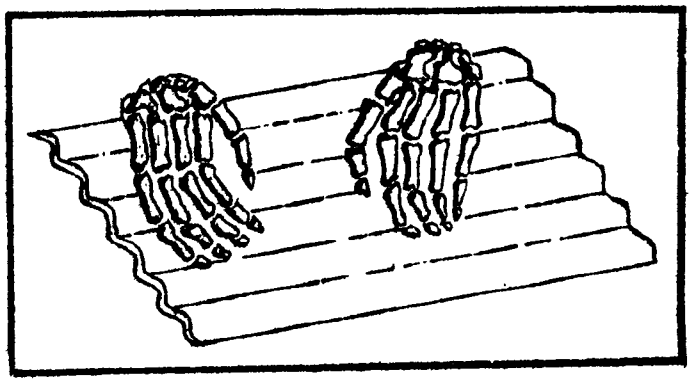
FILE NAME: ! ăōŜăűƨă ƛƴ˜LƴŘƛl· óLb5ú

DATE: мфуo Wdzfѐ

DOC#: Lb5лму

DOCUMENT DESCRIPTION: tdzōfƛăKŜŘ wŜLJƨℕűπ ! ăōŜăűƨăƳ ¢KŜ 5dzăű űKl·ű Yƛffă

asbestos : the dust that kills



COUNTERFACT NO. 5 A CED HEALTH CELL FEATURE JULY 1983

The killer fibre had penetrated the very essence of his being. His cough was more painful than ever. Each successive breath was a harsher rasp than the previous one. "Death's clutch", asbestosis had gripped yet another victim. This time it was S. Rajagopal, who joined Hindustan Ferado Limited (HFL), as an operator in the dust-prone breaklining and clutch facing department in 1961. Ten years later the disease struck.

The diagnosis pronounced by the Employees State Insurance (E.S.I.) medical team and private practioners was asthama or bronchitis. But a few months later another verdict was delivered by the Sion Hospital authorities - asbestosis.

His pleas to the management for a thorough medical examination went unheeded for a long time. Finally the management decided to refer him to Dr. G.G. Dave, medical inspector of factories, (Maharashtra). Dave's diagnosis was "acute bronchitis".

Unsure of Dave's conclusion, he filed a petition to the Chairman of Turner and Newall (the transnational corporation link in Britain), for a proper medical screening. In the meanwhile, his health deteriorated and the Sion Hospital authorities adviced immediate treatment. But he resigned from HFL, to collect his gratuity. Why? His wife was ill.

Rajagopal left the company but continued to fight. He filed a writ petition with the Bombay High Court, to set up an ESI medical board to examine him. The ESI board was constituted and the High Court suspended the writ petition.

In a preliminary medical interview with Rajagopal, the newly formed ESI medical board (Coimbatore) consisting of the Dean of the Coimbatore Medical College, the superintendent of the ESI hospital and a cardiac therapy specialist flatly ruled out even the remotest possibility of asthama or bronchitis. There was no mention on their part of the nature of his ailment. Rajagopal goes on to say that he even signed the papers

they presented to him ruling out asthama or bronchitis.

The examination consisting of a chest Xray and a blood and urine test was completed in September 1982, and Rajagopal watched and waited anxiously for the results. To his utter amazement, the medical board's diagnosis was "chronic bronchitis" and not "asbestosis".

Finding the results suspect and believing his ailment to be asbestosis, Rajagopal has filed a case before the ESI Court Bombay under section 75 of the ESI Act. He has questioned the credentials of the ESI Medical Board and demanded an examination by experts in occupational diseases, unless it is proved that the constituents of the ESI Medical Board were experts in occupational disease. He also demanded a submission of all his papers (case history/medical reports and certificates) by the Coimbatore ESI hospital to the ESIC court. If after a careful consideration of the case, the Court can prove that the medical board did not consist of experts in occupational diseases, Rajagopal is adamant that it should direct the ESI authorities to get him examined by experts in occupational diseases and grant him the consequential relief.

The hearing of the case came up on the 28th of April 1983, after which the Corporation appealed for time upto the 28th July 1983, to file in its written statement.

A long arduous protracted struggle already begun, will continue: the respondant - the ESI medical board (Coimbatore) the petitioner - a dying Rajagopal, trying to keep alive the last flicker of hope, that his success will not only vindicate him but also pave the way for thousands of similarly afflicted workers.

* * * *

What is this monster called asbestos? Where is it found? How does it endanger a worker's health? What is asbestosis? How does it affect a worker? What are the laws and controls for the regulation of the use of asbestos? How are they implemented? The following piece entitled, "Asbestos: The dust that kills", attempts to explore the answers to the above questions.

Asbestos derives its name from a Greek word meaning "unquenchable" an adjective that could well describe both the properties of the substance, as much as the thirst for profit that drives those who organize both men and asbestos for their commercial use. The Roman slaves who mined it in the Italian Alps 2000 years ago probably suffered from the same diseases as do workers in modern factories today. The technology may have changed but the conflict between health and profits remain.

Asbestos is a hydrous mineral silicate containing magnesium, aluminium, iron, scdium and calcium.

There are about six varieties of asbestos which can be broadly classified into 2 main groups:

- the serpentines: These are hydrous silicates containing magnesium. The white variety of asbestos called Chrysotile belongs to this group.

- the amphiboles: These are hydrous silicates chiefly containing iron and aluminium. They also contain calcium, sodium and magnesium. Crocidolite or blue asbestos which is perhaps the most dangerous variety, falls into this category.

Kinds of Asbestos

a) Chrysotile: The most commercially used variety of asbestos is a white, fine, silky, flexible, serpentine variety called chrysotile (white asbestos). It has the longest and strongest fibres and can be spun. It is primarily responsible for asbestosis.

b) Anthophyllite: Anthophyllite like chrysotile is white and contains magnesium. It is brittle.

c) Crocidolite: It is also called blue asbestos, because of its colour. It mainly consists of iron. Even a short exposure of a few months, can give rise, upto 20 years later, to mesothelioma of pleura (cancer of the membranous lining of the lungs).

d) Amosite: Amosite is a straight brittle fibre ranging from light grey to pale brown in colour.

e) Actinolite and (f) Tremolite: They consist mainly of calcium and are used in filters, papers, etc.

The minerals exist in several forms and differ in their physical properties and chemical composition, but they are similar in their fibrous nature and flexibility. Asbestos is a very versatile material. It is fire resistant, insoluble in water, resists corrosion by a large number of chemicals, has high tensile strength, is abunduntly available, and is very cheap.

USES OF ASBESTOS

Asbestos has over 3000 commercial applications and is used for both domestic and industrial purposes - as pipes, insulation boards, protective clothing, rope production, heat and sound insulation for plant & building structures, mattresses, roof sheeting, brakelinings, clutch facings and several other articles of daily use. It is effectively integrated as a filler, binder and as a reinforcing substance with other materials like cement and rubber.

We therefore encounter asbestos on an increasing scale in several places (see box 1) and it is not surprising that industrial interests insist that there is no adequate substitute.

Box 1.

The industries using asbestos.

1. Docks and transport - handling sacks & bails.
2. Asbestos factories - milling, weaving, turning, - manufacturing asbestos cement sheets and pipes.
3. Power stations - lagging and delagging.
4. Iron and Steel works and other heavy engineering industries - boiler furnace insulation.
5. Locomotives and rail carriage building - heat and sound insulation.
6. Ship building and repairing - asbestos insulation, lagging and delagging.
7. Paper making - filter papers.
8. Manufacture of floor tiles, mats & roofs - linoleum and asbestos sheets.
9. Adhesive and plastic manufacture - used as fillers for strengthening.
10. Automobile industry - brake shoes linings, and clutch facings, insulated under the body of cars.
11. Light engineering - gasket washers etc.
12. Packaging manufacture.
13. Construction - laying of pipes and fitting of sheets on insulation boards, asbestos spraying on walls.
14. Electrical engineering industry - insulation.
15. Insulation mattress manufacture.
16. Asbestos textile manufacture - safety clothes.
17. Chemical plants and heat treatments shops-linings of furnances, boilers & chimneys.

(Source: Asbestosis: A Killer disease: Audyogik Jeevan Manch)

HOW ASBESTOS IS PROCESSED

Before asbestos appears as an everyday commodity it is processed by human labour - an operation which consumes both the raw materials, labour and the labourer. There are basically two processes involved in the manufacture of asbestos -- the wet and the dry. In the former, water is added to a dry mixture of asbestos and cement. A slurry is formed. This is moulded and extruded with heat and pressure. In the dry process, the asbestos fibres are fluffed and combed. For instance, in the textile industry the fluff is mixed with cotton before carding; and the later is spun and woven, in a dry state. Both processes expose workers and the environment to asbestos dust, fumes, and heat. It is chiefly the dust which enters the worker's lungs that leads to the depreciation of the labourer's health and life, but a "depreciation", that never enters into the calculation of cost.

The handling and use of asbestos therefore raisestwo problems:

1. The problem of protecting asbestos workers from a number of asbestos-related diseases like asbestosis and cancer.
2. Protecting the environment from pollution and the risk of cancer for the population.

HOW ASBESTOS AFFECTS THE WORKER

Asbestos fibres enter a worker's body insiduously. The most dangerous fibres are those which cannot be seen by the naked eye (less than 2 microns thick). They are able to pass through the natural filter system of the nostrils and the mucous lining of the airtubes, and accumulate in the airsacs of the lungs, turning the elastic tissue of the airsacs into rigid fibrous tissues. This is called asbestosis. This condition obstructs the free exchange of gases in the lungs and thus impairs the lung function.

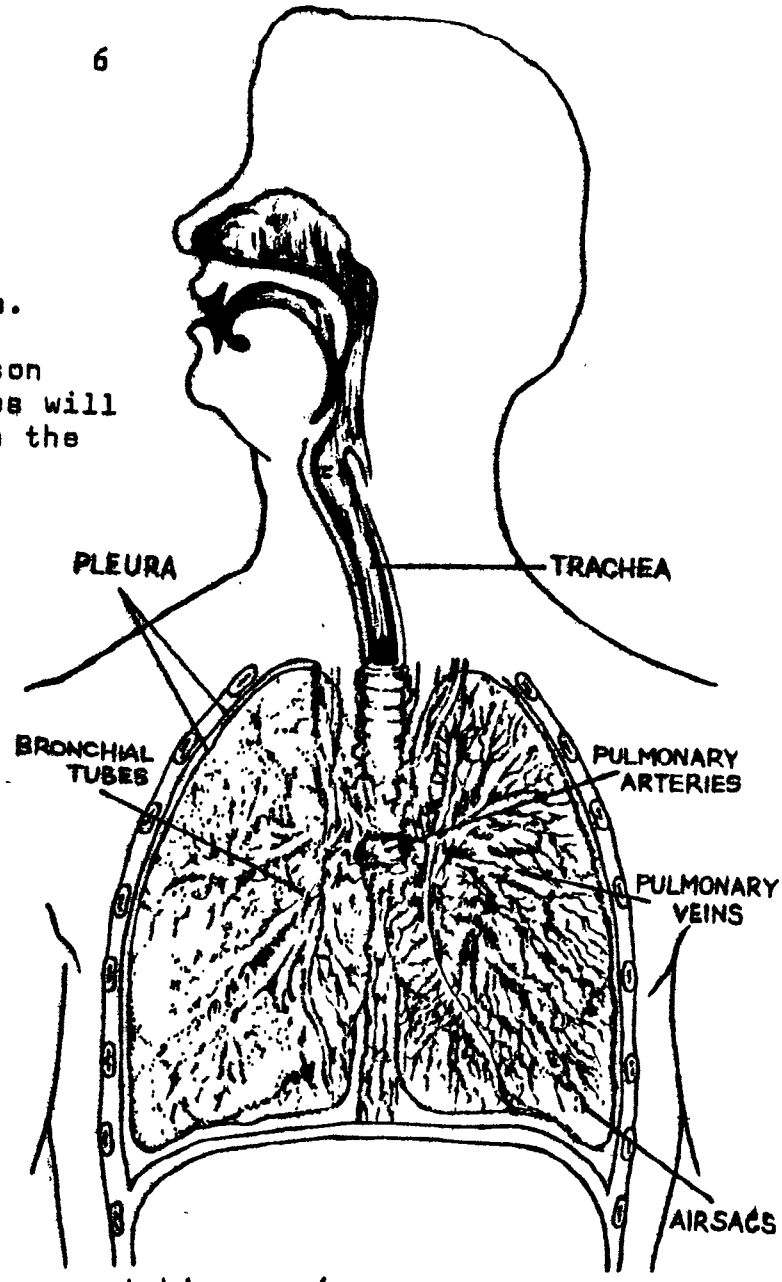
SIGNS AND SYMPTOMS OF ASBESTOSIS

* Difficulty in breathing.
* Crackling sound during breathing.
* Breathlessness on exertion.
* A Dry cough.
* Weight loss.
* 'Finger clubbing' - (thickening around the base of the nails.)

DIAGNOSIS OF ASBESTOSIS

There are several methods used to diagnose asbestosis.

1. The sputum test: A person inhaling asbestos fibres will show asbestos bodies in the sputum. These bodies consist of asbestos fibres surrounded by various proteins and iron particles and can be identified under a microscope. This test employed in isolation does not conclusively lead to a diagnosis of asbestosis, because people in industrial communities may have asbestos fibres in their lungs which are otherwise normal. The presence of asbestos bodies in the sputum, however, confirms exposure to asbestos.



2. Asbestos bodies in the lungs at biopsy. (severing a lung section for examination).

   In asbestosis, a lung-biopsy reveals a large number of asbestos bodies in the lung. They appear in smears of fluid scraped from a lung surface.

   But this is a random method of diagnosis as the severed lung section may not contain any fibres

3. Radiographic appearances. (Xray findings)

   Fibrosis (rigid fibrous lung tissue) in asbestosis occurs as a fine network in the lungs. The network resembles ground glass or fine cobweb.

4. Respiratory Functions tests.

These are tests to check the respiratory function of the lungs but are of little value in diagnosing asbestosis in its infancy. A series of readings over the previous years must be obtained. Loss of elasticity and rigidity of lung tissue, and a decreased capacity for gas exchange signify an impaired lung function.

A combined usage of these tests, together with symptom detection will lead to a more accurate diagnosis of asbestosis. In fact, the Pneumoconiosis Medical Board of the U.K. has clearly laid down that any worker suffering from even two of the symptoms, of asbestosis, and has been exposed to asbestos at work, is immediately certified as suffering from asbestosis. (This is in sharp contrast to the situation in India, as indicated in the Rajagopal case).

Asbestosis, which is time and dose related, appears two to thirty-five years after the first exposure. Once the disease sets in,it progresses even after the worker is prevented from further exposure. It even paves the way for lung cancer. The risk of contracting asbestosis is minimal below certain exposure levels. Smoking increases the risk of contracting the disease extensively.

INCIDENCE OF ASBESTOSIS

Recent studies from different parts of the country indicate a high incidence of asbestosis:

1. In a survey of an asbestos cement unit in Faridabad, a Central Labour Institute (CLI) researcher found, that out of 850 workers, 58 suffered from asbestosis and 58% experienced changes in the functioning of the lungs.
2. A similar study of 800 workers of Asbestos Cement Ltd. Bombay, conducted by the National Institute of Occupational Health, (Ahmedabad) revealed that out of 800 workers, 224 suffered from more advanced stages of asbestosis. While the management flatly denied these figures, the study also noted that another 128 workers had contracted the disease as well, although it had not reached the later stages.

The widespread and as yet under-reported incidence of asbestosis is perhaps best summed up by Dr. S.R. Kamat, head of the faculty of thoracic medicine, G.S. Medical College, Bombay, who notes, "There is no doubt that one third of the workers in asbestos factories are suffering from asbestosis".

Besides asbestosis, the other diseases related to asbestos dust exposure are: pleural plaques, pulmonary tuberculosis, mesothelioma of the pleura and peritoneum, lung cancer and cancer of the stomach, oesophagus, colon and rectum.

PLEURAL PLAQUES

Pleural plaques are present in asbestosis. They appear as fibrous scars on the external lining of the lung. This is due to the irritation caused by the asbestos fibres which are lodged in the external lung lining. Pleural plaques are nodular or smooth. They are composed of firm white material, which may be seen on an X-ray if there is calcium deposition.

PULMONARY TUBERCULOSIS (T.B. OF THE LUNGS)

Research indicates a definite association between tuberculosis (T.B.) and exposure to asbestos dust. In one study in the U.K., out of 82 patients who died of asbestosis, 36% were also suffering from T.B.

MESOTHELIOMA OF THE PLEURA AND PERITONEUM

(cancer of the membranous lining of the lung and abdomen)

Mesothelioma is a tumour occuring on the membranous lining of different organs. As an asbestos-related disease, it occurs on the membranous lining of the lungs (pleura) and abdomen (peritoneum). Pleural and peritoneal tumours occur either alone or together.

The following are the signs and symptoms of mesothelioma:

1. Breathlessness accompanied by chest pain.
2. Cough and blood in th sputum.
3. Accumulation of straw-coloured or blood-stained fluid in the lung's lining (pleura).
4. Thickening of the pleura and enlarged growths (tumours).
5. Lung Collapse.
6. Malignant cells in the lining of the lungs and abdomen.

Blue asbestos is about ten times more likely to cause mesothelioma than the white variety, and some experts claim that just five minutes inhalation of blue asbestos dust can produce mesothelioma even twenty years later. Smoking apparently does not increase the risk of mesothelioma. However, families of workers exposed to asbestos dust from work clothes do face the risk of this kind of cancer. People living near asbestos factories and mines are also in danger of contracting the disease.

This is a fatal disease. There is no drug, surgical or radiation treatment that can cure it.

LUNG CANCER

Lung cancer is yet another asbestos related hazard and often follows asbestosis. It occurs in the lower lobes of the lungs. The risk of its contraction is greatest in the workers exposed to high levels of asbestos dust, especially in those who smoke. The risk of contracting lung cancer is 90 times greater in smokers than in non-smokers.

This form of cancer was first reported by Merewether (Medical Inspector of Factories in the U.K.) in 1947, based on a study of 235 death certificates recording asbestosis. Other studies confirm this.

CANCER OF THE STOMACH, FOOD PIPE, LARGE INTESTINE AND RECTUM

These forms of cancer are also caused by exposure to asbestos fibres.

The method of diagnosis for mesothelioma and the other forms of cancer is a biopsy.

According to an article by J. Kumar in Science Today, no case of cancer due to asbestos has yet been notified in India. This can be due to the fact that asbestos workers are not followed up after they retire and occupational histories of cancer patients are not recorded. In cross-sectional studies of workers, it is difficult to find a person who is still working while suffering from lung cancer or mesothelioma of the pleura.

There are, however, several studies confirming the widespread occurence of mesothelioma, lung cancer and cancer of the stomach, oesophagus, colon and rectum in the West.

INCIDENCE OF THE CANCERS

1. In a study conducted by Dr. Irving J. Selikoff (Mount Sinai School of Medicine, New York), of 632 asbestos insulation workers in New York and New Jersey between Jan 1943 and Dec. 1974, it was revealed that there were 35 deaths of mesothelioma - 10 pleural and 25 peritoneal. There were 42 reported deaths of lung cancer, 20 deaths of cancer of the stomach and food pipe and 23 deaths of cancer of the large intestine.
2. In another study, conducted by Irving J. Selikoff, of 17,800 asbestos insulation workers in the United States and Canada (International Association of Heat and Frost Insulators and Asbestos Workers, AFL-CIO, CLC), between Jan 1, 1961 and Dec 31, 1973, the wide prevalence of cancer was established. There were 36 deaths of pleural mesothelioma and 67 deaths of peritoneal mesothelioma. It was further revealed that there were 321 deaths of lung cancer, 16 deaths of stomach cancer, 14 deaths of cancer of the food pipe and 39 deaths of cancer of the large intestine and rectum.
3. In 1967, 17 fatal cases of pleural mesothelioma were reported in the small town of Manville in New Jersey. By 1973 there were 72 victims of this cancer in this town of 15,000 people, where the giant U.S Corporation Johns-Manville still has its largest Manufacturing Plant.

REACTIONS IN THE WEST

An avalanche of medical literature and new found public knowledge about the toxic nature of the silicate, has unleashed massive public opinion and protest in the West. This has led to a plethora of legislation to control and regulate the use of asbestos in the manufacturing process and otherwise. Technology in the west has geared itself to devising engineering controls, a variety of personal respiratory protective equipment and care in layout planning. These measures would help to effectively reduce dust levels inside the work premises to 2 fibres per c.c. - 0.2 fibres per c.c., for different varieties of asbestos fibres. (The Asbestos Working Group in the U.S. reported in 1980 that there is no safe exposure limit for asbestos and that all commercial and several non-commercial forms of asbestos cause disease. It recommended a new standard of 0.1 fibre per c.c. as the maximum exposure limit. This is the smallest quantity that can be measured by techniques currently available). (See box 2 and 3. U,K. asbestos code and U.S. occupational Health & Safety Act.)

BOX 2

Asbestos Safety Code in the U.K.

1. Asbestos dust can cause lung diseases and there are strict regulations governing the manufacture and commercial use of asbestos products.

   For the home handyman and domestic user of asbestos products it is very unlikely that harmful quantities of dust will escape in normal use. As a precaution they are advised to avoid creating and breathing asbestos dust.

   (1) Dampen the work: damp dust does not become airborne and is not inhaled. Do not sand wall plugging compounds, unless damped. When relining car brakes, remove the dust from brake drums with a damp cloth.

   (2) Damp any dust that falls to the floor. Pick it up as soon as possible and place it in a plastic bag and seal the bag.

   (3), Work in well-ventilated space e.g. outdoors while sawing, filing, drilling, sanding.

   (4) Use hand saws and drills which produce less dust than power tools.

   (5) Renew worn or frayed asbestos insulators.

(Source: Occupational Hazards: Hunter)

BOX 3

Basic features of the U.S. Occupational Safety and Health Act related to asbestos:-

1. Permanent structural changes to make the workplace safe.
2. Tools generating dust must have exhaust systems at the point of contect of tools.
3. Respirators to limit the amount of dust inhaled are permissable only if engineering controls are under construction. They cannot be a substitute for engineering controls.
4. Asbestos must not be used loose, waste must be sealed in polythene.
5. Warning signs at workplace and on all products of asbestos.
6. Protective clothing and separate lockers for work and street clothes.
7. Prescribed standard of an average of 2 fibres/c.c. for an 8 hour shift. Monitoring of air at a 6 month interval.
8. If a worker is exposed to excess dust (above the standard) then he must be informed within 5 days.
9. Comprehensive medical examination once a year.
10. An individual worker or Union can complain directly to the state authority. The reply must be displayed near the workplace.
11. A Union Representative in every factory (called 'walk-around' representative) will accompany the factory Inspector on his visits and sit in on all discussions between Inspector and Management.

(Source: Asbestos: The killer disease, Audhyogik Jeevan Manch)

The industry, has however, tried to skirt the stringent controls with an uncanny slyness. Litigation has uncovered proof that the industry was not only aware of the developing medical literature on asbestos, but was actively tampering with the scientific reports of the studies and suppressing reports of other studies. As a sequel to these revelations and others, there has been a move in the U.S. Congress to declare these as federal crimes.

The International asbestos industry's own view of its responsibility to label its products as potentially lethal was recently revealed by the disclosure of an internal memorandum of the Asbestos International Association dated 7th July 1978.

According to the memorandum, the industry was unanimous in the view that the best warning label was none at all. Many participants felt that if the use of a label was absolutely unavoidable it would be advisable to adopt the U.K. label which merely states "Take care with asbestos".

Workers and their unions, (particularly in the U.S.A.) still vehemently insist on managements adherence to workplace regulations, incentive payment for hazardous work, the stoppage of asbestos usage and the search for substitutes. Insurance carriers have raised workers compensation insurance rates for employers who continue to use asbestos. In courts, several thousand victims of asbestos cancer have so far sued the industry for knowingly marketing deadly products while making no efforts to inform product users of the timebomb danger of breathing in asbestos dust.

The law suits which are on the increase each day cost giant corporations like the Johns-Manville, Owens Corning, Armstrong and a dozen others and their insurance carriers several billion dollars in damages.

As a result of mounting public pressure, tight legislation, skyrocketing law suit charges and swelling compensations to workers, the consumption of asbestos has decreased in the West. By 1980, the Johns Manville Corporation had closed down four asbestos cement pipes and manufacturing plants in the U.S. alone.

But the company still persisted in sustaining itself with a dogged determination. According to a Business India article, on the 26th August 1982 the company filed for protection under Chapter II of the U.S. Bankruptcy Code, which shields a concern from creditors law suits. It is also suing for $5 billion in damages from insurers alleging tardy settlement of its claims on them.

Multinational companies ruthlessly continue to manufacture and aggressively market asbestos to third world countries where some or all of the following factors ease their entry:-

1. The local elite are willing to import raw asbestos or use the fibre in the manufacture of various products.
2. There is a high demand for the raw fibres and finished asbestos products.

3. Labour is cheaper.
4. The political climate is stable.
5. Goverment legislation and controls are lax.
6. The levels of working class and public consciousness is in its initial stages of development.
7. The extent of unionization is low.

The western corporate magnate's profit is intact: The Third World capitalist makes his cut. The worker in both countries is doomed to a slow and agonizing death. India is one such example.

THE ASBESTOS INDUSTRY IN INDIA

The asbestos industry in India employs over 7000 people in twenty units, spread over Andhra Pradesh, Gujarat, Maharashtra, Tamil Nadu, and Haryana. All the large units are either subsidaries of multinationals or collaborations. (see box 4)

BOX 4

The following table is a list of the majot asbestos companies in India, their products and their linkages.

Name of the Company	Product	Transnational Corporation Link.
Hindustan Ferado.	Brakelinings, sheets, yarns, jointings, textile, mattresses, millboards, packing cloth.	Turner & Newall (U.K.) (T&F)
Hyderabad Asbestos	Sheets, millboards, pressure pipes, jointings, thermal insulation.	Johns Manville USA (T) and Societe Italiana
Hyderabad Asbestos	Sheets	Turner & Newall (U.K.) T&F
Shree Digvijay Cement Co.	Sheets and pressure pipes.	Johns Manville
Sundaram Abex.	Friction materials like brake linings.	U.S.A. (T&F) Abex Inc. USA (T&F)
Suri Asbestos Industry.	Textiles, ropes, packings, yarn, laggings, jointings.	Johns Manville (T&F) U.S.A.
Ranc Brake Linings.	Brake linings and clutch facings.	Small and Parkers U.S.A. (T&F)
Reinz Talbros	Asbestos Jointings	Reinz Dichtung - A.G. West Germany (T&F)

* T: Technical
* F: Financial

(Source: DGTD Handbook of Foreign Collaborations 1980)

In 1977, 11 units produced 4.1 lakh tons of asbestos cement sheets. This is .4% of the total value of industrial production in India, while in the same year by comparision the total bicycle production was 15.37%.

Most of the asbestos used in India is imported and only about 20,000 tons is mined in Andhra Pradesh, Bihar and Rajasthan. (See box 5)

Box 5

Imports of Raw Asbestos.

Year	Metric tonnes actual Imports
1978-79	62,707
1979-80	75,470
1980-81	84,264
1981-82	80,854

Portwise imports are in the approximate range

(a) Bombay - 60%

(b) Madras - 20%

(c) Calcutta 20%

(Source: M.M.T.C.)

BOX 6

Company	Sales of larger companies Metric Tonnes		Net Profit lakhs	
	1980-81	1981-82	year 1981	1982
Hindustan Ferado	4000	4000	98.34	33.79
			year 1981	1982
Hyderabad Asbestos Cement.	30,000	23,000	344.52	336.66
Asbestos Cement	18,000	18,000	-	-
			n.p. after depreciation, taxation, and investment allowance.	
			1980 year	1981
Shri Digvijay Cement Company.	9,000	15,000	67,27	74.42
			n.p. after tax.	
			year 1982	1983
Sundaram Abex.	500/1000	1500/2000	0.24	0.51
			n.p. before depreciation and tax	
			year 1979	1980
Rane Brake Linings.	1,000	1,500	68.64	89.80

(Source: for sales M.M.T.C.)

(Source for profit CMIE News clippings)

n.p. = Net Profit.

LEGISLATION IN INDIA

With intensifying debate and growing consciousness about the health hazards of asbestos, asbestosis has been incorporated as a notifiable disease in India, in an amendment in 1976 to the Factories Act of 1948.

The following are the salient features of schedule 14 of the Factories Act, applying to asbestos workers:-

* It applies to factories in which asbestos is handled and manipulated in various process es (The provision of the schedule can be relaxed or suspended by the Chief Inspector of factories, if he is convinced (i) that the use of asbestos is restricted or temporary. (ii) and therefore will not endanger the worker's health. This certificate can be revoked at any time).

* All manufacturing and conveying machinery must be fitted with a mechanically operated exhaust draft, to suppress dust release.

* Mixing and blending of asbestos fibres should not be done by hand but with a mechanically operated exhaust draft, to prevent dust generation.

* The making or repairing of asbestos insulating mattresses must be carried out in an isolated room with adequate exhaust and ventilation equipment.

* Only workers engaged in filling, beating or levelling should be present.

* Floors, benches, covers and fibre filled mattresses should be dampened whilst filling, beating or levelling is carried on.

* Storage chambers, bins containing loose asbestos, dust filtering and setting appratus should not be kept in a workroom. Suitable methods of storage should be found.

* Arrangements should be made to prevent dust discharge from exhaust apparatus.

* The floors, benches and plant should be kept clean and free of asbestos debris.

* The room should be well-lit.

* Sacks used as asbestos containers should be cleaned by machines and made of impermeable material.

* All ventileting and exhaust equipment should be tested at least once in six months and the defects rectified.

* A register containing these records must be maintained and should be made available to the factory inspector on demand.

* Breathing apparatus, overalls and head coverings must be provided for those engaged in handling loose asbestos, cleaning of dust settling or filling chambers and other equipment, and those engaged in filling, beating or levelling in the manufacture of insulating mattresses.

* No young person should be employed in or in connection with the manufacture of insulating mattresses, blending or mixing of asbestos by hand, in sackcleaning, in chambers or apparatus for dust settling or filtering, in chambers containing loose asbestos or in stripping or grinding the cylinders, including the doffer cylinders or any other part of the carding machine.

MEDICAL PROVISIONS IN THE LAW

* A person is employed only after a fitness certificate is awarded by the medical inspector of factories or certifying surgeon after a medical examination.

* Every worker should be X-rayed by a qualified radiologist at the cost of the employer, before he is employed.

  The X-ray should be submitted to the medical inspector or certifying surgeon within three months of the examination date.

* Medical examinations should be conducted by the medical inspector of factories or certifying surgeon at intervals of twelve months after the first medical examination.

* The Medical Inspector of factories or certifying surgeon can direct the employer to arrange for an X-ray of a worker at the employers own cost, whenever it is necessary, the X-ray must be then handed over to the medical inspector/certifying surgeon.

* A worker who is declared unfit to work on processes specified in the Schedule is banned from working on the same unless an X-ray is taken at the employers cost and the worker is once again certified fit. During such time he may be permitted by the Medical Inspector or Certifying Surgeon to work on any other process which may be safer. This is allowed if the medical inspector is convinced that the worker is not totally incapacitated.

* The Medical Inspector or Certifying Surgeon can direct a worker for radiological, clinical or pathological examinations or any special treatment at the expense of the employer, if he thinks it is necessary.

* The Certifying Surgeon should after each examination grant a certificate which the manager must maintain in a proper register or file, and produce before the inspector on demand

* The manager should maintain the details of every medical examination and the register shall be produced before an inspector whenever demanded.

LOOPHOLES IN THE LAW

The law framed by a goverment which represents the interests of private enterprise, is bound to mirror the interests of private industry and management. Both in its formulation and implementation, the schedule is ridden with loopholes, which are taken maximum advantage of by industrialists in their drive for profit.

The following are the major loose ends in the Schedule:-

* More dangerous diseases like lung cancer and mesothelioma continue to be left out of the scope of the Schedule.

* The power of the Chief Inspector to relax or suspend provisions can be misused at the behest of the management or in his "own interests".

* While the Schedule states that "no young person" should be employed in or in connection with certain manufacturing processes, the term "no young person" smacks of gross ambiguity.

* Provisions have been laid down for the suppression and control of dust within the factory premises but not outside the plant. This is likely to affect the people in the vicinity of the factory.

* A provision for separate lockers for work uniforms and ordinary clothes has not been made, leading to contamination of the latter.

* There are no clear cut technical specifications outlined for the nature and quality of the respiratory apparatus, protective clothing and engineering controls. Managements therefore have no qualms about providing inferior quality and inadequate equipment.

* There is no mention of a ban on blue asbestos which is banned in other parts of the world.

* There is no indication for fixing warning labels on the asbestos products.

* There are no provisions for workers' access to their own medical reports and the factory inspection assessments.

* Furthermore, workers do not have the right to information regarding the materials they use and the production process itself.

* The activities of asbestos companies are veiled in secrecy and the only people who can examine them are the factory inspectorates. The goverment and its related agencies and institutions are also fighting shy of exposing 'revealing' and 'controversial' research reports on occupational health hazards.

  A case in point is Central Labour Institute, that has been withholding from the public its detailed studies on the Shree Digvijay Asbestos Plant in Ahmedabad and others. A provision should be made in the law to grant permission to journalists, researchers(govt. and private), social workers and the like to conduct surveys and publish their reports for the public. Permission to take photographs of the plant must be granted.

* Constitutional litigation is frustrated by redtape, nepotism, bribery, and unending delays making a myth of justice. The petitioner often looses faith in the judiciary and his will is ground to a halt.

* As per the provisions of the Factories Act it may be pointed out that the inspector has a series of functions ranging from checking of licenses to health and safety measures. He has to conduct inquiries in the case of accidents and attend courts too. It is ironic that, the last National Labour Conference, 10 years ago recommended 1 inspector for 150 factories. In Maharashtra there are instances of the ratio of inspectors to factories approximating 1:190. It is no wonder then, that among other things, a facile circumvention of an already impotent law is possible.

CASE STUDIES

Not only are there blatant shortcomings in the law, it also remains a paper tiger which is flagrantly abused and flouted at every stage. It may be interesting to note that 2 years ago there was a fiery debate in the U.K. on the conditions in Indian asbestos factories and the double standards adopted by multinationals to which these Indian Companies were linked. This was sparked off by a report in a popular scientific journal in the U.K. The heated debate left the Indian public and worker untouched. Public and worker consciousness about the health hazards of asbestos continues to be in its infancy here. Besides being unaware about the health problems caused by asbestos, workers are blissfully ignorant about the materials they handle and the production process they are engaged in. They are un-informed about their legal rights and have no access to their medical reports. Due to the legal implications involved, factory medical officers rarely identify asbestosis. A Times of India report dated February 11, 1983, states that asbestosis is even deliberately confused with T.B. and bronchitis to avoid legal implications and compensation costs. More often than not, when asbestosis is diagnosed, the management retrenches the worker.

Case studies of the Asbestos Jointing Unit at Andheri, the Shree Digvijay Asbestos Cement plant in Ahmedabad and Hindustan Ferado Limited in Bombay, are examples of the appalling conditions and brazen evasion of the law found in asbestos factories in India.

I The Asbestos Jointing Company at Andheri employs 70 workers. It manufactures joints for insulated pipes. The hazards in this unit are primarily of materials handling. There are 5 basic processes involved in the manufacture of joints:-

* Fibre storage and handling which exposes the worker to dust.
* Mixing of fibres with rubber, petrol and benzene in high heat conditions. The emission of benzene and petrol fumes and the generation of asbestos fibres in cleaning and maintenance operations is hazardous.
* Sheet making and cutting under high heat conditions, resulting in fatigue and exhaustion.

* Shearing which generates dust and

* Shredding operations. Two cyclone machines are involved in the shredding process. The loading into the machines is done with bare hands. Spillage occurs at two points:-

(a) when the cyclone works at the loading bay and

(b) where bags are filled by a vaccum system. The bags are coated with a film of fibre which gets lodged beneath the worker's skin to form a corn.

The Asbestos Jointing Company outrageously violates the conditions and regulations laid down by the Factories Act.

1. Though the plant has stopped using blue asbestos, piles of white and blue asbestos are heaped outside the unit, polluting the environment. This is in contravention to the storage norms prescribed by law.

2. The workers are not provided with gloves and there are no washing and changing facilities.

3. Though the law provides for the provision of proper breathing apparatus, and head covering, the management has provided them with cloth masks which is a piece-meal measure. The cloth masks have no filter system. They get clogged with asbestos fibres which the workers inhale. Often the workers find the mask so uncomfortable that they remove them.

4. There is no local exhaust system (vaccum suction device) general exhaust fan or shower to dampen the floor.

5. The workers claim that there has not been any inspection by the factories inspectorate and no genuine records have been maintained.

6. The medical tests seem very perfunctory. The workers report that their nails are just superficially checked and they are sent back.

7. According to the workers, the management has refused to discuss the problem of health hazards with them. This is an an outright denial of the right to collective bargaining even after the issue has been raised before the management and the factory inspector.

Further developments have occurred after a letter was sent in recently by the union to the Management and Factory Inspector demanding a medical check up of the workers. The management has insisted on a medical check up. But no official written reply has been received from the factory inspector. What develops further remains to be seen.

II Shree Digvijay Asbestos Cement Plant (Ahmedabad)

According to a study conducted by J. Kumar of the Central Labour Institute Bombay and the annual report of the National Institute of Occupational Health 1980, the Ahmedabad - based Shree Digvijay Asbestos Cement plant's safety record is no better. The studies revealed that:-

1. The fibre concentrations in the yarn unpacking, mixing, spinning, weaving and rope divisions were 367 fibres per c.c., 418 fibres per c.c., 225 fibres per c.c., and 216 fibres per c.c., respectively. This is far above the statutory permissable level of 2 to 0.2 fibres per c.c. for different kinds of asbestos.
2. Out of 320 workers selected at random, 6.5% suffered from asbestosis due to exposure.
3. The plant continued to use crocidolite which causes mesothelioma. Perhaps it should be pointed out here that manufacturers in the U.K. imposed a voluntary ban on the import of crocidolite fibres in the early seventies.

Another study of the same plant conducted by Barry Castleman, and published in the "New Scientist" said that:-

4. The road leading to the unit was lined on both sides by asbestos cement waste.
5. A high wall surrounded the factory and beyond it untreated waste water was emptied into a trench and piled with solid asbestos waste on either side. Children played on the waste around their homes.
6. Some of the houses were made from hunks of asbestos cement pipes and scraps of corrugated asbestos waste sheets.

III - Hindustan Ferodo Limited (HFL) in Bombay is a subsidary concern of the British Asbestos Company Turner and Newall. The Indian plant which opened in 1956 manufactures clutch linings and asbestos textiles. A collation of reports from the Times of India, India Today, Business India, New Scientist and Science Today paint a dismal picture of the health and safety conditions in the unit.

The Company brazenly abuses the law in several ways:-

1. Dust levels stand above the statutory permissable standards and the heat is so opressive that the workers are unable to wear respiretors because they feel suffocated.

2. Simple housekeeping measures are not employed.
   (a) Floors are swept dry creating dust.
   (b) The same lockers hold overalls and the workers clothes, which are thus contaminated.

3. Labourers who work in the dry process and carry the waste from the ventilation traps have no protection. They are covered with asbestos dust.

4. As a result, many employees have been found to be suffering from asbestosis. At least 35% of those still on their jobs are afflicted and not compensated.

5. The ESIC is another eyewash. When a worker is not in service, ESIC contributions stop and he can avail of medical treatment only for a period of 6 months. When a worker dies in service, the ESIC provides for compensation of upto Rs. 80,000 maximum, payable in instalments of Rs. 500 p.m. But as soon as it is proved that he has asbestosis he gets retrenched. Further if he dies of the same disease, say two years after he retires from service, neither the management nor the ESIC takes on the liability.

Union representatives have been demanding an improvement in HFL, viz the provision of proper ventilation facilities, separate lockers and bathing facilities for workers. Under such pressure the management has taken the following measures:-

1. In 1980 HFL introduced personal respiratory protection equipment on the shop floor. These form the second line of defence, the main precautionary measure being engineering controls.

2. Raw asbestos is now packed in polyethelene bags which are placed in another polyethelene bag. This is an improvement over the original packing in jute bags, many of which were damaged, leading to fibre spillage. This decision probably followed Britain's refusal of shipments of asbestos products as they were not triple packed in polyethelene bags as a safety measure.

3. According to goverment regulations, cleaning and grinding of asbestos fibres in the carding sections as in several other departments should be a mechanical process. Under a recent Union agreement, the management has decided to import some new equipment from Germeny.

4. Though the management has introduced plastic strip curtains to separate the dust prone cerding section from other sections, much is left to be desired. Plastic strip curtains together with a plywood door, or better still, an air curtain (engineering device, by which air can be blown in a particular direction) would be a safer measure.

5. HFL's contract department used to handle another dangerous area. Workers had to go out and spray asbestos fibres for insulation. This activity finally stopped when many workers began suffering from chest ailments.

6. Workers in the cerding and fluffing sections get an "inconvenience" allowance for working in these sections. The point in question is whether workers should accept such an allowance.

After much feet dragging the management has been forced to concede to several of these demands under union pressure. It still tries might and main to diffuse issues and evade its responsibility. Its line of defence is that improvements cost money. The HFL management complains that its wage costs are 28% of the manufacturing costs, while that of Sunderam Abex, another asbestos unit is only 17% of the manufacturing costs. Such costs however should be counted under capital expenditure and not under wages as they are not perks given to workers but are an essential pre-requisite for the manufacture of asbestos.

WHAT CAN BE DONE

History bears evidence of industry's reluctance to give up the use of such a versatile material, without a massive amount of public opinion and worker pressure.

* A move to use appropriate substitutes in lieu of asbestos must be initiated.

* As long as it continues to be used, its use must be regulated by the most rigorous control.

* While it is necessary to use the existing law for some protection, it is necessary to ask for new provisions to be incorporated (as pointed out in the loopholes of the Act).

* Pressure must be brought to bear on the management, for the proper implementation of the Factories Act.

* Workers must demand the right to appoint "safety representatives" from among workers at the factory/plant level and union representatives who have access to facilities and records, both administrative and medical.

* They must also insist on the right to information regarding

details of materials/chemicels used, processes and hazards involved, and such other information as is relevant to the health of workers in the industry.

* Workers must press for the revision of compensation rates according to current price levels.

* If a worker who contracts an asbestos related disease is retrenched after the disease is identified, then the management should be pressurized to pay a compensation till his death. Workers must in addition demand compensation from the Company, in instances of deaths resulting from asbestos related diseases, even after retirement.

* * * * * * *

SOURCES

1. Occupational health hazards by Hunter (Central Labour Institute Library, Bombay)
2. The Factories Act 1948, Maharashtra Edition 1982.
3. Killer Asbestos: Special Report I - Meenakshi Behara, Business India - Jan 17-30, 1983.
4. Double Standards: Asbestos in India, Barry Castleman; New Scientist, 26 February 1981.
5. The asbestos connection; J. Kumar, Science Today 1982.
6. Asbestosis: A Killer disease-Audhyogik Jeevan Manch, 3/3, Renuka Apartments, 135/5, Erandwana, Pune - 411004.
7. The selling of Asbestos: Barry .A. Castleman and Manuel J. Vera Vera, Science Today, July 1982.
8. Information from news clippings.
9. Information from CMIE (Centre for Monitoring Indian Economy) files.
10. Asbestos plant threatens a village in India, Bob Wyrick, reprinted from Newsday, Dec. 16, 1981.
11. Information provided by the workers Health and Safety Unit - 29, Bhatia Bhavan, Babrekar Marg, Off Gokhale Rd. Dadar (West).
12. Asbestos Disease in the United States 1918-1975 by Irving Selikoff.
13. Discussions with:
    (a) Dr. V. Gupta; Central Labour Institute, Bombay.
    (b) Dr. Surendra Nath; Central Labour Institute, Bombay.
    (c) Workers of asbestos units.
    (d) Mr. K.P. Menon, Labour advocate.

The following publications are available at the C.E.D.:-

Health Cell publications

1. Abuse of female hormone drugs - Counterfact No. 1 - Free.
2. Bleeding for Profit - Counterfact No. 2. - Free.
3. Injectables: Immaculate Contraception? - Counterfact No. 3. Free.
4. Health and the Work-place - Counterfact No. 4. - Free.
5. Asbestos - The dust that kills - Counterfact No. 5 - Free.

Research Publications

6. Aspects of the drug industry in India - Mukarram Bhagat
7. Operation Flood - Development or Dependence? - C.E.D. Research team
8. Land Degradation: India's Silent Crisis _ A Cite Publication by Mukarram Bhagat
9. The Tenth Month - Bombay's Historic Textile Strike - Factsheet 1 Collective

Occasional papers

10. Indian Economic Policy - Post IMF - by Mukarram Bhagat.
11. Controlling Multinational Monopolies - A Case study by H.K. Paranjape
12. The State In India by Sharadchandra S. Jhaveri.
13. Goverment & Big Business In India by Ajit Roy.

ABOUT CED

The Centre for Education & Documentation (CED) is an independent non-profit organisation involved in research-cum-action oriented programmes, catering to the need of scholars, professionals, students, development workers and other concerned individuals.

Established in 1978, and registered under the Societies and Public Trusts Acts, the CED collects, collates, researches and disseminates information on a wide range of subjects of social importance.

Besides conducting and initiating independent studies, the CED organises seminars and workshops on related topics and houses a library of books and a collection of clippings from a wide spectrum of newspapers, magazines, journals, both from India and abroad.

Above all, the CED provides a focal point for like-minded individuals and groups to interact with one another in order to relate theory to experience and action, in the respective areas of involvement.

THE CED HEALTH CELL specialises in documentation and dissemination of information concerned with health issues. It is in touch with other similar groups in various parts of the country.

Our address : Centre for Education & Documentation
3, Suleman Chambers,
4 Battery Street,
Behind Regal Cinema Tel: 220019
Bombay 400039.

(Open 11.00 a.m. to 7.00 p.m. on weekdays. Fridays 11.00 a.m. to 2.00 p.m.)