

## **Occupational Health and Services – Indian Scenario**

### **Background**

India is a vast country with a surface area of about 3.3 million square kms. The total population of India according to 2001 census was 1.025 billion. About 72% of its population lives in the rural area. Emerging occupational health problems are to be tackled along with the existing public health problems like communicable diseases, malnutrition, poor environmental sanitation, and inadequate medical care. Globalization and rapid industrial growth (about 8% annual economic growth) in the past few years have added further to complexities of occupational health related issues.

In size, India is one of the most important developing countries in the world. According to 2001 census 2001, about 40 million people belong to the working population. As per Director General of Factory Advisory Services & Labour Institutes [DGFASLI] there are 300,000 registered industrial factories and more than 36500 hazardous factories employing 2046092. Approximately 10 million persons were employed in various factories. The current burden of accumulated occupational diseases in India is estimated to be at around 18 million cases.

### **General status of occupational health in the country**

#### **Occupational injuries and diseases**

The statistics for the overall incidence/prevalence of occupational disease and injuries for the country is not adequately compiled in an easily accessible format. Leigh et al. have estimated an annual incidence of occupational disease between 924,700 and 1,902,300 and 121,000 occupational disease caused deaths in India. Based on the survey of injury incidence in agriculture, a study by Mohan and Patel(1992) in Northern India, an annual incidence of 17 million injuries per year, (2 million moderate to serious) and 53,000 deaths per year in agriculture sector alone was estimated. A report by National Institute of Occupational Health[1999], records more than 3 million people working in various type of mines, ceramics, potteries, foundries, metal grinding, stone crushing, agate grinding, slate pencil industry etc. These workers are occupationally exposed to free silica dust and are at potential risk of developing silicosis.

The major occupational diseases/ morbidity of concern in India are: silicosis, musculoskeletal injuries, coal workers' pneumoconiosis, chronic obstructive lung diseases, asbestosis, byssinosis, pesticide poisoning and noise-induced hearing loss. Census figures (2001) have revealed that there is an increase of about 28% male workers and 45% female workers from 1991 to 2001. The male: female working population ratio was 78:22 in 1991, but it has now changed to 68:32 in 2001. This increase in the working female population leads to certain concerns, such as adverse effects on reproductive health, exposure to toxic chemicals in the workplace,

musculoskeletal disorders (is the figures other way or women have become less). This concern arises from the fact that neither the tasks nor the equipment they use are adapted to their physique. In addition, female workers have specific stress-related disorders, resulting from job discrimination (such as lower salaries and less decision-making powers), a double burden of work (at workplace and home) and lurking and real threats of sexual harassment.

### **Mining in India**

India has been bestowed eminently with large amount of mineral deposits. It has rich mineral resources, contributing more than 1.5 % of India's gross national product (GNP). India has a unique blend of big and small, manual and mechanized, opencast and underground mines. While coal, lignite, iron ore, manganese, bauxite, and limestone form a major part of the mining industry, India is also rich in minerals like copper, lead, zinc, gold, etc. The total workforce of the mining industry in India comprises more than one million workers.

Compared to factories, mining industry has a higher proportion of fatal and nonfatal injuries (almost two to three times more). Chasnala Mines Disaster in 1975 was one of the worst disasters with 431 deaths. Disaster management is a major problem as remote locations, provision of rescue; first aid and emergency treatment pose a big challenge, especially in smaller mines. The neglect of health and safety, as well as disregard to legislation led to the government intervention in coal industry resulting in the nationalization of the coal industry during 1971–1973. However there has been a continuing neglect on the occupational conditions!

### **Legal provisions and financing**

At present, safety and health statutes for regulating Occupational Safety and Health (OSH) of persons at work exist only in four sectors, namely mining, factories, ports, and construction. A number of OSH legislations and regulations are applicable in a fragmented manner and the regulations have very specific objectives to cover the problems of safety and health to a limited extent. The major legal provisions for the protection of health and safety of the working populations are the Factories Act and Mines Act. The Factories Act, 1948, deals with occupational health and safety, as well as welfare of workers employed in a factory. However, more than 90% of the Indian labour force does not work in factories; hence, they fall outside the purview of the Act. Some of these units may be manufacturing, waste handling, using hazardous chemicals or carrying on operations dangerous to the health and safety of workers.

The Factories Act (1948) was amended in 1987 following the Bhopal gas tragedy. A special chapter on occupational health and safety to take care of the workers of hazardous industry was added. Under this chapter, pre-employment and periodic medical examinations and periodic monitoring of the work environment is mandatory for the industries defined as hazardous under the Act. The maximum permissible limit has been laid down for a variety of chemicals. The implementation agency for the act is the State Factory/ Labour Inspectorates supported by a few

industrial hygiene laboratories. There are similar provisions under the Mines Act. The Factories Act is applicable only to factories employing 10 or more workers and it covers only about 10 million workers.

Some other legal provisions for the protection of special working groups are

- The Plantation Labour Act, 1951
- Dock Workers (Safety, Health and Welfare) Act, 1986
- Building and other Construction Workers (Regulation and the Employment and Conditions of Service) Act, 1996,
- Beedi and Cigar Workers (Conditions of Employment) Act, 1966
- Child labour (Prohibition and Regulation) Act,
- Insecticides Act, 1968

Legal provisions for mining industry comprise

- Mines Act 1952, and 1955
- Mines Rules, 1957
- Coal mines regulation, 1961
- Metalliferous mines regulation
- 1989 – Oil mines regulation.

Occupational health in India has to compete with primary & curative health for its budget. While 4% of the gross domestic product (GDP) is spent on health care, almost 75% of this is spent on curative health.

### **Coverage of OHS**

In India, occupational health is not integrated with primary health care. Occupational Safety and Health till date remains under the mandate of the Ministry of Labour and not the Ministry of Health. Enforcement is carried out through the Directorate of Industrial Safety and Health at state levels that operate through factory inspecting engineers and medical inspectors of factories. DGFASLI reveals that there are 2308 Safety Officers (against sanctioned requirement of 1995), 701 Inspectors and special inspectors, and 65 certifying surgeons in the country. The numbers are grossly inadequate for a country with burgeoning workers population. Only the organized sector is monitored by various enforcement agencies and consequently the unorganized sector is neglected. There is an urgent need for confidence and capacity building of enforcement agencies and giving them adequate resources and teeth.

Many large industries / public sector enterprises provide medical services but concentrate on curative set-up neglecting occupational health. The Occupational Health Physician, where employed, also takes up mostly curative work and liaison work giving insufficient attention to occupational health. The physician very likely might not even be trained on Occupational Health. As a result there is under-

diagnosis and under-reporting of occupational diseases. Moreover, the occupational hygiene activities, if undertaken, are carried out under safety, not under OHS.

### Occupational health service system

In India the Occupational healthcare system operates at several different levels. DGFASLI working under Ministry of Labour provides assistance to the State enforcing agencies, training and education in the field of occupational health and safety in industry. It also helps in drafting statutory guidelines and regulations. It also conducts intervention studies to assess the prevalence of occupational health disorders and diseases. The data obtained from these studies are utilized to understand and assess the magnitude of the problem for the Government to include it in the National Planning and Programming.

### Inter-sectoral Linkages in Occupational health in India

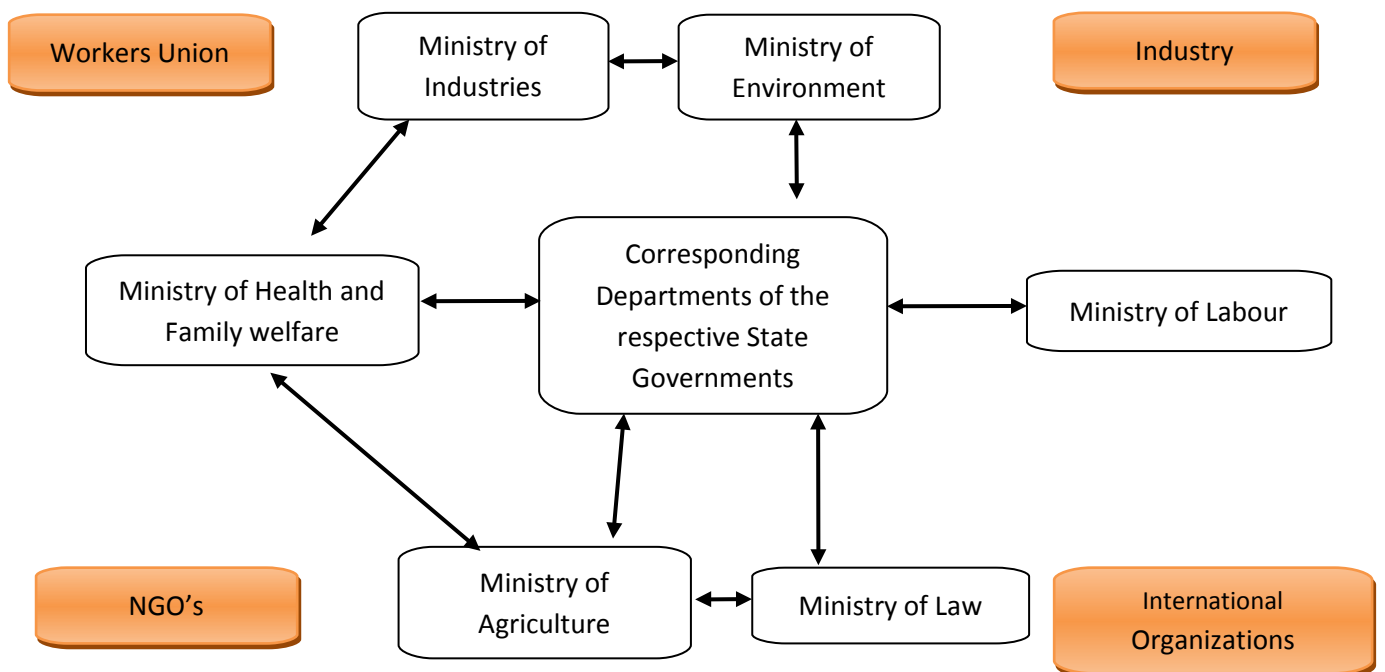


Figure 1 Organizations involved in occupational health and safety in India

The organizations involved in research and occupational health surveys and epidemiological studies are the National Institutes of Occupational Health and Industrial Toxicology Research Centre, which carry out studies in the organized and unorganized sectors.

The medical inspector of each state working under the directorate of industrial health and safety organization supervises the state level occupational health services for workers. The Employees' State Insurance Corporation [ESIC] provides curative health care to around 8 million employees. The corporation has set up five zonal Occupational Diseases Centres with a view to providing facilities for early detection and diagnosis of occupational diseases among ESI beneficiaries. Set up in the year 1952 under the ESI Act 1948, ESIC has today grown to a mammoth workers' and employers' contribution based health insurance corporation with a huge cash

reserve of almost Rs 9000 crore. The corporation has been audited by the apex audit institution of India, the Comptroller and Auditors General of India in its report for the year 1995 and the year 2005 pointing large scale deficiencies in the functioning of the corporation.

Occupational Health Centres are mandatory at various hazardous process factories or units and a full-time occupational health physician is required when the number of employees exceeds 200. At the factory unit level, healthcare is provided either by the Management or through the Employees' State Insurance Scheme (ESIS) which again provides only curative health services.

### **Occupational hygiene in India**

There are only around 100 qualified Occupational Hygienists in India, although the Factories Act requires environmental monitoring of a large number of harmful substances.

### **Training and research in occupational health**

There are around 1125 qualified occupational health professionals in India and only around 100 qualified hygienists as against a requirement of over 8000 qualified occupational health doctors. WHO in its sixtieth World Health Assembly has also expressed concerns over major gaps between and within countries in the exposure of workers and local communities to occupational hazards and in their access to occupational health services. The occupational health training is carried out in a few medical colleges for graduate and postgraduate diplomas and degrees. The Central Labour Institute under DGFASLI offers a 3-month certificate course in Industrial Health, which is statutorily approved. The following Occupational Health Institutes in India provide training and carry out research in occupational health.

- ❖ Central Labour Institute (CLI), Mumbai
- ❖ National Institute of Occupational Health (NIOH), Ahmadabad
- ❖ Industrial Toxicology Research Centre (ITRC), Lucknow
- ❖ Central Mining Research Station, Dhanbad
- ❖ Regional OHCs at Calcutta and Bangalore
- ❖ Regional Labour Institutes at Calcutta, Madras, Faridabad and Kanpur
- ❖ Very few medical colleges and institutes

Central Labour Institute (CLI), Mumbai, working under the Ministry of Labour has five regional labour institutes. These Institutes carry out training and research related to industrial safety and health. These institutes also test and develop personal protective equipments. Until recently, CLI was the only institute conducting statutory training / certification course. The certification is mandatory for all industrial medical officers employed in hazardous industries.

National Institute of Occupational Health [NIOH] is one of the prime institutes of the Indian Council of Medical Research [ICMR] and has two Regional Occupational Health Centers (ROHC) at Bangalore (1977) and Calcutta (1980) for catering to regional needs. Established in 1966 and originally designated as the Occupational Health Research Institute, it was re-designated as the National Institute of Occupational Health (NIOH), in 1970. Its major activity is research in occupational health. The Institute has published over 500 research papers in national and international journals. The other activities of the Institute include short-term training programmes for industrial medical officers, industrial hygienists, factory inspectors, workers and trade unions, etc. The Institute advises the Ministry of Health, Ministry of Labour, Ministry of Environment and Ministry of Commerce on issues related to occupational health, safety and environment.

### **Capacity building**

Occupational health not only deals with work-related disorders/diseases but it also encompasses all factors that affect workers' health. With changing business scenario, the role of an Occupational Health Physician has become more demanding and those unable to keep pace with such developments may find themselves redundant. Hence, there is an urgent need for strengthening skills, developing newer capacities and broadening knowledge in the area of occupational health. If the efficiency of the currently existing training facilities in India is increased, the prospect of occupational health will obviously improve a great deal.

The need for competent professionals is of critical importance in the management of occupational health in the liberalized economy. The country needs close to 8,000 qualified occupational health professionals and there is a tremendous gap between the need and availability of qualified personnel.

### **Future perspectives and planned changes**

In the field of occupational safety, health and work environment, International Labour Organisation [ILO] has framed 18 main Conventions and an equal number of Recommendations so far. Out of these, the Government of India has ratified two conventions, namely Radiation Protection Convention (No. 115), 1960 and Benzene Convention (No. 136), 1971. It is a signatory to other ILO conventions, which are expected to be ratified in course of time.

### **National Policy on Safety, Health and Environment at Workplace**

The directive principles of Indian constitution provide for, among others, securing the health and safety of workers (men and women), just and humane conditions of work, protection of tender age of children against abuse and empowering the Government to take suitable measures or resort to such means as may be deemed fit through the participation of workers and employers. The fundamental purpose of this National Policy on Safety, Health and Environment at workplace, is not only to eliminate the incidence of work related injuries, diseases, fatalities, disaster and loss of national assets and ensuring achievement of a high level of occupational safety,

health and environment performance through proactive approaches but also to enhance the well-being of the employee and society, at large. The necessary changes in this area will be based on a coordinated national effort focused on clear national goals and objectives.

### **Impact of the amended Factories Act**

The Bhopal Gas Tragedy (4 December 1984) was the turning point in the history of health and safety in India. It led to a serious review of legislative measures. As a result the Factories Act underwent a major revision in 1987 and practical implementation in the late 90s. The salient features and impact can be summarized as follows:

- ❖ Owner's responsibilities enhanced
- ❖ Prepare and communicate Health and Safety Policy in all covered establishments
- ❖ Hazardous processes well defined
- ❖ Information to workers, inspectorate, and the great public made mandatory
- ❖ Prepare and practice Disaster Management Programmes
- ❖ Medical examinations and records
- ❖ Occupational health facilities on site defined
- ❖ All hazardous plants must have an Occupational Health Centre
- ❖ Qualification and attendance of doctors specified
- ❖ Equipments and drugs described.

### **Path ahead, new challenges**

There are many factors, which are changing the industrial environment in India, such as globalization, outsourcing, transfer of technologies, newer type of jobs (IT, Call Centre), change in employment patterns, etc. Additionally, factors like increasing literacy / education are also ensuring worker awareness and more and more "Right to Know" demands from workers. Nongovernmental organizations (NGO), media and employee pressure groups are also playing a positive role in this matter.

#### **Action Plan**

1. Employees, research organizations and NGOs should come together to develop a strategy for Occupational Health and Safety, to improve the coverage and to demand more accountability from government and regulatory agencies.
2. Infrastructure and human resources for the implementation of the occupational health policy should be developed.

3. Simple technology for prevention and control of occupational diseases for small and cottage industries should be developed.

### **Key areas for international collaboration**

These include the following:

- Creating awareness / felt need for occupational health
- Research in occupational health
- Generation of data in priority areas through research studies
- Capacity building and competence building; more than 8,000 Occupational Health Physicians and Industrial Hygienists are needed in India as of today and the requirement will further increase in the future.
- Technical exchange of experts / fellowships
- Quality assurance, accreditation
- Model programmes/pilot projects may be undertaken with the support from ILO / WHO for unorganized sector and should involve NGOs.

### **Some Ongoing activities on OSH**

#### **A small paragraph on Occupational and Environmental Health Network of India (OEHNI)**

#### **OSH work in Mahaballipuram, Tamilnadu**

Corporate Accountability Desk-The Other Media and Chennai Metro Construction, Unorganised Worker's Union have been working on occupational safety issue amongst the Sculptors in Mahaballipuram for past 6 months, a coastal town 50 kms from Chennai famous for temples cut from a single rock and stone sculptures.

The work at Mahaballipuram started with trying to understand the background of the Sculpting industry in Mahaballipuram. The various aspects like stones used, process, labour back ground and wages were looked into. With this understanding work has now started on safety issues with some sculptors who have expressed interest in working out possibilities of a safe work place.

The first OSH workshop was organised on 30.08.2009, where the team along with members of OEHNI met with a group of sculptors and discussed their profession and the possible health effects. While there was a focus on occupational safety issues like injuries from chipped stones and machines in this profession, there was also an understanding about the health effects this profession could have on the people because of the dust emanating from the stones the Sculptors use. Stones used have been analysed for silica content and process of analyzing respirable dust in the silica dust that comes out is going on.

The idea is to help create a safe work space for workers, while also demanding for worker's rights like ESI, health care and monitoring, and compensation for workers suffering due to workplace hazards and injuries.



### **Case in Supreme Court on Silicosis**

A case on workers right and compensation against silicosis is being fought in the Supreme Court of India and the outcome of the case is expected soon in favor of the workers. Discussions are going on regarding the quantum and method of compensation.

### **Work on Asbestosis**

Work is continuing so that the Government can be pressurized into banning all Asbestos related products. A government move to start mining on Asbestos again has been met with a huge outcry from the public with several media reports.

### **Conclusion**

India is a vast country with a huge population. As in many parts of the world, 'health' is synonymous with curative services. The majority of the working population belongs to the unorganized sector, which is not in the purview of current legislation in occupational health. Further, the working population being largely illiterate is unaware of the hazards associated with their occupation. Thus, awareness and health education programme should be carried out for the workers, supervisors and owners/ management of the factories/mines engaged in hazardous process. Health education programmes should include advice on smoking, avoidance of drinking, eating and smoking at workplace etc. Possible economic benefits resulting from prevention programmes must be acted before the management, trade unions and policy makers.

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