COTTON DUST:
The Right to Breathe!

Textile industry is one of the oldest industries in India. It is one of the largest industries in the organized sector where the horror of the workplace is most evident borne by the workers. Every day the workers in the different cotton processing units inhale some amount of cotton dust and over the years their lungs lose the capacity to breathe properly. Ten lakhs workers in the organized sector of textile mills, and several times more in the powerloom and handloom sector every day lose their right to breathe and slowly proceed towards disablement. This loss in the breathing capacity is known as "Brown Lung". Byssinosis or Brown Lung is a disabling lung disease caused by inhaling cotton, flax or hemp dust for several years and it is common among the workers working in cotton mixing, blowing, carding, weaving, spinning and weaving sections. The invisible or small dust particles are very dangerous.

EDITORIAL

The Politics of Occupational Health

The problems of health and safety at the workplace are generally viewed technically and medically. Some workers believe that a certain degree of health hazard is only a "natural" outcome of any job, particularly a factory job. Many others believe that scientific and technological criteria can be the limiting ground to determine how healthy and safe a particular workplace can be. In fact, this aspect is so widely publicized that many workers believe in the finality of technical specification.

One clear case in point is the disease caused by inhaling cotton dust—Byssinosis. The occurrence of this disease was discovered more than two hundred and forty years ago among the textile workers in England. But it took two hundred years before any measure to protect workers were taken up when Britain introduced a system of compensation for Byssinosis.

Then came the concept of TLV—Threshold Limit Value. TLV implies the limit under which exposure to dust is considered as safe for workers. It is supposed to be a scientifically established criterion. However, since 1960 onwards scientists have laid down different TLV for cotton dust. In 1966 the American Conference of Governmental Industrial Hygienists (ACGIH) adopted 10mg/m³ of total dust as the recommended TLV for worker exposure to cotton dust. In 1971 Occupational Safety and Health Administration (OSHA) of the USA also adopted it. Subsequent research found out that even at the concentration of 0.1 mg of cotton dust in one cubic meter of air (0.1 mg/m³) at the workplace, 7% of workers face Byssinosis of all grades. But in most of the countries including the USA, 0.2 mg/m³ is considered as safe limit. In fact, there is no readily measurable limit for cotton dust that would completely eliminate Byssinosis. What is really needed is safe work practice, medical surveillance and screening procedure which is grossly neglected in almost all industries.

The recommended standards are even not safe. If workers and their organisations are not alert and active these standards will remain as an eye-wash.

The occupational health and safety issues are political questions. Besides the medical and technical aspects of health and safety at workplace, we also need to recognize the politics of occupational health and safety.
and enter into the alveoli of the lungs after inhaling. Alveolus are minute air sacks which make close contact with the blood that flows in the liver. Here blood receives oxygen and discharges carbon dioxide. As the cotton dust penetrates the alveoli, it gets accumulated in the lymphatics vary the line tubes in the alveoli of lung. Continuous accumulation of the dust in the lungs damages the alveoli and reduces the capacity to retain oxygen. As the cotton dust accumulation increases, the worker develops a brown lung and suffers from Byssinosis.

The symptoms of Byssinosis were first documented way back in 1746 by Dr. Remazzoni, the father of occupational medicine. Since then, many researches are carried on to know the exact symptoms of the disease caused by the cotton dust. Till date there is a great deal of confusion about the clinical manifestation of Byssinosis among Indian workers, and the basis for diagnosis remains uncertain. Yet it has been established that the presence of cough and phlegm or spitting along with varied types of chest tightness, chest irritation, breathlessness and low fever are the main symptoms of Byssinosis.

Stages of Brown Lung or Byssinosis

Grade 0: No symptom of Byssinosis
Grade ½: Occasional chest tightness on the first day of the week.
Grade I: Chest tightness and/or breathlessness on every first working day.
Grade II: Chest tightness and/or breathlessness on the first and other working days.
Grade III: Permanent incapacity results because of reduced breathing capacity.

The final stage of illness resembles other serious respiratory diseases such as asthma and chronic bronchitis with considerable trouble in breathing. An X-ray of the lungs shows it full of holes - evidence of destroyed alveoli. The decline in lung function is the primary symptom of brown lung. It can be diagnosed by medical examination done through a standard breathing test (Pulmonary Function Test). The instrument used for the testing purpose is called Spirometer. The pulmonary function test provides two measurements: the Forced Expiratory Volume (FEV1) - the amount of air that lungs can blow out, and Forced Vital Capacity (FVC) - the amount of air the lungs can retain before blowing. When workers chronically exposed to cotton dust are asked to blow on a spirometer, the FEV1 and FVC show a graph relatively lower than the graph shown for normal persons.

Grave Situation: A conservative estimation shows that nearly 30% of the textile workers in India are suffering from different grades of Byssinosis. In most of our textile factories, the cotton processing is done manually without having any dust control mechanism. Starting from the mixing room to blow room, card room and spinning and weaving departments, the level of dust remains at a very high level. No factory in India adheres to the internationally recommended exposure limit for cotton dust. At present permissible cotton dust level is 0.2 mg/m³ (1.5 milligrams of dust in one cubic meter of air). But even at this exposure level of cotton dust, it is estimated that 13% of textile workers will suffer from Byssinosis.

The old textile factories are even worse off. Without the facility of cross ventilation, exhaust and lighting facility the workers work in most dusty, hot and humid conditions. Five years of continuous work in the cotton processing units up the weaving level can cause Byssinosis. It is observed that in many textile factories of Kanpur, where the weaving is done manually, the workers engage in 'shuttle kiss' to remove and add thread. This practice increases the probability of inhaling fine cotton dust. The workers say that wages are paid on piece rate basis and the 'shuttle kiss' practice helps increase the pace of work and hence increases the probability of getting a slightly higher wage. Neither the management nor the factory inspectorate have taken any step to provide any alternative device for the workers.

The Level: Byssinosis is mentioned in the schedule III Part C of list of Notifiable Diseases in the Factories Act, 1948, Workmen's Compensation Act, 1923.

Measuring Cotton Dust Levels

★ The law requires your employer to measure the average amount of breathable cotton dust (2 x 2 mm and less than it) present at the workplace.
★ A Vertical Elutriator is a device that measures the concentration of cotton dust in the air. The dust samples can be collected using a Haefchen Apparatus.
★ If work places are not monitored properly against cotton dust, the workers can demand for a measurement of dust level.
Workers Demanding Dust-Free Work Place

In Kanpur the textile industry workers are struggling on the issues of health and safety. Rashtriya Textile Swaraj Sangathan, a Kanpur based Trade Union, submitted a memorandum to the Management of the Egin Mills on March 24, 1986. It demanded to reduce the level of noise and cotton dust at the work place. It also demanded that those workers who have shownbyssinotic symptoms should be shifted to dust free zones with light work.

One possible limitation in seeking compensation is the clinical proof of Byssinosis. Workers will need to have some evidence that they suffer from Byssinosis. But existing medical facilities (private or ESIC) do not seem to be ready to diagnose Byssinosis. It is partly a problem of lack of expertise and facilities, and partly a political issue—identification and certification of Byssinosis will imply fixing responsibility on the employers and management. Therefore, non-diagnosis is a safe way out. In case of persistent complaints by workers, doctors tend to diagnose it as TE or other lung disease and prescribe treatment for the same.

In the light of this, it is perhaps important that the workers and their organisations understand the politics of Byssinosis, its causes and treatment. Several actions may be needed before it is possible to begin to exercise workers' own “right to breathe” and breathe easily?

LEAK-AGE

An assortment of recent gas leaks and nuclear radiations:

★ On April 28, 1986, a major nuclear accident occurred at the Chernobyl atomic power plant north of the Ukrainian capital of Kiev, the third biggest city in the USSR. It has resulted in extensive radiation leakage. The radioactive cloud has spread across parts of Poland and into Sweden, Norway, Denmark and Finland.

★ On April 28, 1986, a fire broke out in the compressor unit handling synthetic gas in the heavy water plant at Talcher, Orissa. According to a Worker’s Association spokesman, the explosion was the result of exceeding the pumps’ working capacity of 300 Kg. to 350 Kg. to increase production. (May 1, 1986, Indian Express, New Delhi)

★ On April 8, 1986, six persons received severe chemical burns following an accident at Asia’s biggest fertilizer plant, KRBHCO, at Hajira, Gujarat. (April 9, 1986, Indian Express, New Delhi)

★ On April 3, 1986, two workers were killed in an explosion at a furnace in the steel melting shop at Bhilai Plant. The explosion was the third in the plant since January this year. (April 4, 1986, Indian Express, New Delhi)

★ On April 21, 1986, six persons had received burns when a tanker carrying 6,500 to of liquified petroleum gas from the Indian Oil Corporation Refinery, Mathura, to Jallandher had caught fire near Patial Chowk in Mohanagar. (April 23, 1986, Indian Express, New Delhi)

★ On May 7, 1986, about 50 people were affected when a poisonous gas leaked from the containers of a cable manufacturing factory in Ghaziabad. The factory has been closed down for the last two years following complaints of gas leak from it (May 10, 1986, Indian Express, New Delhi).
Educational Materials

1. Accident Prevention: A worker's manual
   It provides the basic principles of accident prevention in manufacturing industries and presents 14 simple illustrated lessons. Printed by and available from International Labour Office, CH-1211, Geneva 22, Switzerland.

2. Occupational Exposure to Cotton Dust
   Occupational Safety and Health Administration (OSHA), USA, documents the rules and regulations involved in the notification of mandatory occupational safety and health standards for cotton dust. Federal Register, Vol. 43, No. 122, Friday, June 23, 1988. Contact: OSHA, Health Response Unit, P.O. Box 15200, 1781 South 300 West, Salt Lake City, U.T. USA.

   It reviews and summarizes the findings of all the studies done on Byssinosis in India. Technical Information Bulletin, No. 3, 1967. Indian Council of Medical Research (ICMR). Contact: ICMR, Medical Enclave, Ansan Nagar, New Delhi-110029, India.

4. The Clinical Manifestations of Byssinosis in Indian Textile Workers
   A research paper, analyzes the Byssinotic symptoms among the textile workers in Amreli, India. Contact: Dr. J.R. Patil, National Institute of Occupational Health, Ahmedabad, India.

5. Namati Sehat, Namati Laddi
   A simply written booklet in Hindi on the health issues of Bhopal gas victims. It discusses the impact of toxic MIC gas on various parts of the human body for different age and sex groups. It also provides information about right diagnoses and health care with illustrations. Available from: Ethavla, E-11/28 Aare Colony, Bhopal-462016, India and Medicos Friends Circle, 1877 Joshi Gali, Nipani, Dist. Belgaum, Karnataka—591237, India.

6. Health for Millions
   Voluntary Health Association of India (VHAI) published an epidemiological survey on Bhopal gas victims and conditions of women's and children's health in the gas affected area of Bhopal in their journal Health for Millions, December, 1985., Vol. XI, No. 6. Contact VHAI, Plot No. 40, Institutional Area South of IIT Gate, New Delhi-110017, India.

7. Indian Council of Medical Research
   ICMR published a document on the sufferings of Bhopal gas victims. The publication is a comprehensive account of the results of autopsy, toxicological studies, clinical management of the victims and epidemiological investigations carried out by Indian scientists and medical researchers. Contact: ICMR Medical Enclave, Ansan Nagar, New Delhi-110029, India.

8. The Bhopal Syndrome: Pesticide Manufacturing and the Third World
   It reveals the nature of pesticide poisoning and even deaths among communities and workers in Brazil, Indonesia, Taiwan and other developing countries. Authored by David Weir. Available from International Organisation of Consumers Unions (IOCU), Regional Office for Asia and Pacific, P.O. Box 1045, 10830 Penang, Malaysia.

9. ICPE Occupational Health (OH) Newsletter
   International Federation of Chemical, Energy and General Workers Union (ICEF) brings out a thematic OH Newsletter in its bulletin. Contact—ICEF, 109, Avenue Emile de Brecq, B-1050 Brussels, Belgium.

10. Work Hazards
    An informative bulletin on occupational health and safety, helpful for shop floor workers in the industry. Contact: Workers Centre, 27 John St, Lidcombe, NSW 2141, Australia.

Events of Interest

1. The Occupational Health and Safety Administration (OSHA) of the US is to impose a fine of $1.4 million on the Union Carbide for its willful disregard of health and safety at its plant in Institute, West Virginia. OSHA has asked for a "walk to wall" examination of the plant after last August's accident at West Virginia which led to the proposed sanction.

2. Billions of dollars in damage claims arising from the Bhopal disaster should be decided by courts in India, not in the US, decision given by the US district judge Mr John F. Kanan. Ever since the disaster it is believed that the compensation will be decided by the US court. This decision is a victory for the Union Carbide.

3. In a North Malaysian town, after a long struggle, the residents obtained a court order against Asian Rare Earth Co. to stop operations until it takes adequate safety measures to prevent radioactive rays escaping from its factory. It is a major victory of the people whose court recognizes the importance of people's health over the narrow interests of industry.

4. Consumer Education and Research Centre (Thakurbari) Bhasha, Smarak Bhawan, Near Law College, Eliaibridge, Ahmadabad filed a writ petition before the Supreme Court of India, highlighting the total occupational hazards of Asbestos industry affecting over 10,000 workers and sought direction for medical checkups of all workers engaged in this industry. The Supreme Court has issued directives to the Asbestos Industry and asked to comply with during the three weeks. 

5. The Punjab Government rejected the proposal of General Insurance Company (GIC) who had planned to provide a compensation of Rs. 25,000 to three workers who lost a limb in accident. GIC had wanted the state to insure each labour for Rs. 6,000 for the loss of a hand. Against the insurance company's compensation of Rs. 25,000 for the loss of a limb, the maximum financial aid from the state Government is Rs. 1,500 and that too in case of death from a three worker accident, which is very rare.