



Published by  
The Directorate General Factory Advice Service &  
Labour Institutes; N.S. Mankiker Marg. Sion, Mumbai  
400 022. INDIA

Editor-in-Chief  
Shri S.K. Saxena

Executive Editor  
Dr. A.K.Chakrabarti

Assistant Editors  
Shri T.K. Biswas, Shri J. Sankar

Editorial Board Members  
Shri G.M.E.K.Raj; Shri S.B.Mathur; Dr.R.B.Raidas; Dr.  
S.S.Gautam; Shri V.B.Sant; Shri U.K.Das; Shri  
S.Bharathi; Shri D.R.Krishna; Dr. E.Laxminarayana; Shri  
P.K.Mohanty; Shri V.K.Saxena

Judgements made, opinions expressed in the Newsletter  
do not necessarily reflect the views of DGFASLI.

CONTENTS

FROM THE DESK  
ARTICLE .....  
ARTICLE .....  
DGFASLI MEGA EVENT .....  
INSTITUTE NEWS .....  
ABSTRACTS .....  
CIS SERVICES IN INDIA.....  
TRAINING CALENDER: DGFASLI.....  
OSH TRAINING CALENDERS OF OTHER  
ORGAINSAIONS.....  
BIOGRAPHY.....  
ABOUT DGFASLI .....

Visit us at: [www.dgfasli.nic.in](http://www.dgfasli.nic.in)  
Telephone : PABX 91-22-24092203  
Fax : 91-22-24071986

ANNUAL SUBSCRIPTION

Rs. 100 (India)  
Rs. 200 (Foreign)

The electronic version of the **INDOSHNEWS** on the  
Internet can be accessed on [www.dgfasli.nic.in](http://www.dgfasli.nic.in)

“VISION 2020”

“VISION 2020” is a special feature of the newsletter. It was launched in April 2008 during the National tripartite seminar ‘Vision 2020: Challenges and Strategies’ held in New Delhi. The first article presents the perspective of Trade Unions on employees’ participation in achieving industrial safety and health by the year 2020. The article emphasizes upon the need to adopt a National Policy on Occupational Safety and health (OSH), constitution of a National Tripartite Commission on OSH, codification of OSH, legislations into an Umbrella Act and adoption of OSHE Policy by all the trade unions. The second article is on OSH issues of 2020 as envisioned by the Indian industries. It is contended that by the year 2020, self-regulation will be practiced by all the major industries in India and ‘Incident Elimination Culture’ will evolve in which safety would be embedded in design maintenance operation and management at all levels in enterprises to make the workplace accident free by the year 2020. I believe, both these thought-provoking articles, the biography of H.W. Heinrich along with other regular features will make the current issue an interesting reading for the readers.

*सुधीर सक्सेना*  
(B.O. Editor)  
“VISION 2020”

FROM THE DESK

The current issue of INDOSHNEWS contain two papers presented during the National curtain-raiser tripartite seminar ‘Vision 2020: Challenges and Strategies’, to declare ‘2008: Year of Industrial Safety and Health’ on 28<sup>th</sup> April, 2008 in New Delhi. The first article presents the perspective of Trade Unions on employees’ participation in achieving industrial safety and health by the year 2020. The article emphasizes upon the need to adopt a National Policy on Occupational Safety and health (OSH), constitution of a National Tripartite Commission on OSH, codification of OSH, legislations into an Umbrella Act and adoption of OSHE Policy by all the trade unions. The second article is on OSH issues of 2020 as envisioned by the Indian industries. It is contended that by the year 2020, self-regulation will be practiced by all the major industries in India and ‘Incident Elimination Culture’ will evolve in which safety would be embedded in design maintenance operation and management at all levels in enterprises to make the workplace accident free by the year 2020. I believe, both these thought-provoking articles, the biography of H.W. Heinrich along with other regular features will make the current issue an interesting reading for the readers.

*S.K. Saxena*  
(S.K. SAXENA)  
Editor In-Chief

## EMPLOYEE PARTICIPATION IN ACHIEVING INDUSTRIAL SAFETY & HEALTH – VISION 2020

H. Mahadevan

### INTRODUCTION

*Mr. Kofi Annan, former Secretary General of the United Nation said "all too often lives are shattered unnecessarily of poor working conditions and inadequate safety systems. Let me encourage everyone to join the ILO in promoting safety and health at work. It is not only sound economic policy; it is basic human right."*

Safety and health is not just only for specialists and professionals. It should become the concern of all people at the workplace. We have to collectively develop the conscience of the common people. In short, the worker should return home in the same condition as he or she came to work. This shall be our vision, now as well as in 2020.

More than 100 years ago it was said "we have nothing to lose but our chains." Now the chains, are of course, not in the hands but the chains are in the brains. Let us break these chains and guarantee a safe and healthy life to the working masses as well as to their bosses. In the name of facing global competition, cost cutting, quicker output, better profits etc. no one is permitted either by law or by ethics to cause any hazards in the work place and surroundings, biological hazards, psychological hazards, or muscular skeletal diseases etc. Our future vision is certainly an inclusive one. Employee participation is naturally inevitable in this process.

### NATIONAL PERSPECTIVE

A National policy, National System and a National Programme besides a National profile is the need of the current decade. Ethical criteria and legal obligations are well within this frame work.

Workers in many countries still face the grimmest threat to their occupational safety and health. Be it the factory fire at 'Triangle Shirtwaist Factory' in New York in 1911 killing 146 workers or 82 years later on May 10, 1993 in Kedar Toy Factory in Thailand ---the similarities do exist. The Silicosis believed to have been found in the workers who built the Pyramids in Egypt continue as a dreadful disease now also. The two notorious disasters-- Three Mile Island of Pennsylvania in 1979 or Chernobyl in Ukraine in 1986 still warn of the future nuclear plant accidents. Since the first documented case of Carcinogens and sectoral cancer in the London Child- Chimney ---Sweepers, comparable occupations causing environmental cancer exist even in 2008. The giant MNC-Union Carbide Factory disaster at Bhopal whose sufferers continue in the next century also did not provide enough lessons to prevent subsequent chemical disasters. What all these illustrations drive us to?

The dismal record of ratifications and implementations of OSH Conventions and Recommendations, the manufacture and usage of even banned chemicals, the work related stress and hazards reducing the active life of the 'educated bonded labour' in the Sunrise industry, IT sector, the reproductive hazards, the untold miseries silently suffered by the vulnerable workers in the growing informal sector, an aftermath of globalisation and similar horrifying experiences drive us to the conclusion that we have not done enough and the intellectual jugglery to justify what has been unfortunately happening cannot continue any more. Towards achieving this, workers participation in achieving industrial Safety & Health is a pre-requisite.

### CERTAIN PRINCIPLES WE UPHOLD

- (i) *We reaffirm the precedence of the human being over the economy. The marketisation of trade and particularly the marketisation of traded values have been extended to all possible fields. The marketisation of human work is one of the most shocking components of this. One of the service which is present particularly in GATS is another extremely working aspect.*
- (ii) *Investment in safety and health at work is considered a 'cost' in many cases, assessed from the viewpoint of a relation with benefits and productivity. This economic and financial analysis generally leaves ethical criteria and legal obligations completely aside.*
- (iii) *Strengthening safety and health at work implies that efficient and accessible services are made available to the workers. The privatisation of public health services and reduction of the budget for ministry of labour and within the context for the labour inspectorate services have been conducive to weakening these services.*
- (iv) *Safety and health at work is essential for guaranteeing 'decent work'. In our opinion, decent work must be based on dignity of the workers. Respect and dignity of workers and of every human being is neither negotiable nor of financial value.*
- (v) *The field of safety and health at work is extremely technical. There is no denying of this. The reflection and progress in this filed will make it possible to ensure better working condition for the workers throughout. That debate includes also political stakes.*
- (vi) *In the recent years, we notice, much to our concern, many employers tend to advocate an alleviated,*

*less independent control system that develop no jurisprudence, a debate including the will to lower the denunciation criteria and to revise downward the existing standards. Without challenging the need for adjustment, we express our strong concern about this evolution.*

(vii) *ILO standards must effectively become the basis of an undeniable super-rational social legislation, whose evolution must be managed in a tripartite manner. Like any other provision of the law, the adoption of a standard satisfies the need for regulating a given situation.*

#### **RATIFICATION OF INTERNATIONAL INSTRUMENTS & SETTING THE STANDARDS**

It shall be our sincere and serious endeavour to see to it that our national government ratifies all the Safety & Health Conventions and accompanying Recommendations and frame/amend/update our laws accordingly. This shall form part of our vision.

**Convention No.155, Occupational Safety and Health 1981:** The aim of the convention is a coherent policy on occupational safety, occupational health and working environment and to ensure communication and co-operation at all levels in the area. It is the most important ILO standard on safety and health it applies to all branches of economic activities and to all workers.

Government should in consultation with representative organizations of employers and workers, formulate, implement and periodically review a National Policy on occupational safety, health and the working environment. The aim of the policy is to prevent accidents and injury to health from work by minimizing so far as it is reasonably practicable the causes of hazards inherent in the working environment. The convention defines the main sphere of action of such a policy. It lays down a series of quite detailed provisions concerning action at the national level or the undertaking. *However this convention is not yet ratified by India.*

**Convention 161, Occupational Health Services Convention and recommendation, 1985:** This convention is also important, but neglected. The important points are: Inspectors are supposed to interact with the workers organizations, inspectors are supposed to produce annual reports, both these do not happen in the absence of the ratification of the convention.

**Convention No 170, Chemicals:** The aim of the standard is to protect workers from the hazards of the chemicals, to prevent or reduce the incidence of chemically induced illness and injuries resulting from the use of chemicals at work and consequently to enhance the protections of the general public and environment. It applies to all branches of economic activities in which chemicals are used. India has not ratified this convention. However 1987 amendment to

Factories Act does require employers to provide workers with information along with the lines required in the convention.

**Convention No.174: Prevention of Major Industrial Accidents:** The aim of the convention is prevention of major accidents involving hazardous substances and the limitation of the consequences of such accidents. The importance of this convention hardly needs spelling out. The Bhopal disaster which has caused the death of 13,000 people was one of the major reasons for this convention. Since Bhopal there have been other accidents. In 1990 at Nagothane, 25 persons died; in 1992 in Natural Fertilizers plant in Panipat 10 workers were killed. At Shahad, Maharastra nine workers were killed in their sleep by a toxic- gas release from Century Rayons plant. In Vizag, in the petroleum plant many were killed subsequently. The accidents in the shoe factory Agra and in Amritsar followed by a major accident in Delhi are also eye openers, amongst many other similar major accidents.

**Convention No. 167, Safety and Health in construction 1988:** Very large number of workers is employed in the construction industry in India. Existing standards of construction need to be improved and health and safety is one important aspect of this. However India has not ratified the convention.

**Convention on Health and Safety in Agriculture was placed in the ILO Conference in May 2000:** Needless to state that ILO conventions and recommendations on safety. Occupational health and work environment will have to be ratified by the Govt. of India and our existing laws to be attuned to the provisions contained in these conventions, besides enacting laws, wherever they do not exist, for example, agriculture and implement them without relaxation or dilutions.

#### **DIRECTIVE PRINCIPLES ON OSH RELATED MATTERS & OUR RESPONSIBILITY**

A few years ago the Supreme Court of India has turned the spotlight on one issue contained in Article 44 of the Constitution of India "Directive Principles of State Policy" and regretted that the Indian Parliament has not given effect to Article 44 of the Constitution, though it directs non-bindingly. The same article "directs" to provide

- (i) *for securing the health and strength of workers, men and women*
- (ii) *against abuse of children / child labour*
- (iii) *just and humane conditions of work*
- (iv) *Secure the participation of workers in the management etc.*

In the light of the above direction of the Supreme Court on one such provisions of Article 44, it is incumbent on the Government to enact laws on the other most important provisions also including Occupational Safety and Health. It shall be our almost responsibility to campaign towards realising the principles enshrined in Art 44 of our Constitution to benefit the working people, in turn the industry and productivity which ultimately is in the best

## ARTICLE

interest of the national economy. How can this escape our vision?

### **UNORGANISED / INFORMAL SECTOR – OSHMS NEEDS**

On "giving priority to the unorganized sector" the (first) National Commission on Labour has observed "that malpractices prevail in unorganized sector and small scale industries where the arm of the law does not reach and where workers have little awareness of their rights and also where payment is on the basis of piece rates and there is no guarantee that work is properly measured/weighed. It was further observed that the implementing machinery should be more vigilant in cases of units where malpractices are likely to be common. In small establishments, in traditional industries, malpractices could be cancerous and in such cases more drastic remedies are called for. The emphasis on implementation of labour laws in unorganized sector has to become a declared statutory policy of the country".

### **SPECIAL OSHMS NEEDS OF UNORGANISED SECTOR**

- Unorganized sector employ about 90% of the workforce.
- Seven major sector identified by working group (10<sup>th</sup> Plan) are agriculture, construction, shops and establishment, bidi and cigar manufacturing, home work, eating places and waste management.
- At present very few legislative measures are existing.
- Employment of vulnerable group of workers like women and children is much more common.
- Many hazardous processes are being carried out.

Needless to state that the organised workers unions / representatives have an important and positive role to play with regard to their un-uniformed brothers and sisters and thus extend their organic solidarity to the unorganised/informal sector. This shall continue to be our agenda towards achieving Safety & Health.

### **OUR CAMPAIGN/ACTION PLAN TO ACHIEVE THE VISION**

Our campaign/action plan should include:

1. The formulation of National Policy on OSHE
2. Constitution of a National Tripartite Commission on OSHE
3. Codification of the OSHE legislations into one umbrella Act
4. empowered tripartite machinery at all levels for monitoring / reviewing of implementation
5. Training the Trainers programme
6. Adoption of Trade Unions own policy on OSHE and directing for implementation at all levels
7. Bringing out simple literature / training materials
8. Participating in fora such as pollution control boards

**INDOSHNEWS APRIL-JUNE 2008**

9. Joint campaign against manufacturing of banned chemicals, Toxic Wastes etc.
10. Code for MNCs
11. Taking up the cause of workers in the unorganized /informal sector
12. Inclusion of Safety, Health & Environmental demands as "New Collective bargaining agenda" in the charter of demands and to ensure agreements contain 'Green clauses' etc.

### **OUR CONVICTION**

We are of the firm conviction that SAFETY AND HEALTH MUST BE A FUNDAMENTAL HUMAN RIGHT OF THE WORKERS. Decent work agenda of the ILO includes safe working, without occupational diseases and accidents. This can not be achieved without asserting Safety and Health as a fundamental right of the workers, irrespective of employment relations and economic conditions. It is necessary to remove the wrong belief that many occupational diseases are the necessary components and inevitable constituents of their work; that any solutions to these problems would entail high degree of technical expertise and large financial investments. This negative thinking and unhealthy attributions should be proved wrong and to be totally altered by means of appropriate training on OSHE and education at all levels. In short our goal should be to make a different industrially advancing nation-accident free, occupational disease free, pollution free and polluters free in the era of implementing the decent work agenda.

**H. Mahadevan**  
**Dy. General Secretary,**  
**All India Trade Union Congress**

### **INVITATION FOR 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. on OSH and willing to share the same with others at the national and international level.

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

## INDUSTRIAL SAFETY & HEALTH – VISION 2020: CHALLENGES AND STRATEGIES INDUSTRY PERSPECTIVE

Biprajit Chakravarty

### INTRODUCTION

In today's world, occupational health and safety needs to meet the challenges of an aging workforce, non-availability of experienced and appropriately skilled workers and the increased use of contractor workers. Globalization brings challenges of standardizing programs and procedures in industries with wide cultural differences and demands.

The changing job patterns and working relationships, the rise in self employment, greater sub-contracting, outsourcing of work, homework and the increasing number of employees working away from their establishment, pose additional problem of management of occupational safety and health risks at workplaces. New safety hazards and health risks will be appearing along with the transfer and adoption of new technologies. In addition, many of the well known conventional hazards will continue to be present at the workplace till the risks arising from exposure to these hazards are brought under adequate control.

Particular attention needs to be paid to the hazardous occupations and of employees in insecure conditions such as migrant employees and various vulnerable groups of employees.

The increasing use of chemicals, exposure to physical, chemical and biological agents with hazard potential unknown to people; the indiscriminate use of agro-chemicals including pesticides, agricultural machineries and equipment, and their impact on health and safety of exposed population; industries with major accident risks; effects of computer controlled technologies and alarming influence of stress at work in many modern jobs may pose serious safety, health and environmental risks.

### MANAGEMENT OF CONTRACT WORKMEN

Increase in the use of contractor workers (hired workers) has been a global trend over the past 30 years. These workers are hired out by an agent to host organizations for periods of time lasting from hours to months or even years.

There is a growing body of research that indicates contractor workers - as part of the uncertain or contingent workforce - are at increased risk of injury at work due to lack of training, unfamiliarity with the workplace and poor integration with the permanent workforce, lack of supervision, extended hours or working multiple jobs, being used on higher risk tasks. This is despite excellent OH&S systems and good inductions. Hence, this poses a significant challenge. It is clear that we need to do more in relation to protecting and managing our contractor workers.

Employers are required by OH&S legislation to provide workers with training and supervision to enable them to perform their work in a manner that does not expose them to hazards. Unfortunately, most of the contractors engaged by the employers often fail to appreciate the importance and benefits of employee training and development as part of their overall risk management strategy, which is an area of concern for all industries. In-experienced contractor workers have lower levels of competencies than experienced well-trained permanent workers and are a greater source of risk to the business. They tend to have more accidents and to inadvertently cause damage to company assets

### SAFETY CULTURE

Safety culture has been described as the collective values and attitudes of the people in the organization. The unsafe behaviour of an individual is often the final act in an incident sequence; it will have been influenced by the job and organization. Hence, detection of unsafe behaviours/acts of the individuals poses a bigger challenge for the employers. To overcome this, safety observation tours must be conducted by all managers within the organization. This is the most effective way to demonstrate their commitment towards safety in an active and visible way. The intent is not to make them safety inspectors, but to spend scheduled time with employees talking about safety, focusing on areas for improvement, and rewarding safe behaviours.

Safety incidents often occur because the behaviours producing the problem are being reinforced - for example, by incentives for productivity, regardless of safety. Managers and supervisors will only change the behaviours of others by demonstrating their commitment to improving safety.

Typically unsafe behaviour takes two forms: making a mistake or breaking rules (violations). People often focus on the violations made in an incident, but evidence shows that 80 percent of incidents are caused by mistakes - doing the wrong thing at the wrong time or forgetting to follow one in a series of steps. In a high-risk job, with high voltages or at height, one mistake can be a person's last. This is why health and safety systems must not only consider the physical aspects of a task, but also the behavioural possibilities. It is critical to build in safeguards to alleviate any pressure to take short cuts, and prevent against a lapse of concentration.

### LEGISLATIONS

Today, we have a number of laws for the safety of persons working in industrial organizations. Some of these Acts have a series of rules, which are more exhaustive than the Acts. Hence, simultaneous

## ARTICLE

---

compliance to all these regulations becomes difficult for an organization. Accordingly, the need is felt for an enactment of a general legislation on occupational safety and health applicable to all workplaces in the country. In the countries like Australia and even in US separate OH&S Act has been made. The enforcement of the provisions of this legislation will be carried out by existing machinery available at Central/State Governments.

### **CREATING PUBLIC AWARENESS TOWARDS SAFETY**

In order to improve the existing occupational safety and health scenario in mines, factories, ports and other unorganized sectors of economy, the Government, enforcement agencies and the industry managements should jointly undertake substantial steps for public safety awareness.

The National Literacy Mission may be consulted to include OH&S in their literacy mission as dissemination could be faster. Professional and independent bodies/organizations such as Central Board for Workers Education, National Safety Council, State Agriculture Departments, identified NGOs etc., should be involved in conducting training and developing material for awareness campaigns. As part of this activity, organizing National, Regional and Subject-wise Seminars and Development of Training Schemes are suggested to bring in the expected level of awareness.

### **MEASUREMENT OF SAFETY**

Many organizations tend to measure injuries and focus on injury reduction and - while that is certainly important - it is a 'lagging' indicator. It is useful for showing what has happened in the past, but it doesn't provide much insight into preventing future injuries. It is important to capture 'leading' indicators that result from consistently performing audits, logging results and tracking progress over time. Examples of leading indicators include information gathered from incidence investigations or capturing details of 'near-misses' that could have resulted in injury or the number of unsafe acts that are observed, using tools such as Safety Observation Tours. Separate tools can also be made for conducting surveys for employees and management about their beliefs in safety. This serves as a great benchmark for charting people's changing attitudes towards safety.

### **ACCOUNTABILITY FOR SAFETY**

Line managers believe unsupported perceptions. Production is seen as more important than safety. Safety goes against the grain of production output and gets in the way of meeting production goals. "They don't think safety is their job," Line managers have no performance accountability. Companies too often do not hold line managers accountable for poor safety performance. For example, salary increases are not withheld, nor bonuses impacted when safety results are below expectations. Safety professionals continue to do the job of line management. Line managers will not get involved in the process as long as the safety department handles all

aspects of communicating expectations, investigating accidents, conducting safety meetings, performing inspections, chairing safety committees, leading safety training, assessing worker compliance and ensuring accountability.

Safety Performance excellence can only be achieved if all line managers accepts and owns their safety accountabilities. Moreover, current legislation only identifies Occupier of factories and Factory Managers for accomplishing all safety objectives. To effectively implement good safety culture regulations must be enacted to make line managers directly accountable towards safety. Clear lines of authority and responsibility for ensuring safety shall be established and maintained at all organizational levels.

### **ROLE OF GOVERNMENT**

For the purpose of achieving the OH&S objectives and goals, the Government of India should take adequate steps in enforcing all applicable laws and regulations concerning OH&S.

The Govt. should facilitate the sharing of best practices and learning between national and international regulatory authorities. The government should provide grants to assist in identifying industries needs and responsibilities in the area of OH&S at workplace, to develop plans and programme in accordance with the provisions of the Acts and to conduct experimental and demonstration projects in connection therewith. Government should encourage joint labour-management efforts to preserve, protect and promote national assets and to eliminate injuries and diseases arising out of employment. Government can also explore the facilities for research in the field of OH&S at workplace, including the social and psychological factors involved and by developing innovative methods, techniques, and approaches for dealing with OH&S at workplace problems which will help in establishing standards.

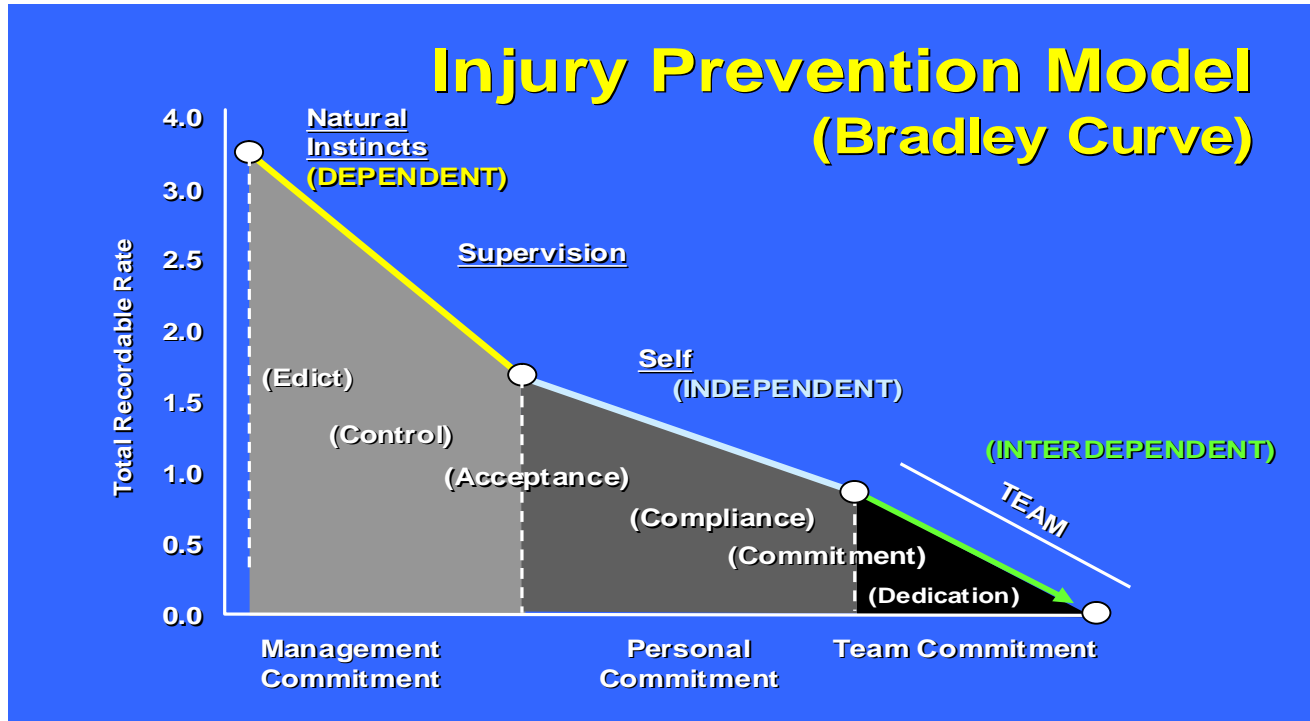
Specific skills set like certified scaffolder, certified rescuer, certified rigger and dogger, etc. which required high degree of expertise are currently not available in India. Hence, government institutions like DGFASLI can develop specialized courses and get accreditations for these OH&S skills sets.

### **ROLE OF INDUSTRIES**

Industries should adopt and commit to "Responsible Care" and / or "Corporate Social Responsibility" to improve OH&S at workplace performance. Industries should take safety as a condition of employment. An effective safety and health management systems should be established in all organizations by providing all facilities to the employees. Industries should fix employees safety performance as one of the criteria for evaluating them for promotion. Industries should also develop their own loss control programme with emphasis to risk management and check compliances by way of periodical audits.

Instituting a safety culture must begin at the top of the organization, but employees have a responsibility to follow procedures and think about how they do work. A model in consulting engagements called the Bradley Curve. You start off with an organization in the Reactive stage, where workers are reacting to incidences instead of thinking about how to prevent them. Once employees begin to view safety as something important to them and something which they value, you move to the

Independent stage. This is where they are practicing safety because they want to do it, not because they are being told to do it. The ultimate goal is the Interdependent stage when every employee is looking after the other. It's a "brother's keeper" mentality. At this stage, any employee should be comfortable to call out a safety issue to the point where they will stop a line if they see a problem or stop a manager who, for example, isn't wearing a hard hat.



There is a need to develop co-operation of social partners to meet the industrial safety and health challenges ahead in the assessment and control of workplace risks by mobilizing local resources and extending protection to under-served working population and vulnerable groups where social protection is meagre.

The Vision for industrial safety performance can be summarized as follows;

- By 2020, industrial safety performance shall be progressively improved in terms of reduction of reportable accidents and diseases at work. It will have developed "incident elimination" culture where safety is embedded in design, maintenance, operation and management at all levels in enterprises.
- By 2020, there shall be structured self regulated programmes in all major industry sectors which have firm, measurable performance targets for accident elimination equating to an annual reduction rate by 5%.

- Accident free workplace shall become the norm by 2020.

This will contribute in a major way to sustainable growth for all industry in India and improvement of social welfare.

**Biprajit Chakravarty**  
Corporate OH&S Head  
Mumbai 400 020

**ABOUT MATERIAL SAFETY DATA SHEET**

The Library & Information Centre of Central Labour Institute has unique collection of Material Safety Data Sheet of about 1,20,000 chemicals/materials taken from Canadian Centre for Occupational Health & Safety. MSDS provides extensive coverage over safety perspective with detailed evaluation of health, fire and reactivity hazards. It also provides precaution as well as recommendation on handling, storage, personal protective equipment, accidental release etc. For complete MSDS write to MIS division, Central Labour Institute, Sion, Mumbai- 400 022. Computer printout will be supplied on nominal charge.

## NATIONAL SEMINARS TO COMMEMORATE 2008: YEAR OF INDUSTRIAL SAFETY AND HEALTH

### NATIONAL SEMINAR ON INDUSTRIAL SAFETY AND HEALTH – VISION 2020: CHALLENGES AND STRATEGIES AT NEW DELHI



Shri S.K.Saxena, DG, DGFASLI, speaking at the function. Seated from right: Shri Oscar Fernandes, Hon'ble Minister of State for Labour & Employment; Smt. Sudha Pillai, Secretary to Govt. of India, Ministry of Labour & Employment; Shri S.K.Srivastava, Jt. Secretary to the Govt. of India, MoL&E; Dr. J.P.Gupta, Prof. of IIT, Kanpur

On April 28, 2008 the National Seminar on Industrial Safety and Health – Vision 2020 was held at the SCOPE auditorium, New Delhi as a curtain raiser ceremony to announce 2008 as the Year of Industrial Safety & Health to commemorate completion of 60 years of the enactment of Factories Act, 1948. Incidentally, the day coincided with the celebration of International Safety & Health day.

Shri Oscar Fernandes, Hon'ble Minister of State for Labour & Employment inaugurated the seminar and announced the launching 2008: Year of Industrial Safety & Health in presence of the Secretary, Additional Secretary & Joint Secretary, Ministry of Labour & Employment, Govt. of India. Director General, DGFASLI, and more than 270 dignitaries representing government organisations, employers' representatives & employees' representatives. The Honourable Minister for Labour and Employment unveiled the Logo and Posters commemorating the event. He also released the special issue of INDOSHNEWS on the occasion. The Presidential address was given by the Secretary (Labour) Government of India. The key note address was delivered by Dr J P Gupta, Professor of IIT, Kanpur on Occupational Health and Safety during the inaugural session. The inauguration was followed by a National Seminar entitled *Industrial Safety and Health - Vision 2020: Challenges and Strategies*. In the pre-lunch session of the seminar, four speakers who represented Government, Employees, Employers and ILO presented papers.

The Dy. Director General Dr A.K.Chakrabarti deliberated on the *Strategies of DGFASLI in Accomplishing Industrial Safety and Health – Vision 2020*, Mr. Biprajit Chakravarty, representing the employer presented a paper on *Perspectives of Indian Industries towards*

*Industrial Safety and Health –Vision 2020*, Mr. H. Mahadevan, representing the employee presented a paper on *Employee Participation in Achieving Industrial Safety and Health –Vision 2020* and Dr. Ingrid Christensen, ILO Expert on Safety & Health, presented a paper on *Global Scenario Industrial Safety and Health – Vision 2020*.

In the post-lunch session three groups were formed comprising a mix of delegates from Government, Employers and Employees in each group which deliberated on the following themes separately:

1. Occupational Safety and Health Challenges and its Management
2. Inculcating Culture of Safe Production for Sustainable Growth
3. Occupational Safety and Health Issues of Woman Industrial Workers and Its Management

The Chairman of each group presented the views of their respective teams in the plenary session and recommendations were arrived at by consolidating the views of all delegates.

### TRIPARTITE NORTHERN REGIONAL MEETING OF OSH STAKEHOLDERS AT NOIDA

On the 21<sup>st</sup> June 2008, a tripartite Northern Regional Meeting of OSH Stakeholders was held at NOIDA, to celebrate 2008: Year of Industrial Safety & Health.



Shri S.B.Mathur, Director (S) & In-charge RLI, Kanpur, delivering welcome address. Seated from left: Shri M.N.Siddiqui, CIF, U.P.; Shri K.L.Meena, CIF, New Delhi, Shri S.K.Saxena, Director General, DGFASLI and Shri H.V. Vishwanathan, Director (S), CLI, Mumbai

The meeting was co-ordinated by Regional Labour Institute, Kanpur. Directorates of Factories, Uttar Pradesh collaborated the meeting. The meeting was attended by delegates from State Government, Directorates/Inspectorates of factories, Private companies, Trade unions, Public Sector companies etc.

The meeting started with the welcome address by the Director In charge, Regional Labour Institute Kanpur. In



## DGFASLI MEGA EVENTS

the inaugural address the Director General DGFASLI expressed his warm welcome to all the delegates.

The Director General, DGFASLI, explained to the delegates the objective of the OSH meeting and gave a presentation about the plan of action DGFASLI for the year 2008-09. There after various delegates presented the safety and health activities being under taken and planned by their companies for year 2008-09 for celebrating this year as year for OSH. A video film on safety and health, produced by one of the companies, was displayed during the meeting.

Towards the end of the meeting CIF, Delhi spoke on the need to disseminate the safety and health information at the grass-root level. He made a power point presentation of the plan of action of Inspectorate of Delhi. Director of Factories, U.P., in his presentation emphasized the need to develop certain checklists.

At the end of the meeting the Director General, DGFASLI, requested the delegates to document the commitments made by them during this meeting. He also requested the delegates to submit the video clips of good practices or video films developed by them.

### TRIPARTITE SOUTHERN REGIONAL MEETING OF OSH STAKEHOLDERS AT RLI, CHENNAI

Regional Labour Institute, Chennai conducted the tripartite Southern Regional Meeting of OSH Stakeholders in the Conference room of RLI- Chennai on the 26<sup>th</sup> June, 2008.



*A view of the delegates at RLI- Chennai*

More than 64 delegates representing Government organisations, Trade unions, Inspectorates of Factories, Public Sector companies, Private Companies etc. participated in the meeting.

The brief suggestions arrived at the end of the meeting are given below

- Spreading OSH awareness among Higher Secondary School and Polytechnic college students.
- Review of standard operations procedures, start-up procedures, shut-down procedures, emergency plan

etc. are required by the industries which may be taken up by the respective Inspectorate of Factories.

- Awareness of OSH among the contract workers in the unorganised sector.
- Special programme on occupational diseases – Prevention and control
- Strengthening of First Aid skill Management in all types of industries
- Integration of Safety and Health Professionals' Work Data Base on Occupational Health for Medical, Safety and Paramedical professionals
- Maintenance of Health Records of workers in electronic form
- Strengthening of educating the workers on various hazards associated with the substances
- Starting of new course called *Fellow in Industrial Health (FIH)*
- Bringing out standards for off-shore operations
- Taking safety and health solutions to respective work sites
- OSH Awareness through panel discussion, talks etc. in respective local languages through media

### TRIPARTITE EASTERN REGIONAL MEETING OF OSH STAKEHOLDERS AT RLI, KOLKATA

The Regional Labour Institute, Kolkata conducted the tripartite *Eastern Regional Meeting of OSH Stakeholders to celebrate 2008: Year of Industrial Safety and Health.*



*Dr. A.K.Chakrabarti, DDG, DGFASLI, speaking at the meeting. Also seen is Shri U.K.Das, Director (S) & In-charge, RLI, Kolkata.*

The meeting was held at the conference room of RLI-Kolkata which was attended by the 35 delegates representing industries, employers' associations, Trade Unions and Officials from various State Directorate of Factories from Eastern Region and other government or autonomous bodies.

Dr. A. K. Chakrabarti, Dy. Director General, DGFASLI briefed about the importance of launching of the year 2008: Year of Industrial Safety and Health by the Government of India. He informed that this was announced by the Honourable Minister of State for Labour and Employment, Shri Oscar Fernandes, at the National Seminar on Industrial Safety and Health – Vision 2020: Challenges and Strategies at New Delhi, in which a total of 23 resolutions were adopted to celebrate 2008: Year of Industrial Safety & Health.

Copies of these resolution and activities were distributed to all. He specially emphasized on use of logo, safety posters, preparation of film on Silicosis, Asbestos, Ergonomics, Ship Breaking and Construction Safety by DGFASLI with the sponsorship from stake-holders, networking of Safety professionals, Institutions & Industries through website under INDOSHNET etc. He requested each delegate of associations/trade unions/Govt. officials/industries presentation on the activities to be taken up by them to celebrate the year of Industrial Safety & Health till March, 2009. Various associations of industries informed about their planning to celebrate the year.

The delegates from Government proposed to celebrate the year through seminars, workshops, awareness programmes, competition on slogans, posters, training of contract labours, use of logo on the letter heads, envelopes etc.

Various trade unions also informed they will take up various programme for the workers. They emphasized the need of awareness programme by the Government for the chemical hub particularly pollution of river water.

**QUOTES TO REMEMBER**

*Accidents are caused by human element and human error; changes in attitudes and changes in behaviour can reduce human error and the human element in accidents. Therefore, efforts to advance health and safety at work should be directed towards mistake and failings on the part of workers in order to advance understanding about the causes of human error and human factor in accidents in order that they can be better prevented by effective alterations in attitudes and better safety behaviour.*

- Professor G.R.C. Atherley

*Accidents are a reflection of human error in one guise or another. No one wills or designs them. They cannot be tidily explained away. The contributing factors are innumerable and not always immediately obvious. How can one explain the unhappy combination of the boiling saucepan, the temporarily preoccupied mother and the climbing child? This simple and sadly common domestic situation contains all the ingredients of industrial accidents, the danger point, lack of proper supervision and the unheeding or inadequately instructed victim.*

- M.J.White

**INDOSHNET**

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

**INDOSHNET**

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

ACTIVITIES OF DGFASLI DURING APRIL-JUNE 2008

**CENTRAL LABOUR INSTITUTE: MUMBAI**



**Studies**

*Assessment of Airborne Contaminants in the Work Environment in a Petroleum Refinery, in Andhra Pradesh* (by Pal P.B. & Dhende K.N., Industrial Hygiene Division, Central Labour Institute, Mumbai)

*Assessment of Airborne concentration in the Work-zone in a Ordnance Factory, in Maharashtra* (by Mrs. Mandre M.K., Industrial Hygiene Division, Central Labour Institute, Mumbai)

*Assessment of Airborne concentration of Oil Mist in a Lubricating oil manufacturing Unit, in Maharashtra* (by Mrs. Mandre M.K., Industrial Hygiene Division, Central Labour Institute, Mumbai)

*Assessment of Airborne concentration in the Work-zone in a Commercial Vehicles Manufacturing Factory, in Maharashtra* (by Mrs. Mandre M.K., Industrial Hygiene Division, Central Labour Institute, Mumbai)

*Assessment of Airborne concentration in the Work-zone in a Chemical Industry, in Maharashtra* (by Mrs. Mandre M.K., Industrial Hygiene Division, Central Labour Institute, Mumbai)

*HAZOP Study in industry manufacturing Surfactant Specialities* (by Gautam S.S. MH&CS Division, Vishvanathan H., Industrial Safety Division, Central Labour Institute, Mumbai)

*Ergonomics Evaluation Of Workstations And Work at a corporate office of a Chemical Industry* (by Ghosh P.C., Industrial Physiology & Ergonomics Division, Central Labour Institute, Mumbai)

*Evaluation of Heat Stress and Ventilation in Engineering Industry* (by Ghosh P.C., Industrial Physiology & Ergonomics Division, Central Labour Institute, Mumbai)

**Workshop/Seminar/ Conference**

The Dock Safety Division, DGFASLI organized a 6<sup>th</sup> All India Workshop for Competent Persons appointed

under Dock Safety Statutes on 4<sup>th</sup> and 5<sup>th</sup> June 2008 at Kolkata Port, Kolkata. The workshop was attended by 65 delegates comprising competent persons, officials of DGFASLI and IDS.

Productivity Division organized two *Professional Interaction & Update Seminars (PIUS)*. On the 27<sup>th</sup> March, 2008 the seminar leader Smt. Sujata Gothaskar, Consultant, deliberated on *Occupational Safety & Health Issue of Women Employees in Industry*. On the 30<sup>th</sup> May, 2008 Dr.D.M.Kamble, Chief Medical Officer, CGHS, led the seminar on *An Insight in the Human Body & Mind*.

Productivity Division organized three *Satellite Professional Interaction Update Seminar (SPIUS)*. During these seminars Dr. A. K. Chakrabarti, Dy. Director General, talked on *Stress and its Preventive Management*; Shri P. K. Mohanty, Dy. Director, Industrial Psychology, on *Use of PPE in Ship-breaking Industry*, and Dr. R. K. Elangovan, Director, Industrial Safety, on *Effectiveness of Safety Education Programme and Ergonomic Design of Safety Helmet for Industrial Workers*.

**Training programmes**

Major Hazard & Chemical Safety Division conducted a 3-day Training Programme on *Safe Handling of Chemicals for Safety Committee Members of Hazardous Industries* from May 21 - 23, 2008 It was attended by 4 delegates from Reliance Industries Ltd. Vadodara, Gujarat.

The Medical Division conducted its 16<sup>th</sup> *Associate Fellowship in Industrial Health (AFIH)* Course of 3 months duration from April to June, 2008. The 50 doctors attended the Course. The medical division also coordinated AFIH Course at Regional Labour Institute, Kolkata, Lokmanya Medical Research Centre, Pune, Maulana Azad Medical College, Delhi, Institute of Safety, Occupational Health & Environment, Panaji and Bharat Heavy Electricals Limited, Trichy.

Ergonomics Division conducted an one-day specialized training program on *Introduction to Ergonomics, its relevance to Industrial Health* on 17.04.2008 for 9 P.G. M.Sc Physiology students from Presidency College, Kolkata

A five-day training program on *Ergonomic Audit – a tool for ensuring Safety, Health and Productivity at Work* from April 21 – 25, 2008 was organized by Ergonomics division. The program was attended by 11 participants from 5 organizations.

A five-day training program on *Heat Stress & Ventilation – vis a vis Safety, Health & Productivity at work* from April 7 – 11, 2008 was organized by Physiology Division. The program was attended by 19 participants from 4 organizations.

## INSTITUTE NEWS

---

A two-day In-plant Training Program on *Industrial Fatigue* was conducted at M/s. JSW Steel Ltd., Bellary, Karnataka from May 22 – 23, 2008. 62 employees benefited from the program.

Industrial Psychology Division conducted a 4-day training programme on *Effective Participative Skills for Safety Committee Members* from April 22 - 25, 2008. The programme was attended by Safety Committee Members from three organizations.

Industrial Psychology Division conducted a 3-day training programme on *Motivation for Safety, Health and Productivity* from May 27 - 29, 2008. 12 participants from six organizations had participated.

Industrial Psychology Division conducted a training programme on *Handling Problem Behaviour of Employees* at Hindustan Organic Chemicals Ltd., Rasayani, Maharashtra on April 29 - 30, 2008. 22 participants attended the programme.

### **Paper Presentations/ Talks**

Dr.A.K.Chakrabarti, Dy. Director General presented a paper on *Strategies of DGFASLI for Accomplishing Industrial Safety & Health: Vision 2020* in the National Seminar on Industrial Safety & Health Vision: Challenges & Strategies on the 28<sup>th</sup> April 2008.

Dr.R.K.Elangovan, Director (Industrial Safety), delivered Guest Lecture on *Significance and Enhancement of Safety Culture in Defence Industries* at Research Centre Imarat, Vignyanakancha, Hyderabad.

Dr.R.K.Elangovan gave a Guest Lecture on *Management of Fire and Safety in MAH Industry* at 7th Annual Greentech Fire, Safety and Security India Conference 2008 in Mumbai.

Dr.R.K.Elangovan delivered Guest Lectures on *Human Errors Prediction and Prevention for Effective Risk Management and an Overview of Emergency preparedness Planning for Chemical Industries* at the National Level Seminar cum Workshop on *Hazards Identification and Risk Assessment in Chemical Industries* organized by Disaster Management Institute, Bhopal, gtz, Germany and Chemical Industries Association in Chennai.

The Parliamentary Standing Committee on Labour has taken up the issue regarding *Asbestos Mining: Evaluation of Its Impact on the Health of Workers*. The Ministry of Labour & Employment, the Ministry of Mine and the Ministry of Chemicals & Fertilizers were invited for the presentation. DGFASLI as a technical arm of the Ministry of Labour & Employment was also involved. The officers of DGFASLI also participated in the presentation on 22.04.2008 and subsequent discussion held in the parliament annexe on 16.06.2008.

The Doordarshan Kendra, Mumbai organized a live panel discussion on the subject of Industrial Safety on 23<sup>rd</sup> May 2008, in their Marathi programme. One of the members in the panel discussion was from the FAS Division. The officer highlighted that the Ministry of Labour & Employment declared 2008: *Year of Industrial Safety & Health*, besides other topics related to industrial safety, fire safety, pollution arising out of handling of chemicals, workmen's compensation, etc. He also emphasized the need for incorporation of topics relating to safety and health in the syllabus at Secondary level throughout the country so as to spread the message of safety amongst younger generation.

### **REGIONAL LABOUR INSTITUTE: KANPUR**



### **Mega Event**

The Institute coordinated a tripartite Northern Regional meeting of OSH Stakeholders to celebrate *2008: Year of Industrial Safety and Health* at NOIDA on 21.06.2008 which was organized by DGFASLI, Mumbai in collaboration with Directorate of Factories, Uttar Pradesh. It was attended by 14 delegates from State Government Directorates/Inspectorates of Factories from 7 States, 34 Delegates from 30 different private companies, 2 delegates from Trade Union organizations and 15 delegates from 12 public sector companies aggregating to a total of 65 delegates.

### **Studies**

*Safety Audit in a Glass Plant (Glass Bottle manufacturing unit)* (by Brij Mohan, Industrial Hygiene Division & Chakraborty A.K., Industrial Safety Division, Regional Labour Institute, Kanpur)

### **Training Programmes**

The Institute conducted a 3-day training programme on *Fire Prevention and Control in Industries* the programme was attended by 34 Participants from 12 organizations.

### **REGIONAL LABOUR INSTITUTE: CHENNAI**

### **Mega Event**

RLI Chennai conducted a tripartite Southern Regional Meeting of OSH State Holders to celebrate *2008: Year of Industrial Safety and Health*. The meeting was attended by 64 delegates from 41 organisations.

## INSTITUTE NEWS



### Studies

A follow-up Environmental study in Rail Wheel Factory (by A. Sree Ramulu, Industrial Hygiene Division, Regional Labour Institute, Chennai)

### REGIONAL LABOUR INSTITUTE: KOLKATA



### Mega Event

The Institute conducted a tripartite *Eastern Regional Meeting of OSH Stake-holders to celebrate 2008: Year of Industrial Safety and Health*. The meeting was attended by the 34 delegates representing Employers' Associations & Industries, Trade Unions and State Directorates of Factories from the Eastern Region.

### Training Programmes

Two 2-day training programmes were conducted in two groups for students of Post Diploma in Industrial Safety of Asian Workers Development Institute (AWDI), Rourkela, Orissa from April 7 - 8 & 10 - 11, 2008. 92 participants attended the programme.

Three one-day in-plant training programmes on *Safety Awareness* were conducted for 3 groups during April 9 - 11, 2008. 81 participants from Management and Executive level of a Thermal Power Plant attended the programme.

*Safety Awareness Programme* for Members of Safety Committee was conducted from May 6 - 8, 2008. 14 worker-representatives participated in the programme.

*Control of Physical Hazards and Waste Management* was conducted from May 12 - 16, 2008. 7 participants of supervisory level attended the programme.

*Techniques of Hazards Identification & Assessment* was conducted from June 24 - 26, 2008. 14 executives attended the programme.

A three-month *Associate Fellowship in Industrial Health (AFIH)* Course commenced from April 01, 2008 and successfully completed on June 30, 2008. 8 doctors attended the course.

### DGFASLI POSTERS



<b>ABSTRACTS OF STUDIES BY DGFASLI DURING APRIL-JUNE 2008</b>
---

**1. Assessment of airborne contaminants in the work environment in a Petroleum Refinery, in Andhra Pradesh (by Pal P.B. and Dhende K.N., Industrial Hygiene Division, Central Labour Institute, Mumbai)**

The Refinery is engaged in the processing of crude petroleum to produce various petroleum products. The process involves emission of airborne gases at various stages of processing. The concentration of hydrogen sulphide, ammonia, hydrocarbons and SPM at different work locations were found within their respective permissible limits. The concentration of carbon monoxide gas was also found well below their respective TLV except near old CO-Boiler and West Burner areas where the concentration was found exceeding the TLV. Prevention of leakages of enclosed systems, use of PPE, training and awareness programme for production personnel, regular monitoring of workplace environment, increasing the height of CO-vents above ceiling height of working shade, maintaining register for calibration of various gas monitors provided in the work areas were suggested to improve the working conditions.

**2. Assessment of airborne concentration in the work-zone in an Ordnance factory in Maharashtra (by Mrs. M.K.Mandre, Industrial Hygiene Division, Central Labour Institute, Mumbai)**

The Ordnance factory is in the production of shells, metallic fumes, propellant, cartridges case required as defence material used as Explosives for Rocket, Guns, tanks. The study was carried out for evaluation of level of airborne contaminants like carbon black, metal fumes, sulphuric acid mist, sodium hydroxide mist, and solvent vapours in the their work place environment. Airborne concentration of carbon black, particulate matter, iron dust, ethyl acetate, toluene, xylene were found within the permissible limit of exposure. The concentration of sulphuric acid mist was found exceeding the permissible exposure limit. The recommendations such as use of acid, cartridge respirators, local exhaust system and training to the workers were suggested.

**3. Assessment of airborne concentration of oil mist in a Lubricating oil manufacturing unit in Maharashtra (by Mrs. M.K.Mandre, Industrial Hygiene Division, Central Labour Institute, Mumbai)**

This unit manufactures lubrication oil which is used for automobiles. The main raw material used is base oil and the various additives are also used. The study was carried out to assess the levels of airborne concentration of oil mist in the plant during loading & unloading operations of the oil and to assess the Time Weighted Average

concentration (TWA) exposure of the workers. The concentration of oil mist at loading/unloading operations was found within permissible limit of exposure of oil mist. However, it was recommended that the workers should be trained to adopt safe work practices and use of suitable personal protective equipment. The up-keep of the work area & good housekeeping was also advised.

**4. Assessment of airborne concentration in the work-zone in a Commercial Vehicles manufacturing factory in Maharashtra (by Mrs. M.K.Mandre, Industrial Hygiene Division, Central Labour Institute, Mumbai)**

The unit manufactures heavy, medium categories commercial vehicles and passenger car. The study was undertaken to evaluate the levels of airborne concentration of welding fumes, oxide of nitrogen, oil mist, iron oxide dust, carbon monoxide, carbon black and solvent vapours during various operations. Airborne welding fumes, carbon black, oil mist, and iron oxide dust, oxides of nitrogen were collected and analyzed. All the airborne contaminants monitored during the study were found well within their respective permissible limits of exposure, except welding fumes in Hing Welding Shop. It has been recommended that in the welding shop an effective exhaust system should be provided. For spatter burns, full leather suit, safety shoes, and hand gloves (leather) should be provided to the workers. The flooring should be made non slippery by spraying saw dust and regular mopping in engine shop. The eye protectors should be provided to the workers to protect their eyes from oil spillage.

**5. HAZOP Study in industry manufacturing Surfactant Specialities (by Gautam S.S. MH&CS Division, Vishvanathan H., Industrial Safety Division, Central Labour Institute, Mumbai)**

The safety audit was carried out with the objective of identifying the hazards and suggesting the remedial measures on the basis of deviation from the applicable statutes and standards. Product drying area has been identified as one of the hazardous points because of its burners as well as fluidised bed drying system. Trip system to stop the fuel pump in case of ID fan failure, adequate monitoring of pressure drops at different points of the duct, arrangement to trip the system and sound an alarm in the control room in case of any pressure drop are some of the suggestions made to prevent explosion due to spreading un-burnt fuel fumes in the burner. The drying chamber, which is provided with the explosion-vent had potential to damage surrounding objects and persons in case of internal explosion. Suitable guard to prevent flying of lid has been suggested. The report includes 79 recommendations.

**6. Ergonomics evaluation of workstations and work at a corporate office in a Chemical Industry in Maharashtra (by Ghosh P.C., Industrial Physiology & Ergonomics Division, CLI, Mumbai)**

## ABSTRACTS

Evaluations from ergonomics point of view for the benefit of computer and VDT operators were conducted. Most of the work stations provided to the operators and their physical dimensions were compared with user dimensions. Mismatch between man and machine were determined and neutral posture for computer and VDT operations were evaluated. Maximum man-machine ailment was observed due to poor maintenance of facilities provided to the operators. Visual fatigue & musculo-skeletal disorders (through application of RULA & REBA) were found to be moderate among all the operators. Simple re-orientation of the workstation, strengthening of back muscles through stretching exercise on job and simple withdrawal were few of the simple procedures discussed & demonstrated to all the operators. Several recommendations were suggested for improvement.

### **7. Evaluation of heat stress and ventilation in a Engineering Industry in Maharashtra (by Ghosh P.C., Industrial Physiology & Ergonomics Division, CLI, Mumbai)**

The Factory produces various mould machines for industrial application. The process is critical and requires constant dust free and ventilator air system for quality control. The efficacy of present ventilation system as well as the impact of heat stress prevailing among the work force was measured. Eleven different sections inside the plant were studied for full eight-hour work schedule starting from 0900 hrs to 1700 hrs to ascertain the behaviour of heat stress indices and air velocity in and around the working place. The effect of heat storage among the operators was also observed through oral temperature and concomitant effect of heat stress and relief through ventilation were calculated. In most of the sections, the level of heat stress was found at comfortable limit in terms of ET, CET & WBGT in °C. The levels of ventilation in all sections were found to be above the prescribed limit. Thus, the study conclusively showed that the existing ventilation system was effective and no action was warranted at that stage.

### **8. Ergonomics evaluation of work-station at shopfloor and office in a Petroleum Refinery in Andhra Pradesh (by Ghosh P.C., Industrial Physiology & Ergonomics Division, CLI, Mumbai)**

The study was carried out to evaluate the postural stress, which the operators are subjected to, due to use of computer for prolonged period. Such prolonged office as well as control panel operators required to sustain the posture for prolonged period which causes physiological discomfort due to increased metabolites in the blood, which in turn causes local muscular fatigue mainly back, neck, shoulder and wrist. The postural analysis was carried out with the help of various physiological techniques and their compatibility with existing facilities provided to them was assessed and certain simple corrective measures were

suggested. Besides the improvement of posture, various simple exercises were suggested for strengthening back, neck & shoulder muscles of the operators. 'On the Job' training was also imparted during the study.

### **9. Safety Audit in a Glass Plant (Glass Bottle manufacturing unit) (by Brij Mohan, Industrial Hygiene Division & Chakraborty A.K., Industrial Safety Division, Regional Labour Institute, Kanpur)**

Safety audit was conducted for systematic and critical appraisal of all potential hazards and to evaluate safety and health system in the factory. Different plant processes/operations, storages, inspection & maintenance procedures were thoroughly reviewed at the time of audit. Based on the observations & discussions several recommendations were given to improve the safety performance of the factory. Some of the main recommendations are to review Health & Safety Policy of the factory; strengthening of the facilities in the safety department; constitution of the safety committee as per State Factories Rules; establishment of proper system of accident investigation; safety inspections at periodic interval; need based training for different levels of employees on safety; safe operating procedures for plant processes; introduction of permit to work system separately for each job category; adequate preparedness for emergency; proper bonding & earthing on flammable lines; Hearing Conservation Program for noisy areas; proper maintenance of fire fighting system, suitable PPE appropriate to hazards to workmen and comfortable work seats with back rest for the workers.

### **10. A follow-up Environmental study in Rail Wheel Factory (by A. Sree Ramulu, Industrial Hygiene Division, Regional Labour Institute, Chennai)**

A follow-up Environmental study in Rail Wheel Factory was conducted. The study was conducted with the objective to assess the levels of airborne contaminants such as metallic and siliceous dust, welding fumes, fused silica dust, copper fumes, iron oxide fumes and sound levels etc. in work environment and to suggest remedial measures wherever necessary to improve the environmental conditions. The samples of various airborne contaminants were collected and analysed using standard methodology. The average concentration of metallic dust, silica dust, welding fumes etc. were found marginally higher than that observed in the previous study. The noise level in many areas is found higher than the permissible level. Several remedial measures for the protection of workers have been suggested.

#### **QUOTE TO REMEMBER**

*Concept of an accident:*

*To the victim and his family ultimate tragedy,  
To the witness a profound and horrifying experience,  
To his company a [preventable and irreparable loss,  
To the public a news item,  
To the legal courts an 'Act of God'  
To the government a statistic, and  
To the nation a tragic, unnecessary loss;*

*- H.H.Fawcett & W.S.Wood*

**TRAINING CALENDER**

**CENTRAL LABOUR INSTITUTE, N.S.MANKIKER MARG, SION, MUMBAI – 400022**  
**Telephone: PABX 91-22-24092203, Fax: 91-22-24071986**  
**Visit us at: [www.dgfasli.nic.in](http://www.dgfasli.nic.in), E-mail Address: [cli@dgfasli.nic.in](mailto:cli@dgfasli.nic.in)**

Sl. No.	Title of the Programme	Period	Co-ordinating Division
1	Industrial Fatigue & its Management	August 04-08	PHY
2	Training Methodology for Trainers	August 05-07	ST/PROD
3	Testing of lifting tackles & pressure vessels	August 20-22	SAFETY
4	Effective participative skills for Safety Committee Members	August 26-28	IND. PSY.
5	One month Specialised Certificate Course for Supervisors working in Hazardous Process Industries	September 01-30	ST/PROD
6	Advanced Training Programme on Occupational Health & Environmental Medicine for Medical Officers	September 01-12	IND. MED.
7	Basic course for Inspectors of Factories	September 02-19	SAFETY
8	Management of Occupational Hazards in Use of Computer & VDT Appliances at Work	September 15-17	PHY
9	Selection and Quality Assurance for effective use of PPE	September 23-25	EED
10	Management of Occupational Back Pain	September 24-26	PHY
11	Impact of Environmental Pollutants & their Control at Workplace	October 06-08	EED
12	Refresher Course for Safety Officers	October 13-17	SAFETY
13	Workshop on HAZOP	October 15-17	MH&CS
14	Industrial fitness, a key to improve safety, health & productivity at work	October 20-22	PHY
15	Evaluation of Environmental Pollutants & their Control at workplace	November 05-07	IH
16	Refresher Course for Senior Inspectors of Factories	November 10-21	SAFETY
17	Handling Problem Behaviour of Employees	November 18-20	IND.PSY.
18	Productivity and Quality Improvement through effective employees participation	November 19-21	ST/PROD
19	Storage & Handling and Management of Hazardous substances in process industries	November 19-21	MH&CS
20	Management of Occupational Hazards in Use of Computer & VDT Appliances at Work	November 24-26	PHY
21	Occupational Health Practice for Nurses, Health/Medical Assistants etc.	December 01-05	IND. MED.
22	Effective Leadership for Safety, Health & Productivity	December 16-18	IND.PSY.
23	Effective Leadership for Safety, Health & Environment at workplace	December 17-19	IH
24	Impact of Environmental Pollutants & their Control at Workplace	December 22-24	EED
25	Pulmonary Function Test: A Physiological Perspective	December 22-24	PHY

Abbreviations: I.H. – Industrial Hygiene, PHY/ERG – Physiology/Ergonomics, IND.PSY. – Industrial Psychology, IND. MED. – Industrial Medicine, EED – Environmental Engineering Division, MH&CS – Major Hazards & Chemical Safety, NRTL – Non-respiratory Testing Laboratory, ST/PROD – Staff Training/Productivity.

- The concerned division will mail the training programme brochures sufficiently in advance, confirming the dates of commencement of course, its venue etc. to the organizations as per the mailing list available with the division.
- The Director In-charge of the respective co-ordinating division should be contacted for further details such as training programme dates, venue, programme contents, level of participants, details of 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 concerned division.
- Limited Hostel Accomodation on sharing and chargeable basis will be available on 'First-Come-First-Served' Basis.



**TRAINING CALENDER: DGFASLI**

**REGIONAL LABOUR INSTITUTE, TTTI P.O. TARAMANI, ADYAR, CHENNAI-600 113**  
**Telephone: 91-44-22350737, 25220888, Fax: 91-44-22355690**  
**E-mail Address: [rlic@vsnl.net](mailto:rlic@vsnl.net)**

Sl. No.	Title of the Programme	Period	Co-ordinating Division
1.	Training programme for Senlor Inspectors of Factories	August	SAFETY
2.	Training Workshop on Work Environment Monitoring	September	I.H.
3.	Training programme on Management of Hazardous substances	November	I.H.

Abbreviations: I.H. – Industrial Hygiene

**REGIONAL LABOUR INSTITUTE, LAKE TOWN, KOLKATA-700 089**  
**Telephone: 91-033-25343254, 25342732 Fax: 91-033-25348182**  
**E-mail Address: [rlikol@vsnl.net](mailto:rlikol@vsnl.net)**

Sl. No.	Title of the Programme	Period	Co-ordinating Division
1.	Environmental Hazards & their control in Industries	August	I.H.
2.	Training Programme on Chemical Safety	September	I.H.
3.	Workers Development Programme	November	SAFETY
4.	One Month Specialised Certificate Course in "Safety & Health" for Supervisory working in Hazard Industries	November	I.H.
5.	Occupational Health and environmental Medicine for Medical & non-medical executives of the industries".	December	IND. MED.

Abbreviations: I.H. – Industrial Hygiene, IND. MED. – Industrial Medicine

**REGIONAL LABOUR INSTITUTE, SARVODAYA NAGAR, KANPUR- 208 005**  
**Telephone: 91-512-2218691/92, 2218745, Fax: 91-512-2215112**  
**E-mail Address: [rli\\_Kanpur@vsnl.net](mailto:rli_Kanpur@vsnl.net), [rlikanpur@hotmail.com](mailto:rlikanpur@hotmail.com)**

Sl. No.	Title of the Programme	Period	Co-ordinating Division
1.	Training Programme On Testing & Examination of Lifting Machines & Pressure Vessels	August 04-08	SAFETY
2.	Training Programme On Effective Supervision for Safety & Health at Work	August 20-22	SAFETY
3.	Training Programme On Safety & The Law	September 09-11	SAFETY
4.	Package training programme for plant faculties on ' Industrial Safety and Health'	September 22-26	SAFETY
5.	Training programme on Mineral Dust & associated health hazards in industries	October 14-16	I.H.
6.	Workshop on work environment - its evaluation and control	October 21-23	I.H.
7.	One Month Certificate Course on Safety & Health	November 04– December 02	SAFETY
8.	Workshop On Safety Audit	December 02-04	SAFETY
9.	Training programme on process safety management & Inspection of Bulk Storage Facilities for hazardous substances for Inspector of Factories	December 15-19	SAFETY

Abbreviations: I.H. – Industrial Hygiene

## OSH TRAINING CALENDER OF OTHER ORGAINSATIONS

### NATIONAL INSTITUTE OF INDUSTRIAL ENGINEERING

VIHAR LAKE, P.O. NITIE, MUMBAI-400 087, TEL: (022) 2857 3371, FAX: (022) 2857 4033 / 2857 3251

E-mail: [program@nitie.edu](mailto:program@nitie.edu) Website: [www.nitie.edu](http://www.nitie.edu)

SL. NO.	TITLE OF THE PROGRAMME	DATE
1.	Best Practices In Environmental Management	11-13 August 2008
2.	Environmental Legislation	11-15 August 2008
3.	Noise Management In Industries	25-27 August 2008
4.	Managerial Skills For Environmental & Csr Professionals	01-03 September 2008
5.	Plant Level Energy Conservation Practices	08-12 September 2008
6.	Health, Fitness & Lifestyle Management	22-27 September 2008
7.	Data Warehousing & Data Mining	22-26 September 2008

### NATIONAL SAFETY COUNCIL

PLOT - 98 A, SECTOR 15, CBD BELAPUR, NAVI MUMBAI – 400 614,

EMAIL: [nsci@giasbm01.vsnl.net.in](mailto:nsci@giasbm01.vsnl.net.in), WEBSITE: [www.nsc.org.in](http://www.nsc.org.in)

SL. NO.	TITLE OF THE PROGRAMME	DATE	VENUE
1.	Role & Effective Participation of Trade Union Rep. & Worker Members of Safety Committees in HSE	06 – 08 August 2008	Mumbai
2.	Safety & Health in Construction Work	19 – 22 August 2008	Mumbai
3.	Process Safety Management	27 – 29 August 2008	Mumbai
4.	Testing & Examination of Lifting Machines, Tackles, Pressure Vessels, Lifts & Hoists	10 – 12 Sept 2008	Mumbai
5.	Safety & Health in Chemical Laboratories (This programme is developed by NSC and is unique of its kind in India)	17 – 19 Sept 2008	Mumbai
6.	Behaviour Based Safety Management	25 – 26 Sept 2008	Mumbai
7.	Safety in Scaffolding & Working at Heights	16 – 17 Oct 2008	Mumbai
8.	Electrical Safety	22 – 24 Oct 2008	Mumbai
9.	Safety in Storage, Handling & Transportation of Hazardous Materials	05 – 07 Nov 2008	Mumbai
10.	Organising & Motivating for Safety	19 – 21 Nov 2008	Chandigarh

### V.V.GIRI NATIONAL LABOUR INSTITUTE

SECTOR 24, NOIDA – 201 301, UTTAR PRADESH, INDIA, TEL: +91(0)120 2411533/535/538 EXT. 227,

FAX: +91(0)120 2411536, 2411471, EMAIL: [rumanli@gmail.com](mailto:rumanli@gmail.com) WEBSITE: [www.vvgnli.org](http://www.vvgnli.org)

SL. NO.	TITLE OF THE PROGRAMME	DATE
1.	Prevention of HIV/AIDS in the world of work and welfare administrators of DGLW	11-13 August 2008
2.	International training programme on prevention of HIV/AIDS	08-26 Sept 2008
3.	Prevention of HIV/AIDS in the world of work for faculty and senior officials of DGLW	06-10 Oct 2008
4.	Emerging health concern in the world of work for trade unions of NE region	20-24 Oct2008
5.	Developing health security for workers in informal employment for government officials and trade union representatives	22-26Dec 2008

### INSTITUTION OF PUBLIC HEALTH ENGINEERS, INDIA

IPHE BUILDING, CK-58, SALT LAKE CITY (TANK NO.9), KOLKATA-700 091, INDIA,

TEL: (033)2337 6678; FAX: (033)2358 8058; E-MAIL: [iphe@cal3.vsnl.net.in](mailto:iphe@cal3.vsnl.net.in), [iphe\\_india@yahoo.co.in](mailto:iphe_india@yahoo.co.in)

SL. NO.	TITLE OF THE PROGRAMME	DATE
1.	24 <sup>th</sup> National Convention on Environmental Engineering to be held Aizawal, Mizoram	06 -08 Nov 2008
2.	International Seminar and Workshop on Best Practices on Sanitation in National Environmental Research Institute (NEERI) Campus, Nagpur	18 – 19 Dec 2008

### GREEN TRIANGLE SOCIETY

C/O INSPECTORATES OF FACTORIES AND BOILERS, ALTINHO, PANAJI, GOA, EMAIL: [isohegoa@nic.in](mailto:isohegoa@nic.in)

SL. NO.	TITLE OF THE PROGRAMME	DATE
1.	One day program on Noise and Ventilation	19 August 2008

## OSH TRAINING CALENDER OF OTHER ORGAINSATIONS

### NATIONAL INSTITUTE OF OCCUPATIONAL HEALTH

(WHO COLLABORATIVE CENTER), MEGHANI NAGAR, AHMEDABAD-380 016, GUJARAT, INDIA.

TEL: (91) 79-22686351, 22686352, 22686430, 2686330,22686242;

FAX: (91) 79-2686110, EMAIL: [nioh@nioh.org](mailto:nioh@nioh.org), [niohicmr@icenet.net](mailto:niohicmr@icenet.net); WEBSITE: [www.nioh.org](http://www.nioh.org)

SL. NO.	TITLE OF THE PROGRAMME	DATE
1.	One day Reorientation Course on Silicosis & ILO Classification of Pneumoconiosis	13 August 2008
2.	Training programme on Noise pollution, emission, control and health impact	03-05 Sept 2008
3.	National workshop on "Management of Occupational Health and Safety Delivery: Scopes and Challenges	30 Sept & 01 Oct 2008
4.	Trainers training programme on Advanced Orientation on Occupational Health	03-05 Oct 2008
5.	Training workshop Lifestyle diseases and occupation	05-07 Nov 2008

### MULTI DISCIPLINARY CENTRE ON SAFETY, HEALTH & ENVIRONMENT

C-38, UNIT- VIII, BHUBANESHWAR – 751003, ORISSA, INDIA

TEL: (0674) 2563339/2560156, FAX: (0674)25633339, E-MAIL: [mdcshe@yahoo.co.uk](mailto:mdcshe@yahoo.co.uk)

SL. NO.	TITLE OF THE PROGRAMME	DATE	VENUE
1.	Occupational Safety and First-aid training	11-16 August 2008	Visa Steel plant, Jaipur
2.	Workshop on state emergency response centreon safety, health and environment (MDC on SHE)	20 August 2008	Bhubaneshwar
3.	Divisional level training workshop on prevention and management of chemical accidents	26-27 August 2008	Paradip
4.	Awareness program on safety and occupational health for the engineering students of Orissa	12-13 Sept 2008	Rourkela
5.	Industrial relation and industrial safety scenario of orissa	25 Sept 2008	Bhubaneshwar
6.	National level seminar on humanizing work environment in industries for creating a positive safety and health culture in collaboration with directorate of factories and boilers, orissa and DGFASLI, Mumbai	25 Oct 2008	Bhubaneshwar
7.	Training workshop on industrial safety and occupational health	30-31 Oct 2008	Burla
8.	Training workshop on prevention and management of chemical accidents	25-26 Nov 2008	Burla/Bargarh
9.	Awareness programme on safety and occupational health	05-06 Dec 2008	Berhampur
10.	Divisional level training workshop on prevention and management of chemical accidents	29-30 Dec 2008	Balasore

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

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

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

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

The Central Labour Institute in Mumbai functions as a socio-economic laboratory and is a national institute dealing with the scientific study of all aspects of industrial development relating to the human factors. Over the years the Central Labour Institute has constantly grown not only in size but also in stature and has earned national and international recognition. It has been recognised by the International Labour Organisation as a Centre of Excellence in training on Occupational Safety and Health in the Asian and Pacific Region. It also functions as a National Centre for CIS (International Occupational Safety and Health Information Centre) and the Centre for National Safety and Health Hazard Alert System. At the national level, apart from providing research and training support to the Government and functioning as a technical arm of the Ministry of Labour, the institute provides comprehensive and multi-disciplinary services to the Industrial Port sector through studies, technical advice, training and dissemination of information. It also runs National Referral Diagnostic Centre for early detection of occupational disorders and thereby controls and prevents them. The Regional Labour Institutes are a scaled-down version of the Central Labour Institute and cater to the needs of their respective regions.

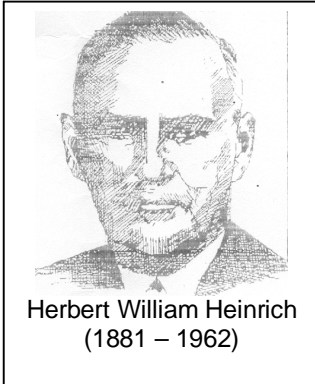
The organization is poised to grow further, and meet the increased demands on it. In a developing country with a large number of industries having diverse and complex nature, the task of protecting safety and health of workers is an uphill task. Armed with the technology, good will of the industrial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

Visit us at: [www.dgfasli.nic.in](http://www.dgfasli.nic.in)

\* Being set up

**HERBERT WILLIAM HEINRICH  
(1881 – 1962)**

**T.K.Biswas**



Herbert William Heinrich  
(1881 – 1962)

**Herbert William Heinrich** was born in Bennington, Vermont in 1881<sup>[1]</sup>. At the age of 16 he joined the Machinist Trade as an apprentice and promoted to the position of a third Assistant Engineer there. Later, he joined Traveller Insurance Company in Hartford, Connecticut. While he was working as Assistant Superintendent in the company, he published his best known book *Industrial Accident Prevention: A Scientific Approach*<sup>[3]</sup>. He worked with the company till his retirement in 1956<sup>[1]</sup>. His domino sequence developed in 1931, despite certain deficiencies, was the foundation for modern Safety Management. Heinrich, a Safety Engineer and pioneer in the field of Industrial Safety was the first safety professional to be honoured at the Insurance Hall Of Fame Convocation in Dallas<sup>[4]</sup>. His work holds that as many as 95 percent of all workplace accidents are caused by unsafe acts. Heinrich came to this conclusion after reviewing thousands of accident reports completed by supervisors<sup>[3]</sup>.

In his book Heinrich proclaimed that accident prevention is both science and art:

*"As such, one expects to find and will find, clearly covered by the text, what accident prevention is, what it accomplishes, and how it is accomplished.*

*As in all art and science, one should expect to find governing laws, rules, theorems, or basic principles. These exist. They are stated, described, and illustrated. After understanding comes application. What industry and its accident preventionists want most to know is how best to apply their knowledge. Examples showing practical application are given to supply this need.*

*Largely because of the recognition of basic principles, such as originally given in the first edition of this book and as herein reiterated, accident prevention has progressed from uncoordinated and arbitrarily selected activities, often ineffective and wasteful, to interrelated steps based on knowledge of cause, effect, and remedy, i.e., to an effective, practical, scientific approach.*

*Soundly established basic principles must withstand tampering, notwithstanding the natural temptation to discard the old, adopt the new, and to change merely for the sake of change. The amazing technological advances in the industries - in automation, metallurgy, chemistry, electronics, and nucleonic - provide an exacting test<sup>[2]</sup>.*

Heinrich did safety work across many industries, with published data, which gives guidelines of how to scale up from incidents and near misses to a good estimate of the probability of real accidents. 88% of all workplace accidents and injuries/illnesses are caused by "Man-Failure" is perhaps his most oft-cited conclusion. His book actually encouraged employers to control hazards. Heinrich's classic work has been revised into the more recent book, *Industrial Accident Prevention: A Safety Management Approach* which is widely accepted by safety professionals<sup>[3]</sup>.

Heinrich conducted safety courses for students at New York University for more than 20 years. In 1942, he was appointed chairman of the War Advisory Board, Safety Section, to provide assistance to the U.S. Army safety effort. In 1956, he was appointed chairman and president of the Uniform Boiler and Pressure Vessels Laws Society, an organization promoting the uniformity of laws governing the safety of steam boilers and pressure vessels in the United States and Canada. Heinrich died in 1962<sup>[1]</sup>. Heinrich's theory introduced decades ago is still useful and widely quoted.

**Reference:**

- 1) Fred A. Manuele. *Heinrich Revisited: Truism or Myths* 2) Heinrich H.W., Petersen Dan & Roos Nestor. *Industrial Accident Prevention: Safety management Approach*, New York, McGraw-Hill Book Company, 1980 3) Wikipedia, *The Free Encyclopedia* 4) Helberg G.H. *A Comparison of Accident Theories: H.W.Heinrich vs Frank Bird vs Dr. William Haddon*. National Safety & Occupational Hygiene, May/June 1989, Vol. XLIX, No.3.

**Shri T.K.Biswas  
Documentation Officer  
Central Labour Institute  
Sion, Mumbai**