

## Asbestos Debate in India and South Asia

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### Abstract

#### **Introduction:**

*Asbestos use in advanced economies declined around 1980 but its use has been aggressively promoted in the South Asian region. India is the world's ninth largest producer and the sixth largest user with 14 large-, and more than 600 small-scale asbestos product manufacturers. Nearly 89% of asbestos mined in India comes from the state of Rajasthan, close to New Delhi. Indian asbestos is comprised of chrysotile mined in the southern state of Andhra Pradesh, tremolite in Rajasthan, and anthophyllite in the state of Karnataka.*

#### **Recent Developments**

*The Central Pollution Control Board of India (CPCB) has placed asbestos based units in 'Red Category' based on their polluting potential. A recent study commissioned by the Board found levels of asbestos in the Indian unorganized sector as high as 18.2 f/cc. The lowest mean fiber count was 2 f/cc, far above the strictest limits of 0.1 f/cc, which would still cause 5/1000 cases of lung cancer and 2/1000 cases of asbestosis. Appalling lack of health and safety measures further compounded this grim situation.*

*India gets 70% of its chrysotile from Canada which has been assisting the Asbestos Information Centre in New Delhi in promoting chrysotile asbestos use. The asbestos cement product manufacturers launched an advertisement blitz in the year 2002 claiming that chrysotile is safe to use and asserted that WHO and ILO, both advocate its controlled use. The Centre denies that any cases of mesothelioma are occurring in India as a result of chrysotile use. According to the ILO 20,000 asbestos related lung cancers and 10,000 mesotheliomas occur annually across the population of Western Europe, Scandinavia, North America, Japan and Australia alone, but developing countries have much higher risks of exposure. In such countries, asbestos is thus a time bomb, which looks set to lead to an explosive increase in asbestos related diseases and deaths in the next 20-30 years.*

### ***Conclusion and Recommendation***

*With no central mesothelioma registry, shortage of trained pathologists to correctly identify the disorder, lack of occupational safety and health arrangements specially for industrial hygiene assessment of exposure, India has a long way to go. Application of the precautionary principle, and placing a ban on all forms of asbestos use as practiced in Australia and Europe, may offer protection to millions at work and in the community. It could be decades before comparable standards of health and safety could be attained in India despite much stricter norms proposed by Bureau of Indian Standards.*

### **Introduction**

Globally about 20-30% of the male and 5-20% of the female working age population (people aged 15-64 years) have been exposed to lung carcinogens including asbestos, arsenic, beryllium, cadmium, diesel exhaust, nickel and silica during their working lives. Worldwide these occupational exposures account for about 10.3% of cancers of lung, trachea and bronchus.<sup>1</sup> The International Labour Organization estimates 610,000 – 635,000 deaths are annually caused by work related cancers. The asbestos component of this figure may be as high as 100,000 including lung cancers and mesothelioma, assuming that the world labour force is about 2.7 billions.<sup>2</sup>

The mounting evidence for respiratory diseases associated with occupational and environmental exposure to asbestos fibers, has led to diminishing demand for products containing the fibers in developed nations.<sup>3</sup> Thirty countries have imposed full or partial bans on the use of asbestos. Additionally, the European Union has voted to phase out the use of asbestos with exceptions by 2005. Recently Japan banned the use of asbestos; the ban came into force on 1<sup>st</sup> October 2004.

With this virtual elimination of asbestos industry in developed nations the emerging picture is that the mining, processing and manufacturing installations are flourishing in the developing countries. The key factors that have allowed the flourishing of asbestos industry in developing nations are:

- Cheap labour
- Greater legal flexibility in labour and environmental concerns
- Either absence or lack of updated legislation in occupational health, safety and hygiene
- Deficient governmental surveillance of compliance with existing laws, regulations and standards
- Lack of information about health risks of asbestos to workers and neighbourhood residents
- Lack of professionals in the field of occupational and environmental health

- Economic crises and unemployment in these countries
- Fiscal incentives for multinational companies
- Stricter occupational and environmental regulating controls in developed countries as well as the increase in legal demands of workers and population affected in developed countries.

### **Situation in Developed and Developing Countries**

In developed countries there are several mechanisms for the protection of the environment and workers' health. There are requirements for proper use, handling and disposal of hazardous materials and these are backed by compensation schemes and frameworks for expensive punitive litigation for offenders.<sup>4</sup> The information is more readily available and thus the negative impact of occupational exposure is less dramatic in developed countries.

In developing countries occupational and environmental pollutants that are perceived to be killing relatively less people over a long period of time are unlikely to receive priority attention.<sup>5</sup> The asbestos plants in developing countries are run without proper safety procedures. Even in government run operations protective legislation is not promoted and citizens' health is likely to be compromised.<sup>6</sup>

Under such conditions, to avoid the cost of regulation and lawsuits for damage, the multinational companies have looked to developing nations as sanctuaries to manufacture cheaply.<sup>7</sup> Under the General Agreement on Tariff and Trade (GATT) and the World Trade Organization (WTO), global corporations are free to export dangerous products and technologies to 110 nations, as they shop around for the cheapest labor costs and weakest environmental and public health protections.<sup>8</sup> The globalization of trade has brought new occupational hazards to many regions; for millions of workers the most immediate outcome of globalization is greater risk of illness and injury.<sup>9</sup>

### **Occupational Health Situation in South East Asian Region (SEAR)**

The WHO Regional Office in New Delhi conducted a situation analysis and a health survey of countries in the South East Asia (SEA) region in 2002.<sup>10</sup> The objective was to study the development of occupational health and safety in the member countries as well as their progress in implementing WHO Global Strategy on Occupational Health. Information was gathered on the following:

- General information on active workforce
- Present status of occupational health in the country
- General or major health problems of the workers by sectors
- Legal provisions for occupational health

- Administration of occupational health
- Institutions involved in occupational health
- Training and educational facilities for occupational health
- Health safety practices in occupational health
- Occupational health activities undertaken in the last 5 years.

The focus of the situation analysis was on assessing the policy on occupational health as well as infrastructure and capacity building. It emerges from the survey that a high proportion of workers are young i.e., below 24 years. The agricultural sector remains the major employment provider. A relatively low proportion of workers are organised. Some countries have a high proportion of casual workers and health insurance is a luxury. All this puts workers at a much higher risk of developing occupational illnesses with little or no compensation. Opportunities for training are few and far between. A scarcity of adequately trained occupational safety and health professionals further compounds the problem.

**Table 1. Age-wise distribution of Total Active Work Force<sup>10</sup>**

S. No.	Country	< 24 Yrs.	25-34 Yrs.	35-44 Yrs.	45-59 Yrs.	60+ Yrs.
1	Bangladesh	41.79	19.76	15.22	12.15	11.08
2	Bhutan	1.00	2.00	2.00	3.00	1.00
3	India	40.89	20.46	15.18	14.45	9.02
4	Indonesia	27.11	24.57	20.21	17.66	10.45
5	Maldives	49.04	20.12	11.72	11.27	7.86
6	Myanmar	38.13	21.06	15.86	14.99	9.96
7	Nepal	23.95	17.97	18.42	26.72	12.93
8	Sri Lanka	30.68	28.34	16.98	11.31	12.67
9	Thailand	31.74	23.52	19.00	15.28	10.47

The above figures are in percent.

Source: *Situational Analysis of Occupational Health in SEAR; WHO, 2002*

According to the National Institute of Occupational Health (NIOH), India, gross under reporting is a problem both for occupational illness as well as injuries. It is estimated that each year there are 17 million non-fatal and 45,000 fatal occupational injuries. Of the global burden, about 17% occupational diseases with 18% deaths due to illness take place in India, which is higher than for any other single country including China with a larger workforce.

The major occupational health problems in South Asian countries are due to numerous hazards with asbestos creating a significant risk. (Table 2) The major categories of occupational illness include silicosis, coal workers' pneumoconiosis, morbidity on account of exposures to dust containing **asbestos**, chemicals, and noise and vibration induced disorders and heat related disorders. High prevalence of silicosis in opencast mines and cottage industry raise much concern. (Table 3)

**Table 2: Major Occupational Hazards in SEAR**

Physical	Chemical	Ergonomic	Biological
<ul style="list-style-type: none"> <li>• Noise</li> <li>• Vibration</li> <li>• Heat</li> </ul>	<ul style="list-style-type: none"> <li>• Metals</li> <li>• Acids and alkalis</li> <li>• Pesticides</li> <li>• Solvents and dyes</li> <li>• Dust, and fiber hazards (silica, <i>asbestos</i>, cotton)</li> </ul>	-	-

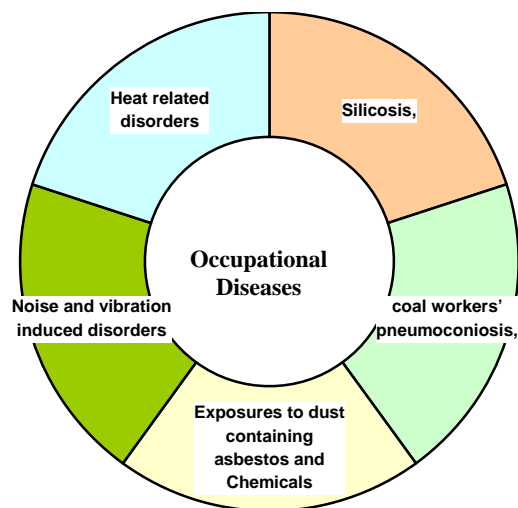
*Source: Situational Analysis of Occupational Health in SEAR; WHO, 2002*

**Table 3: Major Occupational Health Problems in SEAR**

General problems	General health problems
<ul style="list-style-type: none"> <li>• Lack of medical facilities</li> <li>• Workplace violence</li> <li>• Lack of job security</li> <li>• Adverse physical and climatic working conditions</li> <li>• Lack of training facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Malnutrition</li> <li>• Anemia</li> <li>• T.B. &amp; other communicable diseases</li> <li>• Accidents and injuries</li> <li>• Musculo skeletal problems</li> <li>• Respiratory diseases</li> <li>• Poisoning and hearing loss</li> </ul>

*Source: Situational Analysis of Occupational Health in SEAR; WHO, 2002*

**Chart 1: Major Categories of Occupational Illnesses in SEAR**



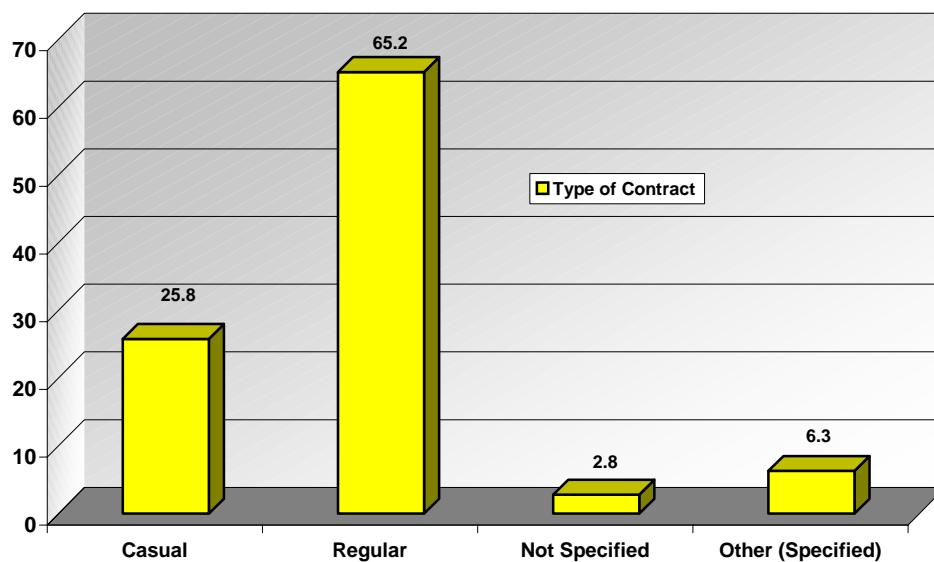
Source: Situational Analysis of Occupational Health in SEAR; WHO, 2002

**Table 4. Type of Contract in SEAR**

S.No	Country	Casual	Regular	Not Specified	Other (specify)
1	Bangladesh	304 (23.6%)	920 (71.4%)	62 (4.8%)	3 (0.2%)
2	Bhutan	13 (1.1%)	1096 (90.2%)	105 (8.6%)	1 (0.1%)
3	India	429 (39.3%)	496 (45.4%)	4 (0.4%)	163 (14.9%)
4	Indonesia	73 (6.1%)	817 (68.1%)	-	309 (25.6%)
5	Maldives	7 (7.1%)	57 (58.2%)	33 (33.7%)	1 (1.0%)
6	Nepal	48 (4.0%)	1130 (94.2%)	12 (1.0%)	10 (0.8%)
7	Sri Lanka	66 (6.6%)	887 (88.8%)	14 (1.4%)	32 (3.2%)
8	Thailand	1198 (100%)	-	-	-

Source: Situational Analysis of Occupational Health in SEAR; WHO, 2002

**Chart 2: Type of Contract in SEAR**



Figures given above are in per-cent

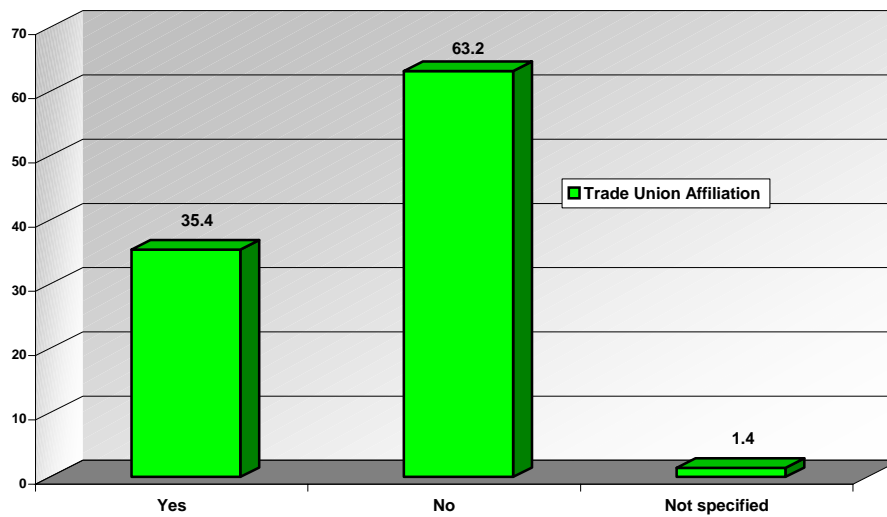
Source: Situational Analysis of Occupational Health in SEAR; WHO, 2002

**Table 5: Trade Union Affiliation in SEAR**

S.No.	Country	Employee having union affiliation	Employee having no affiliation	Employee Trade Union Not Specified
1	Bangladesh	502 (39%)	759 (59%)	28 (2%)
2	Bhutan	426 (35%)	762 (63%)	27 (2%)
3	India	513 (47%)	576 (53%)	3 (0.2%)
4	Indonesia	542 (45%)	657 (55%)	-
5	Maldives	1 (1%)	78 (80%)	19 (19%)
6	Nepal	471 (39%)	722 (60%)	7 (0.5%)
7	Sri Lanka	477 (47%)	493 (49%)	29 (3%)
8	Thailand	-	1195 (99.7%)	3 (0.2%)

Source: Situational Analysis of Occupational Health in SEAR; WHO, 2002

**Chart 3: Status of Trade Union Affiliation in SEAR**



Figures given above are in per-cent

Source: Situational Analysis of Occupational Health in SEAR; WHO, 2002

**Table 6: Health Insurance in SEAR**

S.No.	Country	Yes	No	Not specified
1	Bangladesh	24.2	73.6	2.2
2	Bhutan	44.7	54.3	12
3	India	27.5	72.4	1
4	Indonesia	46.5	53.5	-
5	Maldives	43.8	39.6	16.9
6	Nepal	23.4	76.5	0.1
7	Srilanka	-	97.9	21
8	Thailand	99.8	-	3

Figures given above are in per-cent

Source: Situational Analysis of Occupational Health in SEAR; WHO, 2002

### Asbestos Scenario in India

India is a major importer rather than producer of asbestos. Manufacturing industries in India use approximately 100,000 metric tons of asbestos fibers each year, most of which is chrysotile.<sup>11</sup> This asbestos is imported from countries such as Canada, Russia and Brazil. Only one-fifth, most of it tremolite, is mined in central and southern India.<sup>12</sup> The raw asbestos imported costs 400-500 million rupees annually and comes without being



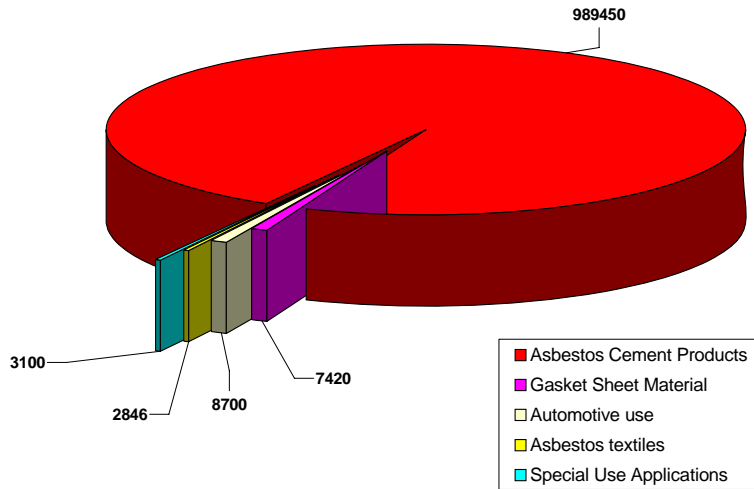
mentioned that it is a hazardous product.<sup>13</sup> The finished product is sent back with hazardous product warning.<sup>14</sup> There are no warning labels placed on the domestic products since it is not mandatory. Out of the total production of around 1.65 million tonnes/year, amphiboles account for about 40,000 tonnes i.e., 2% of the global production.<sup>15</sup> In India about 40 mines are in operation. The State of Rajasthan has the greatest number of milling and mining units with most activities undertaken in an open environment.<sup>16</sup> Despite restrictions, there is much illegal mining which is totally unsupervised. Overall, there are 13 large-scale and 673 small-scale asbestos operations in India.<sup>17</sup> The large- and medium-scale sectors are spread over about fifteen major states. Significant proportions of the small-scale sector and unorganized sector are located around the major urban centres.<sup>18</sup> It is estimated that some 6000 workers are directly exposed to asbestos and another 100,000 workers are employed by the industry. The annual sales of the Indian asbestos industry total around US\$500 million.<sup>17</sup>

**Table7: Consumption of Asbestos and No. of Units in Indian States**

STATE	No. of Units	% age consumption
Andhra Pradesh	2	15.86
Haryana	1	15.04
Tamil Nadu	5	12.90
Madhya Pradesh	2	11.76
Maharashtra	5	11.16
Gujrat	1	8.20
Uttar Pradesh	5	6.06
Bihar	2	6.02
Rajasthan	1	3.37
Kerala	1	3.32
Orissa	1	3.28
West Bengal	1	3.0
Delhi	2	-

*Source: Comprehensive Document on Asbestos Industry, CPCB, India*

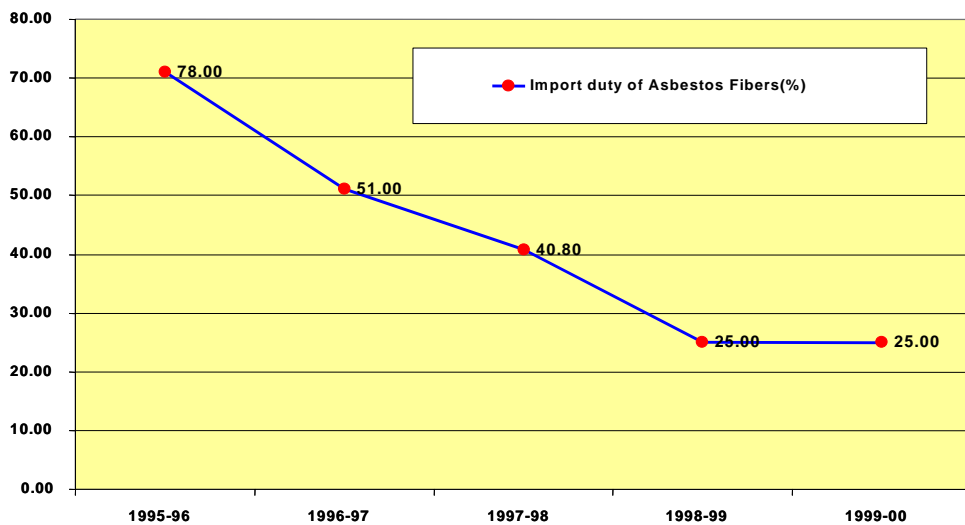
**Chart 4: Chrysotile Consumption in Different Products in India (in metric tons)**



Source: Comprehensive Document on Asbestos Industry, CPCB, India

Over the past decade, drastic reductions in import tariffs on raw asbestos and asbestos containing products have led to an expansion of the asbestos industry in India and increasing competition for small Indian owned mining companies. This has raised serious concern that India will become a dumping ground for asbestos as industrialized countries impose a ban on its use.<sup>19</sup>

**Chart 5: Import Tariffs on Chrysotile in India<sup>20</sup>**



The abysmal conditions under which Indian asbestos workers toil are not simply a consequence of inadequate legislation but rather are due to a convergence of factors. These include: the authorities failure to enforce existing regulations, a historically fragmented and internally divided trade union movement, and the activities of many occupational health physicians whose primary loyalty is to the companies that employ them. Several pieces of legislation are pertinent to conditions in the asbestos industry. The Workmen's Compensation Act of 1923, the Factories Act of 1948, the Metalliferous Mines Regulations issued in 1961, and the Environmental Protection Act of 1986 provide a legislative framework to regulate exposures and compensate workers. Much of the regulations remain on paper. The Basel Convention on the Control of Transboundary Movements of Hazardous wastes and their disposal, ratified by 148 countries, regulates the transport of hazardous wastes. In 1989, India passed the Hazardous Wastes Rules, legally enforcing the principles of the Basel Convention and thereby defining asbestos as a hazardous waste. In 1997 the Supreme Court of India prohibited the import of all hazardous wastes and created the High Power Committee to monitor enforcement.<sup>12</sup>

### **Legislation/Policies in India**

Management of mineral resources is the responsibility of the Central Government and State Government in terms of Entry 54 of the Union List (List I) and Entry 23 of the State List (List II) of the seventh Schedule of the Constitution of India. *The Mines and Minerals (Regulation and Development) Act, 1957* lays down the legal framework for the regulation of mines and development of all minerals other than petroleum and natural gas. The Central Government has framed *The Mineral Concession Rules, 1960*, for regulating the granting of prospecting licensees and mining leases in respect of all minerals other than atomic minerals and minor minerals, and *The Mineral Conservation and Development Rules, 1988* for conservation and systematic development of minerals. The State Governments have framed the rules in regard to minor minerals. *The National Mineral Policy, 1993* states objectives like minimizing adverse effects of mineral development on the forest, environment and ecology through appropriate protective measures and ensuring conduct of mining operations with due regard to safety and health of all concerned. However, these are only loosely enforced and monitored.<sup>21</sup>

The exposure of asbestos is covered under *The Environmental Protection Act, 1986*, which sets a limit of 4f/cc for environmental emission.<sup>22</sup> Under *The Factories Act, 1948*, the limit of occupational exposure is 2f/cc, which is under review and may be brought down to 0.5f/cc.<sup>23</sup> This will still be high compared to the standard of 0.1-0.5 f/cc prevailing in most developed countries. Under the Factories Act, asbestosis is mentioned as a notifiable disease but there is no mention of mesothelioma. However, under *The Mines Act, 1952* after a revision in 1995, the conditions of cancer of the lung, stomach and pleura including mesothelioma were also included in the list of notifiable diseases.<sup>24</sup>

Under *The Building and Construction Workers (Regulation of Employment and Conditions of Service) Central Rules, 1998* asbestosis is also included as a notifiable occupational disease but not mesothelioma.<sup>25</sup>

There have been few scientific studies of asbestos workers in India. Those that have been done, however, reveal levels of exposure to asbestos that exceed the official threshold limit value (TLV) established in India of 2 f/cc for chrysotile. (It is important to note that this value is 20 times higher than current standards in the United States and United Kingdom.)

**Table 8: Studies of Asbestos Workers in India**

Study Conducted by	Results
NIOH: in mines and milling units of asbestos in Andhra Pradesh <sup>26</sup>	<ul style="list-style-type: none"> <li>• 25% of 633 (surveyed population) had pulmonary function impairment;</li> <li>• 54.8% of 135 (milling workers) and 19.55 of 329 (mining workers) had radiological changes in chest X-rays.</li> </ul>
ROHC: Bangalore <sup>27</sup>	<ul style="list-style-type: none"> <li>• Fiber levels recorded were 33 times the prescribed threshold limit.</li> </ul>
NIOH: in asbestos cement plant in Gujarat.	<ul style="list-style-type: none"> <li>• 71% of 205 (exposed workers) had significant reduction in vital capacity;</li> <li>• 4% developed symptoms of parenchyma asbestosis.</li> </ul>
Industrial Toxicology Research Centre (ITRC), Lucknow	<ul style="list-style-type: none"> <li>• 6.78% workers had signs of diffuse interstitial fibrosis of the lung;</li> <li>• 14.58% had chronic inflammation in broncho-pulmonary tissues;</li> <li>• 18.65% workers had presence of asbestos bodies in sputum.</li> </ul>
Industrial Toxicology Research Centre (ITRC), Lucknow <sup>28</sup>	<ul style="list-style-type: none"> <li>• Maximum concentration of 15.6 fibers/cc and minimum of 4.06 fibers/cc</li> <li>• 6 workers diagnosed as cases of pulmonary asbestosis; 2 were exposed for &lt;5 years;</li> <li>• Asbestos bodies found in sputum of 32 subjects.</li> </ul>

## Conclusion

Despite significant progress in South Asia, occupational health & safety is still a low priority with few exceptions. Asbestos and other banned materials such as pesticides continue to be in use with little concern for health and safety. Millions of workers remain unprotected by any official statute. Lack of data on mesothelioma and other asbestos related malignancies present a major challenge in convincing the policy makers to act. The fact that Canada exports over 95% of all the chrysotile it mines suggests that while chrysotile is supposedly safe enough for foreigners, it is not safe enough for Canadians. All global free trade and investment ought to come with global responsibility. Application of the precautionary principle in the region will offer protection to millions at work, and in the community.

The Centre for Occupational & Environmental Health has been in the forefront of a Ban Asbestos movement in India. Despite severe opposition by the Asbestos Cement Products Manufacturers Association and a spiteful campaign launched to stall a scientific meeting, the centre successfully concluded an International Conference on Asbestos recently.

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