We have ample evidence today about the long-term health damages caused by exposure to different types of radiation at the workplace. Indian studies have shown the incapability of the country's nuclear industry establishments in monitoring the exposure of workers to ionised, radioactive radiation. Since the 70s there are reports of workers being exposed to high radiation doses during clean-ups from the atomic power plants at Tarapur and Rajasthan. The example of the Indian Rare Earth plant located at Alwaye in Kerala has shown the effects of radioactive radiation on workers. Besides the nuclear establishments, in various industrial work places, particularly in the electronics industry, heat treatment of plants (furnaces, welding etc.) and places where cathode tubes and VDTs (Video Display Terminals) are used, the workers are exposed to various radio-frequencies and other non-ionised radiation. These work places are not usually monitored and, in the few cases where they are monitored, the potential hazards are not recognised by the monitoring authority. No one really knows how the workers are affected by radiation. The work place looks clean and it is assumed that there is no hazard.

For the nuclear establishments in India, the Department of Atomic Energy is entrusted with the sole responsibility of monitoring the health and safety of the workers, under the Atomic Energy Act (1962). However, the Act prohibits an independent scholar in a research centre from making an enquiry into the affair of the Department of Atomic Energy, including the health status of the workers. Past experience shows that the entrusted machinery is not very committed to monitor the health hazards. The health hazards are only looked into whenever people and groups outside the authorised body have raised their voices. For instance, the Department of Atomic Energy released the annual average radiation exposure to workers of the Tarapur Atomic Power Station in 1983 in response to a newspaper report. Why should health and safety information be classified? Apart from the nuclear industry, in the entire electronics industry the hazards of radiation are highly underestimated. For instance, despite the complaint of the Bharat Electronics Employees' Union of health hazards due to radiation, the management denies that anyone in the plant has ever been exposed to unreasonably high levels of radiation or has sustained any health damage. Moreover, the radiation level at the electronics assembly lines or in front of the VDTs have never been regulated or monitored by any entrusted authority.

It has to be remembered that there is no physical process to reduce radiation emission from the source (be it radioactive or radio-frequency). If workers are to continue to work in these processes, it becomes imperative to provide for appropriate protection of the operating personnel by screening or studying the source. Knowing the lethal potentials of radiation, there can be no justification for keeping the necessary health information a secret. We are increasingly using technologies which either utilize radioactive material or processes that emit radioactive radiation. Any lethargy or negligence may create Bhopals over the clean room! Safety regulations should not be a mere academic exercise. At the risk of being branded as fear-mongers, it is necessary to assess the risk of radiation hazards not only in nuclear plants but in all areas of work where there is even the slightest possibility of radiation. It is a fact that workers do not control science, but if they are kept away from the basic information regarding the technology with which they work and if their experiences do not receive any recognition, such science can only be dangerous.
Hazards of Radiation

The lethal consequences of radiation are widely known. There is today enough information worldwide to show that workers and non-workers in and around the various nuclear establishments are being permanently affected by radiation damage. Besides the nuclear establishments, there are many sectors of work where workers are continuously exposed to radiation. Recent reports reveal that there are “scores of unprotected workers and engineers at the microwave radar assembly and testing facilities at the Bharat Electronics Ltd (BEL) factory at Ghaziabad”. The workers of the Rare Earth Division of the Indian Rare Earth Limited (IRE), in Udyogmandal, Ernakulam, Kerala are exposed to radiation — a study demonstrates that the incidence of sterility among IRE workers and genetic disorders among their children also appears to be very high. In a laboratory of the School of Life Sciences in Jawaharlal Nehru University in New Delhi, it is suspected that radiation is emitting from the Gamma chamber. Workers on the assembly line in the electronics industry are being affected by exposure to radiation. Thousands of workers are daily exposed to various types of radiation while working in furnaces of glass factories, steel factories, etc. while performing welding operations, etc. Workers working in front of VDTs (Video Display Terminals) or TV monitors are being exposed to various types of radiation. Although the above work places look very clean, they are far from clean. We cannot see radioactivity — it is invisible to the naked eye. We cannot touch, smell or taste it. But the effects of exposure to radiation have drastic results on our bodies.

What is Radiation?

Radiation is a type of energy. It moves through space in the form of waves or particles. All forms of radiation are invisible, except visible light (the colour spectrum). Some forms of radiation can be felt extremely as heat. There are two major classifications of radiation:

(i) Ionising radiation
(ii) Non-ionising radiation

Ionising radiation has enough energy to split (ionise) atoms in biological matter. Radioactive materials emit ionizing radiation which is classified by the type of particles or rays given off. The three major types are alpha, beta and gamma. Some radioactive materials are found in nature, and these are called natural radio-nucleides. Many radio-active materials are produced in nuclear reactors called artificial radio-nucleides. Radio-active materials can occur in the form of solids, liquids or gas. Non-ionising radiation does not have enough energy to ionize, but vibrates and rotates tissue molecules and thereby heats the tissue that it strikes. It is classified by the frequency of the wavelength. Non-ionizing types of radiation are ultraviolet, visible, infrared and radio frequency wave radiation. Above the spectrum of ultraviolet ray is the X-ray, which is ionizing in nature.

The toxicity of ionizing radioactive materials is determined by the nature of the radioactive element and the nature of exposure on the body, whereas the toxicity of non-ionizing radiation is dependent upon the frequency of the wavelength and the exposure level.

Radiation Exposure at the Workplace

There are several sources of radiation. The nuclear industry is the major source of radiation and is not only a threat to the workplace but to the environment. Radiation also occurs in the mining and milling of radioactive materials and in the process of storage, transportation and waste disposal. A high incidence of lung cancer death among uranium miners has been well known for a long time. During the milling process, i.e., crushing the ore to fine particles, radioactive gas and waste products affect the health of the workers. In India, we have very little knowledge about the state of health hazards in the uranium mines at Jadugoda, Bihar. In the enrichment and fuel fabrication at the nuclear plant, enormous amounts of radio-isotopes are emitted in the form of solids, liquids and gases.

The electronics industry is the second area of work where radiation is a continuous threat to the health of the workers. In electronics manufacturing, most forms of radiation are normally released at low doses. But evidence shows that even low amounts of both ionizing and non-ionizing radiation can be dangerous to workers. Exposure to ionizing radiation is more likely to occur in the wafer fabrication process and when radio-isotopes are used to check for leaks after encapsulation in the process of microchip assembly. In 1981, at an electronics plant near Kuala Lumpur, Malaysia, a machine using radioactive krypton gas to test for leaks exploded. Besides sustaining injuries, the workers were affected by the high level of radioactive gas. Intense X-rays of ionizing radiation are also created in some of the microwave transmitter assembly areas. In the Ghaziabad-based unit of Bharat Electronics Ltd. (BEL), the amplification of microwaves to test the radars produce intense X-rays (this process is termed Xystron).
ing upon the type of laser used. Some laser machines also emit low doses of X-rays.

Workers working under the sun are exposed to non-ionizing radiation. The most common source of ultraviolet radiation is the sun. But most of it is filtered in the ozone layer in the atmosphere. The other sources of ultraviolet radiation are predominantly man-made and include incandescent, fluorescent light sources; welding operations of a wide variety also emit ultraviolet radiation.

Visible radiation is emitted from sources of high intensity light. Most hot objects including ovens, furnaces and welding operations emit infrared radiation. It may be kept in mind that all types of radiation in the light spectrum emit a combination of radiation. For example, the VDTs or TV monitors which give off a glare emit low intensity X-rays and ultraviolet radiation; furnaces emit ultraviolet, visible and infrared radiation.

Health Damage Caused by Radiation

Most forms of ionizing radiation penetrate the skin and damage the cells. The amount of cell damage depends on the dose (strength and duration of the radiation). When ionizing radiation penetrates the human cells, it bombards the atoms of which the cells are composed. Normally the atoms are neutral (no electrical charge). Electrically charged radiation makes the cell atoms electrically charged and hence unstable. Unstable atoms cause the cell to die, or to malfunction and grow abnormally. Results of exposure to ionizing radiation can include cancer, genetic mutation, aplastic anemia (blood problems), birth defects in children, miscarriage, decreased life expectancy and aging. Damage done by ionizing radiation is mostly irreversible.

Non-ionizing forms of radiation cause the molecules in the cells of the body to vibrate more rapidly. This vibration causes the cells and even the body tissues and organs to become hotter than normal. Most forms of non-ionizing radiation do not easily penetrate the skin, and as such only impose immediate threat to the skin, eyes and tissues. Eye cataracts and skin burns are possible results. Many forms of non-ionizing radiation which do not even cause the cells to heat up, can adversely affect bone growth, alter brain waves, damage the immune system and cause a host of neurological disorders and even mental strain: it may be kept in mind that microwaves, unlike other forms of non-ionizing radiation, pose a more serious long term threat because they are able to penetrate the skin easily and enter deep into the body where they heat up internal organs and tissues. Permanent organ damage is possible if the exposure is strong or long enough. Workers exposed to microwaves have developed symptoms of heart, thyroid and nervous system diseases. The most common symptoms of exposure to microwaves include headaches, eyestrain, dizziness, fatigue, restless sleep, nervous tension, hair loss. There is also medical evidence to prove that there is an increase in births of children with Down's syndrome (a birth defect complicated by mental retardation) to fathers exposed to microwaves. It also causes male sterility and adverse effects on the growing child. There is also some suspicion that microwaves may cause cancer.

Radiation Exposure Limit

Today, though the immense utility of radioactive materials and processes generating radiation are receiving importance in various industrial processes, the negative aspects of these processes are rarely being taken into account. Many dangerous lives have been lost due to the lack of knowledge about the hazards of radiation. Marie Curie herself died from blood cancer as a result of exposure to radiation. It was only after this that scientists began to study the hazards of radiation. Attempts have been made to calculate what would amount to a safe dose of radioactivity. But the calculation of safe doses has been continuously underestimated and neglected the damages suffered by the workers and the general public. Karl Morgan, a pioneer in the field of health physics, states that "there is no safe level of exposure and there is no dose of radiation so low that the risk of mutagenicity is zero."

Radiation exposure is calculated in rems (Röntgen Equivalent Man) — the unit of radiation absorbed by the human body. The International Commission on Radiological Protection (ICRP) recommends the dose limit in 1954. The amount of exposure permitted to workers in radiation-related occupation was 50 rems per year to all tissues except the lens, for which the recommended limit was 15 rems. After this, in 1958, the safe dose for workers became 36 rems; and in 1990, a new exposure level of 15 rems per year was recommended by ICRP. In 1957, the exposure limit dropped to the current level of 5 rems per year for a worker. However, two standards operate one for nuclear workers and one for the public. For the public, the exposure limit is only 0.3 rems per year per individual.

Instruments have been devised for detecting and measuring the various types of radiation that might be encountered. Some of these instruments indicate the dose rate at which the irradiation is occurring and others measure the total dose received during a period of time. The dose received by a detecting instrument is not necessarily an accurate indication of the dose received by the tissues of a person as the effect of the dose is dependent upon the distance of the source from the body. An interpretation of the instrument reading will usually be necessary if a precise estimate of the tissue dose is required. For instance, the fields near the reactor base in the infamous Three Mile Island which witnessed a disastrous nuclear accident in 1979, are only 20 to 15 millirads (one thousand part of a rem) per hour. This is considered to be an unsafe field even for specialized engineers to commence the work in the scraped power station. Instead, special robots are being developed to do the job so that men do not have to enter the zone. In practice, however small the dose might be, in actual calculations it can be highly dangerous.
<table>
<thead>
<tr>
<th>Types of Radiation</th>
<th>Health Hazards</th>
<th>Safety and Therapeutic Measures</th>
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<tbody>
<tr>
<td>Alpha, beta and gamma radiation</td>
<td>Damage to somatic cells: the process of cell division, production of essential enzymes and hormones are affected. Unregulated cell division may lead to cancer or leukemia. The rapidly dividing cells like embryos or foetuses are vulnerable and child may be born with congenital malformations. The change in hormone or enzyme leads to hastening the aging process, lowering resistance to disease and precipitating psychological stress. Damage to germ cells: the health effects get transmitted to the future generation. Damage in sex chromosomes lead to sterility, miscarriage, spontaneous abortions. The mutated genes may lead to detrimental effects like diabetes mellitus, rheumatoid arthritis, schizophrenia, etc.</td>
<td>No nuclear process is 100% safe. In case of contamination it is necessary to assess the nature of radionuclide and the dose received to go for decontamination. The only effective preventive measures are shielding the source of radiation and maintaining appropriate distance from the source. In general the use of drugs to protect against radiation is not practical because of their toxicity. An exception is the use of orally administered potassium iodide to protect the thyroid from radioactive iodide.</td>
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<tr>
<td>X-ray</td>
<td>X-ray gets absorbed in the skin and causes observable skin burns. These burns heal very slowly and are potentially carcinogenic. High intensity X-rays cause genetic damage, birth defects, mental irregularity, short life expectancy, premature aging and chronic dermatitis.</td>
<td>Completely avoid exposure. Isolate the ray by using thick lead shield.</td>
</tr>
<tr>
<td>Radio frequency microwave radiation</td>
<td>Microwave penetrate the skin easily and enter deep into the body. It heats up the body internal organs and tissues. It makes biochemical changes in peripheral blood, functional disturbance of endocrine gland and autonomic nervous system. Leads to heat stress—causes damage to the lens of the eye, to the testes and germ cells and genetic disorder. The whole set of symptoms has been described as “telegraphers’ disease” or “microwave disease”. Symptoms are headache, nervous excitability, auditory sensation, lack of appetite, impotence, menstrual irregularity.</td>
<td>Thermal effect needs to be reduced. Basic protective measures include the provision of shielding or absorbing enclosures at the source. Personal protective equipments like gorard shields, protective suits, wire netting helmets, protective goggles may be used but they provide insufficient protection.</td>
</tr>
<tr>
<td>Ultra violet radiation</td>
<td>Absorption by the skin initiates chemical changes. Causes skin burn and skin cancer (keratosis). It damages the conjunctive and cornea of the eye. Popularly known as Welding “Flash burn”. The low wavelength radiation dissociates molecular oxygen to ozone, nitrogen into oxides of nitrogen and chlorinated hydrocarbon vapours in the atmosphere into phosgene and poison the work place. If exposed continuously, may lead to pregnancy problems and birth defects.</td>
<td>Reduce exposure or eliminate source. Glass screen stops Ultra violet ray. Unsafe exposure can be prevented by use of enclosures, shielding.</td>
</tr>
<tr>
<td>Visible radiation</td>
<td>Extremely hazardous to the eye. It causes fatigue, nausea, irritability, sensitivity to natural light, physical stress known as light stress and change in body chemistry.</td>
<td>Remove or isolate the source. Design the operating instrument so that it lessens reflection on the eye and body. Exercise eyes and use maximum day light.</td>
</tr>
<tr>
<td>Infrared radiation</td>
<td>Causes damage to the eye—blurred vision. Workers at furnaces may develop heat cataract. Glass worker’s cataract is generic name derived from workers affected while working as glass blowers at the furnace.</td>
<td>Isolate source, use minimal heat, use protective shield like eye glasses with mineral oxides.</td>
</tr>
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In a precedent-setting judgement on September 22, 1987 the Supreme Court ordered the closure of 30 tanneries in Kanpur which were discharging untreated industrial waste into the Ganga. The Court has given another cluster of tanneries six months to install primary effluent treatment plants or face closure. This was in response to a public interest writ petition.

The book "A Killing Wind" by Dan Kurzman claims that at least 8000 people died in the gas leak from the Union Carbide plant in Bhopal. Dan Kurzman based his estimate on interviews and private records. He claims that 2,000 people died in Bhopal and died elsewhere, while 6,000 were killed in the state capital. The Indian Government has put the figure of those dead at 2,700 but the author speculates thatIndian officials understated the figures to "keep the political shock waves under control".

The Ministry of Industry (Government of India) has withdrawn the facility of re-endowment of capacity with respect to the asbestos industry, permitted since 1986 on health grounds. Since asbestos and asbestos-based products are hazardous in nature and cause serious health problems (Asbestosis — a lung disease) it has been decided that the facility of the re-endowment of capacity envisaged in the press note of January 15, 1986 will henceforth not be available to Asbestos and Asbestos-based products. For this purpose, asbestos-based products will mean "those products the manufacture of which includes the use and processing of asbestos fibres".

A study conducted by the Centre for Environmental Technology in London and the International Rice Research Institute in Manila reveals causal links between insecticide use and increased deaths.

The insecticides belonging to the organophosphate and organochlorine groups cause deaths due to leukemia and nervous stroke. At least 32 people have died in Punjab during the past two years from repeated exposure to the chemicals. The mortality rate due to leukemia has increased by over 460 per cent between 1970 and 1986 in the Philippines. The pesticides belonging to the organophosphate group include Folidol, Nuvacron, Basudin, Cusatin, Ablemex, Parapent, Pathfinder, Foperno, Azodin, Plantin, and Broden. The popular organochlorine chemicals is DDT. The WHO has classified these chemicals as extremely dangerous.

Another dangerous chemical, DBCP or dibromochloropropane being marketed in India under the brand name of Nemagon and Furaminex, has been found to cause irreversible male sterility among workers in the banana plantations, especially in Costa Rica, Honduras, Ecuador, Columbia, Panama and Philippines. American lawyers have already filed damage suits in the Texas and California courts on behalf of the 175 victims at Costa Rica.

The Public sector enterprise, Rourkela Steel Plant in Orissa is also violating environmental norms. The effluent discharged from the plant's unit pollutes the Brahmani river while process of steel is resulting in large scale air pollution.

On October 26, 1987, a five day workshop was inaugurated on "Risk Assessment Techniques and Management" at the Indian Institute of Technology, Delhi. The workshop was organised by the Centre for Atmospheric Sciences, IIIT, New Delhi. The analysis of the cause of major accidents based on 32 cases reveal that 15.5 per cent of the accidents are caused due to faults related to design and manufacture, 47 per cent due to operational failures, 32 per cent due to human factors, and 3.5 per cent due to external aggression. It asserts that "once we are capable of quantifying the hazards, suitable predictive models can be used to assess the potential risk which may be interpreted to provide us the safe distance for planning and setting of industries".

The Australian Government has established a tripartite National Occupational Health and Safety Commission known as Worksafe Australia. It deals with prevention and management of Repetitive Strain Injury (RSI) as one of its priorities. Recent events have shown an embarrassing contradiction in the federal Government's policies on the prevention of RSI and the payment of compensation for RSI sufferers. Government employees seeking access to compensation for the loss of earning potential due to pain and discomfort resulting from the work-caused injury were denied fair rights. The Government suddenly denied the RSI's existence. Stopwork meetings and rallies were organized in Sydney and Melbourne in early June to highlight the contradictions in the Government's attitude and policies.

A labour backed Bill to establish health and safety protection for Video Display Terminal (VDT) operators has been suppressed in the California Legislature. This Bill was introduced by Senator Bill Greene of Los Angeles in April 1986. This is the third bill since 1984. The two earlier Bills attempted to mandate specific ergonomic and safety standards as well as employer paid eye examinations and free glasses. Greene's 1986 Bill on the other hand, sought to require Cal/OSHA to issue VDT standards to be developed by a special advisory committee.

The 1984 and 1985 Bills had been attacked by opponents in part on the grounds that legislation should not mandate the specifics of health and safety, since the administrative system is available to handle these concerns. The 1986 Greene Bill was again pushed under the carpet, making the bill into a form that called only for a study of VDT hazards.
On November 22, 1987, a mill worker died of asphyxiation and three others were affected when a poisonous gas leaked in the premises of a factory in the industrial belt of Ankleshwar, Gujarat.

On November 5, 1987, about 5000 people in the Behrampura industrial area in Ahmedabad city were affected by Oleum gas when about 10,000 litres of gas started leaking from a huge tank. The gas spread in an area of 1 km. radius. The factory, manufactures textile dyes intermediates and is located in one of the Gujarat Industrial Development Corporation (GIDC) estates. The Municipal Corporation has issued orders to close the factory.

On September 13, a blast in the tunnel of the Vijayawada Thermal Power Station killed two workers and injured three others. The blast occurred when the two young men were drilling holes in the interior of the tunnel dug in a hill near the thermal station.

On October 22, 1987 two workers were killed and 12 injured when a conveyor belt broke at the Koradi Thermal Station at Nagpur.

On October 11, 1987 ammonia gas leaked from a factory located at Barasat in North 24 Parganas of West Bengal. The factory is located in a thickly populated area.

On October 25, 1987 twenty people were affected when chlorine gas leaked from a unit in the Industrial area of Ponelav, near Baroda.

On October 19, 1987 two persons died and three others fell ill after they inhaled some poisonous gas while cleaning a well at village Shamri, 40 km. away from Sonapet. Two of the three who fell ill, lost their eyesight.

On October 17, 1987 a cracker factory at Thannerpandalalyam, near Coimbatore exploded. Six persons, including the factory owner were killed on the spot and four others seriously injured.

Thirty four persons were affected by a radiation accident in Goianio city in Brazil. The Goianio Radiology Institute had left behind the machine used for treating cancer with controlled doses of radiation, when the Institute was moved to a new building. The scavengers broke the machine not knowing that Cesium 137, a potential lethal radioactive material was kept inside the instrument. Many people handled the "glowing stone" not realizing the harm and as a consequence 34 people ended up in the hospital. Rex Nazareth, President of the National Nuclear Energy Commission said that the Cesium accident is unique. "It is the biggest accidental contamination with Cesium in the world".
The Bhopal Case: Testing People’s Patience!

Bhopal gas victims have undergone many rounds of legal battles. The first round was completed one and a half years after the disaster without any hope, when Judge Keehan of the Southern District of New York Court delivered the judgement on the case. The motion of “forum non conveniens” (not a convenient forum) moved by Union Carbide Corporation (UCC) of the US, was then upheld. Consequently, the case moved back to India, conditional to UCC consenting to submit to the jurisdiction of an Indian court. The second round of the legal process started when the Government of India filed a damage suit against UCC in the Bhopal District Court on September 5, 1986. The case was based mainly on the premise that the Bhopal plant of UCC was faulty in design and the company had not taken adequate safety measures to prevent the leakage of lethal Methyl Isocyanate (MIC) on the night of December 2, 1984 which left more than 2500 people dead, and many more affected. Between these two rounds a 350 million dollar “out of court” settlement for the victim’s claim came as a bolt out of the blue. This settlement was apportioned to launch a disinformation campaign to suggest that Union Carbide is willing to be reasonable about the quick out-of-court settlement while the Government of India is not. Further, it was intended to trap the Government into a negotiating framework that will allow UCC to get away with paying a substantially lower compensation amount.

About 500,000 compensation claims were filed by the gas victims after the Government of India enacted the claim Act, and empowered the claims Commission to represent the gas victims. After three years of legal and pseudo-legal shenanigans back and forth, now the Bhopal District Court has provided some hope. The District Court has ordered UCC to pay Rs. 350 crores within two months as interim relief. By this order, Bhopal District Court has not only established a landmark precedent but issued a sharp rebuttal to the view entertained by a section that an out-of-court settlement is the only way to provide speedy relief.

However, UCC has to date showed its opposition to the District Court judgement. The UCC has said that an Indian Court ruling which ordered them to pay 270 million dollars as interim relief to victims to the Bhopal gas disaster “amounts to awarding damages without a trial, a practice that runs counter to the laws of India and other democracies”. This clearly shows the lack of concern of UCC for the victims. It may be remembered that Rs. 350 crore is a very small amount as compared to the demand of Rs. 3,900 crore made by the Government of India earlier. The Union Carbide Corporation, based in Danbury, Connecticut, still maintains that the tragedy was the result of sabotage by a disgruntled employee in their plant in India. All this seems to point to the fact that the company is determined to evade all responsibilities for the accident. The UCC’s efforts to pass the blame to its Indian unit and the repeated reiteration of the individual sabotage theory, followed by pursuing the possibility of an out-of-court settlement and finally the veiled challenge of the latest District Court judgement, speaks volumes about the callous attitude of UCC.

The judgement of the Bhopal court has surmounted the major hurdle. The Judge observed that the amount could be utilised so as to achieve: a) disbursement of substantial interim compensation; b) health care; and c) generation of employment potential for gas victims. The Judge further recommended something like Rs. Two lakhs in cases of death and Rs. 5 lakh in cases of total disablement to earn livelihood, and lesser amounts for the less injured. With this order, the judge made it clear that Indian jurisprudence is capable of coping with the new developments. However, considering the deaths and hazards caused and the number of compensations claimed, the sanction of Rs. 350 crore is a meagre sum. Though the order specifies the amount, it emphasizes the payment of compensation to the Commissioner of Claims, framed under the Bhopal Gas Leak Disaster (Proceedings of Claims) Act, 1985. Secondly, the ruling has not given its judgement on the case and thus has provided scope for UCC to further drag the legal procedures. However, at present the District Judge’s order for interim relief has caused great jubilation and hope among the gas victims who have suffered long enough. Now, further delay in the legal proceedings will create frustration and will test people’s patience to the limit.
Health Hazards in Electronics: A Handbook

This book describes in detail the health hazards occurring in the electronics industry and ways in which these can be challenged. It can be used as a guide for shop floor workers, labor organizations and factory inspectors to identify and prevent dangerous processes in the electronics industry which cause illness, injuries and various contamination.

Available from: Asia Monitor Resource Centre, 444 Nathan Road, 8/F Kowloon Hongkong

Housecleaners Co-op. Newsletter

This reports the programme and activities taken up by Housecleaners Cooperatives to prevent health hazards among women workers employed in homes.

Contact: Housecleaners Co-op. P.O. Box 28071, Oakland CA 94604, U.S.A.

Occupational Health and Safety

This is an article by Lloys Rego which discusses the recent amendments in the Factories Act. See "From The Lawyers Collective", October 1987

Contact: The Lawyers Collective, 818, Stock Exchange Towers, Dalal Street, Bombay - 400023

Industrial Safety Council

This is a quarterly journal of the National Safety Council. It brings out articles on different aspects of industrial safety and activity taken up on safety education.

Contact: National Safety Council, C.L.I. Building, Sion, Bombay - 400022

FRCH Newsletter—Special issue on the Health of Poor Labouring Women

The September-October 1987 issue of FRCH Newsletter has brought out articles on occupational health hazards of women in the service sector, home based work, agriculture, heavy manual work like construction etc. (FRCH Newsletter, September-October 1987, Vol. 1, No. 6).

Contact: Foundation for Research in Community Health, 84-A, R.C. Dadanl Marg, Worli, Bombay - 400016

Occupational Hazards

The theme of the October 1987 issue of the Journal of the Voluntary Health Association of India, "Health for the Millions" was occupational health and safety. "Occupational Hazards" by Dinesh Mohan deals with the magnitude of occupational hazards and spells out strategies for controlling it. It emphasises the importance of workers education on safety. "Work, Health and Women" by Imran Quaderi and Dunu Roy presents the trend of occupational health hazards on the background of social and economic determinants. Besides these there are articles on child labour, pesticide industry etc. The struggle of the Chetnagiri Mines Shramik Sanghat's on the issue of occupational health and environmental hazards is also covered.

Available from: Voluntary Health Association of India, 40 Institutional Area, South of IIT, New Delhi - 110016

Identifying Hazards of Work

A booklet published by ACTU National Occupational Health and Safety Unit. It includes chapters on how to inspect workplace, investigation of measures, education, use of accidents and sickness records, environmental monitoring, how to take up health surveys and checklist for health and safety inspection.

Available from: ACTU National Occupational Health and Safety, ACTU House, 393-397 Swanston Street, Melbourne, 3000 Victoria, Australia.

Women and Global Corporations: Work, Role, Resistance

A special section on women and work related problems, their roles and resistance to fight various discriminatory issues is a regular feature of the Newsletter "Listen Real Loud: News of Women's Liberation Worldwide" Issue No. 1, Vol. 8 is devoted to women in home work: women workers in microchip industry etc. It includes reports on efforts taken up by individuals and groups involved in research, education, support and direct organisation related to global industries where women are concentrated as workers or targets of consumer culture: electronics, agriculture, textiles, the garment trades and pharmaceuticals.

Available from: Nationwide Women's Program, 1001 Cherry St., Philadelphia, P.A. 19102, U.S.A.

The Struggle for Worker's Health: A Study of Six Industrialised Countries

This is a study of occupational safety and health problems of six countries vis-à-vis the U.S., Britain, the German Democratic Republic, the Federal Republic of Germany, Finland and Sweden by Ray H. Ellis. He states "most of the workers engaged in producing value which is exploited for the private use of a ruling elite". The book maintains that the single biggest factor determining the quality of a country's occupational safety and health system is the strength of its workers movement.

Available from: Baywood Publishing Co., Box D, 123 Marine St. Farmingdale NY 11735, U.S.A.