

Chapter-13

OCCUPATIONAL SAFETY AND HEALTH

13.1 The Constitution of India contains specific provisions on occupational safety and health of workers (**Box 13.1**). The Directorate General of Mines Safety (DGMS) and the Directorate General of Factory Advice Service and Labour

Institutes (DGFASLI), the two field organisations of Ministry of Labour and Employment strive to achieve the principles enshrined in the Constitution of India in the area of occupational safety and health in mines, factories and ports.

Box 13.1	
CONSTITUTIONAL PROVISIONS OF OCCUPATIONAL, SAFETY AND HEALTH	
Article	Constitutional Provision
24	No child below the age of fourteen years shall be employed to work in any factory or mine or engaged in any other hazardous employment.
39(e&f)	The State shall, in particular, direct its policy towards securing: <ul style="list-style-type: none"> (e) that the health and strength of workers, men and women, and the tender age of children are not abused and that citizens are not forced by economic necessity to enter avocations unsuited to their age or strength; (f) that children are given opportunities and facilities to develop in a healthy manner and in conditions of freedom and dignity and that childhood and youth are protected against exploitation and against moral and material abandonment.
42	The State shall make provision for securing just and humane conditions of work and for maternity relief.

DIRECTORATE GENERAL FACTORY ADVICE SERVICE & LABOUR INSTITUTES

THE ORGANISATION

13.2 The Directorate General, Factory Advice Service & Labour Institutes (DGFASLI), Mumbai, which is an attached office of the Ministry of Labour and Employment, functions as a technical arm of the Ministry in regard to matters concerned with safety, health and welfare of workers in factories and ports/docks. It assists the Central Government in formulation and review of policy and legislation on occupational safety and health in factories and ports; maintains a liaison with Factory

Inspectorates of States and Union Territories in regard to the implementation and enforcement of provisions of the Factories Act, 1948; renders advice on technical matters; enforces the Dock Workers (Safety Health & Welfare) Act, 1986; undertakes research in industrial safety, occupational health, industrial hygiene and industrial psychology etc.; and provides training, mainly, in the field of industrial safety and health including one year Diploma Course in Industrial Safety, three-months' Post Graduate Certificate Course in Industrial Health (Associate Fellow of Industrial Health (AFIH), six-weeks' course in Industrial Hygiene Techniques and One month's Specialised

Certificate Course in Safety and Health for Supervisory Personnel working in Hazardous Process Industries.

13.3 The DGFASLI organisation comprises of the headquarters; five Labour Institutes and Inspectorates Dock Safety in 11 Major Ports. The Headquarters in Mumbai has three divisions/ cells, namely, Factory Advice Service, Dock Safety, and Awards.

13.4 The Central Labour Institute in Mumbai started working from 1959. The Institute was shifted to the present premises at Sion, Mumbai- 400022 in February 1966 and all the disciplines functioning at different locations under the Chief Advisor of Factories were brought under one roof. Over the past 38 years, the Institute has grown and assumed the status of a major National Resource Centre with the following divisions/ cells:

- **Industrial Safety**
- **Industrial Hygiene**
- **Industrial Medicine**
- **Industrial Physiology**
- **Industrial Psychology**
- **Industrial Ergonomics**
- **Environmental Engineering**
- **Staff Training**
- **Small Scale Industries**
- **Productivity**
- **Major Accident Hazards Control**
- **Management Information Services**
- **Safety and Health Communication**
- **Construction Safety**

13.5 The different divisions at the Institute undertake activities, such as, carrying out Studies and Surveys, organizing training programmes, seminars and workshops, rendering services, such as, technical advice, Safety Audits, testing and issuance of performance reports for

personal protective equipment, delivering talks, etc. Some of these facilities that are not available in the regions, are extended to the regions as and when necessary.

13.6 The Regional Labour Institutes (RLIs) located in Kolkata, Chennai and Kanpur are serving the respective regions of the country. Each of these institutes have the following divisions/sections:

- **Industrial Safety**
- **Industrial Hygiene**
- **Industrial Medicine**
- **Staff Training and Productivity**
- **Communication**
- **Major Accident Hazards Control**
- **Computer Centre**

13.7 The Regional Labour Institute at Faridabad is in the formative stage of being set up. An office, with one officer on deputation from the Central Labour Institute, Mumbai, has been established in a rented premises. This would serve the Northern states/UTs viz. Delhi, Punjab, Haryana, J & K, and Himachal Pradesh, in more effective and direct manner as these are being presently looked after by the Regional Labour Institute, Kanpur, which is having a large number of states to extend its services.

13.8 The Inspectorates of Dock Safety are established at 11 major ports of India viz. Kolkata, Mumbai, Chennai, Visakhapatnam, Paradip, Kandla, Mormugao, Tuticorin, Cochin, New Manglore and Jawaharlal Nehru Port. The Inspectorate of Dock Safety at Ennore Port is in the process of being set up.

Strength

The manpower inventory of the organisation as on 30.09.2005 is given in **Box 13.2.**

ACTIVITIES

13.9 Safety in Factories

Comments/clarifications etc. on the provisions of the Factories Act, 1948 provided to Chief Inspectorates of Factories (CIFs) , State Governments and the Ministry of Labour and Employment, Factories, etc. on the following topics:

- Comments on extension of Madhya Pradesh Government notification concerning exemption of provision on working hours to Export Oriented Units.
- Comments on the draft regulations prepared by the Kerala Government under the Dock Workers (Safety, Health and Welfare) Act, 1986 in respect of intermediate, minor & private ports.
- Comments on the views of Govt. of West Bengal on Indian Boilers (Amendment) Bill, 1994 .
- Clarification about the amendment in the definition of 'Manufacturing Process' as defined under Section 2(k) of the Factories Act, 1948
- Comments on ILO Document regarding Decent Work in the Construction Industry.
- Comments on the proposed conclusions on Report IV (2) of the ILO concerning Frame work for Occupational Safety & Health.

Others

- Working Group Meeting was held as a follow up to the 46th Conference of Chief Inspectors of Factories regarding amendment to Schedule XXVII prescribed under Model Rule 120 on Furnaces (Item IV (18) and conditions under which license can be refused (Item IV (37)).

- Prepared amendments to the Building and Other Construction Workers (Regulation of Employment and conditions of Service) Act., 1996
- Prepared amendments to the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Central Rules, 1998.
- Prepared replies regarding Procedure to be followed in pre-set-up stage of an industrial unit, simplification of the procedure thereof.
- Prepared replies regarding Revival of Ship Breaking Industry.
- Prepared comments on Setting up of a Committee to look into the requirement of Multiple Inspections.
- Prepared comments on the observations of ILO on the replies finalized in respect of (i) ILO Convention No.81 concerning labour inspections and (ii) ILO Convention concerning Tripartite consultations.
- Prepared details of suggestions for 4 additional components to be added under the item 'National System' in the proposed ILO instrument on promotional frame work for Occupational Safety & Health.
- Prepared report on ILO Convention No.89 concerning Night Work (Women) observation 2004 and Convention No.171 concerning Night Work._

Dock Safety

13.10 The Dock Workers (Safety, Health and Welfare) Act, 1986 was enacted on 14th April, 1987. The Dock Workers (Safety,

Health and Welfare) Rules, 1990 and Regulations, 1990 were framed under this Act. As a result of introduction of these new set of statutes, the scope of dock work has considerably increased covering more number of workers employed in ports, who were hitherto not covered for their safety, health and welfare. In addition, the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 framed under the Environment (Protection) Act, 1986 are also enforced by DGFASLI through the Inspectorates of Dock Safety located in the major ports of India.

13.11 During the period, 814 inspections of Ships and Oil Tankers were carried out by the Inspectorates of Dock Safety at the major ports.. There were 111 reportable accidents in all the ports out of which 17 were fatal.

Training programmes

13.12 Professional programmes

- One year Advanced Diploma in Industrial Safety Course for 2004-2005 at CLI, Mumbai, RLI Kolkata, RLI Chennai, RLI Kanpur for 111 Safety Officers as required under Section 40-B of the Factories Act, 1948 and Rules made thereunder..
- Three months' Associate Fellow in Industrial Health (AFIH) Course at CLI, Mumbai and RLI Kolkata for 61 medical personnel as required under Section 41-C of the Factories Act, 1948 and Rules made thereunder.
- Two months' Certificate Course on Construction Safety at CLI Mumbai for 25 Engineers and Supervisors in Construction Industries.
- One month's Specialised Certificate Course in Safety and Health for Supervisory Personnel working in Hazardous Process Industries at CLI, Mumbai, and RLI Chennai for 42 Supervisors as required

under Section 41-C(b) of the Factories Act, 1948 and Rules made thereunder.

13.13 Training Programmes are conducted in the field of industrial safety and health. Joint participation of management personnel and Trade Union Leaders of the same organisations was a unique feature in some of these programmes. During the period up to September 2005, 59 training programmes including seminar/workshops and in-plant trainings were also conducted benefiting 1407 participants from 262 organisations. In addition, Appreciation programmes were conducted for 1976 beneficiaries at various divisions of DGFASLI and the four Labour Institutes, in Mumbai, Kolkata, Chennai and Kanpur

Studies and Surveys

13.14 **National Studies and Surveys** are undertaken to ascertain status of working conditions and standards of safety in select group of industries and operations.

The National Studies and Surveys, which were completed, are (i) Assessment of capabilities & management of occupational safety and health in the state of Assam and (ii) Assessment of capabilities & management of occupational safety and health in the state of Himachal Pradesh.

In addition, the following **National Studies/Surveys are under progress:**

- Assessment of capabilities & management of occupational safety and health in the state of Gujarat, Karnataka, Rajasthan and Jharkhand
- National Study on Herbicide.

13.15 **State level Studies and Surveys** are undertaken in the State in certain priority areas to ascertain status of Safety, Health and Environment at work place. The

state level study, viz. “Occupational Environmental Study in asbestos unit of Devgarh, Rajasmand.” was completed. In addition, the following **State level Studies and Surveys are under progress:**

- Industrial Hygiene survey in Pesticide Formulation Units of Bhiwari (Distt. Alwar, Rajasthan) at Insecticide (India) Ltd., Chpanki and Hindustan Pulverising Mills, Khuskhera.
- Industrial Hygiene walk-through survey in Pesticide Formulation Units of Jaipur, Rajasthan.

13.16 **Unit level consultancy studies** are carried out at the request of the management and reports are submitted for implementation of recommendations for further improvements. Consultancy studies were carried out in following areas:

- Airborne Contaminants 7
- Noise Level 2
- Environmental 3
- Airborne level of Asbestos fiber 2
- Ind. Hygiene Survey 1
- Ventilation Study 2
- Safety Audit 10
- MCLS Study 1
- Ergonomic Study 4
- Risk Assessment 2

National Referral Diagnostic Centre :

Suspected cases of occupational diseases, such as, silicosis, occupational dermatitis etc. are referred to the National Referral Diagnostic Centre for opinion.

PLAN SCHEMES OF DGFASLI

13.17 During the period 2005-2006, 6 Plan Schemes under the Xth Five Year Plan have been taken up by DGFASLI for implementation. Out of these, three are

continued from the IXth Five Year Plan and 3 are old plan schemes continued from VIIth Plan.

Continuing Plan Schemes

13.17.1 Plan Scheme -I: Development of Safety & Health Information System & Data Bank

Objectives : Development of national inventory on occupational safety and health and connectivity between State Factory Inspectorates and DGFASLI. The inventory will cover information pertaining to manufacturing activities covered under the Factories Act, 1948, occupational injuries and diseases in the sector, management of OSH at unit and state level.

Achievements of the scheme include (a) Development of OS&H Data Bank and (b) Dissemination of OS&H Information.

13.17.2 Plan Scheme-II: Establishment of a Regional Labour Institute at Faridabad

Objective: The objective of the Scheme is to cater to the needs of the northern area in relation to safety and health, which, at present, due to heavy workload on Regional Labour Institute, Kanpur is not effectively met. The Institute will specialize in assisting small-scale industrial units. It will also help Policy Planning Division of DGFASLI to better liaise with the Ministry and other Government departments in Delhi.

13.17.3 Plan Scheme-III: Improvement and Strengthening of Enforcement System for Safety and Health of Dock Workers in Major Ports

Objective: To update knowledge and competence building of Inspectors to cope

up with the recent developments in the Maritime trade and to develop the capability of the DGFASLI officers in the field of training of trainers, authorized persons, responsible persons, competent persons, etc. and other specialized category of personnel in the area of handling of containers and dangerous goods. It will also fulfill the statutory obligations of DGFASLI as the Chief Inspector of Dock Safety under the Environment (Protection) Act, 1986 and the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989.

Major achievements of the scheme include (i) Conduct of Specialised training programmes/seminars/workshops for inspectors of Dock Safety, responsible persons, authorized persons, supervisory personnel, trade union officials, trainers of Port Training Institutes, Safety Committee members, Competent Persons & Safety Officers and (b) Enforcement activities (Inspection of ships, container ships, tankers, loose gears, docks, container yards, hazardous installations, isolated storages and pipelines, ICDs etc.)

Old plan schemes

13.17.4 Plan Scheme-IV: Establishment of a System of Chemical Safety and Monitoring of Occupational Health Status of Workers Employed in Hazardous Industries

Objectives: The Plan Scheme is having three components namely, Chemical Safety, Occupational Health and Testing; and Certification of Personal Protective Equipment (TCPPE). All these three components of the Plan Schemes were initiated during the 8th Plan period as independent Plan Schemes. However, all the three Plan schemes were merged in the last year of the 9th Plan period. The objectives of the Plan Scheme are given below:

- Undertaking national level research project to generate sufficient data on Occupational Safety and Health in priority hazardous chemical processes.
- Provide health and safety training of personnel on chemical safety and prevention of major industrial accidents, occupational health at the national level to strengthen the capabilities of management, workers and their representatives.
- Extending support to State Governments for effective enforcement of health provisions: for example, Section 41F of Factories Act dealing with monitoring of work environment by using equipments already supplied to them.
- Extending Associate Fellow of Industrial Health course for Medical Officers to RLIs including Occupational Health Nurses Course.
- Quality assurance programme for Personal Protective Equipment

Major achievements of the scheme include (a) Conduct of training programme, seminar/workshop, studies & surveys, various courses and (b) Testing of NRPPE and RPPE etc.

13.17.5 Plan Scheme-V: Application of Ergonomics and Improvement in Working Conditions and Productivity in Factories, Docks and Small and Medium Scale Enterprises.

Ergonomics

Objective:

- To carry out Research study / Consultancy to make the best adjustment between man and

machine in Factories, Docks and Construction works.

- To evolve standards of thermal limits for day-to-day industrial tasks, and to find out remedial measures to various problems.
- To determine work-rest Regimens of different combinations of work load.

Small and Medium Scale Enterprises

Objectives : To bring about improvement in working condition leading to higher productivity, employee comfort and satisfaction through training of owners, managers and workers of small and medium scale enterprises.

Achievements of this scheme include conduct of training programmes, studies / surveys etc.

13.17.6 Plan Scheme-VI: Reorganization and Strengthening of the DGFASLI and Establishment of Special Cells

Objective: Substantial expansion of the facilities in the DGFASLI organization by creating special cells to meet the specific requirements under the Factories (Amendment) Act, 1987 and to meet the Safety and Health Standards in the Factories more effectively.

Achievements of this scheme include preparation of slides/posters on OSH and production of video films.

Major Accident Hazards Control:

13.18 The Major Accident Hazards Control Advisory Division at the Central Labour Institute, Mumbai advises State Governments and MAH units on control of Major Accident Hazards, preparation of emergency plans, Safety Audit, Risk Assessment etc. As on date, the details of

MAH Units, hazardous chemicals & on-site emergency plans in the country are: (i) 1610 MAH Units, (ii) 167 hazardous chemicals and (iii) 1405 On-site emergency plans.

Management Information Services

13.19 The CLI is equipped with microfiches and international soft wares such as CCINFO discs, CIS bibliographic database, NIOSH Registry of Toxic Effects of Chemical Substances and information on Chemicals of Environmental and Health Concern(CESARS), etc. published as CDROMs by the Canadian Centre of Occupational Safety and Health. It also has WHAZAN and EPACHEM software. Microfiche reader Services are provided through a well-equipped library having over 25,000 books and technical journals. NICNET connectivity through E-Mail service has been established in CLI. Also, Indian Occupational Safety & Health Network (INDOSHNET) is established by the Ministry of Labour and Employment, Government of India with DGFASLI as nodal agency and CIS Centre as the Network facilitator.

DGFASLI Website:

13.20 The DGFASLI website was launched in January 2001. The website www.dgfasli.nic.in is a source of information on various safety and health related matters, such as, database on abstract on OS&H studies, reports; information on advisory services rendered by DGFASLI in the area of testing of respiratory and non-respiratory personal protective equipment, flame proof equipment approval, material safety data sheets and National Referral Diagnostic Centre, etc. The INDOSHNEWS newsletters of DGFASLI are also available in the website. The training programmes calendar for all the labour institutes, announcement on National Safety Awards & Vishwakarma Rashtriya Puraskar

awards, AFIH course, Diploma Course in Industrial Safety along with the application forms are available on the website. The website enables users to access other useful websites related to safety and health and get the national directory of organisation-profile of agencies engaged in the field of safety and health. The website also contains the Factories Act, 1948 and the Model Rules framed there-under and also the Dock Workers (Safety, Health and Welfare) Act, 1986 etc. Statistics of Factories, Docks, List of Chief Inspectors of Factories, and List of Dock Safety Officers are also available.

Safety and Health Communication

13.21 For the purpose of updating the Industrial Safety, Health and Welfare Centre of the Central Labour Institute, as well as to provide art support for the production of video films, publicity material, such as, banners, safety posters, and technical literature, etc., the CLI has an Art Studio equipped with the necessary facilities.

Industrial Safety, Health & Welfare Centre

13.22 Industrial Safety, Health and Welfare Centre of the Central Labour Institute and the Regional Labour Institutes promote the hazard communication through display of panels, models, charts, graphs, write-ups etc. which is visited by workers, executives from industry and delegates from other countries. During the period, 82 Safety & Health Appreciation programmes were conducted for 1417 visitors.

Testing of Personal Protective Equipment

13.23 The Testing laboratories for respiratory and non-respiratory personal protective equipment testing laboratories at

Central Labour Institute, Mumbai undertake performance tests of Canisters, Masks, Helmets, Safety Shoes, Safety Goggles, Safety Belts, Welding Glasses etc. Following equipments were tested to ascertain their performance characteristics so as to meet relevant BIS standards:-

- 120 dust respirators, canisters, dust filters etc.
- 116 non-respiratory equipment, such as, helmets, safety shoes, etc.

Approval of Flame proof Electrical Equipment

13.24 As per the BIS standard IS: 2148-1981, DGFASLI is the approving agency for Flame Proof Electrical Enclosures for their use in hazardous atmosphere. 4 approvals were issued to 3 manufacturers out of 9 applications received.

Representation on BIS Committees:

13.25 Officers of DGFASLI represented on several BIS Committees/Sub-committees dealing with Safety and Health matter and offered comments on draft standards.

13.26 The DGFASLI on behalf of the Ministry of Labour and Employment has been implementing the Vishwakarma Rashtriya Puraskar (VRP) since 1985 (earlier known as Shram Vir National Awards) and the National Safety Awards scheme since 1965. These schemes were modified in 1970 and again in 1977. The schemes presently in operation are as under:

- **Vishwakarma Rashtriya Puraskar:** It is designed to give recognition at the national level to outstanding suggestions resulting in (i) higher productivity (ii) improvement in working conditions (iii) savings in foreign exchange (import substitute as

well as quality and safety of products), (iv) improvement in overall efficiency of the establishments. It covers workers employed in factories and docks. Applications for the awards under this Scheme are invited every year and these are forwarded by the management on behalf of the workers. Prizes are grouped in three classes i.e. **Class (A) = 3, Cash Award of Rs.50,000/- each, Class (B) = 5, Cash Award of Rs.25,000/- each and Class(C) = 10, Cash Award of Rs.10,000/- each.**

- **National Safety Awards:** National Safety Awards are given in recognition of good safety performance on the part of the industrial establishments covered under the Factories Act, 1948, the employers covered under the Dock Worker (Safety, Health and Welfare) Act, 1986 and the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996. Shields and Citation Certificates are awarded to Winners and Runners-Up. Schemes I to VI are meant for factories and construction sites and Schemes VII and VIII are for Ports.

13.27 The Awards distribution function for Vishwakarma Rashtriya Puraskar and National Safety Awards for the year 2004 was held on 17.09.2005 at Vigyan Bhavan, New Delhi and the awards were presented to the awardees by Shri K.M. Sahni, Secretary, Ministry of Labour & Employment. Out of 295 applications received for Vishwakarma Rashtriya Puraskar, awards were given to 93 awardees and out of 485 applications received for National Safety Awards, 105 awards were given.

Promotion of Hindi as an official Language:

13.28 “**Hindi Diwas**” was celebrated on 14-09-2005 at DGFASLI, Mumbai. “Hindi week” was celebrated at Regional Labour Institute, Chennai. Dr. S. Parthasarathy, Treasurer & Managing Trustee, Dakshina Bharat Hindi Prachar Sabha, Chennai inaugurated the programme. Competitions were organized & prizes were distributed to the Winners.

DIRECTORATE GENERAL OF MINES SAFETY

13.29 Mineral constitutes the backbone of the economic growth of any nation and India has been eminently endowed with this gift of nature. Progressive industrialization witnessed the rise in demand and hence production of various minerals. Growth of mining under the impact of successive Five Year Plans has been phenomenal. To take care of the enhanced targets, mechanization of mining activities has taken place. **Table 13.1** shows the increasing trends of some important parameters, like, number of mines, value of minerals mined, aggregate machine power installed and explosive used. Large-scale mechanization led to higher risk to health and safety of work persons deployed in mines. Under the Constitution of India, Safety, Welfare and Health of workers employed in mines are the concern of Central Government (Entry 55 – Union List – Article 246). The Mines Act, 1952 and the Rules and Regulations framed there-under regulate the objective. These are administered by the Directorate-General of Mines Safety (DGMS) under the Union Ministry of Labour and Employment. Apart from administering the Mines Act and Subordinate Legislations there-under, DGMS also administers other allied legislations. These are as follows:

The Mines Act, 1952

- Coal Mines Regulations, 1957.

- Metalliferous Mines Regulations, 1961.
- Oil Mines Regulations, 1984.
- Mines – Rules, 1955.
- Mines Vocational Training Rules, 1966.
- Mines Rescue Rules, 1985.
- Mines Crèche Rules, 1966.
- Coal Mines Pit Head Bath Rules, 1959.

The Indian Electricity Act, 1910

- Indian Electricity Rules, 1966

Allied Legislation

- Factories Act, 1948: Chapters III & IV
- Manufacture, Storage & Import of Hazardous Chemicals Rules, 1989 under Environmental Protection Act, 1986
- Land Acquisition (Mines) Act, 1885
- The Coal Mines (Conservation & Development) Act, 1974

ORGANISATION SET-UP

13.30 The Directorate General of Mines Safety is a subordinate office under the Ministry of Labour and Employment with its Headquarters at Dhanbad (Jharkhand) and is headed by the Director-General of Mines Safety. At Head Quarters, Director General is assisted by specialist staff-officers of Mining, Electrical and Mechanical Engineering, Occupational Health, Statistics, Law, Survey, Administration and Accounts disciplines. The Head Quarters also has a Technical Library and S&T Laboratory as a back-up support to the organisation. Field organisation has a two-tier network. The entire country is divided into six zones, each under the charge of Deputy Director-General. There are three to four Regional

offices under each Zonal office. Each Region is under the charge of Director of Mines safety. There are in all 21 such Regional offices. Five Sub-Regional offices have also been set up in important areas of concentrated mining activities away from Regional offices. Each of these is under charge of Deputy Director. Besides having inspecting officers of Mining cadre in each zone, there are officers of Electrical and Mechanical Engineering and Occupational Health disciplines. DGMS has a total sanctioned strength of 996 persons with 783 in position as on 31.10.05 as indicated below:

CATEGORY	SANCTIONED STRENGTH	IN POSITION STRENGTH
GROUP-A	177	134
GROUP-B	104	89
GROUP-C	468	373
GROUP-D	247	187
TOTAL	996	783

TREND OF ACCIDENT

13.31 Trend in fatal and serious accidents in both coal as well as non-coal mines is given in **Table 13.2**. Cause-wise distribution of fatal accidents is also given in **Table 13.3 and Table 13.4** with respect to coal and non-coal mines. Fall of roof and sides remained the biggest contributor to fatal accidents in coalmines, followed by Dumpers and Trucks. The latter group had the largest share of fatal accidents in non-coal mines. To arrest the number of accidents, the Directorate-General of Mines Safety has taken various measures.

SAFETY MEASURES

13.32 To ensure enforcement of necessary safety measures in mines inspections and

inquiries are carried out by the inspecting officers of DGMS. Apart from inspecting coal, metalliferous and oil mines DGMS also undertakes investigation into all fatal accidents, certain serious accidents and dangerous occurrences and makes recommendations for remedial measures to prevent recurrence of similar mishaps.

- The details of accidents from 1995 to 2004 are shown in **Table 13.4A**
- The trend in fatal accidents and fatality rate per 1000 persons employed on 10-yearly average basis from the year 1951 to 2000 and 2001-2005 is shown in Table 13.4 B.
- Power under section 22 and 22A of the Mines Act, 1952, Regulation 103 of Coal Mines Regulations, 1957 and Regulation 108 of Metalliferous Mines Regulations, 1961 has been vested with DGMS to issue improvement notices and prohibitory orders to resist or prohibit employment of persons in mines or part of mines.
- During the period April 2005 to October 2005, 191 notices & 75 orders were issued in coal mines and 99 notices & 120 orders were issued in non-coal mines.
- The number of inspections and inquiries carried out from the year 1995 onwards are shown in **Table 13.5**.

CIRCULARS

13.33 The DGMS issues circulars to the mining industry on occupational safety and health matters, which may have wide implications. During the period January 2005 to October, 2005, 6 technical circulars and 1 legislative circular were issued to the mining industry.

COMPETENCY TEST

13.34 To ensure that only competent persons are appointed as mine managers, surveyors, overman, foreman etc. the DGMS, on behalf of the Board of Mining Examinations constituted under the Coal Mines Regulation, 1957 and the Metalliferous Mines Regulations, 1961, conducts examinations and issues certificates of competency. Details of applications received and competency certificates issued during the period from April 2005 to October 2005 have been given in **Table 13.6**.

APPROVAL OF MINES SAFETY EQUIPMENTS

13.35 Approval is granted by Chief Inspector of Mines (also designated as Director General of Mines Safety) to various equipments for use in mines to fulfill the statutory obligation enshrined under different provisions of Coal Mines Regulation, 1984, Metalliferous Mines Regulations, 1961, Oil Mines Regulations, 1984, Mines Rescue Rules, 1985 and Indian Electricity Rules, 1956. The procedure of approval includes scrutiny of the applications mainly to find out the quality control system adopted by the manufacturers and their capacity to manufacture equipments/material etc. which will be capable of working safely under the hostile environment of the mines and remain operative under prolonged use under adverse conditions. The equipments also need to conform the relevant Indian Standards and in case there is no Indian Standard, the standards of the country of origin (ISO/EN/DIN etc.). The application should also include test certificates from approved laboratory as per the relevant standard. After the documents are scrutinized and found in order, field trial approval is granted to check the pit worthiness of the equipments in various mines. After the equipments are successfully field-tried, performance report

from the concerned mine management is obtained. If the above reports are found satisfactory, regular approval is granted for a specific period.

The equipments/machinery/appliances and materials requiring approval can be broadly categorized as under :-

- (i) Personal protective equipment.
- (ii) Environmental monitoring instruments and devices.
- (iii) Rescue apparatus.
- (iv) Electrical equipment and cables.
- (v) Explosives and accessories.
- (vi) Machinery and other equipments for carrying out mining operations and
- (vii) Safety materials for use in underground mines.

During the year 2004, 482 approvals for use of material, equipment, machinery etc. in mines were granted. In the year 2005 (upto 31.10.2005), 80 approvals for use of material, equipment, machinery etc. in mines have so far been granted.

NATIONAL SAFETY AWARDS (MINES)

13.36 In the year 1983, the National Safety Awards for mines were instituted with 1982 as the contest year. The scheme is designed to give recognition at the national level for outstanding safety performances in mines covered under the Mines Act, 1952. The awards are given every year. The list of award winning mines for the contest years 2002 & 2003 have been finalized and the award distribution function is expected to be held shortly.

ON-GOING PLAN SCHEMES

13.37 With a view to keeping the technical and professional competence of the inspecting officers updated and backing the regulatory, enforcement, advisory and the promotional roles of the Directorate-General of Mines Safety, special attention is being paid to the following areas :-

Augmentation of S&T Capabilities, Mines Rescue Services and Human Resource Development (S&T)

This scheme has been formulated by merging the objectives of ongoing schemes namely “Augmentation of Science & Technological support capabilities in DGMS (S&T) 1981”, “Development of Mines Rescue Services (DMRS) 1981” and “Human Resource Development for improving health and safety standards in mines (HRD) 1990”.

(A) Scientific and Technological Support:

This component of the plan scheme aims at providing in-house scientific support to the officers of DGMS in discharging their regulatory, enforcement and promotional role. It also provides scientific support and advice to mine operators, workers organisation and other institutions concerned with occupational health and safety matters. The activities of the S&T plan scheme covers a wide cross-section of facets of occupational safety and health including occupational hygiene/health, strata control, mine ventilation, mine gases, fire and explosion, mining techniques, mine mechanisation, oil and opencast mines safety, standard setting and policy planning.

Major Programmes

The major programmes of the S&T plan scheme includes:

(1) Occupational Safety

- (a) Monitoring of implementation of the Technical Standards on Support System in Board and Pillar workings.
- (b) Review of standards on stability of multi-seam workings.
- (c) Review of standards on detection, control, protective measures against fire and revision of standards/guidelines.
- (d) Assessment of hazards associated with mine mechanization and standardization of monitoring techniques and control measures.

- (i) Standardisation of prototype test(s) for testing power supports and hydraulic / friction props.
- (ii) Standardisation of Ultrasonic Testing Techniques and formulation of Acceptance and Rejection Norms
- (iii) Testing of fire resistance hydraulic oils.

(2) Occupational Hygiene and Health

- (a) Standardisation of techniques for monitoring and control of occupational hazards from noise, air borne dust, mine gases and poor illumination.
- (b) Review of standards of medical examinations.
- (c) Review of standardization of procedures for surveillance of occupational diseases already established.

(B) Development of Mines Rescue Services:

This component of the plan scheme aims at promoting proper rescue services in mining industry. The scheme envisages critical appraisal of design characteristics of rescue apparatus and self-rescuers, evaluation of field performance of the same, inquiry into accidents in use of rescue apparatus, inspection of rescue stations/rescue rooms, organising rescue competitions, monitoring formulation of emergency plan by the management of all under ground mines and to deal with applications for grant of permissions/approval/relaxation under the Mines Rescue Rules, 1985.

Major Programmes:

1. Installation of testing facility SCBA of Resuscitator.
2. Creation of Rescue Data bases.
 - a) CMR/OMR/MMR/dBase
 - b) RRAE databases
3. Design of rescue systems
 - a) Inundation RRS
 - b) Fire RRS
 - c) Explosion RRS
4. Development of disaster control systems.
5. Testing of self-rescuers, Testing SCBA.
6. Rescuers Competition.
7. Standard setting, review of emergency plans.
8. Issue of Technical circulars to the mining industry.

(C) Human Resource Development:

This scheme, which started on a modest scale from 1.4.90, envisages setting up of a Mines Safety & Health Academy comprising Institutes at Dhanbad and Nagpur for imparting structured training to

the inspecting officers of DGMS so as to update and upgrade their technical and professional competence and improve their effectiveness in regulatory, enforcement, advisory and promotional roles. The facilities so created would be also utilized for disseminating latest information on mine safety principles and practices amongst the key safety personnel of the mining industry and the workmen's inspectors.

Major Programmes:

1. Development of training schedules
2. Conduct of training programmes.
 - (a) Training of DGMS Officers
 - (i) New Entrants.
 - (ii) Existing officers.
 - (iii) Special Lectures.
 - (b) Training of key personnel in Mining Industry.
 - (i) Management personnel
 - (ii) Safety Officers.
 - (iii) Ventilation Officers.
 - (iv) Engineers.
 - (v) Industrial Hygienists.
 - (vi) Executive Trainees.
 - (vii) VTOs.
 - (c) Training of Workmen's Inspectors

Study of Mine Accidents and Development of Mine Safety Information System (SOMA)

The scheme has been formulated by merging two on-going plan schemes of DGMS, namely "Development of Mine Safety Information System (DMSIS, 1976)" and "Study of Mine Accidents to Plan Preventive Measures (SOMA, 1976)". These two schemes were functioning

independently during the first 4 years of the 9th plan. In 2001-2002, keeping in view the objective of integration, these schemes were merged into one scheme.

A. Study of Mine Accidents to Plan Preventive Measures (SOMA)

Objective of the Scheme

- to carry out studies into mine accidents and dangerous occurrences in order to arrive at the root cause of accident and to suggest preventive measures which, on implementation, would improve safety standards in mines;
- identification of mines with relatively higher potential of accidents through in-depth analysis of accident data and risk assessment through risk analysis and to propose preventive measures to eliminate danger therefrom;
- to develop a multi-disciplinary perspective in respect of major cause group of accidents by undertaking in-depth study of the underlying factors causing such accidents; to identify and forecast potential areas of dangers as well as to suggest preventive actions;

B. Development of Mine Safety Information System (DMSIS):

This component of the plan scheme is designed to render statistical support to DGMS for effective administration of the Mines Act, 1952. As per this Act and different rules and regulations framed therein, it is mandatory for the management of every mine coming under the purview of Mines Act to submit information regarding various facets of mining operation such as average daily employment, production, usage of machinery and explosives, etc. in the mines in certain specified formats in the form of annual and quarterly or monthly returns.

Based on the information received, tables on employment, production, mechanization, use of explosives, index of labour earnings, etc. are generated. In addition, information regarding accidents in mines and brief description of findings of enquiry in respect of each and every fatal accident that occurred during the reference year form a part of the annual publication entitled "Statistics of Mines in India – Vol. I & Vol. II". Volume I pertains to information relating to coal mines and volume II to Metalliferous and Oil mines in India. A "Monthly Review of Accidents" is also brought out to reflect the trend in accidents on a month-to-month basis. In addition to the above, a "Monthly Activity Report" covering all major activities including important developments/ achievements of the organisation is brought out under this scheme.

CAREER MANAGEMENT AND TRAINING (CMT)

13.38. Several officers were deputed for training in important areas such as administrative and financial matters and technical aspects of mining methodology etc.

NATIONAL SAFETY COUNCIL

Organisation and Functions

13.39 The National Safety Council (NSC), set up by the Ministry of Labour and Employment, Government of India on 4th March, 1966 is an autonomous, national level apex institution with a tripartite Board of Governors. Its mission is to develop a national movement on Safety, Health and Environment towards preventing and mitigating loss of life, human suffering and economic losses. It is an institution of international repute having an all India network with more than 6,200 members comprising Corporate Members (industrial establishments, employers' organisations, professional bodies / institutions and trade

union organisations), individual Members and Life Members with 14 Chapters and 31 Action Centers across the country. The activities of NSC include conducting training, national and international conferences; HSE audits, emergency preparedness and other consultancy services; issuing technical publications and periodicals (Quarterly Industrial Safety Chronicle and Bi-monthly Newsletter); production and distribution of safety promotional material; spearheading national level campaigns viz National Safety Day/Week, Fire Service Week, World Environment Day, ILO-World Day, etc.; operating NSCI Safety Awards Scheme and special projects in emerging key areas of national concern. At the international level, NSC has developed close collaboration with ILO, UNEP, World Bank, EPA (USA), ADPC (Bangkok), WEC, JISHA (Japan), NSC (USA) and the member organisations of APOSHO (Asia Pacific Occupational Safety and Health Organisation) of which NSC is a founder- member. Shri K.C. Gupta, Director General, NSCI took over the charge of Hony. Secretary-General of APOSHO for a period of two years with effect from 8th September, 2005.

Roadmap for NSC's New Initiatives

13.40 The Council has launched New Initiatives on three Sectors namely **Road Transportation, Construction and Small and Medium Enterprises**. The following important activities were undertaken under these Initiatives during this period:-

Road Transportation Safety

- Two Seminars on Road Transportation Safety were organised at Chennai and Namakkal in Tamil Nadu in September, 2005.
- One In-plant Training Programme on Defensive Driving was organised for HIKAL Limited on 10th May, 2005.
- A film on Safe Driving, made in collaboration with Loss Prevention

Association of India with sponsorship from Eicher Motor Ltd. was released by the Vice-Chairman, NSC on 1st September, 2005.

- Designs of four posters on road safety were prepared.

Safety and Health in Construction Sector

The NSC conducts training courses and conference; safety audits; a manual on safety & health management; safety promotional material; OSH information and advisory services; separate Safety Awards scheme for the Construction Sector. The following activities were undertaken by the NSC during this period:-

- Conducted a 4 day specialized public training course on **Safety and Health in Construction Work** from 12-15 July, 2005.
- Conducted a 2 day Specialised Training Programme on 'Safety in Scaffolding and Working at Heights' from 10-11 November.
- Seven In-plant Training Courses were conducted during this period.
- Two safety audits were conducted during this period.
- A separate **Safety Awards scheme** for Building and Other Construction Workers was launched from the Awards Year 2005.

Safety, Health & Environment in Small and Medium Scale Enterprises (SMEs)

A reference booklet containing brief information on economic data, Govt. support, financial support from banks and institutions, statistics, product and process development centers, training Institutions, guidelines on self-compliance with statutory

provisions on safety, health and environment, statutory approvals/permissions on HSE, NSC campaign, etc. is being drafted for use by the SMEs.

National APELL Centre (NAC)

13.41 The **National APELL** (Awareness and Preparedness for Emergencies at Local Level) **Centre (NAC)** has been established since April 2002 in the NSC Headquarters under the MoU with the Division of Technology, Industry & Economics (DTIE) of UNEP, Paris. It is the first APELL Centre in the world. It has the technical support and information from UNEP and other international sources and the Ministry of Environment & Forests, Government of India and the stakeholders.

NAC is dedicated primarily to strengthen chemical emergency preparedness and response in India through the use of the internationally accepted APELL process. It is a Resource Centre to provide objective and quality information, advice and training. Also, it is a focal point for networking and promoting effective partnership among authorities, industry and community. Its actions are particularly focused at the local level preparedness.

The following new strategic activities were undertaken during this period:-

- Being a member of Advisory Group on Environmental Emergencies (AGEE), DG, NSC participated in its 6th Meeting organised by the UNEP/Office for the Coordination of the Humanitarian Affairs (OCHA) in Geneva from 22nd to 24th June, 2005. He was unanimously elected as the Vice-Chairman of the meeting. He also presented a paper on **The Vision and the Activities of the NAC in India** in the meeting.

- The Council designed, developed and conducted two 3-day training workshops for officers of the Directorate of Industrial Safety and Health, Government of Gujarat in Ahmedabad during this period.
- The NSC actively participated in finalising the draft Off-site Emergency Plan for Haldia, West Bengal in consultation with Department of Environment, Government of West Bengal.
- A 3-day workshop on Disaster Management was conducted for Safety Professionals and Incident Controllers in collaboration with Ministry of Environment and Forests.

NSCI Safety Awards

13.42 The NSCI Safety Awards-2004 were declared by the Awards Committee. In all, 26 organisations won the awards. 6 organisations won the “Shreshtha Suraksha Puraskar” Awards; 10 organisations won “Suraksha Puraskar” and another 10 organisations won “Yogyata Praman Patra”. A total of 252 applications have been received for Award year 2005 and their assessment is under process. As part of implementation strategy of new Initiative on Safety in Construction Sector, the Council has started a separate scheme, “NSCI Safety Awards for Construction Sector” from the Awards year-2005 with a view to recognising construction companies for achieving excellence in safety in the construction industry. Also, with a view to recognizing the performance of the 14 NSC Chapters in promoting the mission of the Council, NSC has launched the Best Chapter Awards Scheme from the year 2004-05. The Awards will be presented at the National Conference to be held at Vigyan Bhawan at New Delhi from 5th to 7th April, 2006.

Safety Consultancy Services

13.43 As a major player in the safety consultancy services, NSC has been carrying out safety audits and other safety consultancy studies at the request of industries. In all, 31 safety consultancy assignments were carried out in various types of industries.

HSE Training

13.44 As Health, Safety and Environment (HSE) training is a core activity of NSC, it has continued to lay emphasis on designing and developing appropriate training courses as per the emerging needs of the industry. During the period, 34 training courses/workshops/seminars comprising 16 at national level and 18 at unit level were conducted for 1,817 participants from various types of industries.

National Campaigns

13.45 The two National Level Campaigns namely, Fire Service Week (14th-20th April) and World Environment Day were spearheaded during this period

National Safety Calendar 2006

13.46 To support HSE awareness and educational programmes, a multi-coloured 8-sheet National Safety Calendar - 2006 for which technical concepts are developed by NSC, will be brought out by December, 2005

HSE Diary 2006

13.47 The Health, Safety & Environment Diary for 2006 is being published for the ninth consecutive year. It will contain information on various key subjects in the areas of safety, health and environment protection, disaster management, road

safety, corporate social responsibility, energy audit and other related aspects besides the date pad.

13.48 International Activities

- **Participation in APOSHO – 21st Annual Meeting & Conference**

- A two-member delegation comprising the Vice-Chairman (Workers), Shri H. Mahadevan and the Director General, Shri K.C. Gupta participated in the APOSHO Annual Meeting & Conference from 5th to 8th September, 2005 at Bali, Indonesia organised by the Indonesian National Safety Council. The Director General, NSC presented a paper on **Road Transportation Safety - An Innovative Approach to Meet the Challenge** in the Plenary Session of the Conference.

- **Participation in the XVIIth World Congress**

NSC led an 11-member delegation from India to the XVIIth World Congress on Safety and Health at Work held from 18th – 22nd September, 2005 at Orlando, Florida, USA. The DG, NSC made a presentation on Impact of Globalisation on Safety and Health in the Plenary Session of the Congress.

- NSC agreed to become a national partner of the Robert W. Campbell International Award for business

excellence through commitment to safety, health and environment instituted by the NSC, USA.

- An officer from the NSC was nominated by the Bureau of Indian Standards to participate in the 2-day workshop and the 2nd meeting of the ISO on Social Responsibility held at Bangkok from 24th – 30th September, 2005.
- NSC has been designated as the nodal agency for strengthening collaboration between the non-governmental sector and the Japan Industrial Safety and Health Association (JISHA), Japan. As part of this collaboration, NSC has nominated five professionals from industry and NSC for 3-week seminars conducted and sponsored by the JICOSH (Japan International Centre for Occupational Safety & Health) in Tokyo, during this period. The themes of the seminars were (i) Zero Accident Activities (KYT), (ii) Boiler Safety, (iii) Diagnosis and Prevention of Pneumoconiosis, (iv) OSHMS (Risk Assessment) and (v) Ergonomics.

Staff Position of DGFASLI						
BOX 13.2						
Units	Technical		Administrative		Total	
	Sanctioned	Working	Sanctioned	Working	Sanctioned	Working
Headquarters	14	9	49	42	63	51
CLI, Mumbai	100	68	93	83	193	151
4 RLIs*	81	56	80	65	161	121
Dock-Safety Inspectorates	22	16	34	33	56	49
Total:						

* The posts at RLI, Faridabad are yet to be created

Table 13.1											
Growth of Mining Activities in India											
Year	No. of reporting mines			Value of minerals (in Million Rupees)			Aggregate H.P. (in 000s)			Explosives used (in 000 tonnes)	
	Coal	Metal	Oil	Coal	Metal	Oil	Coal	Metal	Oil	Coal	Metal
1996	576	1872	32	157474	36521	37388	5300	1877	523	207.8	47.2
1997	580	1834	34	193877	43758	40813	5314	2016	570	232.7	43.4
1998	594	1864	37	205307	45286	53136	5399	2020	602	247.0	47.1
1999	598	1957	44	219101	46415	83982	5660	2147	744	267.6	49.8
2000	595	2022	45	234531	53111	92954	5561	2371	757	290.5	55.4
2001	568	1907	43	261082	54032	106747	5586	2190	778	292.6	55.8
2002	567	1870	42	286390	64965	123326	5432	1997	757	315.3	55.6
2003	562	1765	49	299954	77603	131897	5677	1950	747	309.8	63.7
2004	560	1985	45	322425	79001	132777	5728	1955	745	312.6	59.3
*											

* Data are provisional.

Table 13.2						
Year	Trend of Accidents in Mines					
	Number of Accidents in Coal Mines			Number of Accidents in Non- Coal Mines		
	Fatal	Serious	Total	Fatal	Serious	Total
1995	137	757	894	66	268	334
1996	131	677	808	72	263	335
1997	143	677	820	70	265	335
1998	128	523	651	56	254	310
1999	127	595	722	61	230	291
2000	117	661	778	51	187	238
2001	105	667	772	71	199	270
2002	81	629	710	52	205	257
2003	83	563	646	52	168	220
2004*	88	958	1046	59	187	246
2005*	80	730	810	39	80	119

Note: *Figures of 2004 & 2005 are provisional and figures for 2005 are from January to October 2005

Table 13.3												
Trend of Accidents in Coal Mines – Cause-wise												
Causes	Number of Fatal Accidents						Number of Serious Accidents					
	2000	2001	2002	2003	2004	2005	2000	2001	2002	2003	2004	2005
Fall of Roof	27	30	23	17	26	12	43	35	45	39	45	31
Fall of Sides	14	9	11	5	7	4	45	43	38	27	67	29
Other Ground Movements	1	0	1	1	0	0	1	1	0	0	1	1
Winding in Shafts	3	2	0	1	0	0	3	6	4	4	5	2
Rope Haulage	8	15	6	10	5	10	101	116	85	84	125	78
Dumpers, Trucks, etc.	30	19	14	21	21	14	42	32	28	35	20	20
Other Transportation Machinery	3	1	2	2	3	1	16	23	19	15	10	10
Non-Transportation Machinery	9	10	9	11	6	15	47	34	39	43	28	27
Explosives	1	2	4	3	5	1	4	7	9	6	8	1
Electricity	3	4	4	1	4	3	4	5	7	3	4	2
Gas, Dust, Fire, etc.	5	0	0	2	2	0	0	0	2	6	2	0
Fall of Persons	9	7	4	6	5	10	161	191	151	147	305	184
Fall of Objects	2	2	2	1	1	0	88	83	99	90	183	184
Other Causes	2	4	1	2	3	10	106	91	103	64	155	161
Total	117	105	81	83	88	80	661	667	629	563	958	730

Note: Data for 2004 and 2005 are provisional and figures for 2005 are from January to October, 2005.

Table 13.4												
Causes	Trend of Accidents in Non-coal Mines – Cause wise											
	Number of Fatal Accidents						Number of Serious Accidents					
	2000	2001	2002	2003	2004	2005	2000	2001	2002	2003	2004	2005
Fall of Roof	1	2	1	1	2	2	1	0	1	1	2	2
Fall of Sides	11	8	10	9	14	5	1	1	1	1	2	0
Other Ground Movements	0	0	0	0	0	0	1	0	0	0	0	0
Winding in Shafts	0	0	0	0	0	1	1	1	1	0	0	0
Rope Haulage	0	0	0	0	0	0	3	5	1	1	0	0
Dumpers, Trucks, etc.	14	22	10	13	18	10	13	14	14	15	10	8
Other Transportation Machinery	2	4	3	2	3	1	1	2	3	3	2	1
Non Transportation Machinery	3	7	6	5	5	4	26	23	23	25	22	12
Explosives	5	6	8	5	3	1	0	0	3	1	0	1
Electricity	2	1	1	3	2	1	2	1	4	1	0	0
Gas, Dust, Fire, etc.	1	3	0	1	0	0	1	0	0	0	0	1
Fall of Persons	8	11	10	11	7	9	34	44	41	23	43	15
Fall of Objects	3	2	2	2	2	3	34	53	45	45	37	17
Other Causes	1	5	1	0	3	2	70	55	68	52	69	23
Total	51	71	52	52	59	39	187	199	205	168	187	80

Note: Data for 2004 and 2005 are provisional and figures for 2005 are from January to October, 2005.

Table 13.4A										
Accidents and resultant casualties in mines										
Year	Coal					Non-Coal				
	Fatal Accident			Serious Accident		Fatal Accident			Serious Accident	
	Acc	Killed	Inj	Acc	Inj	Acc	Killed	Inj	Acc	Inj
1995	137	219	23	757	790	66	74	5	268	274
1996	131	146	20	677	703	72	83	14	263	269
1997	143	165	22	677	703	70	77	13	265	272
1998	128	146	18	523	542	56	65	15	254	258
1999	127	138	21	595	629	61	72	13	230	238
2000	117	144	28	661	679	51	55	2	187	192
2001	105	141	14	667	706	71	81	8	199	200
2002	81	97	15	629	650	52	64	3	205	206
2003	83	113	12	563	578	52	62	16	168	169
2004*	88	97	14	958	972	59	66	10	187	193
2005*	80	95	13	730	742	39	42	3	80	81

* Data for 2004 and 2005 are provisional and figures for 2005 are from January to October, 2005.

Table No. 13.4B								
Trend in Fatal Accidents and Fatality Rates per 1000 Persons Employed (Ten Yearly Average)								
Year	Coal Mines				Non coal Mines			
	Avg. Acc	Acc. Rate	Avg. Killed	Death Rate	Avg. Acc	Acc. Rate	Avg. Killed	Death Rate
1951-60	222	0.61	295	0.82	64	0.27	81	0.34
1961-70	202	0.48	260	0.62	72	0.28	85	0.33
1971-80	187	0.40	264	0.55	66	0.27	74	0.30
1981-90	162	0.30	185	0.34	65	0.27	73	0.31
1991-2000	140	0.27	170	0.33	65	0.31	77	0.36
2001-2005*	83	0.20	105	0.25	47	0.30	55	0.34

Data are provisional and up to October, 2005

Table 13.5									
Number of Inspections and Enquiries									
Year	No. of Inspections				No. of Enquiries				Grand Total
	Coal	Metal	Oil	Total	Coal	Metal	Oil	Total	
1995	5461	3206	181	8848	1102	396	21	1519	10367
1996	5525	2491	226	8242	1105	330	50	1485	9727
1997	4563	2404	189	7156	1157	406	34	1597	8753
1998	4752	2539	166	7457	1127	398	29	1554	9011
1999	6106	3061	198	9365	1319	483	26	1828	11193
2000	5642	3614	245	9501	1163	325	26	1514	11015
2001	5410	2908	229	8547	1148	418	51	1617	10164
2002	5667	2856	269	8792	1022	402	30	1454	10246
2003	5574	3247	246	9067	966	427	13	1406	10473
2004*	5214	2983	228	8425	834	436	08	1278	9703
2005*	4185	2092	244	6521	678	284	22	984	7505

*Figures are provisional and up to October, 2005

Table 13.6				
Applications received & Certificates of Competency issued during April to October, 2005				
Category of certificates of competency	Coal Mines Regulation, 1957		Metalliferous Mines Regulations, 1961	
	Applications received	Certificates issued	Applications received	Certificates issued
Manager	4856	473	2002	223
Surveyor	378	36	112	27
Overman / Foreman	1663	299	571	174
Sirdar / Mate	2308	505	764	01
Shotfirer/Blaster	0	0	410	02
Winding Engine Driver	50	0	10	10
Gas-testing	2220	159	20	0
