL LABOUR INSTITUTE, MUMBAI

The Government of India declared the National Policy on Safety, Health and Environment at Workplace on 28th February 2009. One of the goals of the National policy is to build and sustain preventive safety and health culture in the country in order to eliminate the hazards at workplace and to enhance the well being of employees in all the sectors of economic activities in our country. To attain this goal, one of the steps taken by Directorate General Factory Advice Service & Labour Institutes (DGFASLI) is to develop a **Film Archive on Occupational Safety, Health and Environment at Central Labour Institute in Mumbai**.

All the Film Producers, Organisations, Industries, Industrial Association, Trade unions, Professional bodies, Government and Non-Government organisations, Educational Institutes etc. are invited to enlist their films on Occupational Safety, Health & Environment (OSHE) in CD, DVD format etc. with the Film Archive for preparing a directory of OSHE films.

Interested Agencies/Individuals may please fill-up the proforma and send to:

The Director General,
DGFASLI
Central Labour Institute,
N.S.Mankiker Marg, Sion,
Mumbai 400022

or E-mail at editorindosh@gmail.com. The proforma may be downloaded from DGFASLI website at www.dgfasli.nic.in.

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TRAINING CALENDAR FOR THE YEAR 2010: DGFASLI

CENTRAL LABOUR INSTITUTE
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S.No	Title of the Programme	Period	Coordinator (Technical)
1.	Collaborative Training Programme with NSC-Maharashtra Chapter on Industrial Safety	April 06-08	B.L.Bairwa
2.	Workshop on Hazards & Operability (HAZOP) Study	April 07-09	S.S.Gautam
3.	On the Job Counseling Skills	April 21-23	P.K. Mohanty
4.	Selection & Quality Assurance for Effective Use of PPE	April 28-30	M.K.Mandre
5.	Team - building for Health, Safety & Welfare at Work	May 12-14	N.K.Rustagi
6.	Productivity & Quality through Effective Employee Participation	May 18-20	R.N.Meena
7.	Workshop on Safe Handling of Chemicals for Safety Committee Members	May 19-21	S.S.Gautam
8.	Collaborative Training Programme with NSC-Maharashtra Chapter on Industrial Safety	May 24-26	B.L.Bairwa/ S.Bharathi
9.	Motivation for Safety, Health & Productivity	May 24-26	P.K.Mohanty
10.	Workshop on Industrial Ventilation	June 07-09	S.S.Gautam
11.	Workshop on Occupational Safety, Health & Environment for Safety Professionals – Innovation & Challenges	June 09-11	S.Bharathi
12.	Effective Supervision for Results	June 21-23	N.K.Rustagi
13.	Advanced Diploma in Industrial Safety (ADIS) 2010-11: First Teaching Term	July 01–2nd Week of November	B.L.Bairwa/ S.Bharathi
14.	Ergonomics-A tool for improving Safety, Health & Productivity at Ship Building Works	July 13-15	D.R.Krishna
15.	Occupational Safety & Health Management in Process Industries	July 21-23	S.C.Sharma
16.	Refresher Course on Occupational Health for Plant Medical Officers	August 09-13	Dr. S.S. Waghe
17.	Workshop on Industrial Noise	August 18-20	S.Chandra
18.	Making Safety Committee more Effective	August 25-27	P.K.Mohanty
19.	One Month Specialized Certificate Course in Safety and Health for Supervisory Personnel Engaged in Hazardous Process Industries	September 01- September 30	Dr.M.Rajaram
20.	Basic Course for Inspector of Factories	September 06-24	B.L.Bairwa
21.	Training Methodology for Trainers	September 07-09	N.K.Rustagi
22.	Training Workshop on Hazard & Operability (HAZOP) Studies	September 22-24	S.C.Sharma
23.	Ergonomics- A tool for improving services in Hotels, Malls and Hospitals	September 28-30	D.R.Krishna
24.	Training Programme on Occupational Health Nursing for Nurses & Paramedicals	October 04-08	Dr. S.S.Waghe
25.	Monitoring of Work Environment in Industries	October 06-08	M.K.Mandre
26.	Ergonomics for Machine operators/ Service/Maintenance Personnel	October 19-21	D.R.Krishna
27.	Handling Problem Behaviour of Employees	November 10-12	P.K.Mohanty
28.	Refresher Course for Inspector of Factories	November 15-26	B.L.Bairwa
29.	Productivity & Quality through Effective Employee Participation	November 23-25	R.N.Meena
30.	Safety in Storage, Handling & Management of Hazardous Substances in Process Industries	November 24-26	S.C.Sharma
31.	Advanced Diploma in Industrial Safety (ADIS) 2010-11: Continued	December 01, 2010 - April 30, 2011	B.L.Bairwa
32.	Evaluation of Heat Stress to improve Productivity	December 07-09	D.R.Krishna
33.	Safety, Health and Environment Management in Chemical Industry	December 08-10	M.A.Metkari
34.	OSH-MS	December 14-16	Dr.M.Rajaram
35.	Impact of Environmental Pollutants & their Control at Work Place	December 20-22	S.Chandra
36.	Associate Fellow of Industrial Health (AFIH)	Dec.2010 - Feb 2011	Dr. P.P. Lanjewar

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S.No	Title of the Programme	Period	Coordinator
1.	Training Programme on Prevention & Control of Fire in Industry	April 13-15	Dr. Brij Mohan
2.	Training Programme on Safety & Health in Sugar Industry	April 27-29	Dr. Brij Mohan
3.	Training Programme on Chemical Safety for Safety Committee Members	July 06-09	Dr. Brij Mohan
4.	Post Diploma Course on Industrial Safety 2010-2011	July 2010 - March	S.K.Dwivedi

		2011	
5.	Training Programme On Testing & Examination of Lifting Machines & Pressure Vessels	August 16-20	G.S.Pandey
6.	Training Programme on Safety & Law	September 06-08	A.K.Chakraborty
7.	Orientation Programme on Occupational Health for Para-Medical Staff	September 13-15	Dr.C.Bhattacharya
8.	Seminar on "Emerging Issues on Safety and Health Management"	September 22	Dr. Brij Mohan
9.	Workshop on Monitoring of Work Environment and its Control	October 06-08	Dr. Brij Mohan
10.	One Month Certificate Course on Safety & Health	November 01- 30	A.K.Chakraborty
11.	Training Programme on Process Safety Management for Inspectors of Factories	December 06-10	Dr. Brij Mohan
12.	Workshop on Safety Audit	December 13-15	A.K.Chakraborty

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S.No	Title of the Programme	Period	Coordinator
1.	Diploma in Industrial Safety	July 2010 – April 2011	C.M.Nigli
2.	Occupational Safety and Health in Construction Industries	July 27-28	C.M.Nigli
3.	Safety Audit	August 24-26	C.M.Nigli
4.	Major Accident Hazard Control in Industries for Inspectors of Factories	September 21-24	A.Sreeramulu
5.	Management of Hazardous Substances in Chemical Industries	November 09-12	A.Sreeramulu
6.	Occupational Safety and Health in Construction Industries	December 07-08	K.Balasubramanian

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S.No	Title of the Programme	Period	Coordinator
1.	Safety & Health Awareness programme for Members of Safety Committee	April 19- 23	H. Chattopadhyay
2.	Safety in Construction Industry	May 03- 07	U.K.Das
3.	Fire Safety & its Management	June 21-28	U.K.Das
4.	One year Diploma in Safety Engineering Course	July 14	H. Chattopadhyay
5.	Faculty Development Programme on "Occupational Safety & Health"	July 26- 30	H. Chattopadhyay
6.	Identification, Evaluation and Control of Hazards in Industries.	August 16-20	Dr.S.N.Banerjee
7.	Training Programme on Chemical Safety	September 06-10	U.K.Das
8.	Safety in Construction Industries	Sept 27 - Oct 01	U.K.Das
9.	Occupational Health and environmental Medicine for Medical & non-medical executives of the industries	October 25-29	Dr. S.K.Halder
10.	Workers Development Programme	November 10- 11	Dr.S.N.Banerjee
11.	One Month Specialized Certificate Course in Safety & Health for Supervisory Personnel working in Hazard Industries	November 15 - December 14	H. Chattopadhyay
12.	Associate Fellow of Industrial Health	Dec 01, 2010 – Feb 30, 2011	Dr. S.K.Halder

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S.No	Title of the Programme	Period	Coordinator
1.	Management of Safety Health and Environment at Workplace	April 21- 23	Rajeev Shukla
2.	Environmental hazards and their Management at work place	May 24- 26	M.R.Rajput
3.	Participative Approach for Safety & Health Management	June 23-25	Dr. Avneesh Singh
4.	Chemical Hazards and their Management at Workplace.	July 21-23	M.R.Rajput
5.	One Year Post Diploma in Industrial Safety (PDIS)	July 2010 – April 2011	Dr. Avneesh Singh
6.	Behavioral Approach for Positive Safety Culture	August 18-20	Dr. Avneesh Singh
7.	Management of Safety Health and Environment at Workplace	September 6-7	Rajeev Shukla
8.	Physical Hazards and their Management at workplace	October 20-22	S.M.Chaugule
9.	Occupational Safety and Health in Construction Industry	November 24-26	Rajeev Shukla

- Training programme brochures will be mailed sufficiently in advance, specifying the dates of commencement of course, its venue etc., to the organisations as per mailing list available.
- Course-coordinator may be contacted for details such as training programme dates, venue, programme contents, level of participants, course fee and its payment etc.
- Admission to the course will be restricted to 20 participants on First-Come-First-Served basis. Participants are not allowed to attend the training course without written confirmation by the course-coordinator.
- Limited Hostel Accomodation on sharing and chargeable basis will be available on 'First-Come-First-Served' basis.