



INDOSHINE

Quarterly Newsletter on Occupational Safety, Health and Conditions of Work
Volume 13 No. 1 January – March 2008

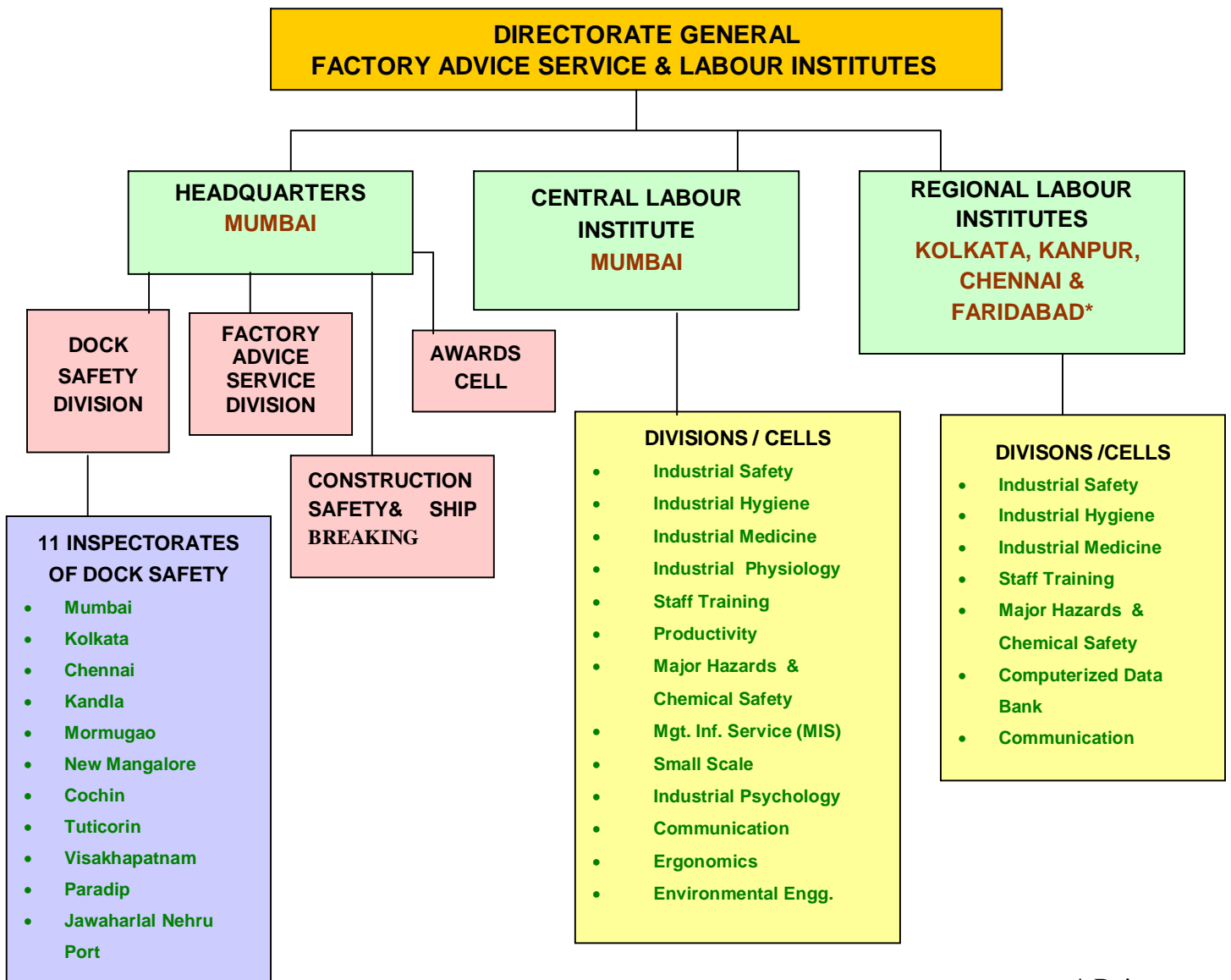
INDOSHINE NEWS 2008



Directorate General Factory Advice Service & Labour Institutes, Mumbai - 400022
GOVERNMENT OF INDIA, MINISTRY OF LABOUR & EMPLOYMENT

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* Being set up

VALUE OF HUMAN LIFE

“Concern for man himself and his safety must always form the chief interest of all technical endeavours; never forget this in the midst of your diagram and equations”

– Albert Einstein

“Preventable accidents, if they are not prevented due to our negligence, it is nothing short of a murder.”

– Dr. S.Radhakrishnan

INTERVENTIONS FOR PREVENTION OF SILICOSIS USING PROVISIONS UNDER THE FACTORIES ACT 1948

S.K. Saxena

INTRODUCTION

Silicosis is a disabling lung disease, caused by the inhalation of dusts containing Free Silica (Crystalline Silica). There are many operations in industries, which make use of sands and other minerals containing this substance. Recently, in a meeting organised by National Human Rights Commission, New Delhi, queries were made about the efforts being done to prevent the silicosis in the factories in the country. The DGFASLI, Mumbai, being the technical arm of the Ministry of Labour & Employment, Government of India, has made a review of the efforts made by the Central & State Governments to curb the onset of silicosis among the workers in the factories. The present communication highlights the findings of that review.

INTERVENTIONS BY CENTRAL GOVERNMENT

The constitution of India lays the responsibility of ensuring safety & health of workmen with Central & State Governments in this country. The Central Government is responsible for making and amending the Safety & Health provisions in the Factories Act 1948 and the State Governments of various States enforce the provisions. Wherever provided, the States frame their own rules (State Factory Rules). The provisions of the Act that relate to the control of silica dust exposure and the onset of silicosis are as follows:

Provision to control the dust and fumes (in Factories Act 1948): The Section 14(1) of the Factories Act (Title – dust & fumes) provide that all the dust & fumes given off by any operation in a factory, will be suppressed by effective measures and if any exhaust appliance is necessary it shall be applied as near as possible to the point of the dust as possible.

The coverage of the above provision is so broad that controlling of the dust that is injurious to health is obligatory on the part of the occupiers of the factory. If the enforcement of this provision is done effectively, there will not be any exposure to the workmen.

Operations involving silica dust considered as Dangerous: The Factories (Amendment) Act 1976 introduced the provisions to enable State Governments to form the rules for operations considered especially dangerous (Section 87). The occupiers of the Factories involving dangerous operations/processes are to abide by the following provisions:

- (a) Prohibition or restriction of employment of women, adolescents or children.
- (b) Periodic Medical Examination of the workers
- (c) Provisions of personal protective equipment, and
- (d) Additional welfare measures.

All the States were issued the Model Factories Rules with Special Provisions for different operations considered dangerous at that time (Schedules under Section 87- Given as Annexure II).

Out of the various schedules on dangerous operations at least 5 of them are related to exposure to the dust containing silica. The titles of such dangerous operations/processes are:

- (1) Glass Manufacture
- (2) Cleaning or smoothing, roughening, etc. of articles by a jet of sand, metal sheet or grit or other abrasive propelled by blast of compressed air or steam.
- (3) Manipulations of stones or any other material containing free silica.
- (4) Manufacture of Pottery
- (5) Foundry operations.

The detailed provisions as proposed to the States for various dangerous operations were issued to various States in the form of schedules under section 87 of the Act in the form of Model Rules.

In addition to the above, some states have special types of industries involving materials containing silica. For those states additional operations like manufacture & use of refractory materials, powdering of graphite etc. have been recommended for inclusion as dangerous operations.

Accordingly most of the States have notified majority of the operations and the schedules listing complete safety & health measures and other aspects as outlined above. Some States have notified the schedules that are not listed in the Model Rules. The Schedule numbers given to different schedules in different States are not same.

Industries involving silica dust declared as Hazardous Process Industries (without prejudice to the provisions under Section 87): The Factories (Amendment) Act 1987 introduced several additional provisions as indicated below, to control the hazards in especially hazardous 29 types of industries (First Schedule). Out of this list, at least three industries i.e., Foundries/cement (Portland Cement) industries and Glass & Ceramic have the potential of exposure to free silica. In addition to these, there are many metallurgical industries in this list whose raw-materials are the mineral containing free silica. The occupiers of these industries are required to fulfil the following requirements:

1. Compulsory disclosure of information to the workers, Chief Inspectors, local authorities and general public in the vicinity.
2. Appointment of competent supervisors.

3. Medical examination of workers by Factory Medical Officers and maintenance of updated health records.
4. Permissible limits of exposure to chemical and toxic substances.
5. Workers participation in safety management by constitution of the Safety Committees.
6. Right of workers to warn about imminent dangers.

DGFASLI as a hiatus between Inspectorate and Factory Management: In addition to the general method of enforcing the provisions of the Factories Act & State Factories Rules, the DGFASLI, through the facilities & experts in Central Labour Institute, Mumbai and the Regional Labour Institute at Chennai, Kanpur & Kolkata take up the special studies to identify, assess and suggest the control strategies in the States, as and when the assistance is sought by the enforcement agencies by any state. Recent studies have been of great help to the Chief Inspectorate of Factories & Boilers, Rajasthan, which is obvious from a communication from the Inspectorate –

“During February 2005, a study of the work environment was carried out in 100 quartz grinding Units in Beawar, District Ajmer, Rajasthan by a team of Industrial Hygiene Division of Regional Labour Institute, Government of India, Kanpur. On the basis of Control System and recommendations as suggested by said team for controlling the air borne dust effectively and adequately and further to bring down the level of dust within permissible level, all the inspecting officers of Rajasthan have been directed to ensure compliance of these recommendations effectively from every occupier and manager of said process”.

Setting up of Industrial Hygiene Laboratories in States: To render efforts towards controlling the work environment more effective, it was felt imperative to harness the CIFs of various states with the Laboratories to monitor the work environments and to have trained officers and laboratory staff.

To fulfil this need, an ILO-UNDP supported programme was taken up by the Ministry of Labour through DGFASLI in 1985, Under this programme the officers of 14 participating States were provided with 3 months Advanced Training on Industrial Hygiene at Western Australian Institute of Technology, Perth (WA). The States were also supplied with the essential Industrial Hygiene equipment for evaluation of work environment.

The staff appointed in Industrial Hygiene Laboratories in the States, had also been trained at Central and Regional Labour Institutes. Some joint industrial hygiene studies were also conducted by the CLI & RLIs to provide the practical knowledge to the IH Officers & staff of the participating states. Some States made real use of these facilities by constant efforts to monitor the work environment.

The report on the efforts made by the State for combating the hazard of silica dust, the CIF&B Rajasthan has informed that the Industrial Hygiene section of the Inspectorate had carried out monitoring of silica/quartz dust in 155 factories during the year 1991-92 to 2006-07. It is informed that the concentrations observed in most of the unit surveyed were more than the permissible levels of exposure. The management had been served with the improvement notices with the details of the action to be taken within the specified time span. To create the awareness amongst the workers booklets on silicosis in Hindi were published and distributed among the workers in the silicosis prone industries.

Notification of Permissible Limits of Exposure under the Indian Factories Act: The Factories (Amendment) Act 1987 introduces the Permissible Limits of Exposure for 117 harmful air-borne contaminant (with free silica as one of them). This made the limits a statutory requirement for the managements. Management is expected to ensure that the concentrations are not more than the laid down limits.

Some States have informed the DGFASLI that they had directed the silicosis prone industries to carryout regular monitoring of silica dust and maintain the records in the prescribed format. The Gujarat reports concentrations of silica dust as monitored by a consulting laboratory in 9 silicosis prone industries. It has been reported that the concentrations found in all those industries were within the permissible limits of exposure.

Inclusion of Silicosis as a Notifiable Disease: The silicosis is a notifiable occupational disease under section 89 of the Indian Factories Act 1998. It is further provided that any medical practitioner attending any persons employed in a factory identifies silicosis; he is required to report in writing to Chief Inspector of Factories of the state about it giving complete details. If he fails to comply this provision, he shall be punished with the fine extending to Rs. 1000/-.

The provision, however, has not brought about any positive result. The diseases are still being not reported. There is no arrangement to monitor the effectiveness of this provision. In spite of the findings of high dust levels in the work places, the incidence of the silicosis remains zero in most of the states. There is a need to study the systems to ensure reporting in other countries in the world, and to reconsider the provisions to ensure reporting of diseases

Silicosis included as a compensable disease: The silicosis is compensable disease under Section 3 of the Workmen Compensation Act 1923. The workers of the factories registered under ESI Act are examined by the ESI dispensaries & hospitals and if the disease is diagnosed, the compensation is paid to the concerned employees as per rules, such a compensation is payable even after cessation of the employment. The quantum of compensation depends on the disability and loss of earning capacity.

INTERVENTIONS BY STATE GOVERNEMENTS

The enforcement of Factories Act and Rules made their under is being done by the State Governments through Chief Inspectors of Factories of various states. There is no system for assessment of comparative status of enforcement in various States, yet keeping in view the urgency of the need, the DGFASLI, has attempted to gather information about silicosis from various States with the help of a Questionnaire (Annexure I). This questionnaire was prepared to get the information regarding the various steps taken by the State Governments in order to minimise the incidences of silicosis. The information has been received from 11 States. From other States the information is awaited. The point wise information received from various inspectorates is discussed in the following passages.

Notification of Dangerous Operations under Section 87:

It is noted from the operations notified as Dangerous under Section 87 that there is a wide variation in various States. The DGFASLI Model Rules list only 27 operations as Dangerous (Annexure II), whereas overall 44 operations were found in the data received so far. Out of these, the States have notified different numbers ranging from 25 to 32. One more peculiarity observed in the information is that the serial numbers of the same operation are different in different States. Annexure III presents a table showing the operations notified in different States and their serial numbers in the respective States.

The operations having potential to cause silicosis: It was enquired as to which dangerous operations have been recognised to have the potential to cause silicosis. As per replies to this question, different States have recognised different number of operations. The Annexure IV presents the list of such operations. They have been asked to indicate as to why they have not included other operations where too the possibility of exposure to free silica exists. The replies to such queries are still awaited. Keeping in view the potential of silicosis, the States need to consider ensuring that all these operations are notified as dangerous operations and the inspecting officers are given special instructions to ensure that all the provisions of these operations are adequately observed by the management.

It is worthwhile to mention here the possibility of exposure to silica dust in some of the operations which have been included as dangerous operations:

Glass Manufacture: Silica sand is one of the basic raw materials of the glass manufacturing process. The sand is mixed with the sodium carbonate and the calcium carbonate and heated to about 800 to 900° C. The process of batch preparation involves generation of dust, which bears the potential for onset of silicosis.

Manufacture of Pottery: The basic raw material required for manufacture of potteries and other ceramic and refractory products is china clay, which contains very proportion of free silica. The dust generated while mixing the clay with the water and other bonding substances, dust is generated which is inhaled by the

workers in the surrounding areas. In addition to the above, the preparation of batch for the glazing compound involves use of sand or quartz granules with 98 percent free silica. The dust of this mixture is also very toxic.

Manipulation of stone and other materials etc.: Various rocks used for different purposes, are crushed and powdered to the required sizes. All these operations generate very high dust. The toxicities of the dusts depend upon the percentage of free silica present in the rocks. Hence all the stone pulverising operations and crushing and classification of other minerals having free silica in them should be treated as potential risk for on set of silicosis among the exposed persons.

Sand Shot blasting: The blasting of sand or steel grits or shots is a common operation used for cleaning of the surface from the sticking materials on the steel components. Many times the castings are cleaned by this process, on which silica used in the mould making remains sticking. This comes out as a fine dust containing free silica even when the blasting material does not contain any sand. The open sand blasting is highly dusty operation, which generates the dust in concentrations hundreds of times greater than the threshold limit value. Keeping these facts in view, these operations should be considered to have cause silicosis.

Operations in foundries: The foundry operations have been considered to be most dusty operations. The operations like sand preparation, sand mixing, give off dust. In addition to the fettling operations in which the castings are finished by grinding chiselling, tumbling, sand / shot blasting give rise to very high concentrations of fine silica dust, which renders these operations most hazardous from silicosis point of view.

Grinding and glazing of Metals: Grinding and glazing of metals generally involves generation of dust that consist of the materials being ground or glazed. The dust of the materials out of which the grinding wheels are made is also generated while grinding. The wheels of Carborandum, alumina and emery are in common use in these operations. Silicon carbide and alumina are considered comparatively safe as these do not produce lung fibrosis. The Emery, however, contains some silica hence the dust from such wheels while grinding and while wheel dressing should be regarded seriously.

Others: In addition to the operations mentioned above, there could be grinding or processing of many other materials. Though all such operations get covered by the operation mentioned in serial number 3 above, yet some states have included some other operations like graphite powdering as dangerous operations.

ADEQUACY OF THE PRESENT PROVISIONS

The state CIFs were asked to indicate whether in their opinion, the existing legal provisions in the Factories Act and Rules are adequate to control the silica dust and silicosis in the factories? Most of the states have responded positively to this point. So far, the Rajasthan is the only state, who have given the suggestions for

improvements in the legal provisions. These are being quoted in the following passage:

Suggestions made by Rajasthan for incorporation in the Schedule on, "Manipulation of stones or any other material containing free silica"

Machine manufacturer should be ensured/bound before supplying the machine taken in use in the process to control the dust 100% during whole process.

Minimum area of quartz grinding unit as well as installation of machinery layout and standardization thereof should be prescribed. When the area of these factories will be more the concentration of silica dust will be less.

Density of Quartz grinding unit in a particular area may also be prescribed the cluster of grinding units in a particular area i.e. maximum density of grinding units should be prescribed under rules.

Required height of shads and special provision for ventilation should also be decided under the rules.

Maximum vibrations of machines used in quartz grinding units should be prescribed because vibration of machines is an important cause of airborne silica. Competent person may also be authorised to submit vibration report after examination of these machines to the area inspector.

Efficiency of a filter system should also be prescribed and it should be examined regularly by a competent person. The name, address and present address and age of a workman and also his photograph with his signature and occupier's signature should be submitted to an area inspector within one month of employment of such workers in quartz grinding process. It should also be ensured from an occupier to maintain a register in this respect along with health record of such worker.

NUMBER OF SILICA DUST GENERATING FACTORIES AND THE EMPLOYEES UNDER RISK

The States were requested to give the details of the number of factories, total number of workers in those factories and the estimated number of workers working in the silica dust prone areas. The response of the states has been presented in Annexure V. Some States have not given the number of workers in the areas in the silica dust prone areas. A request has been sent to them to give the complete information. Different States have given the coverage to different number of operations.

The States have been approached to give the information for other operations also. Still the information is very useful and informative and gives a total analysis of the extent of the problems in the factories.

One State has indicated that none of the worker in a large foundry is working in silica dust prone area. This again is not correct statement because even if the management has taken all the care to remove the dust from the breathing zones of the workers, the areas should be regarded as dust prone only. The gravity of

the problem is obvious from the results of the work done by Regional Labour Institute, Chennai, which revealed that the concentrations of dust in various parts of foundries in South India ranged from 2.34 mg/M³ to 75.81 mg/M³ in sand preparations area against the range of TLV from 0.832 to 2.52, 14.6 to 53.1 mg/M³ against the TLV range 0.18 to 1.7 mg/M³

CASES OF SILICOSIS

There are three agencies from where the reports of silicosis are expected i.e. (1) The management, the registered medical practitioners and the studies carried out by Chief Inspectorates of the respective states (through the medical inspectors or certifying surgeons or with the help of CLI/RLI.). Accordingly the information was sought in these subheads which are presented below:

Cases Reported by the Management: Out of the 11 States under the analysis, two States have reported that the Management have notified the CIF's about the incidence of silicosis among their workers. The CIF Gujarat has reported the notification of 9 cases and CIF & B Pondichery has reported notification of 5 cases of silicosis during the period of last five years respectively. From Gujrat, the details of action taken by the State have not been given, but the report from Pondichery indicates that the Factory Management was directed to replace the workers to the areas where there is no chance of any exposure to silica dust.

Cases reported by the Registered Medical Practitioners: The Factories Act provides that if a medical practitioner examining a worker employed in a registered factory believes that the worker is suffering from a notifiable disease (including silicosis), he has to notify the Chief Inspectorate of the Factories. If he fails to do so, he is liable for the punishment. In order to list the number of cases notified under this provisions, and assess the efficacy of this legal instrument, states were requested to inform the number of cases notified by the different registered medical practitioners. In response to this question, it was revealed that not a single case of silicosis has been notified by any of the registered medical practitioner in the 11 States under study.

Cases identified by the medical inspectors of certifying surgeons: From the information received from various states, it is observed that although some States have conducted the studies in the silica prone industries either by appointment of competent person, or through the medical inspector of factories or with the help of RLI /CLI under DGFASLI, none of the case of silicosis was notified. The reports of the studies carrying the recommendations or directives had been given to the managements as will be seen from the detailed discussions on the observations on the studies conducted by the inspectorates.

APPOINTMENT OF COMPETENT PERSONS OR STATE GOVERNMENT'S NOMINEE

MAIN FEATURE: Interventions For Prevention Of Silicosis

There is a provision in the Factories Act that the State Governments can appoint the competent person or nominate the experts to function on behalf of Government to conduct certain studies as required from time to time. In order to find out whether the States have made use of this power and appointed any such experts to look into the status of silicosis in the state, a point was raised in the questionnaire. The response of the States on this query is being presented here, which indicates that most of the States are not making use of this power.

Rajasthan: It has been reported that the Rajasthan has formed a pneumoconiosis board under the workmen compensation act to deal with the cases of pneumoconiosis for settling the compensation.

Pondichery: In Pondichery a committee was formed to inquire a case of silicosis notified in a glass industry.

MONITORING THE WORK ENVIRONMENT AND MAINTAINING ITS RECORDS

Under the responsibilities laid on the managements of the hazardous factories to ensure safe working conditions, the managements are expected to keep monitoring the levels of dust in the work places and maintain the records. The factory inspector, while inspecting the factory is expected to ensure that the monitoring is being done and the records have been maintained. Keeping this point in view, the States were asked to indicate whether they have directed the factories having potential for silica dust exposures to monitor their work environments and maintain the records of the concentrations. Out of the 11 States from where the information has been received, three have responded positively on this question. It can be concluded from the findings that the emphasis on this point needs to be increased.

Rajasthan: Rajasthan has reported that inspectorate has directed 96 factory managements to get their work environment tested for the level of silica dust and ensure that the values are within the permissible limits of exposure.

Gujarat: In the State of Gujrat, 358 factories have been directed to monitor the work environment. Out of these, reports on the dust levels of 16 quartz crushing and grinding factories have been made available to the inspectorate. It has been concluded in the reports received that the conditions in all the work places of all the 16 units was found to be within the threshold limits of the quartz.

West Bengal: It has been reported by the Directorate of Factories, west Bengal that all the factories having the risk of exposure to silica dust have been directed verbally to monitor the work environment and keep the record.

WORK ENVIRONMENT STUDIES CONDUCTED BY THE INSPECTORATES

Most of the States are equipped with the Industrial Hygiene Laboratories, duly manned by the trained persons. (Equipping of laboratories of the inspectorates of 14 participating States and training of their officers and staff in industrial hygiene practices was ensured by DFGASLI by a centrally organised scheme with the help of ILO/UNDP about 20 years back.). Keeping the need in view, the CIF's were asked as to whether the industrial hygiene laboratories in the inspectorates have been monitoring the work environments in the silica prone factories. In response to this question, four i.e. Goa, Rajasthan, West Bengal and Pondichery, out of the 11 States have responded positively. The status in those States is being presented below:

Sl. No.	State	Status
1.	Goa	One study in a glass fibre plant was conducted where 7 workers were exposed to silica dust. The average concentration found in the factory was 0.16 mg/M ³ . Suitable reconditions to reduce the dust had been given.
2.	Rajasthan	Rajasthan has conducted the studies in 155 quartz grinding factories during the period of 5 years. The findings indicate that the concentrations had been very high in most of the studied factories. The concentrations were more than thousand fold higher than the permissible limits in several factories. Suitable recommendations had been given to suppress and control the dust.
3.	West Bengal	Seven factories employing 113 workers have been studied. The permissible limits exceeded in 6 of them. Recommendations to use wet process, enclosures, local exhaust system, respiratory protection etc. had been given
4.	Pondichery	1. Two studies in collaboration of RLI Chennai. In each study 10 recommendations were given to suppress and control the dust exposures. 2. 30 studies by the IH lab of inspectorate. Dust levels 1 to 15 mg/M ³ Suitable control measures were suggested. (Hard copies of the recommendations available in hard form)

MEDICAL STUDIES CARRIED OUT BY THE INSPECTORATES

Most of the inspectorates have Medically qualified inspectors who can perform surveys in the dust prone industries and identify the cases of silicosis. In order to

assess the status of work done by various States in this line, a question to this effect was included in the questionnaire. The response of four States (out of 11) in this connection is being presented below:

MAIN FEATURE: Interventions For Prevention Of Silicosis

Sl. No.	State	Status
1.	Rajasthan	Medical examination of the workers in 56 quartz grinding units was done. The studies covered 56 quartz grinding factories employing 404 workers. No case of silicosis was identified among the workers examined during this period.
2.	Assam	A medical study has been done by the inspectorate with the collaboration of RLI Kolkata. The have not been given by the inspectorate saying that the report is available in RLI Kolkata.
3.	Gujarat	The inspectorate has surveyed 647 units with the potential silica dust during last 5 years. During the surveys 3991 workers had been examined. The number of cases identified has not been reported. No case of silicosis had been identified during these surveys.
4.	West Bengal	West Bengal has indicated that 202 workers were declared unfit in the state during a period of five years.
5.	Pondichery	Pondichery reports that 33 units have been medically surveyed during this period. No other information has been given.

FACTORIES INSPECTED AND PROSECUTED

Data obtained about the number of inspections and prosecutions done in silica prone dangerous operations

are presented below which indicates that the inspections are regularly being done in silica prone industries:

Sl. No.	State	Number of inspections during last 5 years.	Number of prosecutions during last 5 years	Remarks
1.	Goa	2	0	
2.	Rajasthan	96	87 (Since 1996)	For 10 years
3.	Tamil Nadu	All the factories once in a six months	80	
4.	Assam	10	Nil	
5.	Gujarat	1095	95 prosecutions in 22 industries during last 5 years	
6.	Kerala	2	Nil	
7.	Andhra Pradesh	11	3	
8.	Tripura	7	Nil	
9.	Uttara-khand	Nil	Nil	
10.	West Bengal	400	3	
11.	Pondichery	33 factories, once in a year (minimum)	Prosecutions have been launched.	No. of prosecutions not indicated.

COVERAGE OF SMALLER/ UNORGANISED DANGEROUS FACTORIES UNDER FACTORIES ACT

The Section 85 of the Factories Act 1948 provides the power to the State Government to apply the Act on the Factories that are not otherwise covered under the Act. The State can extend such a coverage by issuing a

notification (in the official gazette) to this effect. The questionnaire included a point to find out whether the state has made use of its power to bring the smaller industries using the dangerous operations under the fold of the Factories Act. The response received from the 11 States covered in this report is as follows:

Sl. No.	State	Notifications under Section 85 to identify the factories employing less than 10 workers with power and less than 20 workers without power.
1.	Goa	No
2.	Rajasthan	Notification issued to cover the quartz crushing and grinding units.
3.	Tamil Nadu	Notification issued to cover the factories carrying out manufacturing operations which have potential to cause silicosis.
4.	Assam	No.
5.	Gujarat	No
6.	Kerala	No.
7.	Andhra Pradesh	No.
8.	Tripura	No.
9.	Uttara-khand	No.
10.	West Bengal	No.
11.	Pondichery	Notification issued to cover the factories such as foundries, stone crushing/ cutting / polishing, abrasive wheel and allied product manufacture, ceramics & refractory specifying the sections of the factories act that will be applicable in respective operations.

MAIN FEATURE: Interventions For Prevention Of Silicosis

It may be concluded that in the Union Territory of Pondichery, best efforts have been made to cover most of the operations having risk of silica dust exposure. In Rajasthan, the coverage has been given only to quartz crushing and grinding factories. It would be ideal situation for all the States to identify all the dangerous operations in general and silica dust prone operations in particular to give coverage of the relevant sections of the Factories Act irrespective of the number of persons employed.

OTHER EFFORTS

Some States have informed that they have taken special measures in order to prevent silicosis. For instance in Gujarat, a booklet in the regional language has been issued to guide the workers about the silicosis on the basis of the information obtained from WHO and NIOH Ahmedabad. The Pondichery has informed that they not only have the most advanced instruments for monitoring of air borne contaminants at the work places, but have a mobile industrial hygiene laboratory well equipped with monitoring and analysis facilities.

Annexure I

PROFORMA FOR COLLECTION OF INFORMATION FROM THE CHIEF INSPECTORS / DIRECTORS OF FACTORIES OF THE STATES / UTs ON SILICOSIS

Name of the State / UT

1. The number of manufacturing processes or operations have been identified in your State as dangerous operations under Section 87 of the Factories Act, 1948 and whether Rules in the form of Schedules containing detailed provisions have been formulated / framed.

Please provide the list of dangerous operations / processes (Schedules).

2. Out of the above mentioned declared dangerous operations / processes of your State, how many operations / processes have potential to cause pneumoconiosis, particularly, silicosis amongst the workers employed in these operations / processes.

Please provide the list of such processes / operations having potential to cause silicosis.

3. Please indicate whether provisions made in the Schedules on dangerous operations / processes having potential for silicosis are adequate or not, to tackle the problem of silicosis. If not, suggest changes.

4. Please indicate the following details – operations / processwise.

S.No.	Name of the Dangerous Operation	Total no. of registered factories	Total no. of workers employed	No. of workers exposed to airborne dust
1				

5. The no. of cases of silicosis notified to the Inspectorates / Directorates by Managers of the factories under Section 89 of the Factories Act, 1948 during last 5 years i.e. from 2002 to 2006.

Year:

S.No.	Name of the factory	Name of the dangerous operation	Name of the worker	Age of the worker	Duration of exposure	Action taken by the Management	Action taken by the Inspectorate
1							

6. The number of cases of silicosis reported to the Inspectorate / Directorate by the Medical Practitioners as per Sub-section (2) of the Section 89 of the Factories Act, 1948 during the last 5 years i.e. 2002 - 2006.

S.No.	Name of the factory	Name of the dangerous operation	Name of the worker	Age of the worker	Duration of exposure	Action taken by the Inspectorate
1						

7. Whether the State Government has appointed any competent person or committee to inquire into the causes of silicosis as per Section 90 of the Factories Act, 1948.

MAIN FEATURE: Interventions For Prevention Of Silicosis

8. The number of factories those have been advised to monitor the work room environment having potential for silicosis and to ensure health, safety and welfare of the workers as per Section 7A of the Factories Act, 1948.

Please provide copies of the Assessment Report.

9. The no. of studies / surveys conducted by the Directorate / Inspectorate of the State / UT to assess the airborne dust level in the work room environment of the factories having potential to cause silicosis either with own laboratory or with the assistance of CLI / RLI / others.

Please provide the names of the factories, no. of workers exposed, the airborne concentration and the control measures suggested.

10. How many medical surveys have been conducted to assess the health status of the workers have been conducted by the State / UT either by their own Medical Inspector of Factories or with the help of Industrial Medical Division of CLI / RLI

Please provide details of the findings of the Medical Survey.

11. The number of factories having potential to cause silicosis have been inspected during the last 5 years i.e. 2002 to 2006.

The no. of directions issued to management to control dust or to prevent silicosis in such factories with details.

12. The number of managements / factories against whom the actions / prosecutions have been launched for violation of the provisions of the Factories Act, 1948 having potential to cause silicosis.

13. Whether the government has issued any notification under Section 85 of the Factories Act, 1948 to cover the unorganized sector (not registered as factories due to employment of less number of workers i.e. less than 10 with power or less than 20 without power) carrying out manufacturing operations which are having potential to cause silicosis.

14. Any other information which the Directorate / Inspectorate would like to provide on the issue of silicosis.

Annexure II.

DANGEROUS MANUFACTURING PROCESSES OR OPERATIONS

A. As listed in DGFASLI Model Rules:

- (1) The following manufacturing processes or operations when carried on in any factory are declared to be dangerous manufacturing processes or operations under section 87 :
 - I. Manufacture of aerated water and processes incidental thereto.
 - II. Electrolytic plating or oxidation of metal articles by use of an electrolyte containing acids, bases or salts or metals such as chromium, nickel, cadmium, zinc, copper, silver, gold etc.
 - III. Manufacture and repair of electric accumulators.
 - IV. Glass manufacture.
 - V. Grinding or glazing of metals.
 - VI. Manufacture and treatment of lead and certain compounds of lead.
 - VII. Generating petrol gas from petrol.
 - VIII. Cleaning or smoothing, roughening, etc. of articles by a jet of sand, metal shoe or grit or other abrasive propelled by blast of compressed air or steam.
 - IX. Liming and tanning of raw hide, skins and processes incidental thereto.
 - X. Certain lead processes carried on in printing presses and type foundries.
 - XI. Manufacture of pottery.
 - XII. Chemical works.
 - XIII. Manipulation of stone or any other materials containing free silica.
 - XIV. Handling and processing of asbestos manufacture of any article of asbestos and any other process of manufacture or otherwise in which asbestos is used in any form.
 - XV. Handling or manipulation of corrosive substances.
 - XVI. Processing of cashew nut.
 - XVII. Compression of oxygen and hydrogen produced by the electrolysis of water.
 - XVIII. Process of extracting oils and fats from vegetable and animal sources in solvent extraction plants.
 - XIX. Manufacture or manipulation of manganese and its compounds
 - XX. Manufacture or manipulation of dangerous pesticides.
 - XXI. Manufacture, handling and usage of benzene and substances containing benzene.
 - XXII. Manufacturing process or operations in carbon disulphide plants.

MAIN FEATURE: Interventions For Prevention Of Silicosis

- XXIII. Manufacture or manipulation of carcinogenic dye intermediates.
 XXIV. Operations involving high noise levels.
 XXV. Manufacture of Rayon by Viscose Process.
 XXVI. Highly flammable liquids and flammable compressed gases.
 XXVII. Foundry Operations.

B. Notified in some states but not listed in DGFASLI Model Rules

1. Cellulose spraying.
2. Graphite Powdering.
3. Dyeing, stenciling, & painting of mats, mattings & carpets in Coir & Fiber factories.
4. Manufacture of dichromates.
5. Fire Works manufacture & match factories.
6. Manipulation of Acids & Alkalis.
7. Manufacture of bangles and other articles from cinematograph film and toxic and flammable solvents.
8. Processes involving manufacture, use or evolution of carbon di sulphide & Hydrogen sulphide.
9. Welding/cutting with LPG/Acetylene/Argon
10. Handling and processing of cotton
11. Manufacturing articles of refractory materials including manufacture of refractory bricks.
12. Manufacture or manipulation of Nitro and Amino compounds.
13. Chemicals involving high noise level.
14. Composing, printing, binding and processes and /or operations incidental thereto.
15. Feeding of jute, hemp etc. into softening machine
16. Baling, stacking, storing and shipping of Bales in and from finished goods godown in jute mills.
17. Manufacture, manipulation or storage of Celluloid or any article wholly or partly made of celluloid.

Annexure IV

Sl. No.	State	Operations recognised as dangerous with the potential of silicosis in various states.						
		Glass Manufacture	Manufacture of Pottery	Manipulation of stone and other materials etc	Sand Shot blasting	Operations in foundries	Grinding and glazing of Metals	Others
1.	Goa	Yes			Yes			-
2.	Rajasthan			Yes				-
3.	Tamilnadu	Yes			Yes			
4.	Assam	Yes	Yes	Yes	Yes		Yes	-
5.	Gujrat	Yes	yes	Yes				
6.	Kerala	Yes		Yes				Cement
7.	Andhra Pradesh			Yes				
8.	Tripura			Yes				
9.	Uttara-khand	Yes		Yes			Yes	
10.	West Bengal	Yes	Yes	Yes		Yes		
11.	Pandichery	Yes	Yes	Yes	Yes	Yes		Graphite

Annexure V

State wise details of workers, total number of workers and the number of workers in silica dust prone areas				
State	Operations	Number of Factories	Number of Workers	Number of workers in silica dust prone areas.
Goa	III Sand/Shot Blasting	1	298	10
Rajasthan	- Quartz grinding - Feldspar - Remingmass - Slate pencil - Foundries - Ceramic and pottery industry - Manufact-uring of insulators - Glass - Abrasives - Refractories	96 76 4 3 18 23 3 1 8 2	1244 384 38 At present factories are lying closed 710 1832 569 784 69 69	1244 384 38 At present factories are lying closed 710 1832 569 784 69 69
Tamil Nadu	1. Glass manufacture 2. Pottery & Ceramic Industry 3. Manipulation of stone or any other material containing free silica 4. Operations in foundries	10 215 237 549	261 11,878 11,234 23,530	- - -
Assam	Glass	12	97	97
Gujarat	Glass Stone & others Pottery Foundry	15 37 56 250	5411 577 2146 9447	322 20 208 1805
Kerala	-Glass manufacture -Stones & material contain-ing free silica -Processing of China clay -Titanium dioxide -Metal crushing -Processing of TiO ₂ -Operation in Foundry	Nil 175 1 1 99 1 64	Nil 1630 400 1600 1019 1600 1689	Nil 855 400 1600 1019 1600 -
Andhra Pradesh	Stones & materials containing free silica	11 (two closed)	116	70
Tripura	Manipulation of stones etc.	7	118	118
Uttara-khand	1.Manipulation of stone etc. 2. Glass manufacture 3. Grinding	22 2 24	691 1250 1350	380 125 180
West Bengal	1. Glass Manufacture 2. Manufacture of Pottery 3. Manipulation of stone etc. 4. Operations in foundries.	72 117 27 564	7325 7711 623 11746	
Pandichery	1. Glass manufacture 2. Manufacture of Pottery 3. Manipulation of stone etc. 4. Operations in foundries. 5. Sand Shot blasting. 6. Graphite Powdering	2 6 21 2 3 2	1234 2164 1444 59 126 45	195 1105 528 24 39 18

Shri. S.K.Saxena
Director General
DGFASLI,
Sion, Mumbai 400 022

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Quotable Quotes

- Words without actions are the assassins of idealism –*Herbert Hoover*
- Courage is the ladder on which all the other virtues mount –*Clare Booth Luce*
- Dignity consists not in possessing honours, but in the consciousness that we deserve them- *Aristotle*

INSTITUTE NEWS (January- March, 2008)

CENTRAL LABOUR INSTITUTE: MUMBAI



Institute Day

On the 9th February, 2008 the Institute Day was celebrated. The Day started with paying tributes to the first Director General of the Institute Late Shri N.S. Mankiker (1910-1976) who envisioned this Institute and transformed it into a reality by getting the Institute building at Sion inaugurated by the former President Dr. S. Radhakrishnan on the 9th February, 1966. On that auspicious occasion Smt Kamala Mankiker, wife of Late Shri N.S. Mankiker was invited as a Guest of Honour. She inaugurated the Safety Exhibition Stalls of DGFASLI one of which contained the old photographs and writings of Late Shri N.S. Mankiker. The stall invoked tremendous interest to the visitors, officers, staff members, ex-officers and employees of the DGFASLI as the contents of the stall evoked old memories of association with first Director General of the Institute. Following the felicitation ceremony, Shri S.K. Saxena, Director Geeneral, DGFASLI inaugurated the Seminar on *Emerging Roles and Challenges of Safety Professionals in Indian Industries*. The seminar was attended by 256 delegates from public and private sector organizations. Eminent safety professionals deliberated on various issues regarding the emerging roles safety professionals to meet the challenges of technological changes as well as the transformation taking place in the management system in industries. After the seminar, a very entertaining cultural programme was presented by the officers as well as staff members of Central Labour Institute, DGFASLI Headquarters and the students of the Advanced Diploma in Industrial Safety course 2007-08. At the end of the Institute Day Certificates were awarded to the successful students of the Advance Diploma in Industrial Safety Course 2005-06 batch of this Institute. Meritorious students (rank holders) of this Course were also felicitated.

Studies

Evaluation of Heat Stress & Ventilation at an Engineering Industry in Maharashtra (by Ghosh P: Physiology Division, Central Labour Institute, Mumbai)

Safety Audit in a Pharmaceutical Unit in Maharashtra (by Gautam S.S. and Vishvanathan, H. Major Hazards & Chemical Safety Division: Central Labour Institute, Mumbai)

Status of the Use of Personal Protective Equipment: A Follow-up Study (by Mohanty P.K.: Industrial Psychology Division, Central Labour Institute, Mumbai)

Assessment of Airborne Contaminants in the Work Environment in a Refinery at Visakhapatnam (by Pal, P.B & Dhende, K.L. Industrial Hygiene Division, Central Labour Institute, Mumbai)

Evaluation of Airborne contaminants in the work Environment of a Tyre Factory (by Metkari, M.A. Industrial Hygiene Division, Central Labour Institute, Mumbai)

Assessment of Compressed Breathing Air Quality at a Marine Institute (by Metkari, M.A. Industrial Hygiene Division, Central Labour Institute, Mumbai)

Assessment of Airborne Chemical Contaminants in work Environment of a Chemical Factory (by Metkari, M.A. Industrial Hygiene Division, Central Labour Institute, Mumbai)

Evaluation of Welding Fumes in the work Environment Pharmaceutical firm (by Metkari, M.A. Industrial Hygiene Division, Central Labour Institute, Mumbai)

Assessment of Airborne concentration of Benzene & Phenol at a Chemical Factory (by Metkari M.A. Industrial Hygiene Division, Central Labour Institute, Mumbai)
Safety Audit of a Sponge Iron Factory in Orissa (by Das U. K. and Haldar S.K. & Sengupta D.K.: Regional Labour Institute: Kolkata)

Safety Audit in a Paper Factory, Kolkata (by Das U.K. & Sengupta D.K.: Regional Labour Institute: Kolkata)

Seminar/ Conference

Factory Advice Service Division organized the 48th Conference of Chief Inspectors of Factories at Gurgaon, Haryana from 9-11 January, 2008. The Conference was inaugurated by Shri Oscar Fernandes, Hon'ble Minister of Labour & Employment, Government of India and was presided over by Shri A.C. Chaudhary, Hon'ble Labour & Employment Minister, Government of Haryana. The Conference was attended by CIFs of 24 States/UTs and various issues relating to provisions under the Factories Act, and Rules made thereunder were discussed. The conference constituted seven Working Groups for in-depth analysis of the problems and for suggesting guidelines/Model Rules, etc.

Dock Safety Division organised seminar on "Need for Improvement of OSH in SEZ and other Industries" in collaboration with Kandla Special Economic Zone Industries Association and Gandhidham Chamber of Commerce and Industries, Gandhidham on the 21st Jan., 2008. Smt. Sudha Pillai, IAS, Secretary, Ministry of Labour and Employment inaugurated the Seminar. Shri S.K.Saxena, Director General, DGFASLI, the President of Gandhidham Chamber of Commerce and Industries and the President of Kandla Special Economic Zone Industries Association were present in the inaugural function. The seminar was attended by 63 delegates comprising Government officials and Owners/Management personnel from the different Units of Kandla SEZ.

Dock Safety Division organized 25th Conference of Inspectors of Dock Safety at Goa on the 4th and the 5th February, 2008. Shri S.K.Shrivastava, IAS, Jt. Secretary, Ministry of Labour and Employment inaugurated the Conference. Shri A.K.Vaishnav, IAS, Dy, Chairman Mormugao Port Trust and Shri S.G.Redkar, Chief Inspector of Factories and Boilers were also present in the inaugural function.

Factory Advice Service Division organized during March 11-12 a meeting of the Working Group of CIFs constituted by the 48th Conference for framing Model Rule on Injection Moulding Machines and revising the Model Rule on precautions in the event of fire.

Faculty Development Seminar of Advanced Learning Centre

Application of Work Physiology in Industry by Shri P.C. Ghosh, Director (Phy. /Erg.) held on January 23. Seminar was attended by 41 participants.

Why People Suffer or become Sick – Holistic Strive for Prevention (Part I) & (Part II) by Dr. R.B. Raidas, Director (Indl. Med.) held on February 22 and March 7 respectively. Seminar was attended by 50 & 51 participants in (Part I) & (Part II) respectively.

Process Safety and Control Measures in Fertiliser Industry by Shri R.P. Sharma, Dy. General Manager, Rashtriya Chemicals & Fertilizers, Mumbai held on February 28. It was attended by 41 participants.

Occupational Safety and Health Issues of Women in Industry by Mrs. Sujata Gothoskar, Consultant, IUF, Mumbai held on March 27. Seminar was attended by 42 participants.

Training programmes

Ergonomics Division conducted one day specialized training on January 7 for 7 post graduate Physiology students from Kolkata University on *Principles of Ergonomics and Ergonomics intervention programs*.

A five-day training programme titled *Occupational Health Hazard Evaluation and Prevention in the use of Computer and VDT* was organized by Ergonomics

Division during 9-13 January. The programme was attended by nine participants from 2 organizations.

Dock Safety Division conducted a two-day workshop on *OSH Statutes – Labour Laws and PPE* in collaboration with Kandla Special Economic Zone Industries Association at Kandla on 18-19 January, 2008. The workshop was attended by 20 participants.

Staff Training & Productivity Division conducted a specialized Training Programme titled *Personal Growth & Group Dynamics for Improving Health and Safety of Workers at Work* from 4-8 February wherein 19 delegates attend the programme.

Medical Division conducted a five-day workshop on *Occupational Health Practice for Nurses, Medical/Health Assistants* was conducted from 3-7 March. The workshop was attended by 10 participants from 7 organizations.

Major Hazard and Chemical Safety Division organized a three-day Workshop on *Dispersion Modeling and Impact Assessment of Major Toxic & Flammable Releases* from 3rd to 5th March, 2008 which was attended by 9 delegates from various industries and consultancy organizations.

Major Hazard and Chemical Safety Division conducted a three day Workshop on *Hazard & Operability study* from 26th to 28th March, 2008. The Workshop was attended by 11 delegates from various industries.

Physiology Division conducted two specialized training programs, one on the 28th February for 30 Post-graduate and PhD students from the N. M. College of Management and Technology on Application of Ergonomics in Industry and another on the 3rd March for 5 executives from Bosch Mico Ltd, Jaipur for a demonstration of Back Strengthening Exercises and its Benefits for Calibration Operators in the Plant.

Industrial Psychology Division conducted a three-day training programme on *Effective Participative Skills for Safety Committee Members* from 11 – 14 March 2008. The programme was attended by 20 participants. No. of participants – 20

Industrial Hygiene Division conducted a training programme on *Evaluation and Control of Chemical Hazards at Workplace* from 12 – 14 March. The programme was attended by 14 participants from 9 organizations.

Five-day program on *Heat Stress and Ventilation: Statutory Requirements for Ensuring Safety, Health and Productivity at Work* was organized by Physiology Division during 24-28 March. 25 executives from 7 organizations participated in the programme.

Technical Advice on Regulations & Statutes / Parliament Questions

Factory Advice Service Division offered comments on a) Strategic Approach to International Chemical Management (SAICM), which was adopted in the International Conference of Chemical Management, held in Dubai; b) ILO Document on Technical Cooperation Activities in Occupational Safety and Health – A Thematic Evaluation, for discussion in the 301st Session of the Governing Body of ILO and c) ILO Report Form on Convention No. 155 concerning Occupational Safety, Health and Environment at workplace.

Factory Advice Service Division prepared replies in respect of Parliament Questions on a) Coverage of hotels under the Factories Act, 1948; b) Killing of child labourers in Nashik ; c) Employment of trained workers at Stone quarries in Uttar Pradesh and providing them adequate social security and medical facilities; d) Working conditions in asbestos factories and e) Violation of labour laws by pesticide making companies.

Factory Advice Service Division examined The Investment Commission's (Second Report) recommendation on enhancement of working hours prescribed under the Factories Act, 1948. This proposal along with the proposal on labour reforms in garment exporting units was examined from Occupational Safety and Health point of view and comments were sent to the Ministry of Labour & Employment for their consideration.

Technical Advice to Industries

Ergonomics Division rendered technical advice to two organizations namely Haldia Petrochemicals Ltd, Haldia and Tata Chemicals Ltd, Mithapur on the Ergonomics of manual materials handling.

The Physiology Division provided technical advice to M/S Thermax Ltd. Pune and M/S Tata Chemicals Ltd., Mithapur on the topics of Rest Allowances and Static Muscular Work.

Three-month Associate Fellow in Industrial Health Course

Industrial Medicine Division conducted interviews for 109 candidates for selection for admission into the AFIH Course. Interviews were conducted on 28th & 31st March, 2008 in which 50 candidates were selected for admission into AFIH Course.

One-year Advanced Diploma in Industrial Safety Course

Industrial Safety Division conducted the second semester of the course consisting of 43 students and completed the second unit test and the presentation of Project work was completed. The announcement for admission for forthcoming academic year 2008-2009 has been made.

Extra-mural Training Programmes

Industrial Safety Division conducted four two-day training programmes titled *Accident Prevention at the Workplace* at the Naval Dock Yard, Mumbai for their supervisors and Safety Committee members.

The Physiology Division conducted one day training program titled *Occupational Physiology its Application in Industry* at M/S Hindalco, Silvasa the 6th January. 68 employees attended the programme.

Industrial Psychology Division organized a training programme on *Making Safety Committee More Effective* at Tata Motors, Car Unit, Pune on 21 January 2008. The programme was attended by 33 participants.

Industrial Hygiene Division had conducted one day training programme titled *Industrial Hygiene and Personal Protective Devices* at BASF India Ltd., Thane on March 5. It was attended by 40 participants.

Paper Presentations/ Talks

Shri S.K.Saxena, Director General delivered inaugural address in the Seminar on 'Process Safety Management' organized by Department of Factories, Government of Andhra Pradesh in collaboration with NSC, Andhra Pradesh Chapter at Hyderabad.

Shri S.K. Saxena, Director General as Chief Guest delivered Key-note address during the presentation of Atomic Energy Regulatory Board Industrial Safety Awards to the winner units of the Atomic Energy Department.

Shri H.Vishvanathan, Director (Safety) delivered on *Need for Safety & Health in Chemical Laboratories* in a programme organized at the Mumbai University.

Shri S.K. Saxena, Director General delivered inaugural address as a Chief Guest at the Safety Week Celebration of Chennai Port Trust, Chennai.

Dr. A.K. Chakrabarti Dy. Director General made a presentation on *Behaviour-based Safety* at Rashtriya Chemical and Fertilisers (RCF), Mumbai on the occasion of Safety week celebration.

Shri B.L.Bairwa Dy. Director of Industrial Safety Division delivered a talk on *Safety Management* during the safety week celebrations organized by the Central Railway Workshop, Parel and at MIDC Lote, Tal. Khed, Dist. Ratnagiri.

Shri Rajeev Shukla, Asstt. Director of Industrial Safety Division delivered a talk on *Role of Supervisor in Safety* during the safety week celebrations organized by the Western Railway Workshop, Matunga.

Nine talks were delivered by Dock Safety officers posted at Inspectorate Dock Safety offices in various ports in India on different subjects related to Dock Safety during the training programme conducted by other agencies. Shri P.K.Mohanty, Dy. Director (Industrial Psychology) participated in the National Seminar on *Adolescent's problem and its management* as Chairperson in a technical session sponsored by UGC conducted in BJB Autonomous College, Bhubaneswar from 9 – 10 March, 2008.

Shri P.K. Mohanty, Dy. Director (Industrial Psychology) delivered a talk on *Structure and function of Safety Committee* in the programme conducted by Maharashtra Safety Council at CLI on the 20th February 2008. The programme was attended by 22 participants.

Testing of Personal Protective Equipment

During the quarter the Respiratory Testing Lab tested 15 samples of Respiratory Protective Devices and the non-respiratory Testing Laboratory tested 54 non-respiratory Protective Devices of various manufacturers.

Safety Exhibition

As a part of imparting awareness on Occupational Safety and Health, a stall with Safety Exhibits was put up in connection with CAREER FAIR at Manohar Phalke College, Everadnagar, Mumbai. Approximately 2000 persons visited the stall. Similar stall was erected at the CAREER FAIR at Latur on the occasion of their silver jubilee celebration in P.L. Govt. Polytechnic on 16-17 January 2008 in which 3000 persons took advantage of the exhibition.

Visits to Safety Centre & Laboratories

More than 300 visitors from various public and private sector industries, engineering institutes and medical colleges visited the Industrial Safety, Health & Welfare Centre of the Institute, Documentation Centre and various laboratories and testing facilities at Industrial Hygiene, Industrial Medicine, Environmental Engineering (Non-respiratory & Respiratory Testing Laboratory), Industrial Psychology, Physiology, Ergonomics Divisions.

Inspectorate Dock Safety in 11 Ports

During the first quarter of 2008, Inspectorate of Dock Safety located in 11 major ports in India conducted 169 Dock Inspections, 269 Ship Inspections; conducted 11 accident investigations and inspected 267 gears. Besides the above, following training activities for Dock workers were carried out:

A one day training program on "Safety in Dock Work" was organized on the 21st January, 2008 at Kolkata Port Trust Training Centre. 12 Supervisors participated in the programme.

A two-day training program on *Safety in Material handling for improving Productivity* was conducted at New Mangalore Port Trust Training Centre during 12-13 February, 2008. 35 workers participated in the programme.

A Specialized Training Programme on *Occupational Safety and Health* was organized at the Officer's Club, Paradip Port Trust from 12th to 14th Feb.2008. 51 Supervisors participated in the programme.

A one-day training programme on *Overview of Safety Provisions under Dock Safety Statutes* was conducted at Kolkata Port Trust on 21.02.2008. 7 Supervisors participated in the Programme.

A one-day training programme on *Safe Handling of Logs and Containers* was conducted at Kolkata Port Trust on 04.03.2008. 6 Supervisors participated in the Programme.

A specialized training programme on *Train the Trainers on Dock Safety Statutes* was conducted in collaboration with RLI, Kolkata, at RLI, Kolkata from 10-14 March, 2008. 12 Supervisors participated in the programme.

Safety Awards

A meeting of Internal and External Committee Members for finalizing the modalities for assessing the VRP Applications for 2006 was held on 14.2.2008 and a total of 177 applications were assessed.

REGIONAL LABOUR INSTITUTE: KANPUR



A 5-day training programme on Chemical Safety was organized from 19th to 23rd February 2008 for Inspector of Factories from Maharashtra, Kerala & Pondicherry. The objective of the programme was to develop competency in carrying out day to day inspection in chemical plants/industries. The course content included topics on Safety in Bulk Storage of Chemicals, Fire & Explosion Index System for Risk Analysis, Safety In Pipelines, Hazard & Operability Study (HAZOP), Safety Audit, Emergency Planning, Hazardous Unit operations & Processes in Chemical Plants, Effective Supervision for Safety in Chemical Industries, Toxic Emissions & Their Control and Accident Prevention in Chemical Industry. The technical sessions were supported with case studies on chemical accidents.

Institute completed a Safety Audit in a Glass Plant in the region.

REGIONAL LABOUR INSTITUTE: CHENNAI



Organized a two-day Seminar on "Safety and Health of Workers in Construction Sector – Emerging Issues" on 24th and 25th January 2008 in association with L& T (ECC) Limited, Chennai and Consolidated Construction Consortium Limited, Chennai. Around 200 participants attended the seminar. The Seminar was inaugurated by Shri S.K. Saha, Joint Adviser, Planning Commission,

Govt. of India, New Delhi and Shri J. Ganguly, Executive Vice President, L& T (ECC) Limited, Chennai had delivered the Key-note Address. The function was presided over by Dr. A.K. Chakrabarti, DDG, DGFASLI, Mumbai. Shri V. Subramaniam, Chief Engineer, CPWD, Southern Zone – I was the Chief Guest in the valedictory function.

Conducted a 3-day training Programme titled “Safety in Construction Activities” during 11-13 March. The training programme was attended by 30 delegates from 11 organizations. Organized a three-day specialized training programme titled “Preparation and Evaluation of On-Site Emergency Plan and Safety Report” was held during 25-27 February attended by 26 participants from 26 organizations.

A two-day specialised training programme titled “Inspection Techniques for Bulk Storage Facilities” was designed and conducted during 18-19 March exclusively for the Inspectorate of Factories, Govt. of Tamilnadu, Chennai, in which 15 Inspectors participated.

Shri S. Bharathi Director (Safety) & In-charge RLI-Chennai at the request of the District Authority, Tiruvallur, Tamilnadu rendered technical advice on the Off-site Emergency Mock Drill Exercise conducted in Manali Industrial Belt, Chennai.

Shri S. Bharathi Director (Safety) & In-charge RLI-Chennai at the behest of the Director of Factories and Boilers, Govt. of Karnataka chaired the Selection Committee for “State Level Safety Awards” for 2007.

Shri S. Bharathi Director (Safety) & In-charge RLI was invited by the Govt. of Tamilnadu to be a Member in the Selection Committee of Safety Awards for 2007. Provided necessary assistance to the “Study Group of Parliamentary Standing Committee on Labour” on Safety and Health issues during Group’s visit to 11 industries in Kerala and Tamilnadu.

Shri N.M. Nigli Dy. Director (Safety) delivered a keynote address as a Chief-guest during the Safety week celebration in ITC, Chennai.

Shri S. Bharathi Director (Safety) & In-charge RLI delivered a valedictory speech during a safety week function organized by ONGC, Chennai.

Shri N.M. Nigli Dy. Director (Safety) as a Chief guest delivered a valedictory speech during the Safety week celebration in the Ordinance Clothing Factory at Avadi, Chennai.

REGIONAL LABOUR INSTITUTE: KOLKATA



A five day training programme on “Mineral Dust & Respiratory Diseases in the Work Environment in Industries” was organized by Industrial Hygiene Division of the Institute during 7-11 January, 2008. The programme was attended by 4 participants from 4 organizations.

Industrial Medicine Division of the Institute organized a five-day Refresher Course on Occupational Health for Plant Medical Officers during 25-29 February. The course was attended by 16 doctors from 12 industries.

A One day Workshop on ILO Radiograph (2000 Version) was conducted by Industrial Medicine Division on February 28. The workshop was attended by 16 participants from 12 organizations.

Two half a day Appreciation Programme on Occupational Health was organized for 41 participants from 34 organizations.

Industrial Safety Division conducted a five-day training programme titled “Delivering the package programme on Industrial Safety & Health” from 4-8 February. It was a development programme for plant faculties on Industrial Safety & Health attended by 23 participants from 8 industries.

A five-day training programme titled Trainers Training Programme on “Safety in Dock Work” was organized by Industrial Safety Division during 10-14 March. This specialized programme was attended by 12 participants from 5 organizations.

REGIONAL LABOUR INSTITUTE: FARIDABAD (CAMP OFFICE)

A five-day Workshop on Higher Productivity and a Better place to Work for Small-scale enterprises at Nalagarh (Himachal Pradesh) was held during February 18-22. The Workshop was attended by 33 workers and 23 Owner/Managers from different small units of Nalagarh.

Conducted a two-day training Programme for Senior Managers/Engineers of Delhi Metro Rail Corporation Ltd., Delhi on Electrical Safety, Confined spaces and Hygiene during March 18-19. The programme was attended by 25 Engineers/Managers.

Shri M.R. Rajput, Dy. Director (Industrial Hygiene) delivered a talk on PPE-Quality aspects at Indian Oil Institute of Petroleum Management, Gurgaon on February 6.

Dr. A. Singh, Director (Ind. Psychology) presented a paper on “Knowledge-based Society and Quality of Work-life” on January 7 at Indian Science Congress held at Visakhapatnam (A.P.).

ABSTRACTS OF STUDIES OF DGFASLI DURING JANUARY-MARCH 2008

Safety Audit in a Pharmaceutical Unit in Maharashtra
(by Gautam S.S. and Vishvanathan, H. Major Hazards & Chemical Safety Division: Central Labour Institute, Mumbai)

The safety audit was carried out as per BIS standard (BIS 14489: 1998) in a pharmaceutical plant manufacturing basic drugs. The objective of the audit was to identify the hazards and suggest the remedial measures on the basis of the deviations from the applicable statutes and standards. The findings include some shortcomings in the managerial aspects like safety policy, safety organization, workers participation in safety management etc. The records and safety and health systems in the plans are being maintained effectively. Based on the observations on deviations in various facilities were recommended.

Status of the Use of Personal Protective Equipment: A Follow-up Study (by Mohanty P.K.: Industrial Psychology Division, Central Labour Institute, Mumbai)

In India ship breaking activities are mainly manual and hence engineering control is a remote possibility. In such cases, human control is the only alternative and hence use of personal protective equipment (PPE) becomes the prime preventive measure. A study on the status of use of PPE in ship breaking industry was carried out in November 2006 and the report was submitted in February 2007. Under the directions of Inter Ministerial Committee (IMC), a follow up study was carried out during the last week of February 2008 and report submitted in the third week of March 2008.

It was found that almost all the employees were using safety suits, helmets, broiler suits, masks, and gloves. All the gas cutters were using safety goggles, but in a number of cases, it was found that either goggles are substandard or damaged ones. In most of the units (24 units), it was seen that other than the gas cutters, rest of the workers were using plain safety glasses which is appreciable.

It was recommended that plain glass safety goggles need to be provided to all the workers as they are exposed to sand and iron dust very frequently. The safety supervisor of Gujarat Maritime Board (GMB) during their inspection must take note of it and take immediate action of changing the damaged goggles. A specialized training programme on PPE to be conducted for the safety supervisors and safety officers working in the ship breaking industry. A half-a-day workshop was suggested to be organized for the ship breaking unit owners / Managers to familiarize them with most of the PPEs, their availability, usability and utility.

Evaluation of Heat Stress & Ventilation at an Engineering Industry in Maharashtra (by Ghosh P: Physiology Division, Central Labour Institute, Mumbai)

The industry is in the field of manufacturing of mould of various equipment, machineries, plastic etc having production unit Maharashtra and in many other parts of the country apart from international manufacturing units at various countries. It has high dome saw- shape shop-floor which has a constant flow of fresh air by natural ventilation from roof top. The management closed all such natural ventilation due to operational factors. It is in that context the heat stress & ventilation study was undertaken with the request from the management to ascertain the existing level of heat stress acting on individual.

The existing level of ventilation in terms of air flow, the exact amount of heat storage to individual due to heat exposure was measured with the help of standards equipment on hourly basis. The results on the variation of air flow from time to time in the major sections of the plant indicated that the level of ventilation was within acceptable limits. The level of heat stress was well within safe limits. The heat storage of the individuals was at the minimum which clearly demonstrated that the chances of heat disorders were remote under these environmental conditions. For the proposed future expansion programme for the plant it was recommended to increase the number of cool duct, man-cooler, and in some areas to make provisions for the natural ventilation.

Assessment of Health and Safety Conditions in Thermal Power Plant (by Brij Mohan: Industrial Hygiene Division, Regional Labour Institute: Kanpur)

The power generating industries are identified as the industries involving hazardous processes under section 2(cb) of the Factories Act 1948. The objective of the study was to evaluate the compliance of the provisions relating to hazardous processes and other relevant rules and to assess the conditions of safety & health in the plant. It was a coal based thermal power plant with installed capacity of 1050 MW. Coal and water are the main raw input in the coal based thermal power plant. The superheated steam produced from boiler is finally sent to turbine to generate electricity. The turbine shaft usually rotates at 3000 rpm to generate alternative current at a frequency of 50 cycles per second. A checklist was used as a tool to collect information about working conditions and health care facilities in the plant and visit of the plant was carried out particularly in hazardous areas to study the existing facilities on safety, health & work environment and compliance of the provisions of the Factories Act/ Rules.

Coal Handling Plants (CHP) are the potential sources of coal dust but the plant had adequate arrangement for water spraying to suppress coal dust during unloading. Conflow valves were provided on conveyor head of transfer points to spray water to suppress the dust likely to be released during the transfer but these need to be maintained for effective working. The existing dust suppression method may not be adequate to control the release of airborne dust on crushers. Therefore suitable dust extraction system on crushers was recommended to control airborne coal dust in the work environment. The levels of noise observed to exceed the permissible limit of exposure i.e. 90 dBA particularly on Crusher House in CHP, Coal Mills, Boiler Feed Pump, Compressor Area, etc. In stage I & II compressors are not provided with acoustic enclosure as a result levels of noise continued to be more the permissible limits of exposure i. e. 90 dBA. However, the factory was found to carry out the audiometric examination periodically by the plant medical officer for all the workers exposed on noisy areas and records of medical examinations were maintained by the factory. The factory constituted a Safety Committee but the worker members of the Safety Committee are nominated by the worker union whereas they should be elected by the workers.

Assessment of Airborne Contaminants in the Work Environment in a Refinery at Visakhapatnam (by Pal P.B. & Dhende K.L. Industrial Hygiene Division, Central Labour Institute, Mumbai)

The Refinery is engaged in the processing of crude petroleum to produce various petroleum products such as LPG, Naphtha, Propylene, Motor spirit, Aviation Turbine Fuel (ATF), Kerosene Oil (SKO), High Speed Diesel (HSD), Light Diesel Oil (LDO), Fuel Oil (FO), Low Sulphur Heavy Stock (LSHS) Bitumen, etc. The process involves emission of airborne gases at various stages of processing.

Air samples for Naphtha (Hydro-carbon), Hydrogen Sulphide, Ammonia, Sulphur di-oxide, Suspended Particulate Matters and Carbon Monoxide contaminants were collected at various locations from the work environment of the Refinery Works. The maximum concentrations of Hydrogen Sulphide, Ammonia and Hydrocarbons were found to be within the prescribed TLV. The airborne concentration of SPM at the two locations of FCCU-II unit was found well within its prescribed TLV of 10 mg/m³. The maximum concentration of Carbon monoxide Gas was found exceeding its TLV i.e. 25 ppm near old CO-Boiler and West Burner as vent-openings provided in Co-boiler area at the ceiling height of work shade, re-entering to the working area.

Some recommendation such as 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 as to improve the working conditions.

Evaluation of Airborne contaminants in the work Environment of a Tyre Factory

(by Metkari M.A. Industrial Hygiene Division, Central Labour Institute, Mumbai)

The factory is engaged in manufacturing the tyres. The company manufactures various types of Tyres i.e. Wire belted Radials, Medium Commercial Tyres & Off the Road Tyres. The raw material used is Natural and Synthetic Rubber, Steel Cord, Rubber Chemicals, Process Oil, Fabric Nylon & Polyester. The objective was to evaluate airborne chemical contaminants prevailing in work environment and to suggest suitable preventive control measures for minimizing the exposure of harmful contaminants

The Air sample of Naphtha (Petroleum), Hydrotreated Light Fraction were collected on sorbent tubes containing activated charcoal by personal sampler and analyzed on Gas Chromatograph. The air samples of Nuisance Dust / Particulate Matter were collected on Glass fibre filter papers and analyzed gravimetrically.

The airborne concentrations of Nuisance Dust/particulate matter in work environment were found within PLE / TLV (TWA) of 10 mg/m³ and concentration of Carbon Black was well within PLE / TLV (TWA) of 3.5 mg/m³.

The recommendations to use personal protective equipment such as, organic vapour (Canister / Cartridge) respirator, in impervious hand gloves, chemical safety goggles etc. are suggested. Education & training to the workers was also suggested.

Assessment of Compressed Breathing Air Quality at a Marine Institute (by Metkari M.A. Industrial Hygiene Division, Central Labour Institute, Mumbai)

The study was conducted in a Marine Institute imparting training to the seafarer personnel. Breathing air cylinder with breathing apparatus is used by the trainees of the Institute. Breathing air cylinders are filled with compressed breathing air by using compressors. The study was to assess breathing air quality of air cylinders used.

The samples Oil mist were collected on membrane filter papers and analyzed Gravimetrically, the sample of particulate matter were collected on glass fibre filter papers and analyzed gravimetrically. CO, CO₂ & Oxygen in the breathing air were assessed by air quality monitor.

Oil Mist, Carbon Monoxide, Carbon dioxide, Particulate matter and Oxygen in breathing air generated by compressor were found at par with the permissible limit of British Standard BS 4275 as well as standard CAN3-Z180.1-M85 of the Canadian Standard Association.

Assessment of Airborne Chemical Contaminants in work Environment of a Chemical Factory (by Metkari M.A. Industrial Hygiene Division, Central Labour Institute, Mumbai)

The study was conducted in a Chemical company engaged in the production of Styropor, Leather

Auxiliaries and Synthetic Tanning Agents. The study purported to carry-out the workplace environment monitoring for airborne contaminants.

Samples of airborne Styrene, Pentane and Naphthalene were collected on activated charcoal tubes and analyzed on Gas Chromatograph. The samples of adipic acid were collected on glass fibre filter papers and analyzed gravimetrically. The samples of formaldehyde were collected in 0.1% chromotropic acid and analyzed colourmetrically. The air samples phenol were collected on 0.1N Sodium Hydroxide solution and analyzed by spectrophotometer. The samples of Sulphuric acid mist were collected in distilled water and analyzed on spectrophotometer.

The airborne concentration of Styrene, Pentane, Naphthalene, Adipic Acid, Formaldehyde & Phenol were found well within their respective TLVs. However, Sulphuric Acid mists were found exceeding its TLV of 0.05ppm, at the measuring tank of Basyntan Plant.

The recommendation to make the flooring impervious and slightly sloped at Basyntan Plant was suggested. Use of Personal protective equipment during various operations and education & training to the workers were also suggested.

Evaluation of Welding Fumes in the work Environment Pharmaceutical firm (by Metkari M.A. Industrial Hygiene Division, Central Labour Institute, Mumbai)

The firm is engaged in manufacturing Betamethasone and its derivatives, Calcium Senosides, Methdilazine, HCl, etc. The study aimed to carry out workplace air monitoring to evaluate airborne concentration of welding fumes and suggest preventive / control measures.

Air samples of welding fumes were collected from the locations where welding operations were carried out on glass fibre filter papers and analyzed on gravimetrically. The airborne concentration of welding fumes in the welding cubicle was within the PLE of 5.0 mg/m³ when door was closed. However, it is exceeded the PLE when the door was opened.

The recommendations made such as, provision of exhaust system near the welding operations fitted with hood of such size that will entrap all the fumes generated during welding. The practice of using PPE by the welding operators should be continued.

Assessment of Airborne concentration of Benzene & Phenol at a Chemical Factory (by Metkari M.A. Industrial Hygiene Division, Central Labour Institute, Mumbai)

The factory manufactures a series of organic chemicals like Phenol, Acetone, Diacetone, Alcohol, Phthalic anhydride & Isobutyl Benzene. The main raw material for manufacturing these chemicals is Benzene. The study was carried out to assess the Time Weighted Average exposure of the Benzene to the workers and Phenol exposure in the plant.

Airborne samples of Benzene vapours were collected on activated charcoal using personal samplers and sample

of Phenol were collected in dilute alkali in all glass bubbler. Air samples of Benzene were analyzed on GC using FID and Phenol samples by Spectrophotometer.

The concentration of Benzene was found well below Permissible Limit of Exposure (TWA) i.e. 0.5ppm. The concentration Phenol was also well within PLE (TWA) i.e. 5 ppm. The recommendations such as, use of Solvent vapours cartridge respirator while collecting the batch samples and education & training to the workers were suggested.

Safety Audit of a Sponge Iron Factory in Orissa (by Das U. K., Haldar S.K., Bnaerjee S. & Sengupta D.K.: Regional Labour Institute: Kolkata)

The industry manufactures Sponge Iron adopting Direct Reduction (TDR) Technology in which sized iron-ore and non-cooking coal are fed into the rotary kiln in the required proportion. 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 carry-out systematic and critical appraisal of all potential hazards involving personnel, plant, services and operational methods in order to suggest suitable recommendations for improvisation of the existing safety and health status of the factory. Recommendations were given to improve upon the deviations in the areas of Emergency Preparedness Plan, Boiler safety, Material Handling system, Housekeeping, Noise & Vibration, Chemical Hazards (Gas, Vapour, Dust & Fumes), First Aids & Occupational Health Centre.

Safety Audit in a Paper Factory, Kolkata (by Das U.K. & Sengupta D.K.: Regional Labour Institute: Kolkata)

The company produced 15 tons T.P.D paper mostly of the heavy varieties like Absorbent Kraft and some match blue paper (violet poster). Newsprint and Writing & Printing grades of paper are also produced. For carrying out the audit a Checklist as per BIS – 14489:1998 was used as a tool to collect information about working conditions in the factory.

Safety audit revealed that few safety audit elements namely Safety Inspection, Personal Protective Equipment Boiler Plant, Housekeeping in the factory were found satisfactory.

Recommendations based on site tour, records study, check-list data, multi-level discussion with factory functionaries were made on remedial measures for the deviations found in the elements of safety audit namely Safety, Health and Environment Policy, Accident Reporting Investigation & Analysis, Safe Operating Procedure, Work Permit System, Safety Education & Training, Safety Communication/Motivation /Promotion, Fire Prevention and Protection, Emergency Preparedness Plans, Electrical Safety, Noise & Vibration, Ventilation, Chemical Hazard, Materials Safety Data Sheets (MSDS), Waste Disposal System, First Aid & Occupational Health Centre were suggested.

SHRI N.S.MANKIKER
(1910 – 1976)

Shri N. Mankiker, the first Director General of DGFASLI, was born on 7th March, 1910 at Mangalore under the then State of Mysore and now Karnataka. After his initial schooling, he completed his education at Elphinston College and Institute of Science, Mumbai. He pursued his further education in Civil engineering at Karachi Engineering College, Karachi, a province under the erstwhile Presidency of Bombay. After having worked in Karachi, he moved to Kolkata to take up an assignment in the explosive Department of Ordnance Factory.



Shri N.S.Mankiker
(1910-1976)

With the independence of India round the corner, Shri Mankiker was designated to take over from the then Chief Adviser of Factories, Sir Wilfred Garret of the Royal Labour Department. He extensively toured U.K./Europe/U.S.A. to study the systems of occupational safety and health practice there for adoption by the independent India.

He continued to be Chief Adviser of Factories till 1965 and later on was designated as Director General, Factory Advice Service and Labour Institutes. He retired in March, 1968.

The erstwhile set up of Central Labour Institute was functioning at three different locations in Mumbai i.e. at Cadel Road, Gamdevi and Churchgate. All these set ups moved into the present campus at Sion, Mumbai in 1966.

He made untiring efforts to move to the present campus from the earlier proposed location at Kurla Hills owing to the claim by Air India on that land to have their Boeing aircrafts services at that site. This had brought in a little disappointment in him.

Never to give in to such disappointments, he made efforts and persuaded Shri Shantibhai Shah, the then Hon'ble Labour Minister, Government of Bombay, which resulted in acquiring the present site to pursue his mission. He had to put in extra efforts to reclaim the marshy land and develop it to its present state. His pursuance to have the staff quarters within the office campus, a luxury in Bombay resulted in the present self-contained campus. His love for marigold plants and his constant supervision resulted in creating such a green campus.

The Office of Directorate General Factory Advice Service and Labour Institutes moved from New Delhi to the present campus in the year 1966.

His vision of multi-disciplinary approach for addressing the problems of Occupational Safety and Health has stood the test of time. Making all the related disciplines available under one roof, which in itself is unique and unparalleled in the country, has served the cause of Occupational Safety and Health immensely.

The family of Shri Mankiker had to make significant sacrifice, while Shri Mankiker kept himself busy in establishing this center of excellence for Occupational Safety and Health.

In recognition of his commitment and service to the Nation, Shri Mankiker was designated as regional expert by the International Labour Organization, Geneva after his retirement. He was stationed at Istanbul, Turkey. He provided guidance on Occupational Safety and Health to the whole of middle-east countries for about a year.

He was relocated by ILO to Bangkok during June 1970 to provide his technical expertise in their projects. On return to India in 1972 the Sri Lankan Government requisitioned his services to set up another Institution in Sri Lanka on the lines of Central Labour Institute, Mumbai.

He was the recipient of the first Ardeshir Dalal Memorial Award on Occupational Health.

On return from Sri Lanka, Shri Mankiker kept himself engaged in matters of family welfare till his demise on the 9th December, 1976.

MATERIAL SAFETY DATA SHEET ON GLUTAMIC ACID

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.

PRODUCT NAME(S): L-Glutamic acid monosodium salt; Monosodium glutamate

POTENTIAL HEALTH EFFECTS

Effects of Acute Exposure to Product:

Inhaled: Dust or mist may be irritating to upper respiratory tract, causing coughing, sneezing, nasal discharge. No information available on toxicity, but low toxicity by other routes of exposure.

Skin: Dust or solutions may be mildly irritating to skin, causing redness and itching. May cause allergic reaction.

Eyes: Dust or solutions may cause mild, temporary irritation to eye tissue.

Ingested: Large amounts may be harmful. Ingestion of large doses (>4g) have been found to cause burning sensation, facial pressure and chest pains in humans. May also effect the metabolic and excretory function of the liver or kidneys.

Effects of Chronic Exposure to Product:

Carcinogenicity: Has shown some tumorigenic effects in animal testing.

Teratogenicity: Has caused non- transmissible changes in offspring in animal testing.

Reproductive Effects: Has caused adverse reproductive effects in animal testing.

FIRST-AID MEASURES

Eyes: Flush eyes thoroughly with gently running water, holding eyelids open while flushing, for five to ten (5-10) minutes, or until no trace of chemical remains. Get medical advice if irritation develops.

Skin: Remove contaminated clothing. Brush or wipe off dry material. Flush skin with plenty of running water until no evidence of chemical remains. If irritation develops get medical attention.

Inhalation: Remove to fresh air. Give oxygen and get medical attention for any breathing difficulty.

Ingestion: If victim is alert and NOT convulsing, rinse mouth, give several glasses of water to drink to dilute. If discomfort occurs, or if a large amount has been ingested, get medical attention.

PREVENTIVE MEASURES

Engineering Controls: Local exhaust ventilation recommended

Respiratory Protection: Dust/mist mask. For conditions where dust or mist is present, to the maximum use specified by the respirator supplier,

NIOSH/MSHA approved half- face high-efficiency dust/mist filter respirator, or NIOSH/MSHA approved full face-piece, high-efficiency dust/mist filter respirator. Higher or unknown concentrations, or for fire or spill conditions, self-contained breathing apparatus, or full face-piece, positive-pressure supplied-air respirator.

Eye Protection: Chemical safety glasses. Do not wear contact lenses when working with chemicals.

Skin Protection: Wear protective gloves and clean body-covering clothing, long-sleeved shirt, trousers, apron or lab coat.

Other Personal Protective Equipment: Safety shower and eye-wash fountain in work area.

FIRE FIGHTING MEASURES

Flammability: May be combustible if strongly heated. As with most organic compounds, fine dust dispersed in air in the presence of an ignition source is a potential dust explosion hazard.

Extinguishing Media: Use an extinguisher appropriate to the surrounding material that is burning. Water spray can be used to cool containers, prevent dust formation, flush chemical away from fire.

Firefighters must wear protective equipment and clothing sufficient to prevent inhalation of dust or fumes, and contact with skin and eyes.

Hazardous Combustion Products: COx, NOx, irritating smoke.

NOTE

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

**CENTRAL LABOUR INSTITUTE: CIS NATIONAL CENTRE OF INDIA FOR
INFORMATION ON INTERNATIONAL OCCUPATIONAL SAFETY AND HEALTH**

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

EXCERPTS FROM CIS DOC

Title: ATEX – New category 3 electrical equipment and systems intended for use in potentially explosive atmospheres.

CIS ACCESSION NUMBER - CIS 07-902

ABSTRACT

This article discusses the ATEX directives (directives on explosive atmospheres) and presents classification criteria for electrical equipment and systems intended for use in potentially explosive atmospheres, together with the requirements with respect to labeling and means of protection.

The classification of dangerous premises into zones as a function of the likelihood of the formation of explosive atmospheres is also discussed. Practical guidance on the use of category 3 electrical equipment is provided for various tasks and sectors of activity: changing of batteries, spray painting, distilleries, woodworking and the food industry.

Title: Psychology and psychological examinations in the opinion of occupational medicine physicians.

CIS ACCESSION NUMBER - CIS 06-69

ABSTRACT

A questionnaire survey of 111 occupational physicians from all over Poland was carried out to investigate their expectations of psychologists and psychological examinations and to evaluate existing cooperation between occupational physicians and psychologists. 61% of physicians evaluated their cooperation with psychologists as good or very good. Over 72% of respondents wanted to strengthen the cooperation with psychologists in the field of occupational medicine and 79% of physicians wanted to be trained in occupational psychology.

Title: Responding to the challenge of novel technology: An industrial hygiene and safety program for antibody production in maize.

CIS ACCESSION NUMBER - CIS 06-90

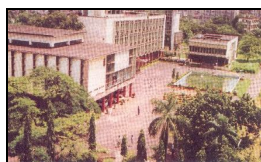
ABSTRACT

This article examines the challenges to occupational hygiene and safety posed by biotechnology, in particular the production of pharmaceutical proteins in plants. These challenges include: the widely varying potential for hazard depending on the activity of the protein and the nature and location of the target organ; limited data relating to industrial routes of exposure; and the inability to obtain relevant animal data because of high species-specificity. An approach to industrial hygiene and safety in this area is proposed based on the systematic assessment of employee risk using conservative assumptions and on the management of exposure. The method is described with reference to the production of monoclonal antibodies in maize.

NOTE

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

ANNUAL TRAINING CALENDER FOR THE YEAR 2008



CENTRAL LABOUR INSTITUTE, N.S.MANKIKER MARG, SION, MUMBAI – 400022
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Sl. No.	Title of the Programme	Period	Co-ordinating Division
1	Advanced Diploma in Industrial Safety 2007-08	January 01- March 31	SAFETY
2	Ergonomics - A Tool for ensuring Safety, Health & Productivity at work	January 28 – February 01	PHY/ERG
3	Personal Growth & Group Dynamics for Safety & Health	February 04-08	ST/PROD
4	Safety, Health & Environmental Management in Drugs & Pharmaceutical Industry	February 06-08	IH
5	Effective participative skills for Safety Committee Members	February 12-15	IND. PSY
6	Workshop on Safety Audit	February 13-15	SAFETY
7	Heat Stress & Ventilation - A statutory requirement for ensuring Safety, Health & Productivity at work	February 25-29	PHY
8	Impact of Environmental Pollutants & their Control at Workplace	February 26-28	EED
9	Workshop on Dispersion Modelling and Impact Assessment of Major Toxic & Flammable Release	March 03-05	MH&CS
10	Occupational Health Practice for Nurses, Health/Medical Assistants etc.	March 03-07	IND. MED.
11	Evaluation & Control of Chemicals Hazards at Workplace	March 12-14	IH
12	Workshop on Industrial Noise	March 18-20	EED
13	Workshop on HAZOP	March 26-28	MH&CS
14	Workshop for Safety Committee Members	March 19-21	SAFETY
15	Occupational Physiology for promotion of Safety, Health & Productivity	March 24-28	PHY
16	Associate Fellow of Industrial Health Course	April 01-June 30	IND. MED.
17	Selection and Quality Assurance for effective use of PPE	April 02-04	EED
18	Heat Stress & Ventilation - A statutory requirement for ensuring Safety, Health & Productivity at work	April 07-11	PHY
19	Team Building for Health, Safety & Welfare at Work	April 08-10	ST/PROD
20	Workshop on Occupational Safety, Health & Environment - Innovation/Challenges	April 16-18	SAFETY
21	Ergonomics - A Tool for ensuring Safety, Health & Productivity at work	April 21-25	PHY/ERG
22	On the job counselling skills	April 22-24	IND. PSY.
23	Workshop on Industrial Ventilation	May 13-15	EED
24	Workshop on safety handling of chemicals for Safety Committee Members	May 21-23	MH&CS
25	Industrial Fatigue & its Management	May 26-30	PHY
26	Behavioral Perspective on Industrial Safety & Health	May 27-29	IND. PSY.
27	A Silent Killer - Occupational Stress, its management for improving Safety, Health & Productivity at work	June 02-06	PHY

ANNUAL TRAINING CALENDER FOR THE YEAR 2008

28	Effective Supervision for Results	June 03-05	ST/PROD
29	Occupational Physiology for promotion of Safety, Health & Productivity	June 23-27	PHY
30	Advanced Diploma in Industrial Safety 2008-09	July 03 – October 24	SAFETY
31	Fatigue & Rest Allowances for Safety & Health	July 21-23	PHY
32	Workshop on Environmental Audit	July 22-24	EED
33	Safety, Health & Environment Management in Process Industries	July 23-25	MH&CS
34	Industrial fitness, a key to improve safety, health & productivity at work	July 28-30	PHY
35	Industrial Fatigue & its Management	August 04-08	PHY
36	Training Methodology for Trainers	August 05-07	ST/PROD
37	Testing of lifting tackles & pressure vessels	August 20-22	SAFETY
38	Effective participative skills for Safety Committee Members	August 26-28	IND. PSY.
39	One month Specialised Certificate Course for Supervisors working in Hazardous Process Industries	September 01-30	ST/PROD
40	Advanced Training Programme on Occupational Health & Environmental Medicine for Medical Officers	September 01-12	IND. MED.
41	Basic course for Inspectors of Factories	September 02-19	SAFETY
42	Management of Occupational Hazards in Use of Computer & VDT Appliances at Work	September 15-17	PHY
43	Selection and Quality Assurance for effective use of PPE	September 23-25	EED
44	Management of Occupational Back Pain	September 24-26	PHY
45	Impact of Environmental Pollutants & their Control at Workplace	October 06-08	EED
46	Refresher Course for Safety Officers	October 13-17	SAFETY
47	Workshop on HAZOP	October 15-17	MH&CS
48	Industrial fitness, a key to improve safety, health & productivity at work	October 20-22	PHY
49	Evaluation of Environmental Pollutants & their Control at workplace	November 05-07	IH
50	Refresher Course for Senior Inspectors of Factories	November 10-21	SAFETY
51	Handling Problem Behaviour of Employees	November 18-20	IND.PSY.
52	Productivity and Quality Improvement through effective employees participation	November 19-21	ST/PROD
53	Storage & Handling and Management of Hazardous substances in process industries	November 19-21	MH&CS
54	Management of Occupational Hazards in Use of Computer & VDT Appliances at Work	November 24-26	PHY
55	Occupational Health Practice for Nurses, Health/Medical Assistants etc.	December 01-05	IND. MED.
56	Effective Leadership for Safety, Health & Productivity	December 16-18	IND.PSY.
57	Effective Leadership for Safety, Health & Environment at workplace	December 17-19	IH
58	Impact of Environmental Pollutants & their Control at Workplace	December 22-24	EED
59	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.

ANNUAL TRAINING CALENDER FOR THE YEAR 2008

- 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.



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ADYAR, CHENNAI-600 113
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E-mail Address: rlic@vsnl.net

Sl. No.	Title of the Programme	Period	Co-ordinating Division
1.	Safety and Health of Workers in Construction Sector	January 24-25	SAFETY
2.	Inspection of Bulk Storage Facility for Hazardous Industries	February	SAFETY
3.	Mineral Dust and Respiratory Diseases in the Work Environment	February	I.H.
4.	Safety and Health of Workmen in Construction Work	March	SAFETY
5.	Preparation & Evaluation of Onsite Emergency Plan & Safety Reports	April	I.H.
6.	Delivering the package programme on Industrial Safety & Health	May	SAFETY
7.	Training programme on Safety Audit	June	SAFETY
8.	Training programme for Worker Members of Safety Committee	July	SAFETY
9.	Training programme for Senlor Inspectors of Factories	August	SAFETY
10.	Training Workshop on Work Environment Monitoring	September	I.H.
11.	Training programme on Management of Hazardous substances	November	I.H.

Abbreviations: I.H. – Industrial Hygiene



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Sl. No.	Title of the Programme	Period	Co-ordinating Division
1.	Mineral Dust and Respiratory Diseases in the Work Environment in Industries	January	I.H.
2.	Preparation and Evaluation of On-site Emergency Plan and Safety Reports	January	I.H.
3.	Delivering the Package Programme on Industrial Safety and Health (A Development Programme for Plant Faculties on Industrial Safety and Health)	February	SAFETY
4.	Inspection of Bulk Storage Facilities for Hazardous Substances	February	SAFETY
5.	Refresher Courses on Occupational Health for Plant Medical Officers	February	IND. MED.
6.	Seminar on Safety Culture- A Ground Reality, Not A Myth	March	SAFETY
7.	Chemical Safety for Worker Members Of Safety Committee	March	I.H.
8.	Associate Fellow of Industrial Health	April	IND. MED.
9.	Control of Physical Hazards and Waste Management	April	I.H.

ANNUAL TRAINING CALENDER FOR THE YEAR 2008

10.	Safety Awareness programme for workers	May	SAFETY
11.	Safety in Construction Industry	May	SAFETY
12.	Techniques of Hazard Identification and Assessment	June	I.H.
13.	Diploma Course in Industrial Safety	July	SAFETY
14.	Environmental Hazards & their control in Industries	August	I.H.
15.	Training Programme on Chemical Safety	September	I.H.
16.	Workers Development Programme	November	SAFETY
17.	One Month Specialised Certificate Course in "Safety & Health" for Supervisory working in Hazard Industries	November	I.H.
18.	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



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Sl. No.	Title of the Programme	Period	Co-ordinating Division
1.	Workshop on Safety Audit	January 07-09	SAFETY
2.	Management of Industrial Safety, Health and Environment in Industries	January 14-18	SAFETY
3.	Workshop on Safety Engineering and Management	January 22-24	SAFETY
4.	Package Training Programme for Plant Faculties on Industrial Safety and Health	February 04-08	SAFETY
5.	Seminar on Occupational Safety and Work Environment	February 12	SAFETY
6.	Training Programme on Chemical Safety	February 18-22	I.H.
7.	Training Programme On Prevention & Control of Fire in Industry	15-17 April	I.H.
8.	Training programme on Contemporary Chemical Safety for safety committee members	July 07-11	I.H.
9.	Post Diploma Course On Industrial Safety 2008-2009	July 08- March 09	SAFETY
10.	Training Programme On Testing & Examination of Lifting Machines & Pressure Vessels	August 04-08	SAFETY
11.	Training Programme On Effective Supervision for Safety & Health at Work	August 20-22	SAFETY
12.	Training Programme On Safety & The Law	September 09-11	SAFETY
13.	Package training programme for plant faculties on ' Industrial Safety and Health'	September 22-26	SAFETY
14.	Training programme on Mineral Dust & associated health hazards in industries	October 14-16	I.H.
15.	Workshop on work environment - its evaluation and control	October 21-23	I.H.
16.	One Month Certificate Course on Safety & Health	November 04– December 02	SAFETY
17.	Workshop On Safety Audit	December 02-04	SAFETY
18.	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

INDOSHNET

INDOSHNET is 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.

NATIONAL REFERRAL DIAGNOSTIC CENTRE

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

NATIONAL REFERRAL DIAGNOSTIC CENTRE

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

GEORGIUS AGRICOLA (1494 – 1555)



Georgius Agricola
(1494 – 1555)

Born: March 24, 1494 Glauchau

Died: November 21, 1555

Citizenship: German

Fields: Mineralogy, Occupational health

Georgius Agricola (March 24, 1494 – November 21, 1555) was a German scholar and scientist. Known as "the father of mineralogy", he was born at Glauchau in Saxony. His real name was **Georg Bauer**; *Agricola* is the Latinised version of his name, *Bauer* meaning *peasant*. He is best known for his book *De Re Metallica*.

LIFE AND WORK

Gifted with a precocious intellect, Georg early threw himself into the pursuit of the "new learning," with such effect that at the age of twenty he was appointed Rector extraordinarius of Greek at the so-called Great School of Zwickau, and made his appearance as a writer on philology. After two years he gave up his appointment in order to pursue his studies at Leipzig, where, as rector, he received the support of the professor of classics, Peter Mosellanus (1493-1524), a celebrated humanist of the time, with whom he had already been in correspondence. Here he also devoted himself to the study of medicine, physics, and chemistry. After the death of Mosellanus he went to Italy from 1524 to 1526, where he took his doctor's degree.

He returned to Zwickau in 1527, and was chosen as town physician at Joachimsthal, a centre of mining and smelting works, his object being partly "to fill in the gaps in the art of healing," partly to test what had been written about mineralogy by careful observation of ores and the methods of their treatment. His thorough grounding in philology and philosophy had accustomed him to systematic thinking, and this enabled him to construct out of his studies and observations of minerals a logical system which he began to publish in 1528. Agricola's dialogue *Bermannus, sive de re metallica dialogus*, (1530) the first attempt to reduce to scientific order the knowledge won by practical work, brought Agricola into notice; it contained an approving letter from Erasmus at the beginning of the book.

In 1530 Prince Maurice of Saxony appointed him historiographer with an annual allowance, and he migrated to Chemnitz, the centre of the mining industry, in order to widen the range of his observations. The citizens showed their appreciation of his learning by appointing him town physician in 1533. In that year, he published a book about Greek and Roman weights and measures, *De Mensuris et Ponderibus*.

His chief interest was still in mineralogy; but he occupied himself also with medical, mathematical, theological and historical subjects, his chief historical work being the *Dominatores Saxonici a prima origine ad hanc aetatem*, published at Freiberg. In 1544 he published the *De ortu et causis subterraneorum*, in which he laid the first foundations of a physical geology, and criticized the theories of the ancients. In 1545 followed the *De natura eorum quae effluunt e terra*; in 1546 the *De veteribus et novis metallis*, a comprehensive account of the discovery and occurrence of minerals; in 1548 the *De animantibus subterraneis*; and in the two following years a number of smaller works on the metals.

De Re Metallica

His most famous work, the *De re metallica*, was published in 1556, a year after the death of Agricola. It is a scholarly work consisting of twelve books which deal with every aspect of mining and with the associated smelting and refining of gold and silver. The fifth book deals with the actual mining underground. The art of surveying in the mine, the different kinds of ores to be found, the types of shafts and how to sink them are all fully described. The sixth book describes the various tools and implements fully. It gives a complete account of the machinery employed for ventilation, pumping and winding. Drainage was affected by means of a continuous chain of buckets operated by a foot

BIOGRAPHY

tread-wheel. The book ends with an account of the diseases and accidents prevalent among the miners and the means available to guard against them.

The ill effects of poor ventilation were known from practical experience. Agricola says:

“Miners pay the greatest attention to these matters just as much as to digging or they should do so. Air indeed becomes stagnant both in tunnels and in shafts. I will now speak of ventilating machines. If a shaft is very deep and no tunnel reaches to it, or no drift from another shaft connects with it, or when a tunnel is of great length and no shaft reaches to it, then the air does not replenish itself. In such a case it weighs heavily on the miners, causing them to breathe with difficulty, and sometimes they are even suffocated and burning lamps are also extinguished. There is therefore a necessity for machines which enable the miners to breathe easily and carry on their work”.

In the last part of his sixth book Agricola discusses those ailments which attack the joints, the lungs and the eyes of miners. The accounts he gives are rambling and lack precision; it is clear that the idea of diseases specifically caused by particular occupations had not, in his day, entered men's minds. His description of the harmful effects of the dust inhaled is of a suppurating disease of the lungs with a visible and progressive emaciation. It is probable that silicosis, tuberculosis and carcinoma of the lung were involved in the conditions he describes.

On the other hand some mines are so dry that they are entirely devoid of water and this dryness causes the workmen even greater harm, for the dust, which is stirred and beaten up by digging, penetrates into the windpipe and lungs and produces difficulty in breathing and the disease which the Greeks called asthma. If the dust has corrosive qualities, it eats away the lungs and implants consumption in the body. In the mines of the Carpathian Mountains women are found who have married seven husbands, all of whom this terrible consumption has carried off to a premature death.

To protect the miners against dust, Agricola advises purification of the air in the mine by ventilating machines and the use of loose veils over the faces of the miners.

Final days of Agricola

In spite of the early proof that Agricola had given of the tolerance of his own religious attitude, he was not suffered to end his days in peace. He remained to the end a staunch Catholic, though all Chemnitz had gone over to the Lutheran creed; and it is said that his life was ended by a fit of apoplexy brought on by a heated discussion with a Protestant divine. He died in Chemnitz on 21 November 1555; so violent was the theological feeling against him, that he was not allowed to be buried in the town to which he had added such lustre. Amidst hostile demonstrations he was carried to Zeitz, some fifty kilometers away, and buried there

Sources:1) Wikipedia, the free encyclopedia and 2) Donald Hunter, The Diseases of Occupations. London: The English Universities Press Limited, 1955.

“Out of this nettle, danger, we pluck this flower, safety”

– William Shakespeare

“Let us save the to-morrows for work”

– Mark Twain

“Caution is the parent of safety”.

– Proverbial saying

“For safety is not a gadget but a state of mind”

– Eleanor Everet

“We now have unshakable conviction that accident causes are man-made and that a manmade problem can be solved by men and women”

– W.H.Cameron

THE HISTORY OF DGFASLI

The Directorate General Factory Advice Service & Labour Institutes (DGFASLI) was established in 1945 under the Ministry of Labour, Government of India. It serves 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.

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

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The Directorate General Factory Advice Service & Labour Institutes (DGFASLI) comprises:
* Headquarters situated in Mumbai
* Central Labour Institute in Mumbai
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GOVERNMENT OF INDIA, MINISTRY OF LABOUR & EMPLOYMENT DIRECTORATE GENERAL FACTORY ADVICE SERVICE & LABOUR INSTITUTES

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

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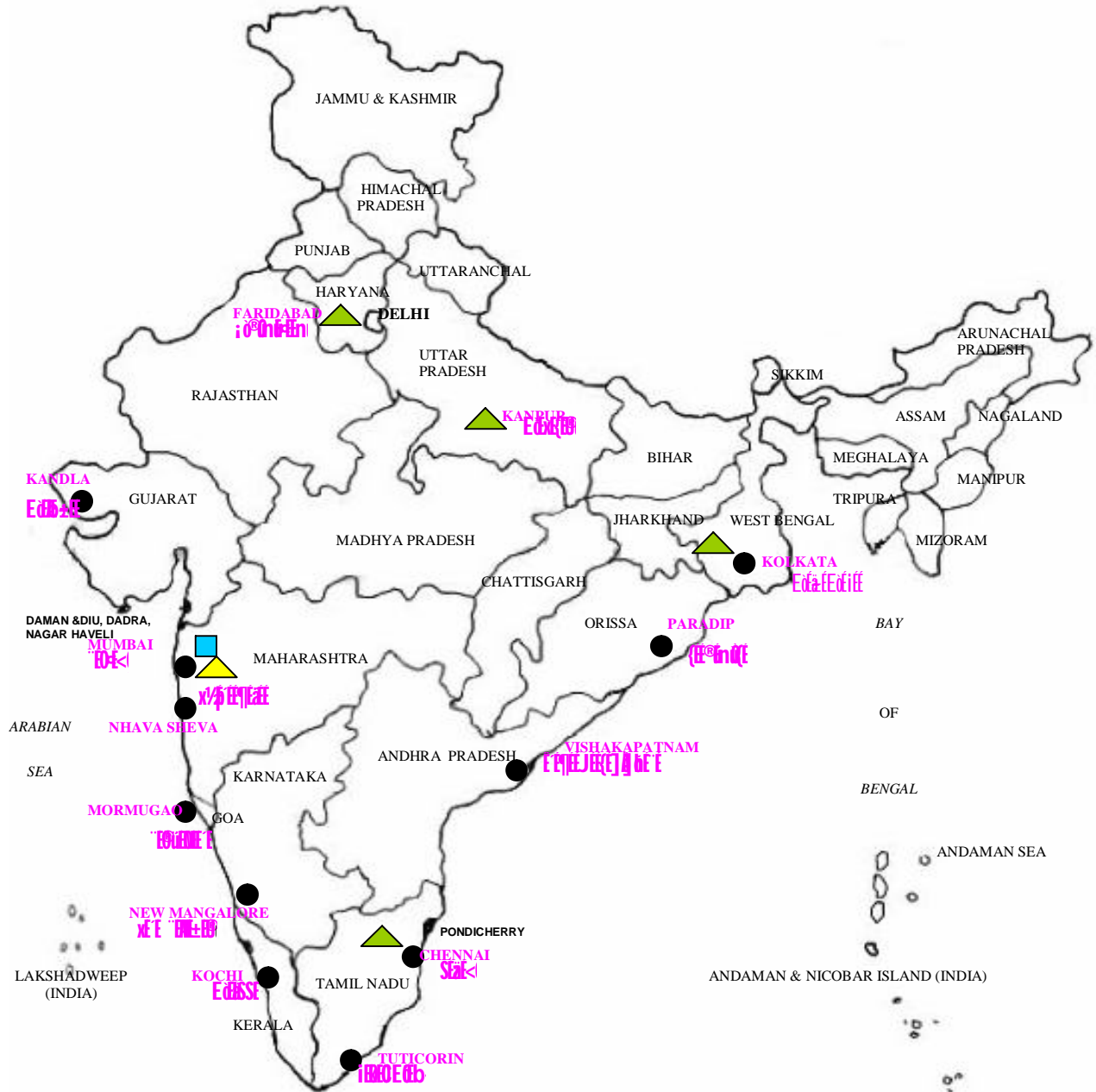
The Central Labour Institute in Mumbai functions as a socio-economic laboratory and is a national institute dealing with the scientific study of all aspects of industrial development relating to the human factors. Over the years the Central Labour Institute has constantly grown not only in size but also 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.





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