



**Legislative Provisions Relating to
Silica Exposure and Silicosis in India:
The Need for Review**

Occupational Knowledge International

Legislative Provisions Relating to Silica Exposure and Silicosis in India: The Need for Review

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Introduction

Pneumoconiosis, or fibrosis and scarring of the lungs caused by the repeated inhalation of dust, is the most common occupational disease worldwide and impacts countless workers engaged in dusty operations.¹ Silicosis, caused by the inhalation of crystalline silica dust, is the most common form of pneumoconiosis.² Quartz, one of the most abundant minerals on Earth, is the most common form of silica. Despite knowledge of this lung disease dating back hundreds of years, it continues to be responsible for tens of thousands of deaths annually. Studies have also shown a three-fold increased risk for developing tuberculosis (TB) in workers with silicosis compared to those without the disease, and it is known to be a human carcinogen.³

However, silicosis is usually a silent killer of workers in most parts of the world and is often misdiagnosed by doctors. As a result, the connection between work activity and the disease is rarely made on an individual basis, and the numbers of deaths due to silicosis are vastly under-reported by data information systems that report national statistics on work-related injuries and diseases.

Reliable statistics are not available for India, but there are many industries where exposures to silica dust are known to exist. Examples that pose great risk for worker overexposures are: Construction (sandblasting, rock drilling, masonry work, jack hammering, tunnelling, road milling); Mining (cutting or drilling through sandstone and granite); Stone crushing (for making cement or roads); Agate polishing, Cement manufacturing; Foundry work (grinding, mouldings, shakeout, core room); Ceramics, clay, and pottery; Stone cutting (sawing, abrasive blasting, chipping, grinding); Glass manufacturing and slate pencil workers. Some mills grind silica-containing rock into a fine powder or "flour" that is used in industrial applications. Agriculture in many areas is also linked to silica exposure.

In India, there are about 3 million workers formally employed in the formal economy with potential exposure to silica dust. Further, approximately 8.5 million more work in construction and many more in the informal economy with exposure to silica dust. Thousands of these workers develop silicosis every year and die directly from it, or from secondary causes such as TB or lung cancer. However, relatively few of these deaths are recorded as being caused by silicosis or as being work-related in national statistics.

There is no cure for silicosis, therefore control of the occupational disease lies mainly on preventing dust exposure. In 1995, the World Health Organization (WHO) and the International Labour Organization (ILO) began an awareness and prevention-focused campaign to eliminate silicosis from the world by 2030. The Global Program for the Elimination of Silicosis is an international technical cooperation campaign designed to assist countries in their action to combat silicosis and work toward eliminating it as an occupational disease. To date, countries such as Brazil, China, Chile, Thailand, Vietnam, South Africa, Indonesia, Malaysia, Poland, Ukraine, Venezuela, Turkey, and Mexico have established National Programs for the Elimination of Silicosis. There are forty-seven major national projects being implemented within the programme's framework.

The right to a safe working environment has been recognized by Indian law for more than 100 years. Since the 1920s requirements were established for compensation by employers if workers suffered an injury in the workplace. Subsequently, this was expanded to include occupational diseases, such as silicosis. However, the sum of these efforts has been insufficient to protect public health as witnessed by the high prevalence of silica-related disease and the ubiquity of excessive silica dust exposures in the workplace.

This paper outlines the applicable legislative framework that relates to activities to reduce silica exposures, identify silicosis victims, and the enforcement mechanisms in place. The first section highlights areas within the current legislative provisions that need to be examined for shortcomings and opportunities for improvement. Policy and action recommendations are provided. The purpose is to help frame a national debate on the best mechanisms to reduce workers' exposures to silica dust on a grand scale and prevent this deadly disease.

The appendix of the paper shows the research conducted to identify shortcomings and to develop these recommendations. It details the applicable legislative framework that relates to reducing silica exposures, identifying silicosis victims, and the enforcement mechanisms currently in place. It also reviews the impact of Public Interest Litigation as a tool to raise awareness among potential victims, improve enforcement, and encourage compliance with the law. The final section outlines international developments on silica hazard controls.

Limitations and Shortcomings of Current Efforts

The detection, prevention and control of silicosis are constitutional obligations of the Indian Government and employers. However, a coordinated approach to addressing these issues is lacking. The responsible enforcement agencies lack manpower, resources and infrastructure to enforce the legislative requirements. Regulations are outdated and fail to account for the majority of workplaces and communities with significant exposures to silica dust. There is little coordination among the government, industry and voluntary agencies. This section lists important shortcomings of the present system in India:

1. Recently a draft national plan on silicosis has been forwarded by the Ministry of Labour. However, at this time India has not adopted a national plan or programme to address workers' exposure to silica dust or the prevention of silicosis. There is no central authority for coordination of efforts in prevention and control of silicosis encompassing all work areas. The present system involves efforts from various ministries, departments, institutions and other stakeholders. There is no authority/agency to monitor and coordinate the efforts of these agencies. There is no system of auditing which can test and authenticate management systems.
2. The regulatory agencies because of their limited manpower and resources are not able to enforce the statutory requirements for detection, prevention and control of silicosis. Effective enforcement of regulation requires enforcement efforts to be well targeted and focussed. In the absence of basic information on the nature and level of exposure and preventive measures undertaken by firms in various sectors, it is difficult for the regulators to set priorities for enforcement. There is also a lack of accountability on the part of enforcement agencies for detection of silicosis.

Monitoring by the agencies is poor and the lack of comprehensive data/information exacerbates the problem. Regulatory bodies, including the inspectorates, are ill-equipped and severely understaffed. According to a DGFASLI report (1998), the country has 1,400 safety officers, 1,154 factory inspectors, and 27 medical inspectors.⁴ These numbers are grossly inadequate even for the inspection of formal sector units that only employ about 10 per cent of India's total workforce.⁵ The fines and penalties for non-compliance, if any, are low, and the penalty structure is insensitive to the degree of default or the pattern of offence (occasional or repeated violations).

Air monitoring is necessary to determine if inspected enterprises are in compliance with Indian silica exposure limits for workers. The technical ability of the enforcement agencies in India to measure silica dust in the work environment is limited. Regulators have no access to proper sampling equipment and accredited analytical laboratories.

There is also a lack of accountability on the part of enforcement agencies. This may, among others, stem from the lack of clear measurable targets set for them, absence of mechanisms for evaluation of monitoring and enforcement systems, lack of awareness, and training.

3. Current regulatory frameworks do not address the unorganized sector and other small workplaces. For example, the Factories Act is applicable only to factories that employ 10 or more workers.⁶ This feature of the Act limits its coverage to only a small section of exposed workers.
4. Government procurement practices fail to adequately take into account silica dust hazards. As most large infrastructure projects including highways, roads, dams, railways, and many buildings are designed and purchased with public sector resources, there is an opportunity to impact dust control practices. These projects consume large amounts of rock and other construction materials with silica, which creates a direct link between government and the silica dust problem. Currently general guidelines are in place that fails to specify the nature and extent of dust controls necessary to sufficiently reduce exposures.
5. National efforts on TB control fail to incorporate prevention initiatives such as silica dust controls. No coordinated efforts are being made to provide drug therapy to people with silicosis.
6. There is general lack of awareness among workers and employers about occurrence of silicosis. There appears a trade-off between livelihood and health risks about which workers are under-informed/ misinformed. Understanding of socio-economic context of the potential victims, including the use of bonded labor, is important in designing national strategies for prevention and control and instilling a safety and health culture among workers. In addition, many workers are either employed as temporary or through middle man (not a licensed contractor) where provisions of Factory Act and ESI Act are not implemented.
7. There is lack of infrastructure facilities for diagnosis of silicosis and awareness among medical practitioners.
8. The majority of cases of silicosis are not diagnosed, misdiagnosed, and/or treated as tuberculosis. There is a disincentive to diagnose silicosis cases as that can trigger compensation under insurance schemes, which is not the case with a diagnosis of TB. Even the Employees' State Insurance Corporation (ESIC), which has its own dispensaries and hospitals, fails to diagnose and/or reporting cases of silicosis. There is also no compensation provided to workers who develop silica related disease after they leave insurable employment.
9. Environmental guidelines and regulations fail to protect communities from exposure to silica dust. Furthermore, these regulations are sometimes counterproductive by

forcing industries to spread out over larger areas by mandating minimum distances that they must be from adjacent stone crushers. Large numbers of facilities are also built and operate without approvals. Other limitations in existing siting regulations include:

- a. Lack of requirements for securing a water source and/or adequate electricity.
 - b. No specific requirements for dust control systems, or rigid barriers and enclosures around facilities.
 - c. No provisions restricting "temporary" residential dwellings from being located on worksites (e.g., construction or stone crusher sites).
10. Many cases of silicosis are not notified to enforcement agencies by industry. Limitations in reporting system and data collection and thus poor and unreliable statistics on the incidence and prevalence of silicosis also makes it difficult for the government to come up with effective strategies in terms of the design and monitoring and enforcement of regulation, victim compensation, and allocation of resources. The current system of assessing a 100 Rupee fine against those who fail to notify is not working.

There is no central registry for cases of silicosis. Limitations in the reporting system, data collection and the unreliable statistics on the incidence and prevalence of silicosis also makes it difficult for the government to come up with effective strategies in terms of both the design, monitoring and enforcement of regulation.

11. Medical examinations and health surveillance are not carried out by industry. There is also a lack of public resources to provide medical services and adequate screening and diagnostic testing for silica-related diseases.
12. Workers do not report cases of silicosis for the fear of losing the job. There are no penalties for retaliation or for dismissing a worker who reports an occupational disease that would subject the individual to possible compensation under workers compensation insurance.
13. The country has been slow to adopt protective conventions under the International Labour Organization (ILO). Although the principal health and safety laws have been amended from time to time to bring in more detailed safety provisions for workers, these have lagged in adopting effective interventions promoted by various international conventions and successfully implemented by a number of countries. For instance, the ILO has 18 conventions that are targeted at addressing the issue of occupational safety and health (OSH). Though India has ratified 41 ILO conventions and treaties on labor welfare and labor rights to date, it has ratified only three conventions on OSH.

Recommendations

There are a range of responses that will be required of government, industry and voluntary agencies to begin to make improvements in the prevention, detection, and eventual elimination of silica disease. This section lists recommendations needed to improve existing efforts in India:

- A. Recommendation: A multi-agency taskforce should be established to adopt a national plan for the prevention, control and elimination of silicosis. We

understand there is a proposal that was recently submitted to the Planning Commission by the Ministry of Labour for a comprehensive programme on the elimination of silicosis. This plan could be the starting point for the taskforce. A national plan to reduce silicosis should outline the responsibilities of the various government agencies, set goals, and establish an auditing system to manage and monitor the implementation.

- B.** Recommendation: More resources should be devoted to the key enforcement agencies. The national plan to reduce silicosis should outline the resources needed to enforce existing laws and regulations. Increases in enforcement, fines and penalties should be considered by the applicable regulatory bodies and revenue from these sources can be designated to be returned to the agencies.

The capacity to collect and analyze air samples should be improved and training programs on these procedures should be provided. Equipment for this purpose should be acquired and quality assurance procedures should be put in place.

- C.** Recommendation: The Factories Act and other occupational health and safety legislation should be extended to cover all workplaces with fewer than 10 employees.

- D.** Recommendation: Government contracts should require monitoring the sources of construction materials procured by these infrastructure projects. A committee should be established to make recommendations to various ministries on specific procedures that can be incorporated into tenders to influence good work practices and the adoption of simple control technologies to reduce silica dust emissions.

- E.** Recommendation: National efforts to control TB should establish initiatives to reduce risk factors including occupational exposures to silica dust. Consideration should be given to Isoniazid (INH) preventive treatment to prevent TB in people with silicosis.

- F.** Recommendation: Resources should be devoted to increasing awareness and training programmes aimed at workers and employers. State and regional level demonstration projects should be established to educate employers on dust suppression techniques.

- G.** Recommendation: Diagnostic procedures should be reviewed by an independent medical research committee. The Government should provide resources to conduct training programs on diagnostic techniques for silica-related disease among physicians/ radiologists. The extent to which this is covered in the medical school curriculum should be reviewed and expanded.

- H.** Recommendation: The workers compensation system must be reformed to provide universal coverage for silicosis and all silica-related disease, including cases when it is complicated with TB. Coverage should be extended to those who leave insurable employment and later develop silica-related disease. The current system can be modified to provide financial incentives to employers with low silicosis rates.

- I.** Recommendation: Industries with high potential silica exposures to the surrounding population should be targeted for greater intervention. A committee should be established to review existing requirements and make recommendations to the state level pollution control boards on how to improve these standards.
- J.** Recommendation: Improve the reporting of silica-related diseases with a mandatory programme and establish a central registry. Incentives should be provided to medical professionals for notifying cases. Provide resources for public health agencies to collect and summarize this data in order to establish priorities and evaluate enforcement strategies. The database should include information on the current and previous occupation of each individual and other relevant information.
- K.** Recommendation: Research on silica exposures, controls, and silica-related disease should be a concerted program with the following components:
- i.* Development of database and information system in occupational health;
 - ii.* Evaluation of effectiveness of the control strategies (periodic medical and environmental monitoring);
 - iii.* Evaluation of management of cases of occupational disease; and
 - iv.* Conduct research into cost/benefit of dust control and other prevention efforts.

A successful program will require committed financial support, and sharing of data and meaningful periodic consultation between various stakeholders.

- L.** Recommendation: Work with industry to encourage medical surveillance and examinations for workers at risk of silica-related disease and seek government funding for the same. Incorporate occupational health services into primary health care for ongoing surveillance and diagnosis.
- M.** Recommendation: Add penalties to existing regulations and laws to protect workers who report cases of silicosis to employers or co-workers, or disclose other health information to other employees.
- N.** Recommendation: The government should ratify important ILO conventions including Convention 155 on occupational safety and health and the working environment, Convention 161 on occupational health services, Convention 167 on safety and health in construction, Convention 176 on safety and health in mines, Convention 184 on safety and health in agriculture, Convention 187, the promotional framework for occupational safety and health.

Appendix A: Legislative Review

A.1 Constitutional Provisions ⁷

The Constitution of India provides for ensuring health, safety and welfare of persons employed in various occupations. Following are some of the important constitutional provisions related to welfare and safety of persons employed in various occupations:

Article 24 of the Constitution prohibits employment of child below 14 years for work in any factory or mine or in any hazardous employment.

Article 39 requires the State to direct its policy to ensure 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.

Article 42 directs the State to make provision for securing just and humane conditions of work and maternity relief.

The Seventh Schedule of the Constitution lists the jurisdiction of the Centre and the State Governments to legislate in particular subject matters. In terms of List-I under this Schedule, the Central Government is exclusively authorized to make laws for regulations of labour and safety in mines (vide Item No.55 in the list) and for safety of workers employed in major ports (vide Item No. 27 in the list). In the list of Concurrent subjects welfare of labour (vide No. 24 in the list) and factories (vide No. 34 in the list) have been included.

A.2 Statutes Relating to Silica Exposure and Silicosis at Workplace

The statutes relating to Occupational Safety and Health (OSH) are broadly divided into three, categories namely, statutes for safety at workplaces (e.g. Factories Act, 1948 and Mines Act, 1952), statutes for safety of substances (e.g. Indian Explosives Act, 1884), and statutes for safety of activities (e.g. Radiation Protection rules under the Atomic Energy Act).

The important legislations covering OSH at the workplace mainly cover the mining, factories (manufacturing) and construction sectors, and include:

A.2.1 Factories Act, 1948 and Model Factories Rules ⁸

Health, Safety and Welfare of persons employed in factories are covered by Factories Act, 1948. The Act is administered by respective State Governments through State Inspectorates. The rules framed under Factory Act by the State Governments are designated as State Factory Rules. However, manufacturers employing less than 10 workers fall outside the purview of the Act. All household level enterprises that use family members as workers are also not covered.

A.2.2 Mines Act, 1952 and Rules and Regulations ⁹

Under the Constitution of India, Safety, Welfare and Health of workers employed in mines are the concern of the Central Government (Entry 55-Union List-Article 246). Mines are regulated by the Mines Act, 1952 and the rules and regulations framed there under. These are administered by the Directorate-General of Mines Safety (DGMS), under the Union Ministry of Labour. The Mines Act and rules and regulations framed thereunder such as Mines Rules 1955, Coal Mines Regulations 1957, Metalliferous Mines Regulations 1961, Oil Mines Regulations, 1984, etc. lay down the statutory provisions and standards for safety, health and welfare of mine workers.

A.2.3 Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and Rules ¹⁰

About 8.5 million workers in the India are engaged in building and other construction works and are one of the most numerous and vulnerable segments of the unorganised labour in India. The government has enacted the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and Rules to ensure health safety and welfare of this group of workers. However, only five states (including Delhi and Tamilnadu) have notified Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and have framed Rules. Others are yet to notify.

A.2.4 Other Related Legislations Applicable to Industrial Establishments

Other legislations applicable to factories and other establishments and deal with specific aspects of health, safety and welfare of the persons employed in various occupations include:

- The Workmen's Compensation Act, 1923
- The Employees State Insurance Act, 1948
- The Environment (Protection) Act, 1986
- The Air (Prevention and Control of Pollution) Act, 1981 and the Air (Prevention and Control of Pollution) Rules, 1995.
- The Hazardous Wastes (Management and Handling) Rules, 1989

A.3 Enforcement of Occupational Health provisions of Legislations

Authority for occupational safety and health is allotted to Ministry of Labour under the Government of India allocation of Business Rules. The Ministry of Labour, Government of India and Labour Departments of the State and Union Territories are responsible for overseeing the safety and health of workers. Directorate General of Mines Safety (DGMS) and Directorate General Factory Advice Services & Labour Institutes (DGFASLI) also assist the Ministry in the technical aspects and enforcement of occupational safety and health legislation in mines, factories and ports sectors, respectively.

A.3.1 Factories

Every state has an office of Chief Inspector of Factories who is responsible for enforcement of Factories Act, 1948. The Act is enforced by Chief Inspector of Factories in the State through offices in important cities and industrial areas headed by Director of Factories. Inspectors of Factories visit the factories for compliance from time to time and report to the Director of Factories. A notice for improvement is given to the factory management whenever short comings are observed and if necessary take legal action can be taken against the factory. The health surveillance of workers is carried out by factory management and cases of notified diseases, including silicosis, are to be reported to the Chief Inspector of Factories.

All factories, unless specifically exempted, are covered by ESI Act which regulates medical and other benefits to the employees and compensation for occupational diseases through Employee State Insurance Corporation.

DGFASLI advises the Union Government on matters relating to Factories Act, 1948. It also conducts surveys and studies relating to occupational health hazards and detection of occupational diseases.

A.3.2 Mines

The office of Directorate General of Mines Safety (DGMS) under Ministry of Labour, Government of India is responsible for enforcement of Mines Act, 1952. The organisation is headed by the Director-General of Mines Safety. The field organisation has a two-tier network of field offices. The entire country is divided into six-zones, each under the charge of a Deputy Director-General with regional offices under each zonal office.¹¹

The health surveillance and medical examination of workers are primarily the responsibility of mine management. Inspectors from Directorate General of Mines Safety, inspect the mines for compliance with provisions of Mines Act and subordinate legislations. The deficiencies observed during inspections are pointed out by issuing a violation letter and the management is asked to rectify the deficiencies within specified time. Legal action is also taken against the delinquent mine management for repeated or serious violations. The officers from Occupational Health Cadre of DGMS specifically inspect and evaluate medical records of mining companies for occurrence of occupational diseases.

A.3.3 Construction

The enforcement mechanism for Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and Rules is still evolving. While in some states it is being enforced by Regional Labour Welfare Commissioner, in others it is being overseen by the Directorate of Factories. Some states are yet to frame and notify the rules.

A.4 Provisions relating to Silica Exposure and Silicosis under Various Legislations

There is no statute in India specifically dealing with silica and silicosis and the subject is covered by various Occupational Health and Safety legislations dealing with different economic activities.

The provisions relating to occupational health in various legislation can be categorised into:

- Health Surveillance
- Workplace Monitoring
- Detection and Notification of Certain Occupational Diseases
- Provision for Occupational Health Centers
- Compensation of Certain Occupational Diseases
- Provisions for Control of Environmental Pollution

A.4.1 Health Surveillance

One of the most important provision under various acts is for medical examination and health surveillance of persons employed in various occupations. Though, the essential provisions are similar, they tend to vary in different acts;

A.4.1.1 Factories Act, 1948

Section 41C. Specific responsibility of the occupier in relation to hazardous processes

Every occupier of a factory involving any hazardous process shall:

(a) Maintain accurate up-to-date health records or, as the case may be, medical records, of the workers in the factory who are exposed to any chemical, toxic or any other harmful substances which are manufactured stored, handled or transported and such records shall be accessible to the workers subject to such conditions as may be prescribed;

(b) Appoint persons who possess qualifications and experience in handling hazardous substances and are competent to supervise such handling within the factory and to provide at the working place all the necessary facilities for protecting the workers in the manner prescribed:

(c) Provide for medical examination of every worker -

- I. Before such worker is assigned to a job, involving the handling of, or working with, a hazardous substance, and
- II. While continuing in such job, and after he has ceased to work in such job, at intervals not exceeding twelve months, in such manner as may be prescribed.

A.4.1.2 Mines Act, 1952 and Mines Rules, 1955 ^{12 13}

Rule 29B Initial and Periodic Medical Examination

The Rule provides for:

- Initial medical examination of every person to be employed in the mine.
- Periodic medical examination, once every five years of persons employed in the mines.

The periodic medical examination or the x-ray examination or both, shall be conducted at more frequent intervals if the examining authority deems it necessary to confirm a suspected case of a dust related disease.

- The routine initial or periodic medical examination should include -
- General physical examination,
- A full size postero-anterior chest radiograph,
- Lung Function Tests (Spirometry)

A.4.1.3 Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and Rules ¹⁴

Rule 223. Medical examination of building workers, etc.- The employer shall ensure at a construction site of a building or other construction work that-

(a) (I) a building worker who is employed for a work involving such risk or hazards, inherent in such work as the Chief Inspector of Inspections of Building and Construction,

considers appropriate for the periodical medical examination of such worker, is medically examined at such intervals as the Chief Inspector of Inspections of Building and Construction, may direct from time to time;

(iv) In case of a building worker who is exposed to special occupational health hazard owing to job or work assigned to such worker, the periodical medical examination referred to in sub-clause (i) or sub-clause (ii) includes such special investigation as may be deemed necessary by the construction medical officer examining such building worker for the diagnosis of occupational disease;

(e) In case a construction medical officer examining a building worker under sub-clause (i) or sub-clause (ii) of clause (a) is of the opinion that such building worker so examined is required to be taken away from the building or other construction work at which he is employed for health protection, such medical officer shall inform the employer of such building worker accordingly and such employer shall inform such opinion to the board where such worker is registered as a beneficiary.

Schedule VII (Rule 81 and 223) Periodicity of Medical Examination of Building Workers

1. The employer shall arrange a medical examination of all the building workers employed as drivers, operators of lifting appliances and transport equipment before employing, after illness or injury, if it appears that the illness or injury might have affected his fitness and thereafter, once in every two, years upto the age of forty and once in a year, thereafter.

2. Complete and confidential records of medical examination shall be maintained by the employer or the physician authorised by the employer.

3. The medical examination shall include,--

- (a) Full medical and occupational history;
- (b) Clinical examination

A.4.2 Workplace Monitoring

The workplaces where silica is a hazard are required to monitor the level for airborne respirable silica dust regularly. The permissible limits for respirable silica dust have been prescribed under various acts as follows:

A.4.2. Factories Act, 1948

41F. Permissible limits of exposure of chemical and toxic substances

(1) The maximum permissible threshold limits of exposure of chemical and toxic substances in manufacturing processes (whether hazardous or otherwise) in any factory shall be of the value indicated in the Second Schedule.

Section 49F Schedule 2

Permissible Limits of Exposure for Silica

| Substance | Permissible time-weighted average concentration (8 hours) |
|---------------------------------------|---|
| (i) Silica (a) Crystalline (b) Quartz | |
| (1) In terms of dust count | $\frac{10600}{\% \text{ Quartz} + 10}$ mppcm |
| (2) In terms of respirable dust | $\frac{10}{\% \text{ respirable quartz} + 2}$ mg/m ³ |
| (3) In terms of total dust | $\frac{30}{\% \text{ Quartz} + 3}$ mg/m ³ |
| (ii) Cristaballite | Half the limits given against quartz |
| (iii) Tridymite | Half the limits given against quartz |
| (iv) Silica fused | Same limit as for quartz |
| (v) Tripoli | Same limit as in formula in item 2 given against quartz |

A.4.1.2 Mines Act, 1952 and Metalliferous Mines regulation, 1961¹⁵

Regulation 124 of the Metalliferous Mines Regulations, 1961 formulated under Mines Act, 1952 and applicable to metal mines where silica dust is a hazard prescribe the permissible limits for various type of airborne respirable dusts, dust sampling strategies and control measures required to be adopted in mines. The important provisions include;

The 8-hrs. time weighted average permissible limits for airborne respirable dust as determined by use of approved dust sampling instruments and procedures are as follows-

- 2 fibres per millilitre of air in case of asbestos.
- In other cases where free respirable silica content in respirable dust is more than 5 percent, the permissible limit shall be calculated by the formula, $15 / \% \text{ of free silica}$ in milligrams per cubic metre of air

Provisions have also been made for environmental surveillance to be exercised by the mine management in respect of airborne respirable dust viz. location, frequency and manner of sampling. The manager of every mine has to formulate a "scheme" specifying locations where-from samples are to be collected, nature of sampling instruments to be used, laboratory facilities for analysis, organisation / establishment for dust monitoring and control measures and actions to be taken including use of respirators where the permissible dust limit is exceeded. Detailed provisions also exist to prevent liberation, accumulation and propagation of dust.

A.4.2.3 Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and Rules

Rule 152. Permissible limit of exposure of chemicals. - The employer shall ensure at a construction site of a building or other construction work that-

(a) the working environment in a tunnel or a shaft in which building workers are employed does not contain any of the hazardous substances in concentrations beyond the permissible limits as laid down in the Schedule XII annexed to these rules;

The permissible limit for airborne respirable silica dust under "Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Rules" is similar to as prescribed in the Second Schedule of Factories Act, 1948.

A.4.3 Detection and Notification of Certain Occupational Disease

Certain occupational diseases have been declared as notifiable diseases under different acts. If occurrence of such disease is detected it is the responsibility of the employer and the medical doctor to give notice to the government authority in prescribed form.

Silicosis and pneumoconiosis are notified diseases under all legislation dealing with health and safety including the following:

1) Factories Act, 1948 Section 89: Notice of certain diseases

The government has notified Silicosis at serial No. 12 in Third Schedule

2) Mines Act, 1952 Section 25: Notice of certain diseases: -

Silicosis is notified disease under section 25 of Mines Act, 1952

3) Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and Rules

The government has notified Silicosis at serial No. 4 in Schedule II

A.4.4 Provision for Occupational Health Centers / Services

Some acts dealing with health and safety prescribe for Occupational Health Centers and details of standard and facilities that must be provided as described:

A.4.4.1 State Level Factories Act on need for Occupational Health Centres (Chapter IV (A) Section 61(SC)B) Andhra Pradesh Example

(1) In respect of any factory carrying on 'hazardous process', there shall be provided and maintained in good order an Occupational Health Centre with the services and facilities as per scale laid down

(2) The Factory Medical Officer required to be appointed under sub-rule (1) shall have qualifications included in Schedule to the Indian Medical Degrees Act of 1916 or in the Schedules to the Indian Medical Council Act, 1956 and possess a Certificate of

Training in Industrial Health of minimum three months duration recognised by the State Government:

A.4.4.2 Mines Act, 1952

At present there is no legal provision under Mines Act to provide for Occupational Health Centers. However, there are recommendations of Tripartite Conferences on Safety in Mines for establishing Occupational Health Services in mines. Majority of large mining companies have established Occupational Health Centers / PME Centers with facilities for conducting health surveillance of persons employed in mines.

A.4.4.3 State Level Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 Rules on Occupational Health Centres: New Delhi Example

Rule 225 Occupational Health Centres. - The employer shall ensure at a construction site of a building or other construction work involving hazardous processes specified under Schedule - IX annexed to these rules that-

- (a) an occupational health centre, mobile or static, is provided and maintained in good order at such site;
- (b) services and facilities as per the scale laid down in Schedule - X, annexed to these rules are provided at the occupational health centre referred to in clause (a).
- (c) A construction medical officer appointed at a occupational health centre possesses the qualification as laid down in Schedule - XI, annexed to these rules.

A.5 Compensation of Certain Occupational Diseases

The occupational diseases causing permanent disability have been notified as compensable diseases under Section 3 of Workman Compensation Act, 1923 and Section 52 (ii) of ESI Act, 1948. The provisions of compensation under ESI Act are principally similar to Workman Compensation Act, 1923. The act is applicable to all workplaces. However, in case of factories the compensation and other benefits are governed by the Employee State Insurance Act, 1948. The provisions of the Workmen's Compensation Act, 1923¹⁶ include:

Section 3 Employer's Liability for compensation:

(a) If a workman employed in any employment specified in Part A of Schedule III contracts any disease specified therein as an occupational disease peculiar to that employment, or if a workman whilst in the service of an employer in whose service he has been employed for a continuous period of not less than six months (which period shall not include a period of service under any other employer in the same kind of employment) in any employment specified in Part B of Schedule III, contracts any disease specified therein as an occupational disease peculiar to that employment, or if a workmen, whilst in the service of one or more employers in an employment specified in Part C of Schedule III for such continuous period as the Central Government may specify in respect of each such employment, contracts any disease specified therein as an occupational disease peculiar to that employment, the contracting of the disease shall be deemed to be an injury by accident within the meaning of this section and, unless the contrary is proved the accident shall be deemed to have arisen out of, and in the course of the employment :

Provided that if it is proved –

- (b) That a workman whilst in the service of one or more employers, in any employment specified in Part C of Schedule III, has contracted a disease specified therein as an occupational disease peculiar to that employment during a continuous period which is less than the period specified under this sub-section for that employment, and
- (c) That the disease has arisen out of and in the course of the employment, the contracting of such disease shall be deemed to be an injury by accident within the meaning of this section :

Schedule III, Part C addresses silica-related disease as follows:

Pneumoconioses caused by All work involving exposure to the risk concerned. sclerogenic mineral dust (Silicosis, anthracosilicosis, asbestosis) and silico-tuberculosis : provided that silicosis is an essential factor in causing the resultant incapacity or death.

Model Draft Rules – Workmen’s Compensation (Occupational Diseases) Rules, 1968.¹⁷

The Central Government had also formulated Model Draft Rules – Workmen’s Compensation (Occupational Diseases) Rules,1968. However these rules were ratified by few states only and could not come into force in majority of the states. The relevant provisions of the rules are reproduced below:

- (e) “ Pneumoconiosis” means silicosis or coalminers pneumoconiosis or asbestosis or bagassosis or any of those diseases accompanied by pulmonary tuberculosis;.
- (5) Medical conditions under which pneumoconiosis may be considered to be an occupational disease-
 - (1) The diagnosis of pneumoconiosis shall be carried out with all the necessary technical guarantees. Proof of the degree of development of the pathological or anatomical changes in the respiratory and cardiac systems shall be furnished by the radiographic record and other laboratory records, which shall be accompanied by the report of a full clinical examination, including a report of the industrial history of the person concerned, the record of all occupations in which he has been employed, the nature of the harmful dusts to which he was exposed and the duration of such exposure.
 - (2) For entitlement to compensation, silicosis and coal miners’ pneumoconiosis shall fulfil the following radiological and clinical conditions:
 - (a) The radiological examination of the workmen must reveal –
 - (i) The appearance of generalised micronodular or nodular fibrosis covering a considerable part of both lung fields whether accompanied or not by signs of pulmonary tuberculosis: or

- (ii) In addition to a marked accentuation of the pattern of both lungs, the appearance of one or several pseudotumoral fibrotic formations, whether accompanied or not by signs of pulmonary tuberculosis; or
- (iii) The appearance of both of these types of fibrotic lesions at once, whether accompanied or not by signs of pulmonary tuberculosis;
- (b) Serial radiological pictures taken over a period during periodical medical examinations shall, as far as possible, be considered in making definite diagnosis in cases where doubt exists;
- (c) Radiological interpretation shall be based on the standard International classification laid down by the International Labour Organisation (Geneva Classification).
- (d) The clinical examination of the workman concerned must reveal a decrease or deterioration of the respiratory function or cardiac function, or a deterioration of the state of general health, caused by the pathological processes specified above.

6. Evaluation of disablement –

- (1) The evaluation of disablement shall be made by reference to the physical (anatomical, physiological, and functional) and mental capacity for the exercise of the necessary functions of a normally occupied life which would be expected in a healthy person of the same age and sex. For such assessment, recognised cardio-respiratory function tests shall be used to assess the degree of cardio-respiratory function impairment.
- (2) It shall be determined whether the disablement is temporary or permanent and also the percentage loss of function as it pertains to the loss of working capacity for receiving compensation.
- (3) Assessment of disablement shall be proportionate to the loss of earning capacity, total disablement being taken to be 100% loss of earning capacity.

4.6 Recent Proposals Relating to Occupational Health Policies and Legislation

The Government of India has adopted the National Policy on Safety, Health and Environment at Workplace.¹⁸ The preamble of the policy states that 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 but also to enhance the well-being of the employee and society, at large. The policy seeks to bring the national objectives into focus as a step towards improvement in safety, health and environment at workplace performance. There is also proposal to enact a comprehensive Occupational Health and Safety Act which will cover all occupations and a draft Occupational Health and Safety Bill, 2002¹⁹ is under consideration of the government for enactment. The proposed measures include:

- assisting and encouraging State Governments in their efforts to assure safe and healthy working conditions;
- providing for research, information, education, training and statistics in the field of safety and health and for certain connected matters.

When enacted, this Act will replace existing rules relating to occupational health and safety when notified by the Central Government.

4.7 Provisions for Control of Environmental Pollution

In order to control environmental pollution by industrial units the state pollution control boards prescribe guidelines / terms and conditions for operation of the unit including siting guidelines and emission standards under Environment (Protection) Act, 1986 and Air (Prevention and Control of Pollution) Act, 1981. The terms and conditions depend on nature of industrial unit.

The state pollution control boards of various states including Rajasthan, Gujarat, Karnataka, Kerala etc have issued policy guidelines for siting and registration of Stone Crushers. Although, the details of siting guidelines may differ from state to state, the main features are similar. These provisions include the following types of provisions:²⁰

1. Siting of stone Crushers:

- a) The location of the Stone Crushers from the boundary of National Highways and State Highways.
- b) Distance to sensitive institutions and rivers / lakes.
- c) Whenever the Stone Crushing unit is in the vicinity of the water body, the units must collect the dusty storm water runoff.

2. Air Pollution Control measures:

- a. Minimum enclosures to cover portions of the crusher units.
- b. Suitable water sprinkling system shall be provided to reduce the dust.
- c. Green belt of tall growing leafy trees around the crusher plant.
- d. Suitable safety measures shall be provided to protect workers from the ill effect of dust pollution.
- e. Suitable wind-breaking wall shall be provided.

3. Standards:

- a) Quantitative standards for the Suspended Particulate Matter (SPM) - The suspended particulate matter contribution value at a distance of 40 meters from the controlled isolated as well as from a unit located in a cluster should be less than 600 $\mu\text{g}/\text{nm}^3$. The measurements are to be conducted at least twice a month for all the 12 months in a year and report submitted to the Board.
 - b) The ambient Air quality adjacent to the boundary of the Stone Crushers shall confirm to the National Ambient Air quality standards prescribed under Air Act.
 - c) Noise levels shall confirm to the Noise (Regulations and Control) Rules, 2002.
- Wherever quoted the Factory Rules imply Model Factory Rules, 1984 and Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Rules imply The Delhi Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Rules, 2002.

A.8 Community action through Public Interest Litigation

As outlined in this review, a number of laws that deal with occupational safety and health have been passed and later amended to bring in more and more detailed safety provisions for employees. However, these efforts provide theoretical protection only to the organized workforce depending upon how well these rules are enforced. They are not effective in addressing hazards present in the unorganized sector. As noted, any workplace that is not a registered factory falls outside the purview of the Factories Act including most employers with less than 10 workers.

Besides the government and industry, communities can play a significant role in promoting occupational safety and health. In India, constitutional provisions relating to a dignified life and liability of work place safety and health risks on employers have encouraged community action through public interest litigation (PIL). While enforcement of legislation remains inadequate in India, the constitutional right of the people/communities coupled with the Right to Information Act, the "cognizance of offence" clause of the EPA (section 19) Air Act (amended 1987), and Public Liability Insurance Act (1991) can be an important instrument to demand improvement in enforcement and compliance of the law.

There is an overwhelming amount of litigation concerning whether a particular injury or disease is employment-related or not because only conditions acquired on the job come under the provisions of the Workmen's Compensation Act and the Employee State Insurance (ESI) Act. However, a number of litigations have raised issues that are more general in nature but at the core address the fundamental right to safe and healthy work environment. We focus on the latter as they relate to possible protections that may be afforded to those occupationally exposed to silica. In addition, these cases can be effective in raising awareness and improving enforcement.

A.8.1 Consumer Education and Research Centre v Union of India

In *Consumer Education and Research Centre v Union of India*, (1995(3) SCC 42) the Supreme Court was concerned with the rights of employees in the asbestos manufacturing industry. This was public interest litigation on the work conditions and their health effects on workers.

The Supreme Court held that the right to health of a worker is an integral facet of a meaningful right to life. Lack of health denudes his livelihood. The compelling economic need to work in an industry should not be at the cost of the health and vigor of the worker.²¹

Facilities and opportunities, as enjoined in Article 38, should be provided to protect the health of the worker. Provisions for medical tests and treatment improve a worker's health, increasing production and making service more efficient.

The court further held that continued treatment, while in service or after retirement, is a moral, legal and constitutional duty of the employer and the State. Therefore, health and medical care is a fundamental right.

The court observed:

The Employees State Insurance Act and Workmen's Compensation Act provide for payment of mandatory compensation for injury or death caused to the workman while in employment. Since the Act does not provide for payment of compensation after cessation of

employment, it becomes necessary to protect such persons from the respective dates of cessation of their employment till date. Liquidated damages by way of compensation are accepted principles of compensation.

The court, while allowing the petition, ordered, in respect of the asbestos industry:

1. to maintain and keep maintaining the health record of every worker up to a minimum period of 40 years from the beginning of the employment or 15 years after retirement or cessation of the employment whichever is later;
2. air sampling with membrane filter tests to detect asbestos fibers;
3. ensure coverage to all workers whether by Employees State Insurance Act or Workmen's Compensation Act.

A.8.2 Beedi Worker's Union Vs State of Tamil Nadu (AIR 1993 SC 410)

In *Rajangam, Secretary, Dist Beedi Worker's Union Vs State of Tamil Nadu (AIR 1993 SC 410)*, the issue concerned the work conditions of employees in beedi manufacturing and allied industries. A large number of children are employed in this occupation.

The Supreme Court passed directions:

In view of the health hazard involved in the manufacturing process, every worker including children, if employed, should be insured for a minimum amount of Rs 50,000 and the premium should be paid by the employer and the incidence should not be passed on to the workman.

A.8.3 Bandhua Mukti Morcha v Union of India (1984, 3, SCC161; AIR 1984, SC 802)

Bandhua Mukti Morcha v Union of India (1984, 3, SCC161; AIR 1984, SC 802) concerned the issue of release of bonded laborers especially from stone quarries in Haryana. The Supreme Court appointed a committee to look into work conditions in stone quarries. The committee's report stated that due to a large number of stone-crushing machines operating at the site, the air was laden with dust making it difficult to breathe. Workers were forced to work and were not allowed to leave the quarries. They did not even have clean water to drink and were living in *jhuggies* with stones piled one on top of the other as walls, and straw covering the top, which did not afford them any protection against the sun and the rain and which were so low that a person could hardly stand inside them. A few workers were suffering from tuberculosis. Workers were not paid compensation for injuries caused in accidents arising in the course of employment. There were no facilities for medical treatment or schooling for children.

The court held:

It is the fundamental right of everyone under Article 21 to live with human dignity, free from exploitation. This right to live with human dignity enshrined in Article 21 derives its life and breath from the Directive Principles of State Policy and particularly Clauses (e) and (f) of Article 39 and Articles 41 and 42 and at least, therefore, it must include protection of the health and strength of workers, men and women, and children of tender age, against abuse, opportunities and facilities for children to develop in a healthy manner and in conditions of

freedom and dignity, educational facilities, just and humane conditions of work and maternity relief.

The Supreme Court also issued various directions to the state and central governments; some of the important directions concerning health including:

- ensure that mine leasees and stone-crusher owners start supplying clean drinking water to workers on a scale of at least two liters for every worker.
- ensure that conservancy facilities in the form of latrines and urinals are provided.
- ensure that appropriate and adequate medical and first-aid facilities are provided to workers.
- ensure that every worker who is required to carry out blasting with explosives is not only trained under the Mines Vocational Training Rules, 1966 but also holds first-aid qualification and carries a first-aid outfit whilst on duty, as required by Rule 45 of the Mines Rules, 1955.
- ensure that proper and adequate medical treatment is provided by the mine leasees and owners of the stone-crushers to workers employed by them as also to members of their families, free of cost, and such medical assistance shall be made available to them without any cost of transportation or otherwise, and the doctor's fees as also the cost of medicines prescribed by the doctors, including hospitalization charges, if any, shall also be reimbursed to them.
- ensure that the provisions of the Maternity Benefit Act, 1961, the Maternity Benefit (Mines and Circus) Rules, 1963 and the Mines Crèche Rules, 1966, where applicable in any particular stone quarry or stone-crusher unit, are given effect to by the mine leasees and stone-crusher owners.
- report all injuries or disease acquired in the course of his employment, and immediately report this fact to the chief inspector or inspecting officers of the central government and/or the state government, and such inspecting officers shall immediately provide legal assistance to the worker with a view to enabling him to file a claim for compensation before the appropriate court or authority.
- Inspecting officers of the central government, as also of the state government, will visit every stone quarry and stone-crusher unit at least once a fortnight and ascertain whether any worker has been injured or is suffering from a disease or illness. If so, they will immediately take all necessary steps to provide medical and legal assistance.

A.8.4 Peoples Union for Democratic Rights Vs Union of India (1982, 3, SCC 235; AIR 1982 SC 1473)

Peoples Union for Democratic Rights Vs Union of India (1982, 3, SCC 235; AIR 1982 SC 1473) also known as the Asiad Construction Workers case. A bench of the Supreme Court had expressed that the State is under a constitutional obligation to see that there is no violation of the fundamental right of any person, particularly when he belongs to the weaker section of the community and is unable to wage a legal battle against a strong and powerful opponent who is exploiting him. The central government is therefore bound to ensure observance of social welfare and labor laws enacted by Parliament for the purpose of securing to the workmen a life of basic human dignity in compliance with the Directive Principles of State Policy. The State of Haryana must therefore ensure that mine leasees or contractors, to whom it is giving its mines for stone quarrying operations, observe various social welfare and labor laws enacted for the benefit of the workmen. This is a constitutional obligation which can be enforced against the central government and the State of Haryana by a writ petition under Article 32 (5).

A.8.5 Mangesh Salodkar vs Monsanto Chemicals of India Ltd (Writ Petition No 2820 of 2003, decided by the Bombay High Court on July 13, 2006)

In the case of Mangesh Salodkar vs Monsanto Chemicals of India Ltd (Writ Petition No 2820 of 2003, decided by the Bombay High Court on July 13, 2006), the issue concerned conditions of work at plants run by Monsanto Ltd. The company manufactures pesticides and it was alleged that a particular worker had suffered a brain hemorrhage because of the work environment. The court initially appointed a commission headed by a retired judge of the high court.. The commission accordingly filed a report with the high court. Since the dispute between employer and employees had been resolved, the court was not called upon to determine that aspect. However, it did go into other issues summarized below:

- The medical examination of workers to enable an identification of diseases and illnesses which are a likely outcome of the process and material used in the factory;
- Copies of medical records of workmen must be provided and retained;

A.8.6 Selected Additional Supreme Court Rulings on Polluting Industry

- Delhi stone crushers (June 1992) Mechanical stone crushers in the union territory of Delhi to be closed, effective August 15, 1992.
- Delhi hazardous industries (July 1996) 168 industries asked to relocate from Delhi to any other industrial estate in the NCR, and stop functioning in Delhi, effective November 30, 1996. Employees in these industrial units to be compensated for the disruption.
- Delhi illegal industries (October 1996) 39,000 illegal industrial units operating in residential areas of Delhi ordered to close down.
- Stone crushers in Karnataka (1997) Recently, the Supreme Court has upheld the Order of the High Court of Karnataka in WritPetition No. 17078/97 in respect of sitting of stone crushers. The important directions of the Supreme Court order are as below.

It is directed that the State Government shall identify Safer Zones within a period of 6 months and shall take steps for shifting of all the existing Stone Crushers in the State into those Safe zones within a period of 1 year. Specific guidelines were given to identify the Safe Zones.

It was also informed that, all Stone Crushing Units located at present locations shall be deemed to have been directed to be closed after a period of 1 year unless their units fall in the declared Safer Zones and shall not be permitted to carry on their business of Stone Crushing on any ground or pretext what so ever. Under the circumstances, the units will not be permitted to operate at the present location if they do not fall in Safer Zones.

A.8.7 M/S Unique Stone Crusher v/s State of Orissa, PCB and others

The state administration, Pollution Control Board (PCB) ordered to close this plant which had become non-compliant after the entire state is declared air pollution zone. The industrial unit appealed that the order violated their fundamental right based on the existing laws. Also that it has taken adequate protection and prevention measures and is ready to do more. This case illustrates that the High Court of Orissa appreciating the fact that relocation requires lot of planning and other resources, the crusher unit should be given adequate time weigh the available options and take appropriate decision. The court also appeared to rewarded stone crusher unit for voluntarily installing pollution controls even when the unit was not in compliance with recently amended location sitting criteria.

A.8.8 People's Rights and Social Res. Centre v/s Union of India (writ petition no. 110 of 2006 came for hearing on March 5, 2009).

The National Human Rights Commission, one of the respondents in this case, presented to the court the results of a survey regarding the problem of silicosis which is affecting a large number of people working at the premises of stone crushers, stone quarry, construction work, glass factories, quartz crushing factories, stone mines and other silicon dust producing plants. The preliminary report of NHRC shows that the problem of silicosis is prevalent in many States. The court directed the Ministry of Health and Ministry of Labor, Union of India to extend all further assistance to the NHRC to conduct a more comprehensive additional survey in this regard.

The Supreme Court made the following additional order:

Council for the NHRC stated that pursuant to the directions, the NHRC has conducted a survey regarding the problem of silicosis which is affecting a large number of people working at the premises of stone crushers, stone quarry, construction work, glass factories, quartz crushing factories, stone mines and other silicon dust producing plants. The preliminary report of NHRC shows that the problem of silicosis is prevalent in many States and further survey is to be conducted in this regard. The court directed the Ministry of Health and Ministry of Labor, Union of India to extend all further assistance to the NHRC for further action in this regard.

It further directed that the NHRC may take up the specific and confirmed cases of persons who are suffering from silicosis and shall recommend providing immediate medical relief to them through the concerned authorities and in case of those persons, who died because of silicosis, may provide for compensation through the concerned authorities. The court noted that the senior counsel appearing for the petitioner shall bring to the notice of the Court on the next date of hearing as to which States are to be impleaded as necessary parties/respondents in this matter. It was directed that this matter be listed for hearing after six weeks.²²

From the orders of the above cases it can be inferred that the courts have passed broad but clear directions to help improving the work conditions for workers and the overall ambient environmental quality for communities. The rulings have given a clear signal to the market that the costs of prevention and mitigation of occupational health and safety hazards should be borne by those liable under the law. Therefore, PILs can be seen as a significant deterrent for the non-compliant industry at the same time important tool in helping raise awareness among the victims.

A purely judicial approach is neither economically efficient nor effective. However, it can play a significant complementary role as an indirect market based instrument in encouraging development of new and stricter legislation and also creating incentive for regulator to improve enforcement and for industry to improve compliance. Besides, it empowers communities to safeguard for their constitutional rights when the government fails to do that.

It would be fair to infer from above that the scope of the judicial approach is limited in that it may not have helped in getting compensation for the casual worker or workers in the informal sector. For instance, in 2006, the Supreme Court held, in Central Mine Planning and Design Institute Ltd (2006, 1, SCC 377), that a casual worker was not entitled to benefits under the Workmen's Compensation Act. Also, in reality even the orders of the Supreme Court have sometimes not been implemented. Yet, in many cases the courts have given clear directions to the governments and have held them accountable if they fail to pull out compliance from industry (case IV above).

A.9 International Context on Controlling Silica Related Disease

A.9.1 ILO Conventions and Recommendations ²³

The development of occupational health and safety legislation and enforcement standards is influenced by international instruments and related developments. e.g. formulation of national policy and national programmes is largely the outcome of ILO Convention "Promotional Framework for Occupational Safety and Health" Convention, 2006 (No.187).

International labour Organization (ILO) has formulated a number of Conventions and Recommendations dealing with health and safety of worker. The government of India has ratified some of the conventions. However, majority of the conventions related to occupational health and safety such as convention, 139, 155, 161, 162, 176, 184 and 187 are yet to be ratified.

A.9.2 ILO / WHO Global Program for the Elimination of Silicosis (GPES) ²⁴

The ILO/WHO Global Program for the Elimination of Silicosis (GPES) was established following the recommendation of the 12th Session of Joint ILO/WHO Committee on Occupational Health in 1995. The Committee identified the global elimination of silicosis as a priority area for action in occupational health.

The ILO / WHO GPES is targeting countries who consider eliminating silicosis among the priorities in occupational health and are willing to join it by establishing their national action programs. To date, countries such as Brazil, China, Chile, Thailand, Vietnam, and South Africa have established their National Programs for the Elimination of Silicosis and take an active part in the ILO / WHO GPES. There are forty-seven major national projects being implemented within the GPES framework, many of which are conducted by the WHO Collaborating Centres in Occupational Health.

Under the ILO/WHO GPES, activities have initially mainly focused on secondary prevention, upgrading of skills of occupational physicians in developing countries in using the ILO 2000 Classification of Radiographs of Pneumoconioses and strengthening national systems of workers' health surveillance. More recently a stronger focus has been placed on primary

prevention, promoting wider application of engineering controls and industrial hygiene methods.

Despite many obstacles, the idea of the global elimination of silicosis is technically feasible. Positive experience gained in many countries shows that incidence of silicosis can be reduced by using appropriate technologies and methods of dust control. The use of these technologies and methods is effective and economically affordable.

A.9.3 Silica as carcinogen

IARC has classified crystalline silica among group 1 carcinogens to humans based on epidemiological evidence from human and animal studies.²⁵ NIOSH has also listed Crystalline silica as one of the potential carcinogens in its list of carcinogens.²⁶

The evaluation of epidemiological studies has demonstrated excess of lung and other cancers risk in exposed population. In some studies, increasing risk gradients have been observed in relation to dose surrogates--cumulative exposure, duration of exposure, or the presence of radiographically defined silicosis--and, in one instance, to peak intensity exposure. The epidemiological findings support increased lung cancer risks from inhaled crystalline silica (quartz and cristobalite) resulting from occupational exposure.²⁷

A.9.4 International Trend in Permissible Exposure Limits for Silica

The U.S. and India have the same Permissible Exposure Limit (PEL) for airborne silica in the workplace. However, U.S. OSHA has suggested that it intends to revise the standard and we can anticipate a significant reduction in the PEL.²⁸ The PEL in the U.S. is based on a time weighted average airborne level that cannot be legally exceeded for an 8-hour shift during a 40-hour week.

The long term exposure studies suggest that the current PEL of 0.1 mg /m³ for quartz can not be considered safe specially in view of the classification of silica as human carcinogen, group 1. Hence, there is increasing call for a reduction of the exposure limits for silica. ACGIH and NIOSH are recommending reduction of exposure limits from the current 0.1 mg to 0.025 mg /m³ and 0.05 mg /m³ respectively.²⁹ In the UK the Health and Safety Executive (HSE) has set a maximum exposure limit (MEL) for silica dust of 0.3 mg/m³ (averaged over eight hours). This limit should not be exceeded and exposures should be reduced as far below this level as is reasonably practicable. However, HSE indicates that prolonged exposure to levels of silica dust below the MEL may still present a health risk and the agency recommends health surveillance for people who are exposed to more than 0.08 mg/m³ over an eight-hour time period.³⁰

In addition, in some countries like U.S. there is requirement that all products containing more than 0.1% silica should carry cancer warnings. There is no such proposal for reducing permissible limit for silica dust or for labeling products with silica in India at present.

Appendix B: Statement from the National Human Rights Commission meeting 2007

Close on the heels of the National Review Meeting on health, the National Human Rights Commission held a meeting on the issue of Silicosis on April 24, 2007 under the chairmanship of Dr. Justice Shivaraj. V. Patil, Member NHRC. The issue of silicosis, an

occupational hazard was flagged at the meeting on Health, held in the month of March 2007.

Officials from Ministry of Labour and Employment; Directorate General of Factory Advice Service & Labour Institutes, Mumbai; Directorate General of Mines Safety Danbad; Deptt, of Industrial Policy & Promotion, Ministry of Commerce & Industries; National Institute of Occupational Health, Ahmedabad; Ministry of Health & Family Welfare, Government of India, Indian Council of Medical Research besides those from National Human Rights Commission attended the meeting.

Almost all the participants stressed that there are government policies and provisions in place concerning the issue of Silicosis. Yet keeping in mind the seriousness of the issue, there is a need to work on the adherence as these policies and provisions are integral to the Factory Act 1948. They also voiced the opinion that these policies and provisions are being followed in the organized sector to a large extent but the problem arises in the unorganized sector where even minimum basic precautions are not being taken.

It was also highlighted that the ILO Convention 176 has not been ratified by the Indian Government, precisely because the industries have not yet reached a stage where they could adopt self-regulation for safety appliances of the workers. It was also said that it has to be seen whether the Factory Act is adequate and whether more needs to be added to the Act. It was also mentioned that basic engineering method should be adopted to reduce the dust and silica in the work place like construction site and reduce the pollution. Further, it was stated that there is a need to create awareness among Factory owners on the issue of Silicosis, which should also be accompanied with punitive measures.

NHRC expressed its concern that though the Factories Act 1948 had declared 'Silicosis as a notified disease' yet there is no authentic reporting system or statistics of the affected people. According to the report prepared by an NGO on the Jhabua district of Madhya Pradesh, it was observed that most of the workers were migrant from the neighbouring states. The study revealed that once a person was exposed to silica, the disease progresses even without further exposure. It was found that in a large number of workers the symptoms of the disease appeared after they went back to their native villages. The study pointed out that as Silicosis is a fatal and incurable disease, those having symptoms would eventually die. It was further stated that poverty or economic necessity forced people to take up such vocations leading to exposure to silica. It was highly felt that the disease had been ignored by Health, Labour and Industries Department or Ministries.

While concluding the day long deliberations, NHRC recommended the following short and long term interventions to be carried out. NHRC would be calling individual State authorities and monitor the execution.

Short Term Recommendations:

- Need to work aggressively to create awareness among workers, medical practitioners and employers about silicosis being a health hazard; electronic and print media to be utilized.
- Monitor the States identified with high number of cases of silicosis and the State should also issue notification under Section 85 of Factories Act so that entrepreneurs employing less than 10 labourers also come in the fold.

- To obtain the case study from Madhya Pradesh and to analyze as to how in a convergent and comprehensive way preventions, issue of health care and insurance had been incorporated.
- Collect surveys already available with different agencies to identify and map the pockets with incidence of silicosis. State government officials be summoned by NHRC to monitor effective steps taken.
- Need to work on deficiency and lethargy on the part of the State and enforcing agency.
- To launch a national programme for eradication of silicosis, a background paper is to be prepared by Shri S.K. Srivastava, Joint Secretary, M/o Labour.
- While organizing the National Review Meeting on Health either half a day be devoted to the issue of silicosis or a separate National Review on Silicosis need to be organized.
- There is a need to workout the compensation and its modality towards the victims or next of the kin.
- Select NGOs may be invited to make a presentation on the status of silicosis and share experience.

Long Term Recommendations:

- It is to be deliberated whether existing laws are adequate or not. Whether there is a need for separate/specific legislation dealing with the issue.
- There is a need to constitute a National Working Group. It may be termed as National Task Force on Silicosis or a National Core Group on Silicosis.
- The Group has to work within the given time frame on the issue and make recommendations which in turn may be taken up with the Central/State Government as the case may be.

The Group will consist of Dr. Justice Shivaraj V. Patil as Chairman Secretary General, NHRC - Member, Secretaries from Department of Labour, Industry, Health, Environment, Mines, Coal, Director General of Mines Safety, Dhanbad; Director, National Institute of Occupational Health, Ahmedabad; Director, National Institute of Miners' Health, Nagpur; representatives of Govt. of Andhra Pradesh and Gujarat and Joint Secretary, NHRC will be the Convener.

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