Dilemma of Occupational Incident Reporting

Every year, hundreds of workers are injured or become victims of diseases due to unhealthy and unsafe working conditions. Their plight, however, is unreported in media and in government statistics. They attract short-lived media attention only when disasters occur on a large scale. The reported figures seem unrealistic in the context of the existing unsafe and unhealthy conditions. Statistical records are silent and the available data is both meagre and highly manipulated. For example, only 336 fatal accidents were reported in the Labour Yearbook 1991, whereas our statistics, compiled from newspaper reports, are 361. Since all accidents are not reported in newspapers, the actual number must be even higher! This is only the tip of the iceberg. In the mining sector, figures available only till 1989 are 232. These figures are underreported and not updated annually. The data of occupational injury is generally recorded a year or two later than other soft data available in the Labour Yearbook.

No country has attempted to evolve a foolproof system of reporting. Some of the responses are: First, for almost all countries, this is not the foremost priority. Secondly, developing countries like India, Thailand or Malaysia, resort to data manipulation and underreporting to attract multinational corporation investment. This also reveals the dubious intentions of the governments vis-a-vis the
maintenance of an effective occupational and environmental health and safety system. These factors contribute to higher profits for the management. Why would foundries and asbestos units shift from industrially advanced countries to developing countries otherwise? Thirdly, witch-hunting in accident reporting is a great deterrent; the sole aim appears to blame either the management or the workers. Lastly, there is general ignorance of the public of the positive contribution of accident reporting.

These figures are directly related to policy formulation. Framing a sound policy in the absence of authentic data is a difficult proposition. The Labour Bureau in Shimla, responsible for collecting and compiling data for the whole country, also reviews existing policies and laws based on the reported data. Inadequate data can make these reviews ineffective and eventually misleading. Lack of an appropriate orientation and a negative attitude is apparent at the various stages as it goes from bottom to top—from the management to the Factory or Mines Inspectorate, who in turn send it to their state headquarters; the state governments then send it to the Labour Bureau. No preventive or curative measures are deployed. This is reflected in inadequate labour policies. For example, The Royal Commission on Indian Labour (1921-23) could not find any evidence of occupational disease and concluded that no such case existed in the country. In the Kolar Gold fields, it took fifty years to prove the existence of pneumoconiosis.

Can India and other countries remain insensitive towards this? In the present world, where communication is bringing together sectors of varied dimensions to enable us to visualise the welfare of the global community and "Health for All by 2000", there is need to rethink on the policies and practices related to occupational and environmental health and safety. A debate leading to action oriented programmes should be developed across the national boundaries to develop and utilise an efficient accident reporting system.

Harsh Jaitli

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Quality and safety

* Krishna Nirmalaya Sen

In any business enterprise, the effort is always to optimize the return on investment. The urge to strive for excellence in the sphere of product-quality or services springs from this.

When we define quality, we keep in mind some desired characteristics that a product or service may possess i.e. we envisage that these characteristics will be able to fulfill certain needs.

The need for safety is very basic to human activity and a great motivator. This may not consciously be a part of our mental framework most of the time but is definitely activated when the individual has to save himself from accident. This is where the concept of “SAFETY” begins consciously or otherwise. Safety is considered to be an integral part of the product. Then we find that quality becomes a function in the determination of safety standards. In industry, we can identify several such examples. A machine guard or the starter of a motor or a voltage stabilizer all provide some service from which the level of quality of the product may be assessed, and the functional aspects show that “safety” is an integral feature in all of these.

While safety can be defined as freedom from danger or accident, in defining quality, we keep in mind some desired characteristics of the product, which we expect to obtain from it. Here safety is one of the most important aspects.

In case of the machine guard, the quality of design determines whether it can perform its functions effectively to ensure safety. If the selection of the type of guard is incorrect at its design stage, it fails to serve its purpose and hence endangers the surrounding elements. This is equally applicable to the selection of materials of the guard.

Safety can be ensured if the product conforms to the design requirement only. If due to poor production process, the opening size in a guard becomes 5 cm instead of 2.5 cm thus allowing finger movement, it renders the machine unsafe.

For performance quality, safety is important. Because ultimately, the quality of the product is the vital element in ensuring safety.

Similarly, the quality of design of a starter is important in stopping inadvertent starting of the machine, protection of the motor etc. by complying with safety guidelines.

A voltage stabilizer also serves several purposes. Its sound design ensures protection of the electrical equipment connected to it and may prevent fire due to low voltage and subsequent high current flow (I) becomes higher as \( W = VI \); hence heat generation is more as \( H = I^2Rt \) and can lead to the burning of the coil and consequently to fire.

The purpose of expanding the sphere of this logic to all services, say banking may look apparently ridiculous. But closer examination reveals the several repercussions which poor service may have on the customer. Annoyance and customer dissatisfaction can definitely be attributed to poor service quality. We all can understand how the state of mind becomes instrumental in the accident causation theory; i.e. the poor quality of service has a direct impact on the safe behaviour of the individual. Quality becomes complementary to safety.

Ergonomic considerations

The concept of ergonomics deals with aspects of safety, quality, and productivity simultaneously. This term can be defined as one that goes beyond the protection of the worker’s physical integrity and aims at ensuring his well being by creating optimal working conditions and by the most suitable use of his physical characteristics and capabilities. Many ergonomic measures introduced at the design stage of a building, appliance or machine can ensure safety.

The idea of fitting man into machine has disadvantages, like poor performance, strain, fatigue, etc. Ergonomics has brought the concept of Human Factors Engineering into the design of equipment etc.

One common example, is the design of an operator’s seat. Here, different factors such as the height of the back rest, mobility etc. are to be considered during its design. The functional requirements of the job also have to be taken into account.

Similarly, height of the working table, positioning of the light source to avoid glare, positioning of controls etc. also have a direct bearing on the performance of an individual.

There is the example of the improved product - pliers. Quality comparison of the straight pliers and bent nose pliers shows that ergonomic considerations have improved the operational features of the latter.

The need for integrating the concept of safety, with ergonomics, while designing a better quality product, is strongly felt. This would be helpful in the optimization of the desired performance/results.

*Author is working as a Safety Engineer with Larsen & Toucre Limited, EEC Construction group, Russian Federation
Dumping garbage workers of Bombay: the plight continues

Introduction

This study addresses the problems of dumping-ground workers of the Brihanmumbai Municipal Corporation (B.M.C.). In 1991, the Forum for Environmental Concern, a project of the College of Social Work, Nirmala Niketan, studied the working conditions of the dumping ground workers in Mumbai. The study, conducted at the behest of the Municipal Mazdoor Union, focused on workers' health and safety conditions. The picture obtained, unfortunately, was dismal but even more unfortunate was the inaction subsequent to the completion of the study.

PRIA in collaboration with Nirmala Niketan conducted a follow-up study in 1995. The two major components of this study were: (a) To effect an improvement in the working conditions of dumping-ground workers of the BMC, especially water for drinking and cleaning up, toilet facilities, protective gear, protective gear in vehicles, medical facilities at site, night lights, and fencing. (b) To advocate the use of the sanitary landfill method which would reduce environmental pollution and occupational hazards at site simultaneously.

Garbage and its disposal

According to the WHO (1984), in Civic Affairs, (1992), solid waste is matter in the wrong place, i.e., a non-liquid, non-gaseous substance no longer useful to the holder; the holder may represent the family, institution (e.g., school, hospital) or industrial unit. Urban societies, which are concentrated in pockets of population advocating consumerism, generate a huge quantity of solid waste. Per capita generation in Mumbai has been cited as 193 gms per day (Kotkar, Sihorwala, and Tilwankar, 1991). However, Sharma (1992) estimates that per capita generation of solid waste in an average Indian city is closer to 600 gms per day. In the period 1993-1995, solid waste generation increased by 100 tons in each ward of Mumbai (Deshmukh, 1995).

The problem of garbage arises at the time of its disposal. Regardless of the manner of primary disposal, it is not collection from source that constitutes a problem but the method of final disposal (Fishbein and Gelb, 1992; Marro, 1989). Municipal corporations across the world are tussling with the immense problem of final disposal of solid waste. Incineration (sometimes for power generation) and composting are overshadowed by the use of landfills (Jain, 1984; Marrow, 1989; Sharma, 1992).

The solid waste generated in the 23 wards of Mumbai city is disposed periodically.

In the landfill method, waste is dumped either in low-lying regions or in swampy regions as practiced in Mumbai. Optimally, sanitary landfill methods should be used. In a sanitary landfill method, the refuse is confined to the smallest practicable area via compacting, and covered with a layer of earth at least daily (McHenry, 1992, pp. 396). At times, the compacted waste is contained in clay and plastic liners to prevent ground-water pollution (Firstman, 1989). The low-lying or swampy land filled is meant to be landscaped into a recreational area, because heavy construction is generally avoided on completed landfill sites.

Indiscriminate dumping is in sharp contrast to the sanitary landfill method; there is a minimal attempt at compacting and no layering with soil or building construction material (malba) is done. Unfortunately, Mumbai's dumping sites approximate indiscriminate rather than sanitary landfill, as the waste is not covered with solids (Kotkar et al., 1991).

Although sanitary landfills are not foolproof environmentally (Firstman, 1989), indiscriminate dumping sites are an environmental nightmare. Hydrogen sulfide which is highly poisonous and methane gas which is highly combustible are emitted as garbage decomposes anaerobically. Leachate, a liquid pollutant threatening groundwater, attracts flies, mosquitoes, rodents, scavenging animals, and the diseases associated with them. The putrescent garbage is malodorous and carries pathogenic germs that cause gastro—intestinal diseases such as cholera and typhoid (Marro, 1989;
out any eating facility despite being located in remote outreaches of Mumbai. There was no fencing in any of the sites, and no guards were employed, except at Deonar, making workers prey to scavenging animals. No first aid was available at site despite the high incidence of burn injuries due to methane; cuts and insect and scavenging animal bites were also frequent. Vehicle maintenance workers were not equipped with necessary tools such as a hoist, and were thus liable to develop orthopaedic ailments.

The diseases as reported in the last study can be seen in Table 1. Workers reported that their average mortality rate was 40-45 years.

**Findings:**

**Distribution of sample across dumping-ground sites and workers categories**

The sample consisted of 48 workers interviewed from all the B.M.C dumping-ground sites that were open during the period in which data was collected. Four dumping-ground sites were in active use at the time of data collection: Deonar, Malad, Gorai, and Mulund. Deonar was the biggest dumping site; accordingly, a majority of the sample was drawn from Deonar (65%). Similarly, a majority of the workers at dumping sites were labourers and therefore more labourers than other categories were included in the sample (54%). Other categories of workers interviewed included bulldozer cleaners, bulldozer operators, and maintenance workers. The maintenance work was mainly done at the Deonar site. The entire sample consisted exclusively of men as only men were employed at dumping sites. Most workers at dumping sites work one of either

**Present study:**

The dumping sites of the Brihanmumbai Municipal Corporation are a study in environmental negligence and negligence of the health of workers at site.

**Research design and overall procedure**

The goals of the study were met through two culminating phases. In the first phase, a sample of non-supervisory level workers were interviewed from the dumping sites of the BMC using an individually-administered, semi-structured interview schedule. Interviewers also completed an observational checklist of conditions at site. The goal of this first phase was to ascertain whether working conditions pertinent to workers health and safety had remained static, improved or deteriorated since the 1991 study.

The second phase consisted of an open forum with administrative/policy making staff. The intention was to confront policy makers as a group in order to force a decision to change working/environmental conditions at the dumping site. Findings from the previous study and Phase 1 of present studies were presented. The session was open for brainstorming. It was hoped that the group would be led adroitly into charting a concrete plan of action.

**Table 1**

<table>
<thead>
<tr>
<th>Diseases</th>
<th>Previous study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>A-eye problems</td>
<td>80</td>
</tr>
<tr>
<td>B-respiratory ailments</td>
<td>70</td>
</tr>
<tr>
<td>C-Gastro intestinal problems</td>
<td>60</td>
</tr>
<tr>
<td>D-skin infections including lesions</td>
<td>50</td>
</tr>
</tbody>
</table>

The findings revealed that worker's outfits were totally inadequate for working in direct contact with putrescent garbage with pathogens, combustible and poisonous gases, and hidden sharp objects. Labourers slushed through the hazardous, wet, decomposing garbage without gloves or gumboots or protective overalls. Abysmally, apart from Deonar, there were no washing facilities at site. The solid waste, frequently contained dead animals that were gutted open when the waste was leveled by bulldozers and the workers were sprayed by the remains of dead animals. None of the sites had toilets, drinking water, and electricity for night work. At the close of the study, a canteen was opened at Deonar. Other sites continued with...
shifts: 6.00 a.m. to 2.00 p.m. and 2.00 p.m. to 9.00 p.m.

Table 2. Distribution of sample across dumping-ground sites and worker categories

<table>
<thead>
<tr>
<th></th>
<th>Labourer</th>
<th>Bulldozer cleaner</th>
<th>Bulldozer operator</th>
<th>Maintenance worker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deonar</td>
<td>16</td>
<td>7</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Gorai</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Malad</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Mulund</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Column</td>
<td>26</td>
<td>10</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>(54.2%)</td>
<td>(20.0%)</td>
<td>(14.6%)</td>
<td>(10.4%)</td>
<td></td>
</tr>
</tbody>
</table>

Recruitment-related characteristic of the sample

Ninety-two per cent of the sample consisted of permanent employees of the B.M.C: only 8% consisted of temporary employees. Number of years that permanent employees had worked at a B.M.C. dumping-ground site ranged from 1 to 38 years. In contrast, temporary employees had worked for 2 to 4 years.

Socio-demographic characteristics of the sample

The average age of the workers was 39. Their average schooling was 7th grade, ranging from the 21% who had never been to school to the 2% who had completed high school. 94% of the respondents were married, and 85%, were sole earners in their families.

General job history

Sixty per cent of the workers had worked elsewhere before beginning work at a dumping-ground site. A quarter of these workers had been involved in other aspects of waste-management in the B.M.C. such as loading garbage trucks, road sweeping, and toilet/gutter cleaning. Seventeen per cent had been employed as semi-skilled workers in small industries. Miscellaneous previous occupations included domestic worker, peon, salesman, agricultural labourer, bulldozer operator in private company, and security guard.

Change in nature of work at dumping ground

In general, once employed as a labourer, the individual remained a labourer for the entire span of his working life. Thus, 81% of the workers stated that there had been no change in the nature of work assigned since they began working at a dumping site. Of the 19% who had experienced change, all except one had started as a bulldozer cleaner and graduated to bulldozer operator. Another labourer became a maintenance worker. It can be concluded that for the most part, only the worker category of bulldozer cleaner allowed for upward mobility.

Living conditions

The living conditions were inadequate. Only 19% of the workers were staying in houses provided by the B.M.C while the rest were living in chawls, slums, and suburban areas of Bombay.

Basic amenities: Water

The availability of water for cleaning is a must for the dumping-ground site workers in order to be rid of the pathogens that they come into contact with during their work day. Other than being germ-laden, putrescent garbage is also malodorous. Washing, therefore, is additionally essential in order to lessen the stench on bodies that remains from having directly touched/walked through the garbage or even from standing around or driving in the land-fill areas where the air is thick with the smoke, dust, and offensive smell of decaying garbage.

In this context, it is important to note that only 44% of the workers reported having a tap water connection in their home, and to make this picture bleaker, the average number of hours of regular tap water at home was only 3. Among those who did not have a tap water connection at home, most (78%) used a community tap and therefore faced the same problem of irregular and limited supply of water. In fact, the supply of water for these worker families was even more exiguous because of the outstandingly larger number of people depending upon the same tap. It is therefore not surprising to find that 38% of the workers reported that on reaching home after work, they almost never had adequate water to freshen themselves. Another 25% reported that it was only adequate approximately half the time. The remaining reported that it was almost always adequate.

Working conditions on site

Uniform and accessories provided to workers by B.M.C

Clothing

Sixty-three per cent of the workers reported getting fabric for a shirt and trousers from B.M.C., whereas 15% of the workers reported getting khaki half-sleeve shirt and trousers. Casual employees who had worked for less than a year did not receive clothing (17%).
Footwear: Seventy-one per cent of the workers reported receiving footwear from B.M.C.. In all but two cases, workers reported getting gumboots. These gumboots were reported to last for a year by most workers (70%); however, 21% said that they lasted 2 months, and 9% said 6 months.

Other protective gear. Thirty-eight per cent of the workers reported getting raincoats; 10% reported getting masks; 8% reported getting goggles, and only 4% reported getting gloves.

Raincoats lasted for a year according to 52% of the workers, and between 2 and 4 months according to others.

Other accessories. Six per cent of the workers reported getting soap, one of whom reported getting towels as well.

Adequacy of uniform and accessories for working on site
An overwhelming majority (92%) stated that the uniform and accessories provided inadequate protection while working on the site. The various reasons given by the workers were that the uniform was inadequate to protect from dust, smoke, flies, fire and heat; the material used being of inferior quality did not last for a long time. The clothes, gloves, shoes and gumboots would tear; the dress burnt if acid spilled on it; the cloth was too thick for the tailor to stitch; gumboots could only be worn during the monsoon, otherwise the rubber got too hot due to fire on site; the mask or goggles were too small to protect and the raincoats were not waterproof.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Percentage of respondents</th>
<th>Worker Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tolerating the stench, smoke, smog and dirt</td>
<td>17%</td>
<td>Mostly respondents</td>
</tr>
<tr>
<td>Sweeping the site road/directly vehicles because of exposure to dust and stink</td>
<td>15%</td>
<td>Only labourers</td>
</tr>
<tr>
<td>To clean the chains and wheels of the bulldozer especially in the monsoon (with an iron rod)</td>
<td>16%</td>
<td>Mostly bulldozer cleaners</td>
</tr>
<tr>
<td>Cleaning bulldozers with bare hands; handling garbage with bare hands; the stink on bodies is almost permanent</td>
<td>8%</td>
<td>&quot;</td>
</tr>
<tr>
<td>Bulldozing heavy objects such as concrete blocks because it puts a lot of strain on the back</td>
<td>8%</td>
<td>only bulldozer operators</td>
</tr>
<tr>
<td>Working in the monsoon: it gets marshy/difficult to walk; worms get into our body whilst walking on garbage</td>
<td>6%</td>
<td>labourers and bulldozer cleaners</td>
</tr>
<tr>
<td>All work is heavy and difficult</td>
<td>4%</td>
<td>labourers and workers</td>
</tr>
<tr>
<td>Exposure to diseases/viruses; severe health problems related to work-site</td>
<td>2%</td>
<td>labourer</td>
</tr>
<tr>
<td>Heat—standing in the sun for hours</td>
<td>2%</td>
<td>only labourers</td>
</tr>
<tr>
<td>Heavy loading in maintenance/batteries work because it causes tremendous backache</td>
<td>2%</td>
<td>mostly workers</td>
</tr>
<tr>
<td>Pulling heavy pipes of dirty water</td>
<td>2%</td>
<td>&quot;</td>
</tr>
<tr>
<td>Missing and miscellaneous information</td>
<td>12%</td>
<td>&quot;</td>
</tr>
</tbody>
</table>
Work and family life

To the question “does your work cause any problem in your family/personal life?”, the recurrent response was frequent illness and concomitant financial problems. Thus, medical worries were predominant in 46% of the responses. Further, 8% of the workers explained that the malodour lingering on them after work at dumping sites put off their wives and children. One bulldozer cleaner exclaimed, “We stink, so it bothers our children and family. My children tell me I stink. It hurts”. A substantial 44% had no worklife-related family problems.

Injuries at work

Getting cut

Forty-two per cent of the workers reported getting cut while working on site at least once a week. For the most part (52%) these cuts were small and just cleaning sufficed. However, 14.6% of the workers reported having cuts that needed doctor’s attention and bandaging.

Most of the workers (31.3%) got cut while walking through the waste. They reported that their legs sank into the garbage and were cut by the sharp metals and broken glass shards hidden in the garbage. Another important reason (16.7%) was the low visibility due to dense smoke and dust. Workers also mentioned that their hands get cut when they clean the chains of the bulldozer (8.3%). Maintenance workers incurred cuts while working with heavy or sharp auto parts (6.3%).

Getting burnt

Similarly, 43.8% reported getting burnt while working on site once a week or more. Workers were divided over whether the burns obtained at work required medical attention or not. Forty per cent reported that they had to go to the doctor whereas 33.3% ignored the burns.

The most frequent manner (31.3%) in which they got burnt was while walking through waste. They explained that garbage burns by itself and they inadvertently stepped into areas where there were fires. A quarter of the workers also reported that they got burnt whilst preventing such fires from spreading. Fourteen per cent of the workers frequently got burnt because of heated machinery, especially heated bulldozers. Maintenance workers cited acid burns.

Other injuries

Ten per cent of the workers reported having accidents such as tripping and falling over the chain of the bulldozer whilst directing the bulldozer and getting a fracture. One bulldozer cleaner told, “I had an accident recently. While directing the bulldozer operator, I tripped and fell on the bulldozer chain. My skin was scraped but I had to continue working. I went to a doctor after work. My ribs still hurt”. In the maintenance areas, heavy auto parts sometimes fell on the workers. Others (8.3%) described orthopedic ailments: back injuries from hoisting heavy auto parts; in one case, the locking of hand and leg joints. Injuries were also caused by nails and disposed hospital syringes penetrating their skin whilst walking on the garbage (6.3%). Minor injuries were sustained once a week, more severe accidents occurred once a year.

Alcohol consumption and its relation with cuts, burns, and other injuries

It is believed that occupational exhaustion, especially if working conditions are physically unpleasant (malodorous, for example) and strenuous, may lead to a daily pattern of drinking, perhaps excessive drinking. Employers may argue that alcohol consumption, rather than the working conditions, is the reason why workers sustain injuries at work. Out of the total sample 29% of the workers reported that they consumed alcohol. The hypothesis that those employed in physically unpleasant work environment drink more was not supported by this study. Moreover, of the 29% who did consume alcohol, 50% had alcohol only once a week. In other words, at the most 14.6% of the workers interviewed could be classified as relatively heavy drinkers who drank once a day.

Apart from frequent alcohol intake, workers also stated when they were likely to drink during the day. Nineteen per cent of the workers imbibed in alcohol on reaching home after work; the remaining 10% drank alcohol through the day, and not just in the evening.

A salient finding in this study is that alcohol consumption was not systematically associated with either (a) frequency and severity of cuts and burns or (b) frequency and severity of other injuries. Contrary to what may be believed, the workers at dumping ground sites were not indulging in more drinking than that is characteristic of the Indian male, nor was their drinking pattern related to the frequency and severity of minor or major accidents on site.

Relation of age, and duration of work, with cuts, burns and injuries

Both worker’s age and duration of work at dumping-ground sites were unrelated to the frequency and
severity of cuts and burns, and likewise that of other injuries. In other words, older workers did not report more frequent and severe cuts and burns or other injuries. Neither did workers, who had been employed at the dumping-ground sites for a long time, report a higher number and more severe cuts and burns or other injuries. Regardless of age or duration of work, workers at dumping-sites of the B.M.C appear equally prone to minor or major accidents on sites.

**Health problems at work**

**Skin infections**

A large percentage, i.e., 20.8% of the workers reported having skin infections often. The skin infection was described as small boils on skin, redness of skin and itching. The majority of the workers, i.e., 39.6% did not obtain medical help. In contrast, 27% felt that the skin infection was severe enough to prompt them to get medical assistance. A smaller number, 6.3% reported that they had to make continuous visits to the doctor. A quarter of the workers reported having skin infections due to mosquito and fly bites especially during the monsoon. The garbage attracted mosquitoes and flies. Another quarter complained that their skin got infected because of direct, unprotected contact with waste. Similarly, 10.4% blamed the bad environmental conditions. One worker attributed it to continuous burns. Maintenance workers got skin infections when hot diesel fell on their bodies, causing burns and boils; machine grease contributed too.

**Eye infections**

An overwhelmingly large, i.e., 70.8%, of the workers reported having eye infections all the time. The eye infection was described as redness and watering of eyes. Fifty-eight per cent did not go to the doctor but 25% reported eye infections severe enough to impel their going to the doctor.

Workers (85.4%) were outstandingly unanimous in describing the cause of eye infections: “Smoke, dust, gases enter our eyes while working causing itching and redness which leads to infection”.

**Relation of age, and duration of work, with skin and eye infections**

Neither worker’s age nor the duration of his work at a dumping-ground site was related to the frequency and severity of his getting skin and eye infections on site. Thus, older workers did not report more frequent and severe skin and eye infections neither did those who had worked for a longer period at a dumping-ground site. In other words, younger or older workers, who had worked for shorter or longer periods, were equally susceptible to skin and eye infections.

**Other health problems**

**Frequency of falling ill**

Fifty per cent of the workers reported falling ill once a month; 19% of the workers reported falling ill three or more times a month. The most common were the common yet enfeebling cold, cough, and fever. Severe bodyache, backache, pain in joints, and illness related to the digestive and respiratory systems were next in importance.

<table>
<thead>
<tr>
<th>Table 5.</th>
<th>Ailment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic irritation in eyes (itching/burning/redness/watering)</td>
<td>68.1%</td>
<td></td>
</tr>
<tr>
<td>Backache/slipped disc/joint pains/aching legs/stomach problems (frequent nausea/acidity)</td>
<td>29.8%</td>
<td></td>
</tr>
<tr>
<td>Diarrhea/indigestion/loss of appetite/flatulence/swelling of stomach</td>
<td>29.8%</td>
<td></td>
</tr>
<tr>
<td>Chronic skin infection (itching/rash/blisters, boils, or lesions)</td>
<td>21.3%</td>
<td></td>
</tr>
<tr>
<td>Asthma/breathlessness</td>
<td>17.0%</td>
<td></td>
</tr>
<tr>
<td>Headaches</td>
<td>14.9%</td>
<td></td>
</tr>
<tr>
<td>Chronic cough</td>
<td>4.3%</td>
<td></td>
</tr>
<tr>
<td>Typhoid</td>
<td>2.1%</td>
<td></td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>2.1%</td>
<td></td>
</tr>
<tr>
<td>Insomnia</td>
<td>2.1%</td>
<td></td>
</tr>
</tbody>
</table>

**Table 4. Nature of Illnesses.**

<table>
<thead>
<tr>
<th>Nature</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold, cough, and fever</td>
<td>70.8%</td>
</tr>
<tr>
<td>Severe bodyache, backache, pain in the joints and chest</td>
<td>16.7%</td>
</tr>
<tr>
<td>Breathlessness</td>
<td>10.4%</td>
</tr>
<tr>
<td>Vomiting, diarrhea, and flatulence</td>
<td>10.4%</td>
</tr>
<tr>
<td>Numbness in hands, weakness in legs</td>
<td>2.1%</td>
</tr>
<tr>
<td>Blood in urine</td>
<td>2.1%</td>
</tr>
<tr>
<td>Severe exhaustion</td>
<td>2.1%</td>
</tr>
</tbody>
</table>

The frequency of falling ill was unrelated to the worker’s age, duration of work at the dumping site and alcohol consumption. Frequency of falling ill was also independent of dumping site and worker category.

**Chronic ailments**

A quarter of the workers had no chronic ailments. A greater percent-
Number of chronic ailments was unrelated to age, duration of work at a dumping site and alcohol consumption. For the most part, workers reported that their ailments began only after joining work at the dumping-ground sites.

Thirty-three per cent of the workers said that the symptoms of these ailments sometimes got aggravated during working hours; another 10% stated that they got aggravated each day. Examples include the following: backache and pain in joints worsened while cleaning chains of the bulldozer or driving the bulldozer; the dust, heat, and gases made eyes burn, induced nausea, and breathlessness. One bulldozer operator exclaimed, “I have to apply a lot of pressure to clean the chains of the bulldozer; at that moment my back pain worsens, the dust and gases make my eyes burn.”

Workers evaluation of medical facilities provided by the B.M.C

Facilities received

Medical facilities provided by the B.M.C should include a nominal medical allowance per month, a periodic medical check-up, a first-aid box, the facility of quick transport to a hospital in case of emergency, and the use of B.M.C health services such as Health Posts. Interestingly, some of the workers categorically stated that they did not get one or the other of these medical services.

13% of the workers said that they did not get a medical allowance. Whereas most of them i.e. 60% said that they did have a medical check-up once a year and as many as 32% denied having any annual medical check-up.

As for facilities on site, 38% reported that there was no first-aid box on site and an additional 6.4% explained that although there was a first-aid box, its contents were inadequate. Similarly, 30% of the workers claimed that there was no provision for speedy conveyance to a hospital in the event of an emergency.

At best, workers used B.M.C health facilities for the annual medical check-up. Only one worker stated he used B.M.C health facilities whenever the need arose. All others went to private doctors.

Reasons for not using B.M.C medical facilities

Forty-five per cent of the workers explained why they did not use B.M.C medical facilities. Some (5%) stated that the medical check-up itself was a farce. “They do not give us the report of the medical check-up; if they did, the B.M.C would have to give us benefits”. “The doctor never gives us special attention. Whenever a check-up is done, we are always given a fitness certificate even though we are not healthy because otherwise the B.M.C would have to give us benefits.” One worker claimed that the last medical check-up had been in 1991. Similarly, another said that medical services were not given on time.

As for the medical allowance, workers (10%) found the monthly medical allowance of Rs. 70 to be too meagre to pay for doctor’s bills or fill out prescriptions. Therefore, rather than set aside an insufficient amount for medical expenditure, they used this money for household expenses.

Workers also elaborated why they did not use B.M.C health services on an ongoing basis, i.e., going to a B.M.C hospital or Health Post when they fell sick. Firstly, they felt that they did not receive proper treatment at B.M.C hospitals and were neglected by doctors (10%). Secondly, they did not frequent B.M.C hospitals because they did not get free medical treatment there after all (7.5%). They had to pay for their medicines. To illustrate, a worker who had been hospitalised for three months had to pay all his hospital bills himself. The preference noted in all but one worker for private health services as opposed to public health services, although justified, is nevertheless disquieting. Whereas the workers are sceptical of the quality of health care in public hospitals, the quality of private health care is no less dubious (Garner & Thaver, 1993). For instance, as many as 80 treatment regimes for tuberculosis were found in a sample of 100 private physicians in Mumbai; of these, only 4 matched WHO standards.

Some workers cited ignorance about facilities as a reason for not using what was available (5%). It is important to note that at the national level, ignorance about health care facilities is a leading reason for the under-utilisation of public health services (Bhardwaj and Hasan, 1993). Others felt that their superiors withheld their medical perks (5%). One worker reported that he did not get anything because he had not completed two years of work as a B.M.C employee.

Suggestions

The following suggestions for improving working conditions at site were put forward by the workers:

- Provision of clean and sufficient water for drinking and washing.
- Good quality uniform and protective gear on time especially in summer protective boots, umbrella, raincoat, mask, winter coat, gloves and cap.
• Improved canteen facilities with less expensive and better food and clean water.
• Better toilet facilities in terms of cleanliness and more in number.
• The living arrangements should be closer to site.
• Transfer or rotation of work to different sites and different types of work. The rotation should take place every two years.
• Increase in wages.
• Build a roofed shed with a plastered floor for doing maintenance work in the shade.
• Extra uniforms should be provided and more soaps and towels be given.
• Build a place where workers can rest for a short while.
• Provision of electricity and fridge.
• Safety cabin for bulldozer operator.
• Shock-absorber seat in the bulldozer.

**Improvement in medical facilities:**
• Regular and frequent medical check-ups.
• Small dispensary on site and availability of doctor on site.
• Medical allowance should be increased.
• Vaccinations and anti tetanus injections should be given to the workers.
• Provision of first aid box on site.
• Reimbursement of medical expenses.

**Conclusion:**
The study done in 1991 at the request of B.M.C unfortunately did not succeed in bringing a better working environment for these workers. The plight of the workers remains the same due to status quo.

The B.M.C shrugs off its responsibility by foisting inadequate and uncomfortable equipments on workers. Workers participation in designing the protective equipments would benefit both the workers and the B.M.C in terms of safety and reduction of extra expenditure.

Till the time B.M.C gets more sensitised to the conditions of the dumping ground workers, these workers will continue slogging in conditions so filthy which others find it difficult to even pass by.

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*Please write to PRIA for a detailed report.*

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**READER'S QUERY**

**Bone and bone meal**

*Bone is the hard connective tissue which forms the basic component of the skeleton of vertebrates.*

Bone is a valuable raw material for the industrial production of edible and non-edible fats; after fat extraction, the limb bones are also used in the manufacture of haberdashery, musical instruments, etc. However, the prime uses of bone are adhesive manufacture (gelatin and glue) and the production of bone meal for use in fodder and fertiliser.

The main process in the conversion of bone to bone meal are: sorting, crushing, degreasing, cleaning and secondary crushing, separation of fully crushed bone from nitrogenous waste, washing and steam and hot-water treatment of glue extraction, drying and milling. Bone-meal production has become centralised and is often highly mechanised; however, a certain amount of small-scale production is still carried on and it is here that the poorest conditions in this industry are usually found.

The process of bone crushing and milling give off considerable quantities of dust, comprising mainly organic material. Prolonged exposure to high concentration of this dust may give rise to eye and respiratory system disorders. Chemical treatment of bones such as fat extraction using organic solvents or sulfuric acid may result in the release of dangerous gases and vapors (gasoline, toluene, dichloroethanes, sulfuric dioxide, etc.).

Workers handling raw bones are in danger of contracting zoonoses such as anthrax, glanders, foot and mouth diseases, apthous lever, brucellosis, O fever, etc. from infected material.

*Ref.: Encyclopedia of Occupational Health and Safety, ILO, Volume 1 and 2, Third (Revised edition).*
Children at work: the Bhavnagar scenario

* Sumedha Saxena

This study focuses on the occupational health hazards suffered by children working in small scale industries of Bhavnagar city. Situated in West Gujarat, Bhavnagar has a population of approximately four lakh five thousand people. There are a lot of large and small scale industries flourishing in this city. Children are employed on a large scale in almost all the industries, irrespective of the hazardous work processes.

In a study by SHAISHAV, (1995) a NGO working for children in Bhavnagar, 13000 children employed in 300 different industries were identified. Visits to Bhavnagar revealed that the children face a lot of health problems due to their work. With the objective to explore these problems in depth, a collaborative study by PRIA and SHAISHAV was undertaken in March 1996. This article presents the facts gathered through this initiative.

A general observation of the industries shows us that no rules and regulations governing child labour were followed. There were no fixed timings for the children to work; they usually work more than the prescribed 8 hours a day.

Among the mandatory legal provisions, Article 24 of the Indian Constitution says, ‘No child below the age of fourteen years shall be employed to work in any factory or mine or engaged in any other hazardous employment’. Article 45, a Directive Principle of State Policy, enjoins the state to provide free and compulsory education for all children until they complete the age of fourteen years. Different labour laws like the Factories Act, 1948 and the more recent Child Labour (Prohibition and Regulation) Act, 1986, use the same criteria of age. Article 39 (e) directs the state to secure conditions in favour of children so that their tender age is not abused and they are not compelled by economic necessity to take up jobs, unsuited to their age and strength, while under Article 39 (f), the state is directed to ensure that ‘the children are given opportunities and facilities to develop in a healthy manner and in conditions of freedom and dignity and that childhood and youth are protected against exploitation and against moral and material abandonment’.

Apart from these constitutional provisions, various national policies and programmes have been created for their welfare. The National Policy for Children, (1974) lays down that, “it should be the policy of the state to provide adequate service to children, both before and after birth and through the period of growth to ensure their full physical, mental and social development.”

These industries flourish with the labour of children as it is more economical to employ and easier to exploit them. The employers utilise the lacunae in the law. For instance the 1986 Prohibition and Regulation Act discusses prohibiting employment of children in hazardous activities. It lists particular processes in certain industries as being banned for children below the age of fourteen years with the proviso that such a ban would not apply to those children working as part of family labour or to those working in any state funded or state supported institutions. Are only the activities mentioned in the list hazardous? What are the criteria for measuring hazards at the work place? No studies or analysis have been done to assess the effects of these hazards on children. The fact that some industries may look safe on their face value but could be dangerous for the child who is actually spending most of his time there, must be considered. We have to keep in mind that these children are in the process of growing up where they need a good and healthy environment for their physical and mental growth. In the present situation, the child spends most of his time in factories and other commercial establishments where he has to work in congested and dirty surroundings, put in more labour than his capacity and be at the mercy of the employer who may treat him as he wants, the child stops living - he only survives. His growth is stunted both physically and mentally.
In Bhavnagar too, labour is cheap and abundantly available; it gives more scope to exploit the child labourers. Many of the industries give work to the family on piece rate basis and these children who contribute as much labour as adults can easily be overlooked as the law has a loophole.

**Present Study**

The sample of 227 children were from 17 occupations, namely diamond, pottery, cotton rope making, plastic rope making, ship breaking, biscuit, bakery, plastic weaving, recycling, plastic bag cleaning, construction, cotton weaving, garage, steel rerolling, salt plants, chemical, and agarbatti. The industries were chosen on the basis of their hazards. Our choice was also restricted by the accessibility of the workplaces to us. We faced resistance from employers while collecting data for this study, especially in ship breaking units, diamond, biscuit and steel rerolling plants. In the diamond industry there was more resistance as a group of diamond traders in London have demanded abolition of child labour in India and warned that if it was not carried out, all economic transactions with India would be stopped. In view of this, a few seminars and workshops were conducted in Gujarat to take action to stop children working in this industry. Views were discussed, action plans formulated, but, as always, never implemented; as a result, children were still employed furtively. The whole campaign only generated fear among the employers to be wary of government and international bodies.

Employers in the ship breaking units of Bhavnagar also face similar problems. Sixty kilometers from Bhavnagar is a place called Alang which is the biggest ship breaking and recycling unit in the world. Ships from all over the world are brought here after they reach the expiry date. Each part of the ship is broken and useful things taken out which are further reused or recycled. “It is a very profit-

able business”, related one of the employers there. One ship can fetch a profit in lakhs for the traders. That is the reason a large part of Bhavnagar have small units engaged in this work. The majority of the work force here is children who put in their hard labour in extreme heat the whole day. A closed group, it does not allow any outsiders to enter, so the internal situation is unknown to many. While interviewing these children we had to meet them outside their work area or in their homes.

Some of the limitations of this study have been that while talking to the children we could have got more spontaneous answers if the employer was not present at the worksite or if they were alone. They hesitated in answering a few questions probably due to fear of the employer. In places where we interviewed children in schools or at their homes, they talked more and showed a lot of confidence. Another limitation was not getting access to more hazardous occupations like chemical units, skinning carcasses, chocolate factories, glass recycling, etc.

**Methodology**

The method used to collect data was through questionnaires having more open ended questions. The children were selected randomly from these industries. The age group was restricted from four to fourteen. Information was also collected through observation and from the family members of the child and in a few cases from the employers too.

**Findings**

Out of the total sample of 227 the number of male children was 155 (68.28%) and female children were 72 (31.71%).

**Table - 1**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>0-4 yrs</th>
<th>5-9 yrs</th>
<th>10-14 yrs</th>
<th>15-19 yrs</th>
<th>20-24 yrs</th>
<th>25-29 yrs</th>
<th>30-34 yrs</th>
<th>35-39 yrs</th>
<th>40-44 yrs</th>
<th>45-49 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years</td>
<td>7.48</td>
<td>10.94</td>
<td>24.63</td>
<td>0.91</td>
<td>1.76</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Table - 1 shows that a large number of children who were interviewed belong to the age group of 12 - 14 years. 101 children i.e. 44.49% fall in this age group. 103 children i.e. 45.37% were in the age group of 8 to 12 years. A small number of 17 children i.e. 7.48% were between the age of 6 to 8 years.

**Educational status**

157 (69.16%) of the children were literate while 70 (30.83%) were illiterate. Out of the 157 literate, 54 (34.39%) were continuing studies while the rest 103 (65.60%) had stopped.

Majority of the children dropped from school when they were between 3rd to 6th standard. Out of the 103 children who stopped studies, 75 (72.81%) fall in this category. 13 children i.e. 12.62% studied only till 2nd standard. Only 15 of them (14.56%) reached 7th and 8th standard.

A similar trend was apparent among children who were continuing studies. There were less children studying in higher classes like 6th onwards. Only 12 (22.22%) of them reached the 7th standard and above. A large number of 33 (61.11%) children were studying in 4th to 6th standard. The rest 8 (14.81%) were in 1st to 3rd standard. This shows that children generally study till 5th - 6th standard and start
dropping out as their work demands  
increase. All these children who were 
continuing studies go for work after 
school hours. They were paid half the 
wages and did not get breaks in be-
tween for lunch. Spending all the non- 
school hours at work, they neglect 
their studies; once they fail in any 
class, the parents feel that its high time 
the child starts devoting more time to 
work.

Table - 2

<table>
<thead>
<tr>
<th>Family size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 members</td>
</tr>
<tr>
<td>3-4 members</td>
</tr>
<tr>
<td>5-6 members</td>
</tr>
<tr>
<td>7-10 members</td>
</tr>
<tr>
<td>More than 10 members</td>
</tr>
</tbody>
</table>

The majority of the children, i.e. 
78.41% had large families with 5 - 8 
members in each family. 25 (11.01%) 
had more than 9 members. Studying 
the income group of these families and 
linking it to the size of the family 
would bring out one dimension of 
these children being compelled to start 
work at an early age.

Income group of family

The income group shows that 146 
families (64.31%) have income in the 
range of Rs 1000 - Rs 3000. Supporting 
large families on a limited salary 
encourages the family to see each 
member as an earning member, ir-
respective of his age. Each member has 
to contribute his share for his con-
sumption. The income group as men-
tioned above may not be the actual 
income of the family in a few cases. 
For instance in family owned units, 
they consider their income as the to-
tal turn-over without deducting the 
amount required for production. As a 
result, the family earning Rs 5000 per 
month would actually get much less 
for consumption after deducting the 
amount spent on raw materials. The 
differences in income group as seen 
in the above table also varies accord-
ing to the occupation un-
taken by the fam-
ily. The diamond 
dustry in Bhavnagar 
is the highest paid oc-
cupation followed by 
other occupations. As 
a result, once a mem-
ber of the family en-
ters the diamond industry the income 
level of the family increases. A gen-
eral trend seen in the study was that 
most of the children aspired to join the 
diamond trade as it was more profit-
able and less laborious.

Income of the children:

The children can be divided into four 
groups according to the way they are 
benefiting economically. The first was 
salaried, the second group of children 
got pocket money from family, the 
third group got a stipend and the fourth 
one was unpaid.

1. Salaried group [106 children 
(46.69%)] :-

These children were getting paid directly 
by the employer for their work. Out of 
these 106 children 76 
(71.69%) were paid 
daily, 9 (8.49%) were paid weekly and the 
rest 21 (19.81%) were paid monthly.

Among the daily wage labourers, chil-
dren were generally paid upto Rs. 40 
per day. 40 children out of 76 daily 
wage labourers i.e. 52.63% were paid 
upto Rs 20 per day. 33 children i.e. 
43.42% were paid between Rs 20 to 
40 a day. One child reported being 
paid between 40 and 60 while the rest 
2 were paid more than 60 a day. In 
the weekly paid group of 9 children, 2 
(22.22%) were paid upto Rs 50 
weekly, 2 were paid in the range of 50 
to 100, 3 (33.33%) were paid between 
101 - 150 and the rest two (22.22%) 
got 150 and above a week. The 
monthly paid workers reported 7 of 
them (33.33%) being paid between 
300 to 600 a month. 9 (42.85%) said 
that they were paid somewhere be-
tween 600 - 900 a month and only 4 
(19.04%) were paid in the range of 900 
- 1200. One of them (4.76%) was paid 
less than 300 a month.

2. Pocket money [93 (40.96%)]

These children were generally em-
ployed in home based work where the 
family is given work on piece-rate 
 basis. The child contributes an equal 
amount of time and energy as does the 
adult member of the family but as the 
family is paid together he does not get 
his share. He gets a few rupees as 
pocket money which he can spend at 
his discretion. Home based work is 
practiced in agarbatti, plastic bag 
cleaning, plastic and cotton rope mak-
ing. In the salt industry, the whole fam-
ily is employed by the makadam, 
given a patch of land and paid accord-
ing to the output. Here too the chil-
dren get pocket money. 82.97% of the 
children got monthly pocket money 
upto Rs 100; 13.82% were given in 
the range of 100-200 and only 2.12% 
received between Rs 200-300.

A few children said that they saved 
this money for their future. Some of 
them used it to see movies and eating 
out.

3. Stipend [9 (3.96%)]

These children were paid a small 
amount of money as stipend while 
they were learning work. The children
in this category were the ones working in garages. They do all sorts of work and get on the job training. They were paid a monthly stipend. The children interviewed in the garages were working in family owned garages. They continue the same work when they got older. As stipend amount 22.22% were paid upto Rs 100 a month; same percentage of children were paid between 100-200 and the rest 55.55% received an amount ranging between 200-300.

4. Unpaid : [12 (5.28%)]

This category of children were in the diamond industry where they were paying a certain amount of money to the employer to learn the work. They pay about Rs 400 per month to the employer till they learn the work properly. According to the defined version of child labour, these children may not fall in the same category but we have to keep in mind that though these children were still learning they were linked to the production directly. In small units, employers kept taking money from them for a couple of years saying that some more perfection was required, while the actual work could be taught in six months. They kept prolonging the training so that the child paid for a longer time and at the same time did all the work. In many units the employer had 4-5 children ostensibly under training but doing all the cutting and polishing work independently. This is another way of exploitation by the employers. The children accept this because once they enter the diamond trade they are secure economically for many years.

The above stated were the four categories the children got paid for their work.

From the above graph it can be seen that a large number of children i.e. 75.77% had been working only for the past two years. The number decreases as the number of years increase. Only 4 children i.e. 1.76% had been working for the past 6-8 years. This can be seen in two perspectives. One being that the children join the work-stream late and the second being that they had been working in other occupations prior to this occupation and had joined the present occupation recently. If we analyse the second perspective further, the reasons for children changing the jobs have to be explored. Do the children leave the job on their own or are they thrown out? The reasons for children leaving the job could be due to less wages, bad treatment of the employer, or disinterest in the work. In a few cases we interviewed children who had shifted jobs to diamond or biscuit factories because they found better wages here and a feeling of permanence as they were in a more organised set up. In the second case, where they had been thrown out by the employer, the children are either occupational rejects when they lose their skill and speed after working for some years, the employer would rather discharge them than pay them for doing less work. Another point which comes to light is that all these children are daily wage labourers. As per the Contract Labour Act a contract worker can be employed for 90 days after which he has to be made a permanent worker. As this is not very profitable for the employer, he keeps giving breaks in-between so that there are no records that a particular worker has worked continuously for 90 days in a particular establishment. The labourer always remains a contract labourer throughout his life, though his work experience should permit him to enjoy the benefits of a permanent worker.

Working hours:

The above chart shows that majority of the children work for more than 8 hours a day. 171 children i.e. 75.33% were working 6-15 hours a day. The 42 (18.50%) children who put in 0-5 hours a day were part time workers who go to work after school. The three children (1.32%) who recorded 16-20 hours of work in a day were from salt plants. They would start their work early in the morning till noon, then take a break and resume work in the evening to continue till late night.

Break time

121 children i.e. 53.30% got 0-2 hours break in a day. The rest of the workers who have recorded more than 2 hours of break were from salt plants, Alang and biscuit factory. In the salt plants, as mentioned above, the workers start their work early in the morning at 4 am and work till 11 am. They rest in the afternoons and again resume work in the evening to continue till 11 pm. In the biscuit factory and the Alang unit, the children got long lunch
breaks for two hours and a 10 - 15 minutes tea break in the evening. The 34 (14.97%) workers who reported no break were the part time workers who did not get any time off from work. These children came straight from school to work and though they put in half day's work, they were on the move the whole day. 53 workers (23.34%) said that there was no fixed time for taking a break. They belonged to home based occupations where there were no strict rules to be followed so they took short breaks in between the work schedule. In the construction work, the break time was based on the amount of work finished. They got a tea break after they loaded a particular amount of cement or filled in a particular number of slabs. If they finished the work fast they would get a break soon. The children put in more than 8 hours of work even after excluding the break time!

Leave from work

Out of the total number interviewed, 129 children i.e. 56.82% got leave on festivals and one day in a week. 33 children i.e. 14.53% got half day holiday in a week and on festivals. 40 of them i.e. 17.62% who belonged to the home based worker's category got leave when there was no work, whenever they required and on festivals. 2 children who in the potteries said that they got leave in the monsoons when all work was stopped for a few months. 10 children said they got leave twice or thrice in a month and three reported only once in a month. 5 workers said that they did not get any leave and the rest 5 did not answer. Looking at the above figures it could be seen that all these children were given very little leisure. With long working hours, short breaks in between and very few holidays, these children were practically spending all their time working with no time to play or do anything else.

To add to the exploitation of these children, a large number of them reported that they did not get any wages for these holidays. 94 children said there wages were cut while 10 got paid for the holidays. 12 of them did not get holidays or did not give any answer.

Past Working experience

Out of 227 children 67 (29.51%) of them were working in some other occupation prior to this work.

Accidents at workplace

182 children i.e. 80.17% reported that they had met with minor accidents and injuries at workplace. The various types of injuries as reported by the children were cuts, burns, injuries on hands, legs and head; oil spills over body; bruises; nail breaks; cuts on fingers from knife and other tools used at work; particles got in eyes while working; boils on hands and feet; hand comes in machine; sprain; heavy objects fall over them; slips and falls from heights; back injury; and blisters. In the biscuit factory the children had a belief that every year one child dies in the factory. The reason given was that the hand comes in the machine and he dies immediately. They had witnessed at least one death every year and that's why it had become a belief that one of them had to die each year. In construction, more cases of falling down, heavy objects falling over them were seen. In the plastic bag cleaning occupation while opening the bags and cleaning them the children got a lot of cuts and injuries on hands. We met one girl who had lost her hand while cleaning the cement bags. In Alang units sharp particles go in the children's eyes and their nails break while pulling the wire to take out the copper. The garages had more incidents of oil spilling over the body as a reaction of which they would get boils, blisters and other skin infections. In the salt plants, the injuries took place while taking out the salt with the help of shovels. Only 44 (19.38%) of the children did not meet any accident or injury at work but they all admitted that the environment was conducive to injury.

The children were asked as to what could be the cause of these accidents in their opinion. 125 of them i.e. 55.06% said that the work area and the tools used were the cause for their injuries. 20 of them i.e. 8.81% thought that it could be their own mistake which resulted in the accident or injury. 12 (5.28%) of them said that both the work place as well as their own mistake was the cause of the accidents. The rest 70 (30.83%) did not answer.

Once they meet with an accident or injury, the immediate action was to apply ointment and tie with thread or cloth. In cases of serious injuries they went to a private doctor. The general
trend seen was that the ointment used for injuries was a chemical which was used at their work also. For example in garages they applied brake oil, gasket solution and spirit on the wounds. In salt industry they applied kerosene on cuts and hot oil on swellings. Kerosene was seen as a common ointment in almost all the occupations. The other things used widely among them was tooth paste, iodine, iodex, turmeric, buttermilk, burnol, hot oil, vaseline, balm, nail polish, snuff, bhang, tea water, etc. Using remedies like brake oil, gasket solution, spirit etc. spoil their wound further though it may have provided them with immediate relief.

They were asked whether they got leave from work after the accident. 76 children i.e. 33.48% got leave from work, 67 of them i.e. 29.51% did not get any leave and the rest did not answer. Out of the 76 children who got leave, 18 got paid leave, 35 had unpaid leave and the rest 23 did not answer.

Out of the 182 children who met with injuries and accidents, 133 (73.07%) reported that they had completely recovered from their injuries. 18 of them i.e. 9.89% had not completely recovered and the rest 31 of them did not answer. Of the 18 who had not completely recovered from the injury, 12 i.e. 66.66% were recovering while 2 (11.11%) had permanent disability. The rest 4 did not answer. A large number of the children, though, reported that they had completely recovered also said that these injuries kept taking place frequently. So even if they recovered from the last one they would be heading for the next one soon.

The children were questioned whether they had witnessed any other accident of their friend or colleague at the work place. 189 of them i.e. 83.25% said yes, 28 of them i.e. 12.33% replied no and the rest 10 did not know. A large percentage of them reported in affirmative that their friend or colleague had met with an accident; it showed that all these industries had a high accident rate. Accidents of serious nature were seen more in plastic recycling and weaving units, Alang units and biscuit factories. The accidents here have resulted in workers being amputated in certain cases.

The children could not give exact numbers of how many accidents had taken place in their industry in the past few years. However 145 of them i.e. 63.87% said that these accidents took place frequently. One of them even said that it was a daily phenomena. 31 children i.e. 13.65% said that accidents occur occasionally. 28 of them did not know, 21 did not answer and the rest 2 said that there were no accidents in their industry.

The children named reasons for these accidents which took place in their industry. 47 (20.70%) said the carelessness of the worker caused these accidents. 51 (24.46%) said the accident prone atmosphere of the industries was the cause. A large number of 101 children (44.49%) thought that both combined i.e. worker's carelessness as well as the work area could be the cause. 18 (7.92%) did not know and 10 did not answer. As can be seen the children are also aware that their work was accident prone. Although they were aware of it and saw accidents taking place every day they can't do anything much except hope that they do not get any serious injury. But as hopes are not the remedy, they get injured, recover from it and head for the next one.

Diseases:

Above we have discussed the factors leading to the accidents and injuries of the children. The second major area where their health is affected are the diseases they acquire while working. The children are at a stage where they are growing up each day, developing their senses, their bones are developing, they are vulnerable to contract more diseases than adults. The fact that they start work early in life and thus become occupational rejects earlier. A worker who works in a factory for 20 years and acquires an occupational disease would be non functional at the age of 40 - 50 but a child who starts working at the age of 12 in the same industry would be non functional in his youth itself. Also as seen above, the children spend more than 8 hours a day working in the hot sun. Their families cannot afford a nutritious diet for them and as a result at an early age they become susceptible to illnesses and their immunity keeps deteriorating. Most of the children were aware that they could get disease due to their occupation. 181 (79.73%) were aware while 37 i.e. 16.29% said that they cannot get any disease due to their work. 8 did not know and 1 did not answer.

When asked whether they had any disease from work 175 (77.09%) said yes. 28 (12.33%) did not acquire any disease due to work and the rest 24 did not answer.

Many of the diseases as reported by children were seen to be common to all in each occupation. Many of the health problems were common to all and a majority was reported to be suffering from them. A wide range of common diseases found in all the occupations is given below:
Skin problems — Boils and blisters on hands and feet, irritation and itching, inability to touch hot things in case of plastic bag cleaning workers, skin becomes dry and chapped, feet become dry and crack, sometimes resulting in blood coming out from these cracks.

Respiratory problems — TB, difficulty in breathing: in case of pottery and Alang units a lot of smoke is inhaled the whole day.

Eye disorders — Eyes burn due to smoke, irritation in eyes while cleaning lime and cement bags, eyes become red and start watering in garage work, biscuit factory, bakery, Alang, pottery, salt, etc. Itching in eyes in cotton rope making, agarbatti, chemical unit, and diamond. In biscuit factory children face difficulty in opening eyes after work.

Aches and pains — Headache, pain in hands, feet, neck, joints and shoulders, back ache, stomach ache. Severe body ache in pottery, rope making, construction, and Alang units.

Stomach disorders — Diarrhoea, vomiting, stomach ache, constipation, acidity, severe stomach ache reported in children working in the biscuit factory if they eat the biscuits.

Other illnesses — Cold, cough, fever, dizziness, spinal cord problem reported if children start working early in the potteries work. Difficulty in sleeping due to exertion, blood comes from nose in extreme heat, sun stroke, in plastic rope making, rope becomes hot and sticks to skin, burning sensation in throat.

As reported in by the potters there were cases of TB among them as they grew older. Considering their nature of work, the chances are more that they have silicosis which is being misdiagnosed as TB.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Health hazards commonly faced by workers in these industries:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic</td>
<td>Dermatitis, respiratory problems, hearing loss due to noisy machines, burns, 'polymer fume fever' following overheating of PVC, dangerous reactions from inhaling toxic fumes.</td>
</tr>
<tr>
<td>Bakeries</td>
<td>Air borne flour dust may cause rhinitis, buccopharyngeal disorders, bronchial asthma, eye disorders, sugar dust may cause dental caries, high incidence of pulmonary tuberculosis, allergic dermatitis in some cases.</td>
</tr>
<tr>
<td>Construction</td>
<td>Acute forms of skin disease, respiratory or digestive system impairment, cancer, pneumoconiosis and silicosis are hazards associated with the processing of sand.</td>
</tr>
<tr>
<td>Cement</td>
<td>Respiratory problems, digestive disorders, skin diseases, rheumatic and nervous disorders, hearing and visual disorders, cement pneumoconiosis after prolonged exposure.</td>
</tr>
<tr>
<td>Pottery</td>
<td>Pneumoconiosis resulting from prolonged inhalation of siliceous dust, skin diseases, exposure to heat.</td>
</tr>
<tr>
<td>Cotton rope making</td>
<td>Byssinosis</td>
</tr>
<tr>
<td>Salt Making</td>
<td>Eye troubles, skin lesions: scars, fissures, destructive ulcers, fissures in soles of the feet and palms of the hand which heal slowly, mycoses of nails.</td>
</tr>
<tr>
<td>Chemical Industry</td>
<td>Chemical poisoning, skin diseases, prolonged exposure to chemicals resulting in cancer.</td>
</tr>
<tr>
<td>Garages</td>
<td>Carbon monoxide poisoning, dermatitis, eye problems, oil acne, skin affections, lead poisoning, hernia and strains due to lifting heavy objects.</td>
</tr>
<tr>
<td>Heat and hot work</td>
<td>Systemic disorders: heat stroke, heat exhaustion, water deficiency, salt deficiency, heat cramps and sweating deficiency; skin disorders: prickly heat, cancer of the skin; psychoneurotic disorders: mild chronic heat fatigue, acute loss of emotional control, acute distress.</td>
</tr>
<tr>
<td>Noise</td>
<td>Fatigue, nervous irritability and strain, effects on efficiency, variations in heart rate, blood pressure, respiration, dilation of pupils, peptic ulcer, speech interference, raise in hearing threshold.</td>
</tr>
</tbody>
</table>

Out of 175 who had suffered from occupational illness, 139 (79.42%) had completely recovered. The rest 36 (20.75%) were not completely well. Seeing a similar trend as accidents, though 139 children said they had completely recovered, the illnesses they acquire keep recurring and though they may get temporary relief, once they are back in the work area, problems recur.

77 children (44%) out of 175 got leave from work during illness. 36 (20.57%) did not get any leave and the rest 62 did not answer.

Out of the 77 children who got leave from work, 48 (62.33%) did not get any wages during the time they were on leave, while only 11 (14.28%) got paid leave. 18 did not answer. As their wages are cut when they are ill the children rest for a very short time and many times they continue working even if they have fever, cold, cough etc. Due to this reason they fall ill more often as the body does not get adequate rest. In fact when they were asked if they get common illnesses often, 122 (53.74%) of them affirmed, 100 (44.05%) refuted and 5 did not answer. This shows that a considerable number fall sick very often.

They were asked to list the diseases acquired during the past two years. Children not able to articulate whether the diseases they suffer from are occupation related were asked this question so that if they are not able to identify any occupational disease their medical history would give more information. 201 children (88.54%) listed a few diseases while 26 (11.45%) said they did not fall sick in the past two years. The list of illnesses as listed by the children include fever, cerebral malaria, headache, cold, vomiting, stomach ache, diarrhea, sunburn, ear infection, cholera, bodyache, eye infection, heart trouble, chest pain, breathing problem, typhoid, boils in mouth, weakness, and skin disease.

As can be seen, almost all of the above mentioned illnesses are occupation related except a few which may not be related to work like cerebral malaria, cholera and typhoid, but they reflect unhygienic living conditions and poor nutrition.

Looking at the high rate of illness among these children, it becomes important to see how much the family spends on their medical treatment per month. A large number of families i.e. 138 (60.79%) spent in the range of Rupees 200 per month. 27 families (11.89%) spent somewhere between Rupees 200 - 400 per month on medicines. 14 (6.16%) spent about four to six hundred Rupees per month.

Besides their own illnesses 120 (52.86%) children reported that their friends or colleagues had also acquired illness due to work. 74 of them (32.59%) said that none of their friend or colleague had acquired any illness at work. 22 (9.69%) were not aware and the rest 11 did not answer. These figures also reveal that the workplace is hazardous as 52.86% of the children reported witnessing illness of their friend or colleague. The diseases named were the same as the ones they had listed for themselves above.

Work area:

In majority of the cases, the workplace was very hot. The children were working either directly under sun or in closed rooms with no fan or ventilation. In Alang, salt, plastic and cotton rope making, the situation is pathetic with children working under the sun the whole day. Bhavnagar starts recording a high temperature from March onwards. In rope making industry the child has to continuously walk the whole day holding the hub. Many times they do not even have slippers to wear. In plastic weaving there is a tremendous amount of noise within the factory. The noise remains continuously and it is impossible to hear anything if one is inside the room.

In the pot making occupation when they bake the pots, the furnace generates so much smoke that the whole area becomes black. The potters unable to afford coal or wood to burn, use rubber which they get free of cost from the Alang waste. As a result there is lot of black smoke with a bad stench. They collect garbage from outside which includes rubber, plastic, paper, glass particles etc. which are used to burn the furnace. The furnace is built just outside the house; all the smoke goes inside and the smell stays for a few days. In the biscuit factory, the children complained that their eyes water when they knead the dough for biscuits.

The children were asked to identify four factors at their workplace namely
dust, noise, heat, and chemical fumes.

The above figures show that a lot of children could identify heat, dust and noise at their work area. 138 of the children (60.79%) said that these factors disturb them in their work. 45 (19.82%) did not feel so. 6 children did not know and the rest 38 did not answer.

The children said that due to excessive heat and dust they did not feel like working. Also in extreme heat they felt dizzy, bled from the nose, had fever and headache, their eyes burnt and they experienced a loss of energy. The dust disturbed them in work in terms of irritation in eyes and throat, breathing problem, and chest pain in certain conditions. They said that dust of cotton, iron, agarbatti, cement, etc. also caused irritation while working. Children in the plastic weaving units complained that they lose their hearing capacity in some years due to excessive noise at the work place. In Alang, smoke from burning rubber and other plastic wires generates a bad stench difficult to work in. In the salt industry, the workers complained that the glare from salt affects their eyes and they start losing their eyesight.

Besides heat, dust, noise and chemical fumes the children named other factors which also caused them discomfort while working: drinking water and toilet facilities. Most of the units do not have drinking water, so despite the heat the children had to re-

main thirsty till they got a break. In construction work the children had to walk long distances to reach the site. Children working in the garage said that the municipality people troubled them. They kept destroying their shops, extortion of money from them, and got their vehicles repaired free of cost.

**Employer - employee relationship**

We wanted to assess the employee - employer relationship in case of children. A few points emerged while defining who the employer was in certain industries. In factories like biscuit making, plastic weaving, diamond, chemical units, Alang, garage etc. the child had direct contact with the supervisor. In these cases the supervisor may not be the principal employer but merely an employee involved to administer the whole process. Here the child saw the supervisor as the employer and rated the employer's behaviour according to the supervisor's. In the biscuit factory the children could differentiate between the supervisor and the employer as they used to get their wages from the employer every month. In this particular biscuit factory, the children reported that the supervisor was very bad as he used to beat them frequently. They liked the employer because he was only responsible to give wages.

In other occupations like plastic weaving, recycling, rope making, cotton rope making, agarbatti, etc. which are all home based work, the child had no direct contact with the employer. The family got the raw material from the contractor which they processed for him. In order to rate his behaviour the child replied okay or good if the contractor paid reasonably well, and bad if he cut their wages. In occupations like pottery which is a home based business there is no employer involved. The family make the pots and sell them in the market. In construction, the situation was more complicated as there were a lot of sub contractors involved in the process. The child is employed by different contractors as per the need of the work. He may work at one site for a week and shift to some other next week. To ask him to rate his employer's behaviour would be difficult as his employers keep changing. In garages, the children were generally employed in family owned business or with their uncles and cousins. Here it became difficult for them to rate the behaviour of their relatives.

The children gave the following answers for the behaviour of their employers towards them:

![Employer's behaviour](image)

A limitation in getting data for this question was that in cases where the employer was present the child rated the employer's behaviour as good.

**Retiring age**

The children were asked till what age workers generally work in their industry. This was asked in order to ascertain at what age the workers become occupational rejects. 29.51% placed
the retiring age of workers between 40-50 years; 22.02% said workers retire before the age of 40, and only 10.57% said that the workers retire in the age group of 50-60. The rest were not aware and a few did not answer.

In most of the factories no inspector came to the factory for any kind of inspection. 188 children reported that they had not seen any factory inspector coming to their industry. 24 said yes, 5 did not know and the rest 10 did not answer. A few children told us that when factory inspector comes to their industry the employer sends them away and calls them back after he leaves.

**Suggestions of the children**

The children were asked to give suggestions to improve their work area. They can give better suggestions as they spend all the time in that place. Some of the children came up with very practical and innovative suggestions. There were some who could not speak as the employer or other colleagues were standing near them. A few children did not give any suggestions as they had never given it a thought and some thought that there is no scope of improvement in their workplace. Each occupation had its own suggestions but there were some common to all.

**Improvement in work area**

A majority of them suggested that a shade should be provided to shield them from the sun. There were opinions that the place should be bigger, more light and less noise be there, and better flooring be provided. A few suggested that the drinking water and toilet facilities should improve. Some also suggested that a first aid box be kept in all working areas so they did not have to go to the doctor every time they got injured.

**Improvement on the economic front**

One child came up with a suggestion that a bank be opened for them. He was of the opinion that all the children save money and if this money could be put in a bank there would not be any fear of losing money.

**Occupation wise suggestions**

- In pottery and rope making they wanted the process to be mechanised by installing motors. That would save lot of their labour.

- In plastic bag cleaning work they preferred cleaner and dry bags so that scrapping could be easier.

- In plastic weaving almost all of them said that there should be less noise, the place be more airy and spacious.

- There were a lot of suggestions in construction work. They suggested that the sand should be of better quality, light work should be given to them, gloves and boots be provided, lifts be there to carry heavy loads, traveling and medical allowance be given to them, and wages should increase.

- In Alang units, the children wanted the place to be cleaner, something to be done to lessen the smoke, and facilities like tape recorder and cold drinking water be there.

- In salt work, the suggestion was that the employer should provide them with gloves, shoes, hats and goggles.

- In the biscuit factory, the children felt that if the supervisor beat them they should all come together and beat him back. According to them there was no other way to stop him. They also wanted the machines to be differently designed so their hands did not get caught in the machine.

- In diamond industry they wanted modern machines to be installed for more production, separate place to sleep in the factory, facility to take bath and a tape recorder.

**Aspirations**

We asked the children about their aspirations for the future. They were asked to name their dream for the future irrespective of the fact whether it was possible or not. The majority wanted to study further. They wanted to study till 12th standard and some wanted to go to college as well. Education they felt would help them in their basic accounting etc. and give them scope to change their job if they wanted to. The children listed occupations which they aspired to join. The list included the desire to be a doctor, policeman, manager in some factory, own a shop, engineer, driver, teacher, army officer, lawyer, tailor, border security personnel, own a garage and be in any kind of white collar job. A large number of the children wanted to join the diamond industry. Among the home based workers, most of them wanted to stay in the same trade. The potters realised that their occupation was being outdated and not much profit could be fetched in it, so even though they liked their work they would have to switch trades to earn money.

There were children who had lost the interest in life around them and were just drifting slowly. They had no aspirations; no suggestions came from them and they seemed to have lost the zest for life.

**Conclusion**

The prevalence of child labour in India is not a new phenomena. Since years children have been employed in all types of commercial establishments. Child labour has been eliminated in most of the advanced countries of the world but on the contrary the position in the context of child labour has deteriorated to a great extent in developing countries. The 1981 census says there are 263 million children aged 14 years or under in India comprising 39.5 percent of the total population of the country. Out of this 78 percent of the children are in rural
India. The census records 11.2 million as main workers and 2.4 million as marginal workers.

The underlying reason for employing children at work from a very young age has been termed as poverty. However, the gravity of this problem has assumed serious dimensions in terms of excessive exploitation of the children by their respective employers.

A growing sensitivity to provide special measures for protecting children’s rights and guarding them against any sort of exploitation can be seen in the voluntary sector. Various international and national organisations have strengthened their work in this field by framing policies and action plans to shape out a strategy which would help in minimising this problem. Opinions differ whether the demand should be to eliminate child labour or accept the reality that children are going to be employed till poverty remains; so the demand should be to provide them with better facilities, more wages, a safer place to work and legal protection.

The situation in case of small scale industries is complicated in terms of identifying the employer. With the influx of so many middlemen and sub contractors, the blame of any accident or disease can be easily passed on further. An industry which produces products whose production process can be hazardous to the workers within the factory finds a easy way out to escape any penalty. Instead of preventing the hazard it removes the hazard from the premises by sub contracting that particular work to outside people. The sub contractor further passes on the work to families. In the whole process if they sell the raw materials to the second party and buy the finished products from them, they also free themselves from the responsibility of any accident or illness taking place due to the work. This can be seen in small scale occupations like plastic rope making, cotton weaving and cotton rope making, salt production, plastic weaving etc. In June 1996, ILO will discuss homeworkers for a second time in its annual conference. What has to be seen is whether this time the home-based workers will be recognised or not and will be protected by law.

Though much has been talked about child labour and the need to ban it, very little has been discussed about the health problems of children acquired due to the hazards faced at workplace.

As the above findings reveal, the children working in small scale industries suffer from various illnesses. The law does not recognise these children as child labourers as they are employed in home based work; these children also lose their entitlement for any benefits or compensation due to disease or injury at workplace.

In Bhavnagar the children as well as adult workers have no knowledge about the existing laws and even if they are aware of their existence, they are helpless to seek redressal. First of all they are not able to fix the blame on anyone. They cannot take any action against the middle men or the contractors because these middlemen provide them with employment without which their survival is at stake.

With the prevailing conditions, the children continue slogging the whole day in conditions hazardous even for adult workers. Each industry studied has scope for improvement and hazards can be controlled by simple ways. What we have to do is to extend this information to the children, families, middlemen and the employers. A mutually accommodating approach with each one contributing can help protect the future of these children.

* Kindly contact PRIA for a detailed report.

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**Letters to Editor**

- We get ‘Environmental and Occupational Health’ bulletin regularly. You have done commendable work for workers on environmental and occupational health issues. Our ‘Shram Santghatan Slate Pencil Mazdoor Panchayat’ is with you in this endeavor.

  We look forward to more information relevant to us. Mohan Singh Chauhan, Advocate, 104 Duplex Kityani, Mandsore 458001

- While going through your periodical, “Occupational and Environmental Health” issue of March 1996, I read about various industries and mines which cause silicosis.

  I would like to share information about Alarao, a town which has lot of rice mills. The rice mills as well as small scale makers of puffed rice create enormous problems for the workers. In summer season the rice husk ash flies with wind and create problems of eyes and lungs. The workers suffer from TB, asthma and die early.

  A thorough study is required on this problem and the findings should be brought to notice to the government and press. I wrote to Pollution Control Board but there was no response. I hope you would take initiative to do something in this direction. Bartendur Prakash, Vigyan Shikshen Kendra, Village Terari Mauri, Banda, Uttar Pradesh.

- I happened to go through a piece of news item titled, “Electroplating Units a Health Hazard : Study” appearing in the PIONEER of 30 April 96.

  You and PRIA deserve appreciation for this study. The article should certainly rattle the conscience of any civilised person. Yet as you say, the units are mushrooming day after day posing enormous threats to environment!

  Kailash Satyarthi, South Asian Coalition on Child Servitude, 74, Aravali Apartments, Kalkaji, New Delhi.
CIS

Occupational medicine, Epidemiology


This manual on occupational health is aimed particularly at trainees in developing countries. Part I covers occupational health issues (pesticide poisoning and development of safe pesticides; needs of farmers, small scale industries, health professionals, women workers and office workers; stress management; executive health screening, health promotion; risk of injury and disease among health professionals; chemicals risk assessment; transfer of hazardous industries; occupational cancers; role of legislation). Part 2 covers the development of national health plans for the working population (occupational health services; identifying and evaluating occupational health needs; examples of occupational health services in some developed countries; role of the World Health Organisation). (65655).


This scheme published by the WHO provides a classification of the sequelae of various diseases, injuries and other conditions resulting in impairment, disability or handicap. Main types of information provided: the consequences of disease; classification of impairment; classification of disabilities; classification of handicaps. (65830)


Collection of articles that address the aetiology, pathogenesis as well as the medical treatment and supervision of employees with diabetes mellitus. In addition, the work capacity of diabetic employees and the effects of shift work on diabetics are discussed. The work situation of diabetics in Germany, France, Spain the United Kingdom and USA are described by authors from these respective countries. For example, diabetics are not allowed to fly an aircraft or drive a train in any of these countries. (65574)


(In English)

This report gives advice on measures of eliminating and controlling dust and noise hazards during the construction process by means of the correct specification of materials, components and assembly process. Contents: definition of terms; principles of risk assessment and control; dust hazards during demolition, grit blasting, asbestos removal, handling loose powders and other activities; noise hazards (noise action levels, effects of noise); methods of avoiding or controlling these hazards; responsibilities of designers, planning supervisors and principal contractors; use of personal protective equipment. (65604)

Chemical Safety


This publication is based on two working groups and one seminar held between 1972 and 1977 each addressing a particular aspect of solid waste management. Contents: model code of practice for the disposal of solid waste on land (planning, site selection and survey, types of waste acceptable for disposal in landfills, operational practice, completion of landfilling and final restoration); composting (range of applicability, mechanical treatment and composting, health and safety aspects, testing of final compost); incineration (types of waste, principles of incineration, plant selection, environmental and economic constraints); animal waste (properties of animal fallout waste, handling and transport, physical and biological treatment methods). (65636)

- CIS 95-2202 Management of waste from hospitals and other health care establishments. EURO
OTHERS

- The Asbestos Hazard Handbook

Asbestos is a deadly killer which has already killed many workers and will kill more in the coming years. It is estimated in Britain, that in the next 30 years 150,000-250,000 UK citizens will die of lung cancer, mesothelioma and asbestosis.

This book throws more light on asbestos. A useful book for people involved in the fight over asbestos use in industries. It talks about the hazards of asbestos, identification of asbestos, removal and disposal of asbestos waste, alternatives to the use of this toxic substance and how safe these alternatives are. It counters the myth of ‘safe’ asbestos and describes how to launch a campaign to fight the use of this killer.

Published: London Hazards Centre Trust Ltd.
Interchange Studios, Dalby St., London NW5 3NQ
Year of Publication: 1995, Price: £12, (£5 to trade unions, community groups, tenants and resident’s associations when ordered directly from London Hazards Centre)

- Dusty Dawn

Dust at Workplace and Worker’s Nightmares

In August 1994, Envirotech Instruments Pvt. Ltd., organised the national scientific research papers contest on the issue of dust related lung diseases. Out of 85 papers, a few selected by a committee of experts, were compiled in this book. It will be beneficial for researchers, doctors and professionals in the field of occupational health.

The effects of dust are discussed with specific reference to a few industries: namely steel, spinning and dyeing, iron, cement, coke, and mineral. They discuss the effects of dust on human health and the environment and the worker’s awareness on occupational health and safety issues.

Edited by: Harsh Jaitli and Ashesh Kumar
Published: Society for Participatory Research in Asia, 42 Tughlakabad Institutional Area, New Delhi 110062 in collaboration with Envirotech Instruments Pvt. Ltd., A-271, Okhla Industrial Area, New Delhi 110020
Year of Publication: 1996, Price: Rs 100

- The law on compensation for motor accident victims

The rate of accidents today in cities is on a rise. Not many people are aware of the compensation procedures and the revised Motor Vehicles Act of 1988 which gives more rights to victims of motor accidents.

This book can be used as a guide for information about the whole procedure of filing for a compensation, the amount allocated for different types of accidents, and assistance from Lok Adalats.

Illustrations and examples help in better understanding of the Act. A simple well written text, it is helpful for the victims of motor accidents and others.

Authors: Seema Mishra and Kiran Singh
Published: Multiple Action Research Group
Year of publication: 1995, Price: Rs 50

- Environment Policy, Law and Practice in India

A paper of Econet Environment Series, it analyses the existing laws in India on environment. Briefly discussed are various legislations on land conservation, water pollution, air pollution, forests, human population, health and hygiene.

The paper further throws light on international laws and their relevance to India. An analysis has been made on
why environment laws in India have not succeeded and the gulf between the policy, law and the practice. In the end it gives a list of advocates, institutes, and individuals who can be approached for Public Interest Litigation and Environmental legal aid.

Author: Vijay Paranjpye
Published: ECONET
5, Sanket, Vijay Nagar Colony, 2123, Sadashiv Peth, Pune 411030
Year of publication: June 1994, Price: Rs 15 (suggested contribution)

- ECO JUSTICE - Linking human rights and the environment

A new approach to combine the environmental movement with human rights movement is recommended in this book. The human costs of environmental degradation ranging from the displacement of entire communities by dam construction to the health problems caused by hazardous waste dumps have never been greater. As communities organise to defend themselves and their local environment, they often find that their most basic legal rights are in jeopardy as well. Together these two movements could devise creative, community based conservation and development schemes.

The book starts with an introduction on human rights and the environment. Further chapters discuss the individual and human rights, the community and their fight for a safer environment.

Author: Aarun Sachs
Published: World Watch Institute, 1776 Massachusetts Ave. NW, Washington, DC 20036-1904
Price: $5

- Participatory Research in Health

Participatory Research in recent years gained considerable importance both as a research strategy and as an educational process. This volume breaks new ground by presenting the experiences and reflections of academics and practitioners, both from North and South, who are using this approach in the field of health.

Contributions place participatory research in its historical theoretical context. They examine issues of training and practice, drawing on experiences from Africa, Asia, Latin America, USA, and Europe.

The case studies make clear the complexities and contradictions, as well as common experiences, which practitioners confront in diverse social, economic and political contexts. Questions of equity in terms of gender, race, and class come to the fore, so do insights into the qualities, skills and attitudes required of practitioners.

Edited by: Korrie De Koning and Marion Marlin
Pub: Zed Books Ltd., 7 Cynthia Street, London N19JF and 165 First Avenue, Atlantic Highlands, New Jersey, 07716.

Year of publication: 1996

The names below are of those workers who died due to Byssinosis in Ahmedabad in the year 1995

<table>
<thead>
<tr>
<th>Name</th>
<th>Date of expiry</th>
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*The above data is provided by Kamdar Swathiya Suraksha Mandal, Ahmedabad

WORKSHOP TO DEVELOP GUIDELINES FOR DIAGNOSES AND DISABILITY CRITERIA

A three day workshop to develop guidelines for the diagnoses of occupational disease and criteria for disability it will involve consultation of doctors and experts to finalise the document which was earlier discussed in a workshop held in November, 1995.

The new document carries the suggestions and recommendations made in the earlier workshop by the participant doctors and experts in this field.

The workshop will be held in PRIA from July 10-13, 1996
more toxic. They directly cause pollution and affect human health.

Most of the residual elements, especially dioxins, are fat solvent. That means, once they enter the human body, they never get out. They keep accumulating over the years causing serious disorders and ailments. In pregnant women, dioxins are transmitted to the baby, which is born with a high level of dioxin in its body and disorders which show up at a later stage. They cause disorders of the reproductive systems, cancer, and sexual abnormalities.

The Statesman (New Delhi), April 5, 1996

2. Indoor air more polluted

Though there has been a lot of research on the quantum of outdoor pollution and the means to check it, indoor air could be 10 times more polluted than the air outside.

Indoor air contains all the pollutants of the surrounding outdoors due to ventilation and air movement through doors, windows and mechanical systems. Added to this are the pollutants generated by the occupants and their activities like smoking, carpeting, copying machines and pesticide sprays.

Some of the common pollutants are tobacco smoke and carbon monoxide from cigarettes; bacteria, fungus and mildew from wet or moist ceilings, carpets and furniture and poorly maintained air conditioners; formaldehyde from pressed wood products, adhesives, drapes, textiles, and glues; volatile organic compounds from paints, varnishes, disinfectants and cleaning agents; and asbestos from fire proofing material, floor and tiles.

Some of the short term illnesses caused by poor indoor air quality are: headaches, wheezing, fever, irritation of the eyes, throat and nose, lethargy, dizziness, nausea, coughing, skin rash and severe allergic reactions. Even infectious diseases like influenza, chicken pox, and measles could be transmitted. The long term illnesses caused are asthma, damage to liver, kidney and central nervous system, chest and abdominal cancer and lung functions.

Pioneer (New Delhi), May 14, 1996

3. Crude plastic recycling units aggravate pollution

In Tri Nagar plastic trash brought from 'Kabari' wholesale dealer is put into a crudely manufactured machine. As the machine heats the plastic, it melts emitting toxic fumes and is then moulded into small plastic granules, which come out from the other end of the machine like pop corn.

Further away in Okhla, several huts in the basti located inside the industrial area is melted in crude klinns, again emitting toxic fumes.

According to a study done by Vatavaran, a non governmental organisation, these plastic recycling units are responsible for chlorine pollution.

In Delhi, over the past five years there has been a 60 per cent increase in illegal recycling of this kind. There are a total of 53,400 such plastic and thermocol recycling units in Delhi.

India recycles almost three times the plastic it generates, thus making it the second largest recycler of plastic wastes in the world after Indonesia.

Pioneer (New Delhi) , May 8, 1996

4. TUs, NGOs seek recognition for 30 million homeworkers

Trade unions and women voluntary groups are prodding the government to accept India's nearly 30 million homeworkers as part of the labour force, ahead of a crucial International Labour Organisation (ILO) convention.

"Statistics show that the unorganised sector, of which home based workers constitute a substantial section, contributes about 70 percent of India's
5. Canned air to counter pollution

In most of our urban centers, air pollution is becoming a chronic problem, affecting human health, buildings, monuments and green belts. Increasingly, urban dwellers suffer from pollution induced ailments; eyes water, sinuses clog up, noses wheeze and throats get sore. Some chemicals found in air cause cancer, birth defects, brain and nerve damage and long term injury to the lungs and breathing passages.

In a city like Delhi nearly 2000 tons of pollutants are spewed into the atmosphere each day. For combating such pollutants an electronically controlled device has been developed by Shri Sandeep Jaidka, an amateur inventor, who has named his new found device as Rudraksh Rx.

Rudraksh Rx a compact electronic device that will pump fresh air to a person as soon as the pollution crosses a certain limit. So the urbanite in future will not only step out of his house with a bottle of water, but will also carry a personal air canister tied to his belt.

Pioneer (New Delhi), April 5, 1995

6. Polluting agro-based industries

Although agro-based industries are among the oldest industries they have started causing environmental concerns because sufficient care is not being taken in the disposal of wastes they generate. In fact, these industries are among the second largest generators of pollution, standing next only to the domestic sewage. Their effluents being bio-degradable as they contain mainly organic matter which is amenable to biological treatment to render them safe. But invariably these are being discharged into nullahs or streams untreated and are becoming major cause of pollution.

Pollution problems in agro-based industries are caused mainly due to the wastewater and solid wastes generated during their manufacturing processes. Air pollution problems are caused by such industries during the material handling and combustion processes. Concomitant with water consumption, agro-based industries generate large volumes of effluents. Particulate emissions occur during handling and use of water, and white burning of fuels. Poor handling and management of wastes give rise to mal-odorous conditions.

Patriot (New Delhi), May 9, 1996

7. Exposure to chemicals threaten young lives

There are several unknown small industries employing children which are hazardous, but whose existence is unknown to both officialdom and the public. The artificial pearl dyeing industry in Bhiwandi is one such unit.

Around 300 small workshops, each employing about 20 children and women have sprung up in several slum localities in Bhiwandi. In these unregistered units, a mixture of toxic chemicals and dyes are used to colour artificial pearls. The fumes of dyes and toxic chemicals are so strong that a 10 minute visit to any of these units leaves one coughing and breathless.

The plastic pearls are strung on frames which are then dipped in a mixture of poisonous dyes and chemicals including ethyl, butyl and nitro-cellulose. They are then baked in a make shift kiln. Since the hardened dye sticks to the string, the children often use their teeth to separate them. Thus a little of the poisonous chemicals is unwittingly swallowed by them.

An empty can of dye lying around the workshop carried the following warning, "CAUTION : Contains lead. Harmful if eaten. Do not apply on surfaces which may be chewed by children. Avoid breathing. Destroy this container when empty."

Amrita Bazaar Patrika (Calcutta), March 5, 1996

7. Mines working sans plan

All the 426 slate mines in the Khamiara area of Kangra district are operating without an approved mining plan, as reported by the Pollution Control Board.
All natural water sources in the area were polluted with the discharge of debris of the slate mines. The hills area in the mine area present a barren look and have become a black dot in the beautiful environment of the Dhauladhar ranges. None of the mines have constructed retaining walls, bench terrace, check dams and catchpits to control pollution of rivulets as was required under the provisions of the Water Pollution Control Act, 1974.

Slate mining has virtually stripped off the vegetation cover which was likely to have an adverse impact on the hydrology of the area.

The Tribune (Chandigarh), March 3, 1996

8. “Cottons not safer than synthetics”

Garments made from cotton fabrics are not safer than those made from synthetic fabrics concludes a study done at the Indian Institute of Technology, Delhi. The study results show that cotton sarees catch fire easily and the flames engulf the whole body in a matter of seconds. When a similar fire is applied to synthetic sarees the flames are smaller and the whole saree does not catch fire every time. These tests dispel the myth that it is safer to wear cotton sarees in the kitchen while cooking.

Source: Centre for Biomedical Engineering, Indian Institute of Technology, New-Delhi 110062

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**Announcement**

**INDOSHNET**

Government of India, Ministry of Labour is developing a national network on occupational safety and health information system known as ‘INDOSHNET’. Directorate General Factory Advice Service and Labour Institutes (DGFASLI), an attached office of the Ministry of Labour, will act as nodal agency facilitator of the network system. The objective of the network is reinforcement and sharing of national occupational safety and health (OS&H) information on no-profit and no-loss basis with a view to pool our information resources for mutual benefit. The sharing of information will not be confined to the national level but also include international sources. The communication of information will be through E-mail (NICNET) as well as postal/courier service. Industrial organisations, institutions, industries, associations, trade unions, professional bodies and non governmental organisations having information on OS&H and willing to share the same with others at the national and international level are invited to participate as member in the network. Interested agencies may write with a brief profile of their organisation and information capabilities clearly indicating type of OS&H information required and the information available that can be shared with others to Shri S.K. Saxena, Director General, Directorate General Factory Advice Service and Labour Institutes, N.S. Manikar Marg, Sion, Mumbai-400022 at the earliest.

1. Cancer and the workplace

Until recently the most commonly quoted estimate of the proportion of cancers caused by work was 2-8 percent. By the year 2025 it is anticipated that work-related asbestos cancers alone will account for 200 deaths per week. Some experts think up to 30 percent of cancer deaths each year may be due to work.

Researchers have found that 40 percent of the lung and bladder cancer in certain industrial groups can be caused by occupational exposures.

Multiple exposures can magnify or “potentiate” the risk. IARC quotes one study showing that if a smoker is exposed to asbestos, the lung cancer risk is eight times that for non-asbestos exposed smokers, and 92 times the risk faced by non-asbestos exposed non smokers.

Hazards, 54, Spring 1996

2. Pesticides may cause suicide

Hazardous pesticides like the organophosphates and paraquat are likely to cause more than acute toxic effects in man. A Spanish thesis by Tesifon Parron from the University of Almeria compared results from animal tests, clinical tests, statistics, and a questionnaire. He worked for eight years to give an explanation of the high number of suicides. Through the animal tests he discovered a lowering of the lithium concentration in blood after exposure to organophosphates and paraquat. Lithium is used world wide for treatment of depressive patients, and a low blood concentration may cause depressive or self-aggressive behaviour in human beings, which might lead to suicide.

Chemical Sector Newsletter, No. 4, August 1995

3. Banana plantation workers: pesticides causes mass sterility

Over 7,000 banana plantation workers from the Philippines have become sterile due to years of exposure to a US-manufactured pesticide, according to documents obtained by the Inquirer.

The Filipino victims are mostly employees of 26 big banana farms, all based in Mindanao. It was in the late 1970s when these workers realized something was wrong - they “couldn’t produce children.”

Between 1965 and 1990, they were exposed to DBCP, which controls the microscopic nematode worms that attack the roots of bananas and other fruit trees.

“Most of them suffer from a type of sterility known as germinal cell aplasia. Simply put, their bodies did not produce sperm. The rest produce fewer sperm than normal,” said Renato Ma. Callanta, one of their lawyers, citing the worker’s spermogram test results.

Aside from causing sterility in many workers, DBCP has been devastating to some worker’s children in terms of inborn physical and mental defects. The cases reported were of children born mute and deaf, with irreversible brain damage, deformed ears, penis, and legs.

Philippines Daily Inquirer, September, 1995

4. Drugged meat: Ban antibiotics in animal feed

The recent controversy over the use of nitrofurant - a cancer-causing antibiotic - in poultry farms has raised concerns about the safety of antibiotics and the problem of bacteria resistance.

Zapping farm animals with antibiotics could cause resistant bacteria to move from the animals into our food supply, causing serious or even fatal illnesses.

Even if the resistant germs don’t cause you to fall sick, they can nonetheless multiply in your body, and transfer their antibiotic resistant factor to other unrelated bacteria in your body. Should you get an infection by other harmful germs which have acquired drug resistance, then antibiotic treatment may not work.

Utusan Konsumer, March 1996

5. Gold mining: Environmental and health costs

According to the International Labour Organisation (ILO), mining is one of the world’s most hazardous sectors, causing more than 15,000 deaths each year. According to ILO, “Mine workers are continually exposed to risks such as extremes of noise, vibration, heat and cold, repetitive task strain and harmful chemicals, radioactive materials, dangerous gases and dust inhalation. Worse still, they often face combinations of many of these risks at the same time.” South African and Chinese gold miners feature at the top of the casualty lists.

Apart from a very small proportion of traditionally mined gold - in the Philippines and Papua New Guinea, for example - all gold mining has potentially heavy environmental costs, as it usually involves the use of either cyanide or mercury.

Mercury’s toxicity is well known. It enters the body through inhalation, ingestion and skin absorption. Much of it is passed out again in urine, but
A UNIQUE INITIATIVE

In 1995, the centre for Occupational and Environmental Health (COEH) of PRIA conducted a policy study on the Employees State Insurance Scheme. This study was conducted simultaneously in Calcutta, Bombay, Ahmedabad and Delhi. In this study workers, doctors of ESI and management representatives were interviewed with the objective of improving the functioning of ESI hospitals. A brief report of this study was published in the March 1996 issue. As a follow up of this study demand came from the worker groups in Bombay, to have an ongoing educational input on their rights and duties about ESI. A major finding in the study was that most of the facilities of ESI are under utilised due to lack of awareness. A ongoing training intervention was planned in collaboration with Occupational Health and Safety Centre (OHSC), Bombay.

This training initiative began in October, 1995. Sampat Tapre and other activists agreed to assist in organising this training. Mr. Sampat Tapre is the first worker in Maharashtra in the history of textile industry, who has won compensation from ESIC for being affected by byssinosis.

The initial months were spent in planning for the training and organising support from local activists. A 3 day training programme on a regular basis brought forward the following aspects -

- Workers with problems with ESI started coming for the training. ESIC started a Occupational Disease Center at Gandhi Hospital in Parel in March 1995, but its existence was not publicised. We met Dr. Sapatnekar, the Superintendent of the Gandhi Hospital to clarify the procedure of approaching the OD centre. According to him any panel doctor of ESI can write on Form No. 4 referred to OD centre. The workers were trained to demand such a note from panel doctors. The panel doctors when approached by workers refused to give a note because ESIS or ESIC had not published any circular about the procedures of ODC. The attempt is on to train workers and union activists to generate a demand to ESI to publicising the OD centre.

- When workers are called for the special medical board, they have to go through a process of re-medical check up and re-interview by doctors which is a very tiresome process. As part of the training workers were addressed individually and in groups to keep up their morale and to train them about the procedures.

- At the time of medical board in March, 1996 workers were asked to undergo chest X rays again. The machines in Gandhi Hospital were not working; as a result their X-rays would have been postponed by 15 days and they could not have appeared before the board. The workers were explained how to approach the superiors in the Gandhi Medical Hospital; finally, they were X-rayed on an over worked X-ray machine in the hospital. At the time of the medical board, the atmosphere was oppressive. We accompanied the workers to advise them.

- A meeting of persons who were denied compensation by the board was organised. The relevant sections of ESI Act were explained to them. An application was drafted by the workers. As a result, some workers are being rechecked by the OD centre.

- 500 posters and 5000 leaflets informing workers about their right to claim compensation in case of occupational diseases such as hearing loss; the existence of OD centre and information of training were printed in June 1996. The posters were put up at more than 20 textile mills and leaflets widely circulated.

A better response is expected after this poster campaign. Rashtriya Mill Sangh (INTUC affiliated) from Finley Mills has already come for the training.
WE DEMAND THAT THE FOLLOWING BE INCLUDED IN THE CHARTER:

1. Factories must have adequate fire exits and fire prevention facilities.

2. Dormitories, warehouses and workshops must be located in separate buildings.

3. Adequate facilities for safe production must be provided to ensure a safe workplace for workers.

4. Manufacturers must implement international labor standards and local laws on industrial safety and fire prevention.

5. In case where the use of chemical substances is necessary, international safety regulations must be adopted, including ensuring a safe working environment, individual protection facilities, standard production facilities (i.e., air ventilation systems), and a safe process of disposal of the chemicals used. Furthermore, chemical containers should be clearly labeled to indicate the substance and its toxicity. In addition, workers should undergo regular physical examinations as well as safety and health education.

6. Overtime damages workers' health and violates their rights to rest. The normal daily working hours must not be longer than eight hours, and at least one day of rest must be provided each week.

7. No child workers are used.

8. Dormitories must not be overcrowded and meals provided by factories must contain adequate nutritional value.

9. No physical harassment or any form of psychological or physical oppressions of workers are tolerated.

10. There must be no restriction on workers' efforts to organize trade unions. Workers must be allowed to enjoy the right to bargain collectively and trade unions must be allowed to have the right to investigate and to monitor the safety of the factories.

11. Manufacturers shall inform their workers of the national labor law provisions and local implementation regulations.

* Asian Regional Exchange for New Alternatives, Hong Kong

Illustrations by Prabhjot Kaur
PRIA

The Society for Participatory Research in Asia (PRIA) is an independent, non-profit, non-government organisation registered under the Society Registration Act 1860.

Over the last twelve years PRIA has promoted people-centered development initiatives within the perspective of participatory research. As the cherished mission, PRIA endeavors to promote people-centered, holistic and comprehensive evolution of society characterised by Freedom, Justice, Equity and Sustainability, by

- creating opportunities of sharing, analysing and learning among formations of the Civil Society (in particular, people’s organisation and NGOs);
- engaging in independent and critical analysis of societal trends and issues, development policies and programmes; and
- enabling dialogue across diverse perspectives, sectors and institutions.

The focal aim of PRIA’s Centre for Occupational and Environmental Health is to promote and contribute towards making work and living place healthier and safer. On one hand the Centre collects information from networks, organisations and individuals through research studies, documentation and data bases and on the other, disseminates information through Bulletin, publications, training/workshops and information service.

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Breaking Humans into Pieces

"Divide the work into discrete units" is a management theory influenced by the noted economist, Adam Smith. The objective of this theory, propagated in 1776, was to increase productivity, cheapen the cost of labour and increase the control of the management. Compared to the total number of working hands in India, the work available is very little. The employer has always tried to control the production process as much as possible. In today's labour markets, Indian workers do not choose what they will make, under what conditions, or what will eventually happen to the product. In the twentieth century, further methods were devised to de-empower workers and these practices were substantiated by the theories of Taylor and Gilbith.

As a result of the implementation of such production and control oriented practices, the status of labour has been reduced to a tool. The processes of thinking and implementation have been totally separated. Most of the thinking, planning and designing is done by engineers and managers; only implementation is carried out by the workers. May be the traditional meaning of 'work' and 'labour' has taken rebirth in an insidious form. 'Work,' which necessarily a human activity relates to thinking, visualising and precision. Traditionally, this was mostly done by artisans and artists and was a creative, autonomous and fulfilling process. On the other hand 'labour' was considered as an activity of slaves, serfs and peasants and was monotonous, back-breaking and enforced by others. The only link the producer had with the product was the physical labour put in.

Today's labourer is looked upon as a tool, with all his activities being broken up into mechanical operations. The famous film actor Charlie Chaplain, in his movie 'Modern Times', depicted the plight of the assembly line worker. Each movement of the human body, starting from the tightening of a bolt to pressing the key of a typewriter has been separated, in order to mathematically calculate the labour input. Such machine like motions can be analyzed, timed and reassembled into programmes for maximising production. The worker never gets the satisfaction that comes from producing a product. This delinking of the product from the hands that produce it and reducing labour inputs to mathematical calculations, has resulted in thoughtless performances by workers. It appears that all the theories of group performance are meant only for managers and boardrooms. Dr. A.H. Maslow,
The Bulletin:
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The editors welcome contributions, which should be typed, double spaced, on one side of the paper only. Two copies should be sent. Illustrations (B/W or colour prints or transparencies, line drawings, tables, etc.) should be included where appropriate.

Queries
The readers are welcome to send their queries on the various issues of occupational, environmental and consumer health. The selected letters will be printed with replies. If they are not printed, answers will be sent by post. Please address your questions to the editors.

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Dr. Orapun Metadilokkul: A doctor with a mission

* Harsh Jaitli

Victimisation of experts, trade unionists and other visionaries has been an universal phenomena, whenever they have raised any questions regarding the status of occupational health and safety. This has happened, particularly when they have brought out the contradiction between the interests and welfare of humanity on the one hand and the monetary interests of business organisations on the other. During my visit to Thailand last year, I had the opportunity to meet Dr. Orapun Metadilokkul, one of the best qualified medical specialists in the field of occupational and environmental medicine in Thailand. After receiving her medical degree and a master's degree in Public Health from the Faculty of Ramathibodi, Mahidol University, Thailand, a board certificate in Clinical and Preventive Medicine from the Medical Council of Thailand, she completed her Master's in Occupational Medicine from the Medical College of Wisconsin, U.S.A. She is currently the President of the Occupational and Environmental Medicine Association of Thailand (OEMAT), a professional medical body with over 200 members. In addition, she is a visiting lecturer at Chulalongkorn, Mahidol, Chiang Mai and Khon Kaen Universities of Thailand and trains environmental engineers at the Bangkok Institute of Technology. She is rated a level eight physician on a scale of four to eleven.

In 1990, Dr. Orapun was appointed Director of the National Institute of Occupational and Environmental Medicine (NIOEM), an agency within the Ministry of Public Health. The newly formed medical unit, with a staff strength of 220 personnel, was given the green signal to set up a hospital to treat workers suffering from occupational illnesses. She believed that her goal to help sick workers and create a functioning occupational hygiene unit to keep pace with Thailand's sky-rocketing industrial growth, would finally be realized and appreciated by all.

Seagate Technology Company

As its first major task, the NIOEM received an order in August 1991, from the Ministry of Public Health to investigate the death of four employees in Seagate's, Samut Prakan Plant, 20 kms. south of Bangkok. Dr. Orapun was expected to report on whether these deaths were related to the exposure to toxic materials at the shop floor. All the deceased were in their 20s and according to co-workers, had experienced similar symptoms of head ache, muscular ache, fatigue and unconsciousness. The company involved, Seagate Technology (Thailand) Company, was not only one of the largest employers in Thailand but was also held in high esteem by the government and investors. In 1982, it had started its operations in Thailand, with only 50 workers; by 1989, it had opened three plants in the country, employing 1800 workers. Based in Scotts Valley, California (U.S.A.), the Seagate group is the world’s largest independent producer of computer hard disk drives. The company has stayed consistently profitable by maintaining an up-to-date range of products and locating its factories in countries with cheap labour. At about the same time that these deaths occurred, Seagate had drawn criticism for being an unyielding company that focused more on profits rather than on its workers.

Lead Poisoning

As part of her investigations, Dr. Orapun analysed blood samples of 1,175 workers and found that 36 percent of them had levels greater than 20 micrograms μg of lead per 100 milliliters (ml) of blood. In her report, completed in early August 1991, Orapun concluded widespread levels of chronic (long term) lead poisoning at the plant. The main source of lead in electronic industries is solder. During her investigation, she also detected that the factory's line workers were being exposed to toxic lead and solvent fumes. According to her, the problem was complicated by the presence of different solvents and a lack of awareness among supervisors and line employees about the potential hazards of the mixture of chemical fumes and solvents present at the shop floor. Eventually, these findings were rejected by the government.
“Unfortunately,” she said, “it seems that nowadays, it is ministers and not doctors that decide the cause of deaths.”

Seagate, in a letter to the Ministry of Public Health, responded that the lead blood levels of most of its workers, were much lower than the 40 μg threshold allowable under Thai law or the international recognised limit of 50 μg per 100 ml. These limits, though far below the 80 to 120 μg per 100 ml level considered dangerous to life, usually indicate that workers should be transferred to different work environments. Seagate also claimed that the high lead level amongst its employees, was more likely a result of the high level of automobile pollution that Bangkok is notorious for. However, Orapun noted that similar studies conducted at the same time, indicated that only eight percent of Bangkok’s traffic police (many of whom are constantly exposed to traffic fumes) and two percent of the average Bangkok population, had more than 20 μg of lead per 100 ml of blood.

Further aggravating the problem, according to the doctor, was the company’s substitution of gauze face cloths in place of proper filtered masks to protect workers from the toxic lead and solvent fumes. Additionally, some employees were allowed to work repeated overtime shifts, further increasing the risk of delayed, chronic toxic poisoning.

A local industrial safety analyst noted, “this issue of the use of proper filtered masks is not restricted to Seagate alone; it shows the lack of a long term outlook that some industries take on this matter. Evidence of the disease through prolonged low exposure rates is still not conclusive and some industries refuse to accept the prospect of a long-term exposure problem. Unfortunately, by the time we do get conclusive results, it could be too late for many”.

Dr. Orapun checked the medical records of the workers and analysed the data on the lead levels of over 1000 of the factory’s line workers. Approximately half the workers tested in the wave-soldering section, had lead blood levels higher than 20 micrograms of lead per 100 ml of blood - an amount high enough to lead to chronic poisoning.

Unfortunately, Thai law itself appears to be quite vague on many aspects of acceptable atmospheric lead limits. Section 5.2 of the National Environmental Quality Act titled “Atmospheric Chemicals Standards in the Workplace” sets atmospheric lead content limits for ‘average concentrations during normal work periods’; but omits to mention limits for ‘average concentrations’ for a ‘specified time’ and ‘maximum duration’. In addition, according to Orapun, only a handful of Thailand’s government factory inspectors are actually qualified to carry out the testing needed for the thousands of factories in the country.

**Protecting Foreign Investors**

After analysing the medical reports at Seagate, Dr. Orapun began an inspection walk of the factory’s assembly line. Almost immediately, she was approached by company officials and asked to go to the company’s board room. As she entered, a stern faced Director shoved the phone at her. On the other end, was the Director General of Board of Investment (BOI) and Secretary to the Prime Minister (Anand Panyarachun), Staporn Kavitanon, one of the most powerful political figures in Thailand. Orapun recalls the conversation:

"What you are doing is hurting Thailand! How dare you investigate Seagate? I can get you fired!" Stunned, but unwilling to be intimidated, even by such a prominent bureaucrat, she replied, “I don’t care how big you are, I have my job to do. Why don’t you do yours?” Staporn admitted making the call but denied threatening the doctor in any way (Asia, Inc.).

What is not in dispute is that in September - one month after the heated exchange - Dr. Orapun was abruptly removed from the Seagate investigation. Shortly afterwards, the fatal blow was dealt on the newly formed NIOEM, it was ordered to shut down its operations, after only 16 months of functioning. While various excuses for this order have been given by officials, few outsiders doubt that it was anything less than a political powerplay, designed to allay fears on the part of foreign investors. Investment sources stated that the Thai government was afraid of a bad image, particularly in the international press, as this might scare away prospective foreign investment. Foreign investors, in fact, were becoming nervous over the possibility that they might have to pump in huge amounts of capital to pay for future medical compensation claims.

By ordering the closure of the agency, Thailand’s government gave every indication that it would rather protect foreign investors than Thai workers. This step by the government, cast serious doubts on its intention and ability to provide occupational health care. Dr. Orapun has been branded as a ‘problem bureaucrat’ and blacklisted from further pay increases and career advancement opportunities. She was even sent to a mental hospital to be examined, however, she was declared sane and returned to work at the hospital.
Protests by employees although, Dr. Orapun's study did not prove that workplace poisoning caused deaths, it did raise the possibility of such an event. Her findings were reported in the local press and by mid-August 1991, fears about lead contamination were a factor in prompting hundreds of Seagate workers to stage protests in Bangkok, outside the company's headquarters and the U.S. Embassy. When Seagate fired 87 workers in connection with the protests, employees staged another demonstration to get the workers reinstated and establish a union. Seagate refused to budge and eventually sacked another 621 workers. On one sweltering September day, as the dispute neared its peak, Seagate employees filled the streets in front of Thailand's Government House in Bangkok to publicize their concerns. They even appealed to U.S. President George Bush, present at that time, on a state visit to Thailand.

As usual, new studies were commissioned under industrial hygienists from other government agencies; they cleared the Seagate factory of any legal liability. Eventually, the industrial dispute died away and a union was not formed.

Dr. Orapun still treats some of the 200 Seagate workers initially diagnosed as suffering from chronic lead poisoning. There is some debate about whether the NIOEM was actually closed. Dr. Narongsakdi Aungkasuwalia, Deputy-Director General of Thailand's Department of Health, claims that the institute was simply made less important. "After the Seagate affair, the Ministry of Public Health did not suppress the NIOEM but reconsidered its role," he says. "We wanted to share its duties between more offices".

Environmental & Occupational Diseases and Related Health Problems in Thailand: 1994

Dr. Orapun Metadilokkul

Thailand has been facing enormous health problems, related to the presence of all types of pollutants in both outdoor and indoor environments, especially in the working environment of people employed in various hazardous industries. In the past ten years, Thai people have suffered from many tragedies that have affected both their environment and health. Some of these are:

- Arsenic poisoning or black fever (local name) - 1986: Disease prevalence of 7-10%. Cases continue to be recorded as efforts have not been made to control it. Arsenic contamination is linked to mining in the southern part of Thailand.

- Chronic lead poisoning - 1986: Recorded among children exposed to lead and other metal fumes, from 20 foundries, situated around their school in Bangkok. Disease prevalence of 10%. Severe adverse health effects recorded, include a decrease in IQ and lead anaemia.

- Pesticide poisoning: Recorded among agricultural workers, consumers of farm products and workers in factories dealing with pesticides. Serious health problem throughout Thailand.

- Traffic pollutant related chronic lead poisoning - Since 1990: Recorded among traffic police in Bangkok.

- Chemical disaster - 1991: Occurred at a warehouse storing chemical substances in Khlongtei Harbour, Bangkok. People died, both as a result of the traumatic effects of the incident and from chemical poisoning. At present, many of the persons that were exposed to the fire, are still suffering from illnesses for which no known cause has been identified. The authorities have chosen to ignore the health problems of this group and state that they are of a normal nature. Efforts have not been made to investigate the matter and set up appropriate surveillance.

- Mystery deaths - Since 1993: More than 13 cases reported among workers and people exposed to environmental chemical pollutants in the Northern Industrial Estate of Thailand, Lumpoon. Illnesses due to unknown causes have been reported. Required disease investigations were not conducted.

Besides the above, many other cases have been reported of environmental and occupational diseases and problems, related to the inappropriate management of resources in industries. A case in point, is the effect on the people and environment of pollutants from petrochemical industries, in the Eastern Seaboard Industrial Area, Rayong. Last year, near a petrochemical factory in Rayong, an epidemic of an illness for which no known cause could be identified, was reported.

These problems have been brought to the notice of the public with the aim of making known the adverse effects of industrial development on the quality of life. Sincere efforts need to be made in Thailand to reduce the harmful effects of industrialisation.
Bargaining Diseases For Work

Harsh Jaitli
Vijay P. Kanhere

Apart from wage discrimination, the workers of the world today also share diseases, injuries and deaths at the shopfloor. The issue of workplace health and safety has always remained a low priority of governments. There are many organisations, in both the government and voluntary sector that provide education on the general issues of organising and bargaining, etc. However, there are very few institutions that provide inputs on occupational health and safety from the worker's perspective. Government statistics give an unrealistic picture, one of the reasons being the non-reporting and wrong diagnosis of occupational diseases. As information about health hazards is not given to workers, they are unable to relate their sufferings to their exposure at the shopfloor and articulate their grievances in an appropriate manner.

From this issue we are going to print the portions of the report which is prepared by Harsh Jaitli and Vijay Kanhere. This document is based on discussions and material referred during a short visit to Thailand, Philippines, Republic of China (Taiwan), Republic of Korea, Japan and Malaysia. The objective of this visit was to assess the state of worker's conditions in these Asian countries and also to develop fraternity among the workers groups. This report is a loose document and the missing links are the obvious witness of the lack of information available on this subject. We are printing this report with the objective of not only requesting readers to help us in filling these gaps but also to initiate steps to make similar kind of documents for rest of Asian countries.

ASIA: The region of diversity

Asia is a region of diversity, not only culturally, socially, and economically, but also on the issue of workplace health and safety. On one hand, we have advanced economies like Japan with a modern work culture and employing the latest technologies; on the other hand we have countries like India, Bangladesh, Pakistan, where modern technologies exist side by side with traditional industries. Almost every year we witness fatal tragedies in these countries - the doll factory fire in Thailand, health hazards in the electronics industry in Malaysia, mine disasters in India and China. In almost all the countries, workplace health and safety issues are given low priority. Governments opt for a firefighting approach rather than a lasting solution.

Over half the workers of the world live in the Asia-Pacific region, a region experiencing rapid economic growth. As a result, new technologies, work procedures, equipment, materials and products are being imported into the region. The transfer of technology brings along with it new hazards and new risks of accidents and diseases. The provision of up-to-date and easily accessible occupational safety and health information is an important tool in strengthening the knowledge and skills needed to deal with these other risks.

Within the region of Asia, worker migrate from one country to another. They are mostly employed in hazardous and dangerous occupations. An alien land and language serve as major barriers to understand their rights. In this report, this issue is dealt with keeping in mind their education and empowerment. How necessary it is to conduct workers education programmes in a language and form that can help them understand the health hazards involved in their work and in the case of sickness, win their rights?

JAPAN: The country of the rising sun and rising problems

Japan's rapid economic development makes it a role model for most developing countries. Since the trends of occupational health hazards will follow that of economic activities, Japanese society is experiencing many new types of diseases, besides the traditional ones. Fortunately, the number of such casualties is on the decrease. After reaching an all time high of 481,686 casualties in 1961, the number declined to 181,900 casualties in 1983, a 41 percent decrease in casualties, as compared to the previous year.

Drastic measures need to be taken to solve some of the following problems:

✦ High accident frequency rate in small businesses.
✦ Aged workers form a greater number of accident victims than ever before.
✦ With the expansion of the service economy, accidents in the service industry are occurring in greater numbers, as compared to those in other industries.
✦ A large number of serious accidents are occurring, especially in construction and manufacturing industries.
Workers Accident Compensation Insurance System

In 1947, the Japan’s Workers Accident Compensation Insurance Law was established. The same year, the Labour Standards Law was enacted, it decided the government’s responsibilities in compensating industrial accidents and diseases.

Workers Accident Compensation Insurance applies to all enterprises and stipulates that employers must cover all insurance fees. The insurance has six types of benefits and applies to all workers, irrespective of their nationality and the type of work they perform. Only public workers and seamen are excluded, however, there is another labour accident compensation system that applies to them.

The process of receiving benefits from the compensation insurance system, involves various steps. Firstly, workers suffering from an occupational accident or disease or survivors who have the right to obtain compensation, apply for insurance allowance to the Regional Labour Standards Inspection Office. There are up to ten offices in each Prefecture. The chief officer of the Regional Labour Standards Inspection Office, decides whether the case is work related and whether compensation benefit should be granted. If the applicant is not satisfied with the decision of the chief officer, she/he can appeal to the Workers Accidents Insurance Compensation Judge in the respective Prefectural Labour Standards Office and also to the Insurance Judgement Committee of the Labour Standards Bureau of the Ministry of Labour. She/he can also initiate a court case.

The six types of insurance benefits, in respect of industrial injuries due to employment-related causes are: medical compensation benefits; absence compensation benefits; physical handicap compensation benefits; bereaved family compensation benefits; burial money; injury and disease compensation annuity.

Meetings with groups

We met various groups during our visit to Japan. Information regarding their activities and interests and issues raised by them, are presented below.

ZMU: All United Workers Union

Workers of small and medium scale factories are members of this union. There are a total of 60 million workers, 54 million of these are industrial workers. Most of the industrial workers are employed in small and medium factories (43.2 million workers).

Labour Education: Their labour education policy believes that, “Every worker is different and needs are particular to each”. They have added health and safety modules in their education programme.

Worker’s Training: ZMU propagates a zero-accident policy. The title of their campaign is KYT - Kiken (danger), Yochi (prediction) and Training. The ‘Danger Prediction Training’ talks of different options that are open to a company and the corresponding

Working conditions in Japan

- According to 1993 data, 75.9 percent (7,306) patients were suffering due to occupational injuries. As many as 78.6 percent (5,743) of these patients suffered from back pain; 10.6 percent (1,025) patients were affected with pneumoconiosis and its complications.
- Every year, around 10,000 workers are affected by occupational diseases. Between 1979 and 1992, 23,000 workers were affected by dust related lung diseases.
- In 1992, the number of injured workers was 189,589.
- In 1993, 2245 workers were killed. The construction industry recorded a 40 percent share of the fatalities caused by accidents.
- Small factories having 30-50 workers account for thrice the number of accidents in industries employing 100 or more workers.
- In case of heart disease, out of 130 applications, eight were recognised by the authorities; only some of these were being processed.
- An accident is reported, only when it results in an absence of four days. (In India, an accident that results in an absence of two days, is reported.)
- Non-reporting of accidents is prevalent, especially amongst sub-contractors, employers of migrant workers and in the construction industry.
- In 1992, the law applied to 2,541,761 establishments and covered 45,831,524 workers.
- The unionisation rate today is estimated at less than 25 percent.
MF-MASH: Minatomachi Foreign Migrant Worker’s Mutual Aid Scheme for Health

This clinic was initially established for dock workers by the workers themselves. However, mechanisation led to the reduction in the number of workers in the docks; presently the clinic functions as a co-operative clinic for migrant workers. Fees charged for a general examination are 3,500 yen for people under 40 years, 1,500 yen for people over 40 years. These check-ups are held four times a year and each examination includes - questions about general health; measurement of height, weight, eyesight; chest X-ray; urine and blood test; electrocardiogram; and a general examination by the doctor. Reports are maintained according to nationality. The fee charged is definitely less than the prevailing rates in Japan. More important, the doctors and the staff provide a caring and friendly environment. The clinic has the following facilities: cardiogram, audiogram, physiotherapy, test for internal cancer, echograms etc.

The Institute for Science of Labour

In 1921, the Institute for Science of Labour was founded in Kurashiki City, as an independent research body. The Institute has since been active in applied research into the conditions of work and life of working people. Research activity, centers on varied aspects of work design, ergonomics, occupational health, industrial hygiene, and quality of working life. Research programmes are undertaken in various industries with a view to improving working conditions. An interdisciplinary approach is adopted.

Inception: The founder, President Magosaburo Ohara of the
Kurashiki Spinning Company was deeply concerned about the health and working life of industrial workers, especially young women. In response to his appeal, researchers in the field of medicine, hygiene and psychology, headed by Founding Director Gito Teruoka, established the Institute. It was situated on the premises of the company's Masu Mill in Kurashiki City, about 700 kms. west of Tokyo.

In its early years, the Institute actively launched investigations on fatigue due to night work, energy cost, work environment and improved working designs. The research covered various forms of work in factories, offices and farms. The results aroused great interest and helped spread awareness regarding occupational health activities and also led to the foundation of the Japanese Association of Industrial Health in 1929.

In 1936, the Institute was brought under the care of the Japan Society for Promotion of Science. In 1937, it was shifted to Tokyo; again in 1939, it was moved to Setagaya, in the west of Tokyo. During World War II, the Institute continued its activities under difficult conditions and was once resolved after the end of war. In November 1945, it was re-established in its present form as a non-profit research body. In 1971, it finally moved to its present site in Kawasaki. Since its inception, the Institute has continued to remain the national research centre in this field.

**Present Activities:** The foundation of the Institute for Science of Labour is steered by a board of directors and consists of representatives from academic, public, industrial and labour circles. With a total of about 70 employees, the Institute is actively engaged in research services. The research activities are carried on in three research divisions namely: Division of Work Physiology and Psychology, Division of Work Environment and Occupational Diseases, and Division of Social Science. The library of the Institute occupies the major part of the annexe and has a collection of about 120,000 volumes. The library is particularly proud of a special collection of about 4000 classical medical books, purchased soon after World War I from the Gottingen University in Germany.

**Relationship With Industry and Workers:** The Institute maintains a close relationship with industry. As a major part of its research programme, a number of field studies and experiments are carried out on the basis of contracts made with public offices, private enterprises and labour unions.

In studies and training programmes conducted by the Institute, efforts are mainly directed at developing a positive attitude. During a shopfloor visit, the trainees are asked to make a note of the positive features of the place. According to a spokesperson of the Institute, it is very easy to note shortcomings in work procedures; however, if one wants to achieve the best, it is more profitable to note the positive characteristics and then move on from there to suggest improvement in working conditions.

Their research is recognised by government, management and workers. For example, three women workers complained about health problems caused by working at Video Display Terminals. The Institute approached the management for permission to conduct research on this problem. Their suggestions for improvement were accepted by the agency. Study and medical reports are given to all workers included.

The Institute has also given suggestions for improving the design of the microscope, so as to make it ergonomically suitable for workers. It has also designed a special hot chamber for nuclear plants to enable researchers to conduct studies at high temperatures. The Institute works very closely with JOSHA and its centers.

**Japanese Occupational Safety Health Resource Centre (JOSHRC)**

In 1990, JOSHRC was formed when the Sohyo Occupational Safety Centre and Sohyo, Japan's largest nationwide federation of labour unions, were disbanding. JOSHRC has been financially supported by 22 Regional Occupational and Health Centers as well as supporting members comprising of ergonomists, hygienists, physicians, lawyers and others. Regional centers meet on a regular basis to decide action plans; supporting members can attend the meeting. JOSHRC holds a meeting every three months, with supporting academic members to discuss problems related to occupational safety and health.

**Activities:** Since its formation, it has been carrying out its role as a nationwide information centre on occupational safety and health issues. The staff, in co-operation with ergonomists, hygienists and physicians supporting JOSHRC, visit many labour unions to discuss and recommend improvements in their working conditions and environment. JOSHRC has often expressed its opinions on amendments to labour laws.
Occupational Accidents of Foreign Workers: In 1992, according to the statistics released by the Ministry of Justice, there were more than 280,000 illegal aliens. Other government statistics reveal that out of 40,000,000 Japanese workers, 800,000 workers claim compensation each year. In comparison, in 1992, only 322 migrant workers were compensated by the Workers Accident Compensation Law. Since there are 300,000 illegal aliens in Japan, it becomes obvious that the number of industrial victims among foreign migrant workers is grossly under-reported.

"In 1990 and 1991, 42 cases and 129 cases respectively, that were being supported by NGO's, were investigated by us. Only 19 cases in 1990 and 67 cases in 1991, were granted benefits under the Workers Accident Compensation System. Though, it is supposed to apply to all workers regardless of nationality and type of work, it does not in fact, cover all workers. Even if they get injured at work, it is often difficult to receive benefits under the workmen compensation systems.

The reason for accidents were: violation of labour laws; lack of education on industrial safety; and absence of instructions on work methods in an understandable language. For example, foreign workers sometimes lose their fingers when working with the press device, as they cannot read the instructions concerning the safety device; the Japanese do not suffer such injuries. Research conducted in 1991 reveals that amongst the workers, whose employment record could be traced, 60 percent of accidents had taken place within the initial three months. It becomes very necessary to ensure that foreign workers are covered by the laws concerned and their working conditions are improved".

Declaration: In 1990, JOSHRC made the following declaration: "The downward trend in the occurrence of accidents and big disasters, involving many deaths and injuries, has levelled off. In addition, an aging labour force, new technological innovations and growth of the service sector, all have brought drastic changes in working methods and the work environment. Automation and computerisation of many job processes have increased physical and mental stress levels of workers. Cases of musculo-skeletal diseases like lumbar and occupational neck and upper limb disorders (repetitive strain injury) are increasing due to a static load on the muscles. Annually, more than 4,000 new chemicals are introduced into workplaces, even though they are not thoroughly tested for any dangerous properties that they might have. Asbestos-related diseases and community outbreaks have been reported in some areas having factories that deal with asbestos.

Sub-contractors firms occupying the lower tiers in multilevel production structures, exist in many forms in Japan. Most of them are deeply tied to their parent or chief purchase company. Working conditions and the general environment in such firms, are undoubtedly poorer than those in their parent factories. The rate of small and medium enterprises having subcontractor factories, is much lower than that of large enterprises.

The number of foreign migrant workers who over-stay the time limit stipulated in their visas, continues to rise; they are often termed 'illegal' workers. This 'illegal' stamp causes various problems and often jeopardises their basic human rights. Under these circumstances, a growing number of them expect increasing assistance from JOSHRC - it does not disappoint them."

(Source: JOSHRC newsletters)

Japan Industrial Safety and Health Association (JISHA)

In 1964, JISHA was established under the 'Industrial Accidents Prevention Organisations Law' as a juristic body. Its objective was to upgrade the standards of industrial safety and health by promoting voluntary activities by employers and other concerned people in the private sector. This would help in eliminating industrial accidents and occupational diseases and achieving a high quality of life at work.

JISHA operates Occupational Safety and Health Education Centres and Occupational safety and Health Service Centres in Tokyo and Osaka, seven Regional Safety and Health Service Centres and two branch offices. All these centres offer technical advice, distribute books and other JISHA materials and items, monitor work environments and organise seminars.

Campaigns: JISHA works closely with the government and other concerned organisations, to develop campaigns directed towards the prevention of industrial accidents. Its work includes, supporting educational activities in small and medium-size enterprises, promoting the Zero-Accident Total Participation Campaign and other occupational health campaigns, conducting research and surveys, providing technical services, publishing and distributing written material, promoting the creation of comfortable workplaces, and extending international co-operation in the field of safety and health.

Research and surveys: JISHA conducts surveys and undertakes research, with the aim of developing practical approaches to solving safety
and health problems that have arisen with the adoption of new technologies and growth of the tertiary industry.

**Education:** JISHA conducts a wide range of educational programmes at its Safety and Health Education Centers in Tokyo and Osaka. JISHA sponsors a number of seminars and lectures, tailored to the needs of individual companies. JISHA also organises the National Safety and Health Convention.

**Zero-Accident Campaign Promotion:** To further the cause of the Zero-Accidents Campaign, in which enterprises are expected to play a key role, JISHA actively encourages the establishment of zero-accident promotion circles, creates new campaign methods, develops improved audio-visual aids, and upgrades safety and health training programmes.

**Publishing and Dissemination:** During the National Safety Week, the National Occupational Health Week and in the year-end and new year periods, JISHA conducts media campaigns to enhance public awareness and make both workers and employers more conscious of safety and health issues. JISHA publishes monthly magazines and various safety and health related text-books, research and survey reports.

**Technical Services:** JISHA concentrates its efforts on providing a range of technical services to individual companies. Services provided include consultancy services in the area of safety and health at work; monitoring the work environment; arranging meetings, seminars and lectures; providing health guidance, physical check-ups and special health examinations; testing the toxicity of chemical substances; and offering instructions in implementing the Zero-Accident plan.

**Health Promotion:** In 1988, JISHA introduced its total Health Promotion Plan (THP). In close association with the government, JISHA trains industrial health personnel. It also provides government subsidies to health service organisations and private companies to help cover the cost of installing training facilities and running training programmes.

**Comfortable Workplace Creation:** In close association with the government, JISHA promotes the 'Comfortable Workplace Promotion Campaign', in quest for the ideal workplace in which workers feel comfortable both physically and mentally. Under the auspices of the campaign, JISHA subsidises companies that are attempting to improve working conditions.

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### Case of Sukhwinder Singh

Three years ago, Sukhwinder Singh migrated to Japan from a village in Punjab. It was a big leap for him - from agriculture to industry, from his village to Tokyo and then to Ibarai Ken. Like many of his friends, he had paid a huge amount of money to his agent to arrange a job for him. This citizen from Punjab tried his best to settle down in an alien environment, he also learnt a few words of Japanese. He started work in a plastic moulding factory. His day would start at five in the morning, he would cook his own food and then work from 8 a.m. to 8 p.m. in the factory. In December 1995, his employer in Tokyo shifted him to Ibarai Ken (500-600 kms. from Tokyo), to a friend’s factory. The new employer provided a dormitory in the premises. On 30th December 1995, he was injured while working and was taken to a hospital. The hospital refused to treat him unless the employer came to the hospital and signed the forms. As a result of the injury, Singh’s thumb was immobilised. Not only was his thumb permanently disabled, his employer also threatened to fire him from his job. Since the accident, he had also been deprived of his wages. He visited the union office and the Japanese Occupational Safety and Health Association (JOSHA) branch office to seek assistance. While laws may apply equally to all, it was a problem for Singh to fill in the claim form and articulate his grievances. Fortunately, one of the members of the visiting team from PRIA, could speak Punjabi and with great difficulty Singh’s form was filled. The question answer session was conducted in the following manner: Punjabi —> English —> Japanese —> English —> Punjabi and so on.

The above example shows the complexity of the situation and the need for educating migrant workers.
Assistance to small and medium-sized enterprises: JISHA stresses the need to raise the awareness levels of both employers and workers at small and medium-sized enterprises, concerning safety and health. It offers safety and health education, training and technical advice to companies, upon request. Under the framework of the government sponsored 'Small and Medium-sized Enterprises Joint Safety and Health Improvement Project', it provides subsidies to small and medium-sized enterprises.

International Co-operation: In response to the globalisation of business activities and an increase in international exchanges, JISHA is expanding its co-operation with overseas organisations concerned with safety and health issues. JISHA co-ordinates technical co-operation programmes of the government with developing countries. It also contributes by sending its experts to these countries.

Pacific Asia Resource Centre (PARC)
Founded in 1973, it is a multifunctional organisation working with various people's movements in Japan. It aims to develop solidarity links with people engaged in various struggles in the Asia-Pacific region. It has more than 500 paying members among movement activists, researchers, and professionals all over the country. PARC publishes English and Japanese periodicals, functions as a research and documentation centre and an educational institution, and organises international solidarity activities.

PARC's activities are guided by its belief in the power of people to liberate themselves and to create a better, more humane world. PARC believes that Japan should change so that Japanese people can live peacefully with others, without dominating them or destroying the earth's environment. PARC contends that the people in the North and the South should work towards a common future vision of a liberated world.

PARC organises a wide range of study groups on issues of significance to peoples' struggles. PARC is currently conducting studies on official development assistance (ODA), foreign workers in Japan, IMF, World Bank, and the effects of resort development in the Asia-Pacific region.

Since 1982, PARC Freedom School in Tokyo has been offering an alternative educational system that encourages fundamental queries into Japanese society and its relationship with Asia, focusing especially on North-South issues. The idea of the Freedom School is spreading all over Japan, there are now schools in Hokkaido, Nagano, Toyama, Tokyo and Kyushu.

Group on Nuclear Energy
The group on Nuclear Energy is mostly working on the environmental impacts of power plants. The discussion revealed that contract workers are the worst affected group; in nuclear plants the general trend is to hire contract workers to perform the hazardous activities.

We will continue this article in our next issue, in which Philippines and Taiwan will be discussed. Readers are requested to send their comments on the report.

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Job Burnout

Continuous overwork often leads to cardiovascular diseases; Karoshi - sudden death from overwork, is a possible end result. While long working hours are a direct factor, overwork is also closely related to the wage level per hour, the pressure of unemployment or under-employment and high living costs.

The ILO 'World Labour Report' identifies the "job burnout" syndrome. It consists of five stages, finally leading to, "the end result of unmanageable work stress".

Honeymoon Stage: The youthful novice has an abundance of energy and enthusiasm.

Fuel Shortage Stage: The first symptoms of burnout appear.

Chronic Stage: Symptoms of exhaustion, anger, illness and depression are constantly evident.

Crisis Stage: Symptoms are so severe that the sufferer feels his or her life is falling apart.

Hitting the Wall Stage: When the person cannot function any longer and faces signs of serious deterioration.

Source: Fujikawa, Mitsuo. "Workers' Health and Working Conditions in Japan, the United States and Europe: A Trail of Statistical Comparison".
Waste Pickers of Calcutta - Down in the Dumps

Introduction

The disposal of solid waste has become a serious problem in Indian cities. Contributory factors are the rising population, change in the nature of waste and the absence of scientific methods of waste disposal. During the process of collection and disposal of waste, a very important activity carries on, almost unnoticed i.e. the recycling of waste. From the kerbside near residential quarters, from roadside waste heaps to dumping grounds, almost at any site where garbage is thrown and dumped, a group of marginal people - men, women and children - loiter around looking for any item that has a resale value. They earn their livelihood by collecting almost anything - paper, plastic, broken glass, bones, leather shreds, scrap metals. More often than not, they are regarded as thieves or good for nothing. We tend to overlook the fact that these people are the poorest of the poor and this is the only way open to them to earn a living. More importantly, they fulfill a crucial role in our society, i.e. in the recycling of energy. Unbelievable but true, there are hundreds of factories in Calcutta city alone, which are solely or partially dependent on the waste material collected by waste pickers for their raw material.

The existing solid waste management practice in Calcutta and in most other Indian cities, pose a substantial environmental health risk. Even today, the primitive system of open landfills is used to dispose waste. A major proportion of the waste is composed of non-biodegradable materials. Moreover, the waste from hospitals, constructions sites, markets and industries are all dumped at one place. As such, these dumping grounds pose serious health risks to the waste pickers and the population living around them. For the general citizen, the main risks to health are indirect and arise from the breeding of disease vectors, primarily flies, mosquitoes and rats. The site and smell are a nuisance and aesthetically unacceptable. Most importantly, waste dumps contain toxic and hazardous material that can pollute the surrounding air and water and cause grievous harm.

A waste picker is a familiar site anywhere in the lanes and by-lanes of Calcutta - a stooped figure, shuffling along, bent with a load on the back, eyes on the dirt. Various known as rag pickers, scavengers, or waste pickers, very little is known about their life and health. Unorganised, they are wholly dependent on middle buyers for their daily earnings. Hazardous waste dumps are their workplace and they can hardly afford to be concerned about occupational safety. Unfortunately, very little research has been carried out in India or elsewhere, to assess their living, working and health conditions.

In order to assess the situation of waste pickers, a study was conducted in Calcutta, by PRIA, in collaboration with Direct Initiative for Social and Health Action (DISHA). The Centre for Man and Environment monitored the quality of air and water at the required sites. This study, conducted in 1996, assessed the socio-economic and health status of a cross-section of waste pickers in Calcutta city.

Objectives

- To assess the socio-economic status of waste pickers both at the dumping site and other areas of Calcutta city.
- To assess the health status of waste pickers.
- To monitor the quality of air and water, in and around the dumping site.

Methodology

Epidemiological and Socio Economic Survey

The overall objective was to carry out a baseline survey of the impact of waste recycling on the health of waste pickers. The primary study
area was the main disposal ground of Calcutta city. Socio-economic and epidemiological studies were also carried out among street waste pickers concentrated in other areas of the city.

Waste pickers were selected from different areas of the city:

- **Disposal Ground (Dhapa-Bontola Area) Industrial Areas - I (Gardenreach Area - West Calcutta)**
- **Industrial Areas - II, having small-scale industries (Tangra- Tapsia Area - East Calcutta)**
- **Commercial Areas (Esplanade, Chitpur, College Street - Central Calcutta)**
- **Residential Areas (Ballygunge, Tollygunge, Salt Lake -South Calcutta)**

Socio-economic and health status assessment was carried out using the questionnaire method. The sample population was selected by spot randomisation. Laboratory examinations of stool samples were undertaken to identify the extent of parasitaemia among waste pickers. Microscopic examinations of stool samples were carried out to detect the presence of cysts, ova and parasites.

**Water Quality Analysis**

In the first phase (late July 1955), ten tubewells were sampled from Arupota and Bahishtala villages, adjoining the old dump site at Dhapa. These hand pumps constructed by the municipal authorities, reportedly tapped water from a depth of 150m-250m. In the second phase (November-December 1995), nine tubewells out of the ten were again sampled. In addition, samples were collected from three ponds within the area.

All water samples were of grab type and were transported to the laboratory within 4-6 hours of sampling. Physical, chemical, and bacteriological parameters were monitored; heavy metal analysis was carried out.

**Air Quality Monitoring**

The ambient air at a level of 1m was sampled through the use of High Volume Samplers, at the following sites:

- Near the dumping site at Arupota: 8 a.m. to 4 p.m.
- Near Bahishtala Club house: 8 a.m. to 4 p.m.

The samples were analysed for SO\(_2\), NO\(_2\), and SPM concentrations.

**Results**

**Socio-economic status**

A total of 205 waste pickers were surveyed; 100 of them were from the Dhapa dumping ground, 29 from East Calcutta, 26 from Central Calcutta, 26 from South Calcutta and 24 from West Calcutta.

**Age & sex distribution**

It was found that men and women of all age groups were engaged in this trade. However, more than 65 percent of the persons belonged to the age group between 11 to 35 years. A similar pattern was observed in all areas. As many as 30 percent of the waste pickers were children below 15 years of age.

More than 50 percent of the waste pickers were women. However, males predominate in this job in all areas, except at the dumping ground at Dhapa. This is possibly because amongst the resident population at Dhapa, the men folk are involved in other trades - women become waste pickers. Perhaps in other areas, women avoid taking to ragpicking as it involves having to travel long distances on their own.

More than 80 percent of the waste pickers were illiterate. The remainder could write their names and a few could read and write.

Most of the waste pickers have been employed in this trade for quite a long time. More than 40 percent of them have been in this profession for more than ten years.

For most of the waste pickers, this is a full time job. Less than ten percent are part-time waste pickers and are also engaged in other jobs. Most waste pickers at Dhapa disposal ground, work for four to six hours; at other places the duration of work is often more than six hours, as they have to travel a lot and pickings are less concentrated.

**Educational Status**

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**Working hours**

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<td>6-9 hours</td>
<td>39</td>
<td>20</td>
<td>30</td>
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</tbody>
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Their income varies widely, depending upon the amount of effort put in. However, most waste pickers (65%) earn Rs.20-40 daily.
Most waste pickers either live on the pavement or stay in poor quality slums. A major section at Dhapa, however, have their own cottage in the adjoining villages.

Waste pickers from Dhapa, South Calcutta and East Calcutta obtained their drinking water, almost exclusively from community hand pumps. In Central and West Calcutta, they got their drinking water from public stand posts.

More than 70 percent of the waste pickers and their family members used open fields for defecation; around 20 percent had access to community latrines; less than five percent had their own latrines.

A waste picker generally picks up any item worth recycling, even disposable syringes are recycled. However, they generally look for paper, plastic, glass, leather and scrap metal. Bone, rubber, gold particles are almost exclusively looked for at Dhapa.

After putting in hours of hard work and having collected a bag full of salvageable articles, weighing about 25-30 kgs, they go to sell it. Subsequently, they may return to the streets to pick up some more items. Individual weekly collection can go up to 200 kgs. Often, before selling, they spend one to two hours in sorting out the items. In some cases, immediate family members may assist in this task.

Health survey

Less than 10 percent of the waste pickers are immunized against tetanus toxoid. Sixty percent or more do not remember having taken a single dose of tetanus vaccine.

Backache is a very common ailment amongst waste pickers. This is possibly related to the long hours of work in a bent position and with a load on the back. Around 70 percent of the waste pickers suffer from chronic backache. Most of them (63%) also complained of general weakness. Many also suffer from recurrent attacks of chest pain and pain in the abdomen. While 40 percent (more than 90% in South Calcutta) complained of a chronic cough problem; less than ten percent, complained of difficulties associated with breathing.

Diarrhea is extremely common among all waste pickers; 85 percent stated that they had diarrhea in the last three months. In the same period, 72 percent had fever; 63 percent had suffered from cough and colds; 15 percent had suffered from eye infections and other eye problems (42% at South Calcutta); 76 percent had various skin problems; 29 percent stated that they had skin ulcer. History of worm expulsion could be obtained from only 24 percent of the sample. All types of inju-
above the desirable limit of 200 mg/l. It was found to be exceedingly high, ranging between 290 mg/l and 415 mg/l in all the water samples.

The ground water of the area was characterised by a high degree of hardness, ranging between 625 mg/l and 710 mg/l. This figure is much above the desirable limit of 300 mg/l.

Calcium and magnesium concentrations were high and above the desirable limits of 75 mg/l and 30 mg/l. The concentration of Zn was within the desirable limit of 5 mg/l. The concentration of iron and manganese was high and above the desirable limit.

The nitrate content of ground water was found to be very low ranging between 0.03 mg/l and 0.10 mg/l. This does not match the other findings, a high nitrate content would have fitted into the picture of organic pollution.

A hitherto unreported finding in some of the sampled water was the presence of phenolic compounds, much above the permissible limit of 0.001 mg/l. This causes the water to have an objectionable taste and odour. It was found that four samples (out of nine) yielded high values.

As far as the bacteriological quality is concerned, all the tubewells were unsuitable for drinking. Faecal coliforms were found in all the samples. This may be due to leakage of contaminated water from the surface, through the openings/cracks by the side of the tubewell pipes.

Quality of Pond Water

The ponds identified for the study were all within the village premises, close to the dwelling units. One of them is used as a fish pond, another by washermen. As the water in most ponds appears and smells unhealthy, many tend to avoid using the pond water for regular domestic purposes. However, it is still used on a non-regular basis - often children and adults wash and bathe there. The water sample analysis showed high BOD and COD values and it is obviously unfit for domestic use of any type. Heavy metal analysis showed only a trace of some chemicals (chromium, cadmium, lead, nickel). However, these results are not conclusive as only a few samples were analysed. Further studies are required to determine whether the population living in these regions are exposed to toxic concentrations of heavy metals directly or through the food-chain.

Air Quality

Air quality results showed a high SPM count, as was expected in this area. However, oxides of sulphur and nitrogen were found to be relatively low. These results again are not conclusive as only a few samples were collected; other studies have found very high levels of SO₂ and NO₃ in this region.

Discussion

In Calcutta Metropolitan area, the municipal service of collection and transportation of urban solid waste can be divided into three major phases:

- Sweeping and kerbside collection
- Transfer by hand carts to large roadside open dumbs/vats
- Transportation by vehicles (open/closed trucks) to the disposal sites Dhapa/Bontola etc.

Sweeping and kerbside collection is more or less regular (once a day), however, transportation from open roadside dumbs/vats is very irregular, except from the important stations (big markets). There are three major points at which waste pickers are active:

- at the kerbside
- at the roadside collection points
- at the disposal ground
Under the existing system of storage, collection and transportation of solid waste in Calcutta, a substantial portion of salvageable items are picked up and recycled before the waste is finally disposed off at the disposal ground. However, even at the disposal ground, a considerable amount of salvageable articles are still available to a large number of waste pickers. Qualitatively, the articles available at the disposal ground are not as fresh as those in the city waste dumps.

The present state of waste management in Calcutta provides ample opportunities for pickers to embark on a ‘treasure hunt’ in any area they choose. During the survey, it was found that waste pickers did not have any fixed working hours or a definite work area. Only waste pickers working at Dhapa disposal ground, reside nearby. As soon as the truck loads of waste arrive, they commence their pickings. Waste pickers collect the waste in gunny bags, usually supplied by middleman buyers, or in baskets (at the dumping site). The middlemen buyers own shops in different regions of the city; they buy the scavenged articles from the waste pickers and sell them to other agencies. The middlemen buyers can be classified into two groups:

- Small dealers who buy the articles directly from the waste pickers
- Big dealers or wholesalers who buy the articles from the small dealers

Small dealers are primary buyers purchasing recovered materials from the waste pickers. Big dealers are generally specialised dealers who purchase specific articles from the small dealers. Small dealers are generally residents of the locality itself. They construct a makeshift structure, usually in an unauthorized space by the side of the road or in any other vacant space. These structures or shops can be easily accessed by the waste pickers.

It can be concluded that the economic gain in this ‘picker based recycling’ system is mostly enjoyed by middlemen buyers, particularly the big dealers. The total income generated in this business has not been calculated. The actual grassroot level worker (waste picker) is ignorant of the profits involved in this business and gets only a miniscule share of this huge amount of unaccounted money. Their poverty, living and housing conditions make them highly vulnerable, particularly as far as their health is concerned. Most of them are malnourished and frequently suffer from common communicable diseases, like diarrhea, worm infestations, cough and colds. Over and above their job of scavenging, the condition of the waste dumps itself, makes them vulnerable to certain specific diseases. The dumps are infested with rats and stray dogs, consequently, both rat and dog bites are quite a common occurrence. Cuts and bruises occur frequently. The dumps often contain various types of toxic and hazardous waste materials to which the waste pickers are regularly exposed.

The solid waste management practices in Calcutta are far from satisfactory. Dirty smelly waste dumps along the roads, infested with rodents and insects, are a nuisance, an eye sore. They pollute the air with their foul odour and increase the concentration of suspended particulate matter. In addition, the waste matter from the dumps clogs nearby drains and provides ideal breeding grounds for flies and mosquitoes. The dumping sites present a bleaker picture. Instead of sanitary landfills, open dumping is still practised. The controlled tipping that is carried out, results in wind aided dispersal of the waste, adjoining areas get covered with litter. A fact that is often overlooked is that the waste dumps contain hazardous materials that have the potential of contaminating surface and ground water. This water feeds into fish ponds and vegetable gardens near the dumping sites and adjoining areas - the effects need to be scientifically examined.

The above was a rapid assessment study, as such, this report can only aspire to be a depiction of the overall status of waste pickers. Further detailed studies are required to clearly identify the health and environmental impacts of the solid waste management system practised today. It is hoped that this research will help formulate a methodological basis both for future detailed studies and appropriate intervention programmes. We trust that a scientific method of waste disposal will be adopted with the consent and participation of the local population and waste pickers. Certain crucial issues have been highlighted in this report with the aim of helping scientists, social activists and other personnel to further the cause of the waste pickers for a better life.

*Kindly contact PRIA for a detailed report.
CIS

CIS 96-66 What You Should Know About Occupational Health. 842005B-6-92, Scriptographic Publications Ltd., Channing House, Butts Road, Alton, Hants GU34 1ND, United Kingdom, 1992, 15 p. illus. Price: GBP 0.55-0.94 (depending on the number of Scriptographic booklets ordered).

Training booklet on general aspects of occupational hygiene - willingness to cooperate with occupational health programmes; hazard awareness; common hazards (air contaminants, chemicals, physical and biological hazards); effects of workplace hazards, cleanliness, stopping smoking; use of personal protective equipment. Test for self assessment. (66243)


Aimed primarily at Indian school children, it is an introduction to the concepts of occupational safety and health. The main topics covered include - coal mining; textile industry; pesticides; working with glass (including the manufacturing of glass bangles); child labour (carpets, matchsticks and fireworks, locks, gems); chemicals; silicosis and asbestosis; construction work; municipal workers; office work; home accidents. Imaginative games, puzzles, illustrations and case histories are used to teach children about the many hazards present at the workplace. (66060)


The entire issue is devoted to safety and health issues in Asian construction and mining industries. Articles cover - safety and health in construction (Gold D.); safety management at construction sites - the Singapore experience (Wong H.K.C.); ergonomics in construction work; physical load and means of affecting it (Lappalainen J., Oksa P., Kaukiainen A.); cost of construction site accidents and optimal safety investment in Hong Kong (Tang S.L., Lee H.K., Chiu C.C.K., Ngai B.W.B.); a new safety audit and feedback system for construction sites (Laitinen H.); the ILO perspective on mining in Asia and the Pacific (Jennings N., Eskov V.). (66053)

Chemical safety

CIS 96-83 About Working Safely in Confined Spaces. 840702E-9-94, Scriptographic Publications Ltd., Channing House, Butts Road, Alton, Hants GU34 1ND, United Kingdom, 1994, 15 p. illus. Price: GBP 0.55-0.94 (depending on the number of Scriptographic booklets ordered).

Training booklet on safe work in confined spaces: types of confined spaces; hazards during routine and emergency situations; types of hazards (toxic gases and vapours, explosions and fires, oxygen deficiency, heat noise contact with irritating substances in tank, mechanical hazards, falls); safety procedures before and during entry; special safety tips; personal protective equipment; what to do in case of an emergency. Test for self assessment. (66274)

CIS 96-109 What Everyone Should Know About Stress at Work. 842799C-3-94, Scriptographic Publications Limited, Channing House, Butts Road, Alton, Hants GU34 1ND, United Kingdom, 1995, 61 p. 34 ref.

Training booklet on stress at work - who is affected; causes of stress; effects of stress; symptoms; avoidance of exhaustion; reduction of stress at work; proper use of time; improving work habits; changing of stress-causing personal habits; learning to 'relax'. Test for self assessment. (66250)

General safety, health and conditions at work


Data on absences of one or more days from work were collected for 2561 workers. The workers belonged to three occupational groups and were employed in organisations with equal work status for men and women. During the three months of the study, more women than men took time off from work. Both men and women took fewer but longer spells of absence, with increasing age. Professional staff took less absence than support staff. Difference in absence rates between men and women were removed by standardization of age and occupational status, thus highlighting the importance of age standardization in such studies. (65943)

Study of occupational health and safety (OHS) legislation in India, with particular reference to workmen's compensation. Three basic pieces of legislation are in effect - the Workmen's Compensation Act, 1923, the Employees State Insurance Act, 1948 and the Factories Act, 1948 (CIS 89-701). Three main kinds of legislative impact are considered - how workers may be excluded from benefits offered by law, what the conceptual limitations are to proper compensation and how legislation is administered. Further chapters cover the occupational health situation in India; international standards and standards in the North (i.e., the developed world); the political economy of OHS. The annexure includes statistics on reported occupational diseases in India; comparison of schedules of occupational diseases as defined by different pieces of legislation; estimates of the true incidence, in India, of certain occupational diseases, based on sample surveys. (66011)


This manual explains how the concept of total quality management may be applied to the management of health and safety. Topics covered include - definition of the concepts and components of total quality; just-in-time manufacturing and its application to safety and health programmes, blocks to total quality and the process of change; management responsibility; employee participation; proactive versus reactive safety management; control programmes; setting goals and objectives; training, information and communication; the multifunctional professional; safety and health rules and their enforcement; programme evaluation; the concept of continuous improvement. (65962)

Occupational medicine epidemiology


AIDS is widely believed to be the strongest influence on the spread of tuberculosis, one of the most common opportunistic infections in people infected with the human immunodeficiency virus. In this chapter, the author details the unique interrelationship between these two widespread infections as well as their epidemiology, pathogenesis, clinical manifestations, prevention and treatment. (66220)


Many diverse substances and other factors encountered in the workplace that have been associated with infertility and spontaneous abortion are addressed in this chapter. These include - toluene, mercury, organic solvents, noise, shift work, irregular work schedules, stress, dry cleaning chemicals, antibiotics, etc. Extensive tables detail the results of numerous studies that have assessed the reproductive effects of occupational exposures. (66237)


Statistics suggest that environmental and occupational exposures may be at least partially responsible for an increased incidence of cancer in children. The latest findings in this area of research are described, including the methodological concerns that arise and how they affect the derivation of casual inferences from such studies. (66239)


The editorial considers lead exposure to be a worldwide environmental problem and urges a global ban on lead mining and smelting. While regulations have resulted in reduced lead exposure in the U.S.A., much of the reduction is matched by increased exposure in developing countries, to which lead is being exported. Although the short-term economic impact of a global ban on mining would probably be severe, the health consequences of lead exposure justify source reduction. Such a ban would stimulate efforts to find substitute products. (66148)

Editor's mail

- We received your recent issue of Occupational and Environmental Health and found it very interesting and informative. We would like to continue receiving future issues of it.

S.B. Nirala, Purbottor Vikas Evam Samaj Kalyan Samiti

- We take the opportunity to inform you that your journal, "Occupational and Environmental Health" is very useful and informative. They are of immense help in our documentation Centre.

Dr. Panka Topsy Sj, Director, Xavier Institute of Development Action and Studies, (XIDAS), Jabalpur.
OTHERS

Health hazards of pesticides and its management

Pesticide poisoning is on the increase in the developing world and its indiscriminate and unwise use has become a major cause for concern. Pesticide poisoning is an occupational health hazard and may result from careless handling by persons engaged in their manufacture and applications or by accidental ingestion.

This booklet aims at educating doctors, paramedics, health organisations and consumers about the health hazards of pesticides and their proper and early diagnosis and treatment.

The booklet describes the various health hazards due to pesticides, most commonly used pesticides in developing countries, management of pesticide poisoning, do's and don'ts regarding pesticide usage. It demystifies both the technical concepts generally not understood by a layman and the medical treatment required in case of pesticide poisoning.

Compiled and Edited by: Sanjoy Sengupta

Published: Voluntary Health Association of India, Tong Swasthya Bhavan, 40 Institutional Area, South Of IIT, New Delhi 110016

Year of Publication: March 1996

Tuberculosis: A critical public health challenge

The concerns related to Tuberculosis assume world wide importance, as it is not only specific to India but to all developing countries. TB kills nearly three million people each year, more than AIDS, malaria or other tropical diseases combined.

This booklet on TB discusses the rapid increase of this disease, and the problems faced in controlling it. Two case studies of the TB control programme have been mentioned. The appendix contains valuable information on the treatment of TB and its diagnosis. Basic information about TB, is also provided for people who are not knowledgeable about the disease.

Published: Anubhav, Voluntary Health Association of India, Tong Swasthya Bhavan, 40 Institutional Area, South of IIT, New Delhi 110016

Year of Publication: 1996

Out of the Shadows: Home based workers organise for international recognition

All over the world, home based workers form a large percentage of the unorganized labour force. In India, in the rural areas alone, there are 20 million home based workers. The battle to organise home based workers and to make their voices heard, started 20 years back. All hopes were set on the ILO convention held in June, to recognise this large group of workers that have been debarred from basic rights.

A preparatory booklet, published before the conference, it tries to cover the entire gamut of issues concerning home based workers in a simple manner. It gives details about home based workers all over the world, the problems faced by them and their present condition. The booklet place emphasis on women home based workers.

Authors: Renana Jhabvala and Jane Tate

Published: SEEDS, P.O. Box 3923, Grand Central Station, New York, 10163, U.S.A.

Year of Publication: 1996

Occupational health: recognising and preventing work related diseases

Decisions in occupational health are ruled by complex medical, political, social and economic issues. By taking a multidisciplinary approach to a complex specialty, this second edition of 'Occupational Health', attempts at clarifying various conflicting interests, perspectives, assumptions and approaches. It is a useful guide to information on recognising and preventing work related disease and injury.

Contributions have been made by primary care and specialty physicians that have worked in academia, industry, labour, government; and from professionals in industrial hygiene, safety and ergonomics, psychology, labour, economics, law and sociology.

The book is divided into six parts and addresses issues on work and health, approaches to recognizing and preventing occupational disease, hazardous workplace exposures, occupational disorders by system and approaches to occupational health.

Edited by: Barry S. Levy M.D, David H. Wegman, M.D.

Published: Little, Brown and Company, Boston/Toronto

Year of Publication: 1996

Environmental and occupational medicine

The second edition of 'Environmental and Occupational Medicine' is targeted at medical students, residents and practitioners as a comprehensive resource and at the public health community at large, as a guide to the control and prevention of disease.

The book is divided into three parts and discusses issues regarding examination of environmental and occupational disease by organ systems; toxicants in the workplace and the environment, selected on the basis of significant hazard or history; and control strategies for both disease and toxicants.

A comprehensive guide, it contains a record of past accomplishments in the field of environmental and occupational medicine and provides a perspective with which to approach the future. It reviews the scientific information that has emerged in recent years, demonstrating the scope and variety of the research conducted and the understanding that it has brought about.

Author: William N. Rom

Published: Little, Brown and Company, Boston/Toronto/London
Paper mill taken to task for polluting Sone river: Madhya Pradesh

Life has become a constant struggle for the residents of 157 villages, situated on the banks of the river Sone in Shahdol district of Madhya Pradesh. The villagers have been deprived of potable water. Their only source of water, the Sone, has been poisoned and their fertile lands converted into barren tracts. And all this in the name of industrial development.

The culprit, Orient Paper Mills, draws about 65,000 cubic meters of water daily from the Sone. This water is needed to service its integrated pulp and paper unit, with a production capacity of 255 tons a day. As much as 85 percent of this massive quantity of water is discharged back into the river, as effluent waste. This includes wash liquors, overflows from the pulp mill and caustic extraction effluents from the bleach plant.

In 1965, the Birla owned Orient Paper Mills was set-up in Amalai village of Shahdol district. Since then, the management and the villagers have fought over the pollution issue. So far, the Birlas have won. However, this has only made the people more determined to fight it out till the very end.

"Before the situation takes an ugly turn, the government should think about providing alternative employment to the mill workers," says the report of the Petition Committee of the State Assembly. It raises the question, "Is it proper to render farmers jobless and deprive the residents of drinking water, just because 2,500 workers get employment in the polluting unit?"

The Week, June 9, 1996

Rs. 1,862 crore project by Mathura refinery

At a cost of Rs. 1,862 crores, the Mathura refinery of the Indian Oil Corporation has drawn ambitious plans to minimise polluting emissions. The refinery, which has become a whipping boy at the hands of 'greens', has decided to install a catalytic reforming unit at a cost of Rs.545 crores. This will help eliminate the use of lead in petrol; it is to be commissioned next year.

With the substitution of the compressed natural gas in the boilers and furnaces in the refinery, within the next few months, sulphur dioxide emission is expected to be reduced to 390 kg per hour. This will cost them a further Rs. 30 crores. In accordance with its environmental management plan, the sulphur dioxide emissions have already been brought down from the original recommended limit of 1,000 kg. per hour to about 500 kg. per hour.

The Mathura Refinery has identified itself with nature in consonance with its motto - 'green refinery, clean refinery'. Till date, it has planted over 70,000 trees in township and refinery areas and committed itself to a large plantation of 50,000 trees around the Taj.

The Hindustan Times, New Delhi, August 2, 1996

Noxious junk being dumped in developing countries

For 22 months, the ship Khian Sea, loaded with ash from Philadelphia's garbage incinerators, roamed the seas. Country after country refused permission to accept its toxic cargo. Panama had earlier agreed to use the ash for a road building project but balked when it learnt that the ash contained lead, arsenic and other poisonous compounds.

The ship's name was changed twice to disguise its identity but by now the case had blown into an international scandal. In November 1988, the vessel suddenly appeared in Singapore, emptied of its cargo. No one would say what happened. An official of the chartering company said, "it was possible to dispose the cargo in India or Pakistan. They did not want any publicity. They just asked us to unload it quietly in a small port".

Quite a few ships laden with hazardous waste are known to be doing the rounds. They are all looking for a place where local officials can be lured into having the waste dumped on their shores.

Rashtriya Sahara, New Delhi, May 31, 1996
Delhi is world's fourth most polluted city: WHO

The World Health Organisation lists Delhi as the world’s fourth most polluted city. It states that air pollution in cities like Delhi is a risk factor for heart diseases and accounts for the rising incidence of the disease. Water in the Yamuna is reported to be unfit for human consumption; noise pollution too is on the increase, leading to various stress-related ailments and blood pressure disorders.

According to a study carried out by the Central Pollution Control Board, 2,000 pollutants are released into Delhi’s air. In addition, about 6,000 tons of fly ash and about 4,750 tons of garbage are deposited everyday in Delhi. A 1994 report on vehicular emission, by the Indian Institute of Petroleum (IIP), states that gasoline passenger cars, taxis and jeeps contribute 6,000 tons of hydrocarbon emissions. In 1992-93, a staggering 4,44,500 tons of carbon monoxide and 41,000 tons of oxides of nitrogen were released into the air. During the same year, two and three wheelers contributed 70 percent of the total vehicular un-burnt hydrocarbons.

According to figures released by the Lung Care Foundation, there has been an alarming rise in respiratory diseases. In a sample survey of 7,000 families, 36 percent were found to be suffering from respiratory diseases related to pollution in the Capital. Twenty-eight percent of these were suffering from chronic bronchitis and nearly 51 percent children appeared to suffer from more than three respiratory diseases.

The Hindu, New Delhi, June 11, 1996

Polluting industries: workers lose as industries move out

The Supreme Court’s decision to relocate 168 hazardous and polluting industries out of Delhi, has been applauded by many. According to the court order, these industries have to stop functioning in Delhi by Nov. 30th, 1996.

The general impression is that polluting industries have been taken to task and the order of their relocation is an appropriate punishment. However, a large part of the reality is missed. Thousands of workers employed at Birla Textiles, Swatantra Bharat Mills, Shri Ram Foods and Fertilizers etc. have an altogether different story to tell. Most of them will lose their jobs and will be out on the streets. What they have been promised as compensation, is just a pittance. As a result, in controlling pollution, it is the workers heads that are going to roll first.

The Pioneer, New Delhi, July 19, 1996

Textile units polluting water tanks

Textile industries in and around the old city of Hyderabad are spewing venom in the form of chemical effluents. These effluents are poisoning the few existing fresh water tanks and converting fertile agricultural lands into marshy waste lands.

As a result, hundreds of hapless people residing in the neighborhood of these industrial units are forced to fetch drinking water from far-off places. Farmers can no longer till their once fertile land. Unfortunately, this widespread destruction of nature has failed to move the officials of the State Pollution Control Board. They have not taken any action against the erring textile units.

With the monsoons arriving, residents of Rajendernagar and Saroornagar fear that the hazardous chemicals will enter their houses, endangering their lives.

The News Time, Hyderabad, July 21, 1996

ESI wage ceiling is increased

A special meeting of the Employees State Insurance Corporation has authorised the union Labour minister M. Arunchalam to take a final decision on the extent of increase in the wage ceiling and the rates of contribution.

The ESIC endorsed the proposal of enhancing the wage ceiling for purpose of coverage of employees to a minimum of Rs 6,500 per month from the present upper limit of Rs 3,000 per month.

Asian Age, New Delhi, Oct 6, 1996
Tired workers cost 350 billion per year

Researchers have noted a clear relation between fatigue and accidents at work. The underlying problem is often disturbance in the diurnal rhythm. Monotonous work, long work shifts, vibration and drugs increase fatigue and drowsiness.

Fatigue is a common reason for accidents at work. Irregular working hours reduce alertness and markedly increase the risk of accidents taking place. The accidents in the nuclear power plants at Chernobyl, Harrisburg and Sosnovy Bor are spectacular disasters that occurred during the night shift. These accidents were devastat-

ing not only in human terms, the economic consequences were also enormous. In the U.S.A., accidents due to employees that tried to stay alert or awake, cost about 50 billion per year.

The main problem with irregular working times is our biological clock, which regulates sleep and waking. This daily rhythm is genetically programmed and difficult to alter. Shift workers often sleep much less before and after their shift, sometimes two or three hours less per day than people in general.


One worker is killed for every ton of gold mined: South Africa

In two separate incidents in February, five more South African gold miners died. The latest incidents added to the toll in what was already one of South African industry’s most disastrous starts to a year, in terms of the number of fatal accidents. Since the year began, three other incidents had resulted in 17 known deaths.

After one of South Africa’s worst mine disasters in May last year, the industry’s record is under intense scrutiny. In Vaal Reefs gold mine, a locomotive plunged down a shaft, killing all the 104 employees travelling in it. An inquiry is being conducted.

Commenting at the time, Mr. Pik Botha, South Africa’s Minister for Mineral and Energy Affairs, pointed out that every ton of gold mined in South Africa cost one life and resulted in 12 serious injuries.

The Gold Fields Mineral Services Consultancy states that South African gold mines are plagued by seismic activity. They estimate that between 1911 and 1994, a year when the death toll was 485, about 69,000 miners have died and more than one million persons have been injured in the mines.

Workers Health International News, Summer 1996

Pesticides may not kill you, but they will make sure something does

Although some of the most hazardous pesticides have been restricted or banned because they pose risks of can-

cer, birth defects or neurological damage, little attention has so far been given to what may be their greatest risk - impairment of the immune system.

A new report from the World Resources Institute notes, “There is considerable evidence that widely used pesticides may suppress immune responses to bacteria, virus, parasites and tumours, making people significantly more vulnerable to disease”. The authors note, “If pesticides are undermining people’s ability to withstand infectious and parasitic diseases - still the world’s main causes of death - then pesticide policies must be profoundly altered”.

Workers Health International News, Summer 1996
Health and environmental dangers of lead waste

Lead is one of the most pervasive and toxic of all environmental contaminants. Some of its more pernicious effects have been recognized, for at least two thousand years. Metabolic, neurological and neuropsychological disorders can result from acute and chronic exposure. In case of neurological effects, interference with calcium metabolism and transport across nerve endings is believed to be the principle mode of toxic action.

The classical neurological symptoms of exposure to high levels of lead are encephalopathy in children and peripheral neurotoxicity in adults. The latter is characterised by the loss of muscle control at the extremities. Lead interferes with hemoglobin production, resulting in anaemia. It also causes irreversible damage to the kidney, leading to a gradual reduction in the efficiency of uric acid excretion.

High lead blood levels during pregnancy are correlated with a higher frequency of stillbirths and miscarriages; transplacental transport of lead can damage the central nervous system of the unborn child. Since there is no placental barrier to lead transport and evidence suggests that foetal brain tissue is particularly sensitive to lead poisoning, it becomes especially important for pregnant women to avoid lead exposure. Paternal lead blood levels are related to congenital malformations in children. There is also evidence that lead is a carcinogen in humans, with cancers of the kidney being the most strongly associated with exposure.

Greenpeace International, Keizersgracht 176, DW 1016 Amsterdam, The Netherlands

Garment workers die in factory blaze

On June 27th, thirteen workers died under tragic circumstances in a locked factory in the Bangladesh capital of Dhaka. These deaths prompted the newed concern in an industry, where half the factories are operating illegally and without respect for basic safety.

The blaze started on the third floor of a six storey building housing two clothing factories, Trimot France Ltd. and Syntax. The fire quickly spread upwards; blocked passageways and locked exits prevented the workers from escaping. Two days later, in spite of the obvious danger of the building collapsing, workers in the second floor section of Trimot Ltd. were instructed to report to work to finish an urgent order.

Half the garment factories set up in Dhaka are operating outside the law. In 1990, 25 lives were lost in a fire at Saraka Garments; in 1995 nine workers died in a blaze at Fay Apparels and Lukasa Fashion.

Issue No. 2, International Textile; Garment & Leather Workers Federation Newsletter, 1996

Query over asbestos respirators

Respirators designed to shield workers from asbestos dust do not work as well in real life as they do in labora-

tory tests, suggests a new study from the UK Health and Safety Executive (HSE). The Institute of Occupational Medicine carried out the study for the HSE. The study began in 1992 and was published in June 1996.

The HSE emphasises that all the powered respirators tested, gave adequate protection against asbestos; in most cases, asbestos was not found inside the face masks. Even when asbestos was present, it was below the acceptable limit. However, the performance of the respirators in practice - especially in hot conditions - was sometimes very much poorer than that measured under laboratory conditions.

Murray Devine, head of the HSE's Chemicals Policy Division, said that respirators may still have a part to play in protecting workers. However, they should be treated as a last resort, he said.

Hazardous International, Newsletter for Safety Health and Environment Worldwide, Number 3, August 1996

More than 73 million children work worldwide

Labour Ministers from 173 countries met in Geneva to discuss exploitation of vulnerable child workers. Seventy-three million children (13 percent of children aged 10-14) are employed. However, the inclusion of girls under 10 engaged in domestic labour might take this figure to hundreds of millions.

A new ILO report also warns that child slavery remains "an extremely serious problem". "Today's child worker will be tomorrow's uneducated and untrained adult, forever trapped in grind-
ing poverty”, says ILO Director General Micheal Hansenne.

Workers Health International Newsletter (WHIN), Summer 1996

Factory worker dies after being forced to do overtime

In Tangerang, Indonesia, a woman worker at a factory producing Reebok shoes died after being forced to do overtime. Popon (28) a mother of two, had asked her unit leader for permission to go home as she was feeling sick. This was after she had already completed two hours of compulsory overtime at the Spotec factory. Permission to go home was denied, apparently because the unit leader feared the reaction of the supervisor of the section.

Popon’s husband said she was often forced to work 11 hour shifts. Workers are not able to refuse overtime work and they are even required to work on Sundays. This case has led labour groups to issue a declaration, demanding an end to forced overtime in shoe factories.

According to one report, a worker at the Pratama Abadi industrial factory producing Nike shoes said “the only rest you get is after you collapse at your machine”. In addition, the case has highlighted the brutal discipline and long working hours imposed by Korean management in the vast majority of Indonesia’s garment and shoe factories.


A dangerous liaison: TB and HIV

One third of the world’s population, at least 1.700 million people, are latently infected with tuberculosis. It is the largest cause of death from a single pathogen or disease-causing agent in the world. WHO estimates that at least 5.6 million people, the overwhelming majority of them in the developing world, are infected with both HIV and TB. The twin epidemiologies of TB and HIV are showing a dangerous tendency to coalesce and to co-infect individuals.

Recent research has shown that the TB bacterium can activate HIV from a latent state in infected cells. (World AIDS 24, November, 1992) Dr. Paul Nunn of WHO’s TB programme says that “people with HIV are likely to develop active TB”.

The TB epidemic is accelerating in the developing world at a worrying rate. Since 1987, TB notification rates in many sub-Saharan African countries have risen sharply. Tanzania, Burundi and Malawi, all report huge increases in the number of cases of active TB. Annual TB cases have risen from 12,000 in 1990 to 17,000 in 1993. Sixty-four percent of people with TB, also have HIV. WHO estimates that around 60 percent of TB patients in Uganda and Zambia are infected with HIV.

Panos AIDS Media Briefing, No.1, Updated December 1994

Sweatshop owner charged: Korea

Six underage workers sold to a Seoul sweatshop owner for US $ 65 were released by police in May, after 13 year old Chung escaped to tell the story.

The children were forced to work 17 hour labour shifts, from eight in the morning till eleven at night. They were manhandled with heated forceps and beaten, sometimes with hammers, if they protested. To prevent the children from escaping, the sweatshop hired a guard and installed bars on all the windows. Chung told police that it took him three months to gradually loosen the screws of the iron bars.

According to reports in the Korea Herald, the owner has been arrested on charges of child abuse and violence.

Question: I am a medical practitioner working in a textile factory. I would like to know more about occupation related asthma. Who is at risk? How can it be detected - what are the common symptoms?

Answer: Occupation related asthma can affect workers in various occupations. The high risk group includes bakers, welders, painters, cleaners, hairdressers, wood workers, spray painters, textile workers, food processors, hospital workers, laboratory technicians, electronic assembly workers, etc.

ASTHMA related to work occurs by:

- Breathing in substances (dusts, fumes) at work causes a normal healthy person to develop asthma.
- Breathing in substances at work or working in certain environments, ‘triggers’ asthma attacks in those who already have asthma.

The three main types of asthma are:

Allergic Asthma (Occupational Asthma): Caused by an allergic reaction to certain substances (respiratory sensitisers), present in the workplace. It may take months or even years to become sensitised. Once this has happened, even minute amounts will cause symptoms.

Irritant Asthma: Caused by exposure to workplace ‘irritants’. The symptoms are the same as for allergic asthma, however, the immune system is not involved. Exposure to irritants can make the lungs likely to be sensitised to other chemicals.

Reactive Airways Dysfunction Syndrome (Rads): A form of asthma caused by a one-off high level exposure to a workplace pollutant, for example, during a chemical leak, spill, explosion or fire.

If a worker has or is developing asthma, symptoms shown may include:

- Chest tightness
- Wheezing
- Shortness of breath
- Bouts of coughing - dry or with mucus

A common pattern among persons suffering from occupational asthma is that during the week, the symptoms get worse. The symptoms may only occur or get worse after returning home, sometimes interrupting sleep. The symptoms may get better on the weekend or when on holiday; it can take several days to notice an improvement.

Once sensitised, continued exposure can result in increasingly severe symptoms. Asthma attacks are likely to become worse and can be triggered by other substances such as tobacco smoke, general air pollution or even cold air. These attacks can continue even after exposure to the sensitiser has stopped.

The effects of irritants are usually more immediate, with symptoms occurring directly following an exposure. Substances responsible for most cases of occupational asthma are:

Isocyanates:
Vehicle spray painting, foam manufacturing.

Flour/Grain/Hay:
Handling grain, milling, malting, baking.

Electronic Soldering Flux:
Welding, soldering, electronic assembly.

Laboratory Animals:
Laboratory animal work.

Some Glues/Resins:
Curing of epoxy resins.

Other sensitisers include:
Glutaraldehyde, Antibiotics
Hospital work

Some Disinfectants:
House Dust Mite
Cleaning

Some Solvent Based Cleaners:
Henna, Persulphate Salts:
Hairdressing

Common irritants at the workplace include tobacco smoke, sulphur dioxide, ethyl acetate and diesel exhaust fumes. High level exposures to pesticides, fumigating fog, smoke and ammonia have been known to cause reactive airways dysfunction syndrome.

Occupational asthma is a compensable disease under schedule III of the Workmen's Compensation Act (1923).

Source:

1. Camden & Islington Occupational Health Project, St. Pancras Hospital, 4 St. Pancras Way, London NW1 OPE.

2. Diseases due to work and compensation, Society for Participatory Research in Asia, 42 Tughlakabad Institutional Area, New Delhi 110062.
The above photograph is of Rawat Ram, aged 55 years living in a small village called Keru near Jodhpur. He has been working in the stone mines for the past 20 years and recently stopped work due to health reasons. Soon after starting work he developed severe coughing problem. Visits to local doctors told him that he had TB and he was treated for TB repeatedly for years. As time passed he also developed chest pain. Seeing no improvement in his condition he stopped all treatment and resorted to his own ways of getting relief from the unbearable pain.

The white spots seen on his chest are marks left of burns inflicted by himself to get some relief from the pain. At times when the pain would be more he would burn those parts of his chest to get temporary relief.

PRIA is conducting lung function tests for 500 workers in stone mines to assess the prevalence of silicosis among them. Rawat Ram is one among them. His report has gone for examination and we would soon know if the excruciating pain suffered by him is due to silicosis.

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**Announcement:**

**3rd Comprehensive Course on Occupational and Environmental Health**

This course is specially designed for trade unions in the Southern region of India. Apart from covering the topics of normal interest, stress will be on textile industries and resulting dust related occupational lung diseases.

The course is scheduled in December, 1996 in Kerela.

For details please write to PRIA or to Mr. Vijayan Kuninser, Kerela Textile Worker’s Federation, 5/465, Pranamam, Puthur, Palakkad, 678001, Kerela.
PRIA

The Society for Participatory Research in Asia (PRIA) is an independent, non-profit, non-government organisation registered under the Society Registration Act 1860.

Over the last twelve years PRIA has promoted people-centered development initiatives within the perspective of participatory research. As the cherished mission, PRIA endeavors to promote people-centered, holistic and comprehensive evolution of society characterised by Freedom, Justice, Equity and Sustainability, by

- creating opportunities of sharing, analysing and learning among formations of the Civil Society (in particular, people's organisation and NGOs);
- engaging in independent and critical analysis of societal trends and issues, development policies and programmes; and
- enabling dialogue across diverse perspectives, sectors and institutions.

The focal aim of PRIA's Centre for Occupational and Environmental Health is to promote and contribute towards making work and living place healthier and safer. On one hand the Centre collects information from networks, organisations and individuals through research studies, documentation and data bases and it on the other, disseminates information through Bulletin, publications, training/workshops and information service.

Society for Participatory Research in Asia
42, Tuglakabad Institutional Area, New Delhi - 110 062.
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Shifting Hazards

During 1996, which can be rightly termed as the year of judicial activism, the Supreme Court of India, passed many significant judgements in the field of environment. The recent judgement of the Supreme Court concerning the shifting of 168 hazardous industries out of Delhi, was one such judgement. These judgements generated a ray of hope, that we may yet be able to secure a safe and healthy, living and working environment for ourselves and our children. Even if this is a remote possibility, this was not a hope that the common man had in 1995. In the name of industrial development, our towns and villages are increasingly becoming polluted and its inhabitants suffer from a variety of health problems. We not only need to take drastic action to remedy this situation, more importantly, we need to examine the policies concerning industrial growth that we have followed for half a century.

We find that in almost all Indian cities, industries are located in residential areas. They not only process hazardous chemicals but also contribute substantially to the overall pollution level of these towns. A look at the pollution data, would have us believe that India is competing to top the chart of having the most polluted cities. A World Bank report states that at least 40,000 people die prematurely due to air pollution in India. In Delhi alone, we have witnessed many major accidents in these small units. These industries are either illegal or beyond the arm of law implementing agencies. They are not only hazardous for the population living around them but are also a living hell for the workers employed in them. They are involved in doing dangerous, dirty and difficult jobs for big reputed companies.
Unfortunately, there is no agency to provide information to managers and workers of these industries, on the dangers involved in their work. Hazardous chemicals and materials like asbestos, a variety of acids, etc. are handled without taking any precautions. In fact, industries of Delhi and other parts of the country have been lamenting about the absence of any information on occupational hazards. Even today, this shifting exercise that is being carried out, is more like catching the culprit rather than correcting the problem at the source. There is no importance being given to changing the work process itself. All the neighboring states of Delhi are trying to attract these industries by making lucrative offers. After some years, if the same production processes continue to be followed, they will be asked to move to some other place. In this connection, we are reminded of the case of the stone crushers. Silicosis was reported amongst the workers and so they were relocated in Pali. Since then, no one has bothered to learn what became of the affected workers.

The workers in Delhi are being compensated with six years salary if the units decide to close down and one year salary, if it relocates. There is no assessment being conducted on the health condition of the worker. On one hand, the Court agrees that these operations are dangerous and yet on the other hand, medical inspection is denied to these workers. In fact, in this transaction, it is the companies that stand to benefit as they will not be held responsible for any occupational death that may occur, if the factory closes. In case of relocation, they will instead get a younger workforce. Wage compensation is not enough in these circumstances.

In the light of these developments, we need to analyse our industrial policy. In order to ensure sound industrial development, we must take into consideration all the above stated facts. Each industry should not be looked at in isolation but in a more holistic manner. There is need to have an agency to provide advice and training to managers and workers, concerning hazardous materials and production processes. These should be designed to cater to the needs of the industry and the locality. Educational inputs should be provided to the community, workers and the managers, to build their capacity to handle occupational hazards in a more effective manner. If these workers have to be compensated in the true sense of the word, a health examination of these workers, must be conducted. Instead of giving importance to shifting hazards to some other location, we should concentrate on replacing hazardous materials and methods with safe and healthy ones.

Harsh Jaitli
Women Workers: Struggle for Survival

Sumedha Saxena

Are women more susceptible to hazards at the workplace than their male colleagues? This question is raised with the objective of understanding the specific problems of women workers, examining the reasons that make women more susceptible to health problems and identifying ways to help eliminate these hazards. The need to explore occupational health hazards faced by women, becomes necessary as women and men are affected differently by various diseases and conditions; certain health conditions are unique or more prevalent in women; they have different risk factors and different exposure to risks; and their health problems require different interventions.

Women and men react differently to hazards at the workplace. Health problems of women get aggravated due to various reasons - their physiological structure, malnutrition, anemia, frequent pregnancies, long work shifts, the additional burden of domestic chores, etc. In this decade, where we talk about gender equality, gender sen-

sitivity, equality in all spheres etc., this is one area, where women receive more than their fair share as compared to their male counterparts - they get more illnesses.

Women Workforce in India

In the past few decades, an increasing number of women have joined the labour force. In India, the 1991 census records 91 million women workers out of a total workforce of about 315 million persons. This implies that women constitute one third of the workforce. The majority of women workers are engaged in the unorganised sector and a very small percentage in the organised sector. According to data from the Ministry of Labour, in 1989, only 3.55 million women workers were employed in the organised sector. This means that nearly 95 percent of working women are employed in the unorganised sector.

Women are employed in large numbers in the following occupations - agriculture, construction, textiles, handlooms, dyeing, printing, cotton and tea plucking, beedi rolling, etc.

Women in Industry

Women’s participation in the labour force has always been limited to mundane jobs that are monotonous, repetitive, hazardous in nature and above all, the least paid. Wherever they work, whether as home-based workers, in construction or in factories, their involvement is always restricted to unskilled and monotonous jobs. Considered to be the weaker sex, they are not allowed to join the mainstream, where male domination continues to be prevalent. Ironically, this weaker sex performs the more laborious tasks and gets paid less. For instance, in the construction industry, women and children work as head loaders and spend the entire day loading cement and bricks. Their male colleagues set the bricks, fill the slabs etc. The latter tasks are considered to be skilled jobs and fetch more money while the labour involved in carrying heavy loads of bricks and cement is regarded as unskilled and so the money earned is less.

Women are a boon to employers in the unorganised sector, as they can be made to work more and paid less. Occupied in diverse occupations, scattered geographically, weak in numbers, they lack the means to register a complaint. Even if they do complain, they will be the first ones who will be asked to leave. The same applies to women in the organised sector. If the industry is hazardous to women workers, the hazards remain and the women are out.

Legal Provisions for Women Workers

A number of legislative measures have been taken for the protection of working women. For instance, the Maternity Benefit Act, 1961; Mines Act, 1952; Plantations Labour Act, 1951; Beedi and Cigar Workers Act (Conditions of Employment), 1966; and the Factories Act, 1948, provide leave with wages, define hours of work for women, ensure safety and welfare of women, prohibit employment of women during night shifts, provide special facilities for women

* Author is a member of COEH team in PRIA.
like creche, rest rooms etc. Equal pay for equal work has also been stipulated in the Equal Remuneration Act, 1976.

All these laws were made to help women workers at their workplace. The question that arises here is whether these laws are actually benefiting women or instead restricting their entry into the formal sector. Many industries do not employ women, as they will have to provide them with additional facilities like creches, maternal benefits, etc. This becomes an additional burden on the industry and their production is affected. Some industries prefer taking unmarried women or women who are beyond their child bearing age to avoid providing them with special facilities or benefits.

Women are caught in a vicious circle. Laws that are made to protect them, instead restrict their entry in many industries; if these laws were not made, it would lead to further exploitation of women workers. Caught in this vicious circle, they accept the given conditions as their fate and perform whatever work they are given and take whatever amount they are paid silently.

Occupational Health Problems of Women Workers

Occupational health hazards of women workers can be divided into two categories:

- Hazards which affect men and women with the same intensity, as they are employed in the same type of work. For example, lung irritants like cotton dust in a textile factory cause byssinosis; chemicals like sulfuric acid cause skin problems; carcinogens at the workplace cause cancer etc.

- Hazards which affect fertility or sexual and reproductive functions, where both men and women may be affected, but where women with developing foetus face special risks. For example, exposure to chemicals and pesticides can have harmful effects on the worker and her unborn children. Organic solvents like benzene, toluene, ketones, alcohols etc. can enter the placenta, resulting in still births and also cause aplastic anemia.

There are a few factors which make women more susceptible to illness. These are:

Physiological Factors:
The physical, chemical and biological agents at the workplace, expose women to health hazards which affect their reproductive capability. Exposure to certain pesticides, and radiation are known to seriously affect a developing embryo or foetus and can have adverse affects on the development of the child. The developing organs in a foetus can be seriously damaged, if exposure occurs during the first 14 to 60 days of pregnancy. Abortions, miscarriages, still births and infertility can result due to these exposures. Occupations involving excessive exposure to noise and vibrations can also affect the reproductive system. Cases of spontaneous abortions have been recorded in industries like rubber, leather, chemical, electronics, metal, textiles and laboratories. Birth defects have been noted in women working in construction, agriculture, transportation, horticulture and jobs with mixed solvent exposures.

In 1991, PRIA conducted a study of women workers employed in agriculture, cotton plucking, tobacco processing, brass work, stone quarries, and prawn peeling. The findings revealed that a large number of women complained of body pain, fever, pain in the joints, digestive problems, vomiting, and headaches. Gynaecological problems like pain in the abdomen, difficulties during pregnancies, irregular periods, white discharge, etc., were reported in some occupations.

Malnutrition: Women labourers belong to the lower socio-economic strata of society. Meagre resources do not permit them or their families to benefit from a nutritious diet. Moreover, as per Indian custom, a woman has to feed her family first. Consequently, she is the last one to eat and may only get the leftovers. Her family's health always takes priority over her needs. Though she is the one who works both outside and within the home, she is always the last recipient, whether it is food, medicines or any other amenity. It is therefore not surprising that a large number of women suffer from anaemia. This is revealed in complaints like dizziness, general weakness and fatigue. Their immune

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system gets weakened, making them an easy prey to various illnesses.

Stress: Women work for almost double the time as compared to their male counterparts. Though they have entered the work area, which was earlier a male domain, they still retain their traditional role of a homemaker. Attending to daily household chores, looking after her children and other members of the family, and also putting in the requisite hours of work at the workplace, she has hardly any time to relax. Chronic fatigue and weakness are some of the results of stress which she suffers.

Some factors which contribute to stress at the workplace are monotonous work, excess work load, extreme temperatures, poor ventilation, etc. Heavy manual work, lifting weights, sitting/standing in the same posture for hours, aggravate her stress level. Consequently, backaches, bodyaches, pain in joints etc. become chronic health problems. Stress can affect a woman both physically and emotionally. Exposure to long term stress can lead to high blood pressure, heart problems, and peptic ulcers. Emotional effects of stress include, depression, fatigue, anorexia and insomnia.

An unfriendly work atmosphere also increases stress levels. Working in a set up which has always been dominated by men, a woman has to prove her place in the work area and at times work extra to establish her existence. The social upbringing of Indian women also plays a pivotal role here. Brought up in a atmosphere where women are not supposed to answer back, suffer in silence and accept everything as their fate in life, they face problems at work area where this silence is taken advantage of and they succumb to a lot of pressure.

The above three factors are interlinked with each other and contribute equally to a woman’s ill health. Women often accept ill health as their fate in life. In our culture, where a woman is expected to endure without complaint, she often ignores painful and debilitating symptoms. She considers herself ‘healthy’ as long as she can get up in the morning, do a day’s work, earn her daily living and fulfill the roles expected of her as a mother, wife, daughter and a responsible family member.

Intervention Strategies
- Unfortunately, this area has not been given the attention it deserves. In the past, research has been conducted to identify health hazards of workers in different occupations. Most epidemiological surveys have been conducted in male intensive occupations. Studies which have covered occupations employing male and female workers, have not given required importance to the special problems faced by women. Another dimension comes into focus here. Some studies done by government agencies and NGO’s have studied the affects of hazards on women. The same hazards have an equal impact on men also but that has not been studied. As a result women are not employed in these occupations and men take over their jobs. Here again the losers are women.

Trade unions, NGOs, workers and health professionals need to develop and strengthen intervention strategies to deal with problems faced by women workers. NGOs have conducted a few studies focusing on women workers. Perhaps because these were independent studies, the findings have failed to generate any follow up action. Not many unions have taken up this issue. Unions continue to focus on wages and employment problems and have not been able to concentrate on health issues of workers. Secondly, the unorganised sector, where women constitute a large percentage, is ignored by trade unions.

The need of the hour is to focus more on women workers. We have to change the prevailing attitude that labels these problems as “women’s problems” and therefore have to be handled solely by women and women’s groups. Women are the cornerstone of a family and assume responsibility for many of its vital functions, not only with regard to health, but also with regard to food production and income generation. As such, the health of women is important for the family and the entire society.

The first step in this direction will be to build a knowledge base which will help us to study these problems in depth and reflect on our attitudes towards women. Once we understand these problems and accept them, the second step will be to gather facts which will help in strengthening our stand. This can be done by following the participatory research method, where women are involved in the whole process, and are subjects and not merely objects to be studied. Their participation will generate more meaningful insights into the problem, solutions and follow up measures to be taken.

The third step is to conduct training, in response to the findings of the above studies. Training programmes need to be organised for unions, NGOs, health professionals and most importantly workers - both men and women. Participatory research, training and the sharing of information and experiences can help build a platform from where a follow up action plan can be formulated and implemented. The entire process should be documented, to enable other groups to frame strategies of their own.

The 1991 study conducted by PRIA, in collaboration with SEWA (Ahmedabad), Unnati (Ahmedabad), Volunteers of Social Justice (Jalandhar), Institute for Self Management (Madurai), and Information for Action (Cochin), tried to explore this area in depth. Much more is yet to be explored and understood. In our endeavor to build a base to fight for the rights of women workers, we welcome suggestions and inputs from readers.
Bargaining Diseases for Work: State of Worker’s Health in Thailand, Malaysia, Philippines, Taiwan, and the Republic of Korea

Harsh Jaitli
Vijay P. Kanhere

The neighbouring countries of Thailand, Malaysia, Philippines, Taiwan, Republic of Korea and Japan were visited, with the aim of exploring the state of worker’s health in these countries. This visit also aimed at developing a feeling of fraternity amongst the worker groups and identifying issues on which joint action could be taken. In this article, we report on our visit to these countries. A part of this report, featuring Japan, was published in the last issue of our bulletin.

The report is based on secondary data and discussions held during the visit. Unfortunately, only few institutions were able to provide inputs on occupational health and safety from the worker’s perspective. The statistics given by government agencies provide an unrealistic picture, as there is non reporting and incorrect diagnosis of occupational diseases. This report has missing links which bear witness to the lack of information available on this subject. We request the readers to help us fill in these gaps and initiate steps to document similar reports on other Asian countries.

Profile of Countries

Thailand: Of the five countries being discussed in this article, Thailand is a typical example of an Asian country experiencing a technological boom. Every year in Thailand, 0.5 million workers are added to the formal sector. Unfortunately, the legislative mechanism for labour welfare, continues to be weak. The government had adopted a fire fighting approach; it undertook changes, only after a fire broke out in a toy factory. At present, reporting on occupational diseases is almost non-existent. Workers do not have the right to access information related to health hazards. The companies do not have any safety committees. Only recently, a law has been passed appointing a safety officer in industrial establishments.

Taiwan: Taiwan is an example of a country that had directed its resources to economic development. In the process it by-passed all welfare activities, especially during the period of martial law. Recently, the government announced that Taiwan’s economic growth has been so successful that they want to join GATT, United Nations, etc. They also want to make it the financial and business centre of Asia and the Pacific. In the process of this economic miracle, the major sacrifice has been made by workers and common citizens. Since its inception, Taiwan has faced threats by the People’s Republic of China. The government has used this as an excuse for curtailing the freedom and the rights of its citizens. Taiwan has also been a victim of global isolation.

Malaysia: In Malaysia, the electronic industry is the largest employer in the manufacturing sector. At the end of 1990, there were 420 electronic industries in Malaysia, with 267 companies producing electronic components, 81 producing consumer goods and 85 producing industrial products (Star, 22.9.91). By the end of 1991, there were 618 electronic companies (Star, 30.7.92). The total workforce in the electronic industry has increased over the years, from 110,375 workers in 1990, 129,636 in 1991, 143,353 in 1992 and 165,892 in 1993 (Business Times, 1.8.94). The majority (80%) are females and are usually employed as production operators; men occupy the higher technical, supervisory and managerial levels. Most factories recruit young females in their late teens or early twenties.

Korea: Korea has pursued a policy of ‘maximisation of growth’, rather than the ‘maximisation of welfare’. Its objective was to be self-reliant and become an economic power, able to defend itself against communist countries. Korea is one of the most densely populated countries in the world, second only to Bangladesh; if we exclude city states, it has a population density of 438.4 persons per sq.km. (1990).

Labour Laws and Labour Movement

Thailand: In Thailand, the national policies concerning occupational safety and health have been incorporated in the sixth National Economic and Social Development Plan (1987-91) and in the Fourth Executive Plan of the Ministry of Interior. However, the priorities of the National Safety Policy have not been stated clearly, causing problems in fiscal budget allocations.

The following are some of the problems related to current legislations:

- Some risk factors, operations and facilities are not regulated by legislation, for example, pressure vessels, open-cut excavations, making and breaking of cargo...
poles, falling from heights, shortage of oxygen and chemical facilities.

- Certain legislation provisions are not concrete, for example, the importance of physical examination and countermeasures against chemicals hazards are not specifically stipulated.

- The legislation does not contain provisions to help the government ascertain the extent to which the present legislation on safety, is actually being enforced by employers.

- There is no provision for employers to inform the Department of Labour (DOL) of the results of physical examination; installation and results of inspection of steam boilers, cranes, and temporary lifts; and appointment of industrial medical doctors or nurses.

Problems related to labour inspection include:

- The number of labour inspections conducted, with emphasis on safety and health, are only a tenth of the general inspections that are conducted. General Inspectors far outnumber Safety Inspectors.

- Almost all Provincial Labour Offices do not undertake safety inspection of enterprises. Hence, it becomes difficult for the DOL to regularly obtain information on enforcement of safety and health in enterprises. As each Provincial Labour Office covers a large geographical area, they are unable to give continual guidance to enterprises.

- There have been instances of Safety Inspectors, General Inspectors and Women and Child Labour Inspectors visiting establishments almost simultaneously. This reduces the efficiency of inspection and is a burden to the employers.

- The DOL headquarters directly undertake labour inspections. Consequently, other functions like planning policies and co-ordination with concerned agencies are not given full attention.

- Prosecutions are few, even though a large number of establishments violate laws.

- Provincial Labour Offices do not contain equipment for safety inspections.

Taiwan: Taiwan's labour laws do not seem to help industrial workers. They are vague in nature, leaving loopholes for manipulation by the employer. If an industrial disaster occurs, the employer is supposed to pay compensation to the victims. However, the law does not compe
him to do so. If the employer refuses to pay compensation, the worker gets US$ 3500 from the state; the employer can get away without paying anything.

Is it that worker's lives are cheaper than other lives? If a professional soldier dies at work, she/he receives 179 months salary as compensation, if a public servant dies at work, she/he will receive 233.5 months salary as compensation! But for a worker? Even if the employer does not try to evade responsibility, he has to pay the worker a measly 45 months salary.

The history of the labour movement in Taiwan is closely linked to the political situation in the country. In 1949, Taiwan separated from mainland China. Subsequently, for almost four decades, the country was under strict martial law. During this period, all movements were disallowed, including labour and social movements. National, regional, industrial, craft and company based unions were sponsored by the government, with the objective of controlling the workers.

In 1984, the Labour Standard Law was passed, under pressure from American trade unions and business groups. In 1986, martial law was lifted and the first opposition political party (Democratic Party) was formed. This positive development saw the emergence of many social movements, including labour. Many serious industrial disputes also surfaced during this period. There was also a demand to review the Labour Standard Law. The year 1988, saw the formation of new independent trade unions and reform in yellow unions.

In 1988, the Information Centre for Labour Education (ICLE) was established. From its inception, ICLE has been closely linked with the development of the labour movement in Taiwan. It has three departments:

- Department of Labour Education: Engaged in fighting for the rights of the labour class, in close collaboration with workers.
- Department of Labour Education: Planning, designing and organising worker's educational programmes.
- Department of Research and Publication: Collecting and analysing cases of struggles, labour welfare, laws etc., by following the participatory research method. Publication of books, materials and magazines, including the bimonthly, "Taiwan Labour Movement", with the aim of educating workers.

In 1988, the National Federation of Independent Trade Unions and the Labour Movement Supporting Association (Taiwan Labour Front), was formed. In 1988, for the first time, national workers demonstrated against two labour laws. This demonstration was organised by 28 autonomous trade unions. A demand was made for the women worker's right to protection; ICLE also played a significant role in this struggle. It also focussed on organising trade union movements in companies like New China Times, CKS airport, etc. It developed new training methods for educating worker's at the grassroots level.

In 1989, the Labour Party was established. The same year witnessed the failure of the labour movement in the Far-East Textile Union strike. The government also started suppressing radical social movements. In 1990, the Association of CKS Airport Trade Unions was formed; in 1991, Solidarity Front of Women Workers (SFWW) was formed to deal with issues of women workers. SFWW also helps women workers, to form unions and assists them in their struggle against plant closures.

In 1992, the Keelung Bus trade union strike took place. The revised governmental edition of labour laws was opposed; the ICLE proposed a worker's edition of labour laws. The participatory research methodology was used to draw up this document. The government, also legalised the import of migrant workers. The Committee for Action for Labour Legislation (CALL) was also organised during this period. In 1993, over 100 unions joined hands in a "autumn struggle" for labour standard laws; it was organised by CALL.

Philippines: In Philippines, as per law, occupational safety and health (OSH) is under Welfare Department and is covered by a series of notifications. The government and even many unions, do not give sufficient importance to OSH. In the Philippines, OSH is a concern that is enshrined in the Labour Code (Article 162, Book IV, Labour Code of the Philippines). It is operationalised by OSH Standards which were first formulated in 1978 and revised in 1989. The OSH Standards Document describes the duties of employers regarding OSH to be as follows:

- Furnish workers a place of employment, free from hazardous conditions that are causing or are likely to cause death, illness or physical harm to them.
- Workers entering the job for the first time should be given complete job safety instructions, familiarised with their work environment and the hazards to which they will be exposed, and steps to be taken in case of an emergency.
- Use only approved devices at the workplace.
- Comply with the requirements of the Standards.

On an average, the Department of Labour and Employment (DOLE) inspects 10,000 - 15,000 business establishments yearly, of which 33 - 40 percent are found to violate OSH standards. In a DOLE survey of
slightly over 12,000 establishments in 1987, more than 40 percent of establishments violated OSH standards. The major violations were in the non-implementation of the Safety Committee provision (13%), the non-reporting of accidents (9%) and non-provision of health personnel within plant premises (7%). Other violations included the inadequacy of medicines (6%), non-registration (4%), below-standard housekeeping (3%), non-recording of accidents (2%) and lack of personnel protective equipment (2%).

Korea: Korea favoured a 'maximisation of growth' policy, rather than a 'maximisation of welfare' policy. The environment was a victim of this neglect. On paper, the Public Nuisance Prevention Law (PNPL) of 1963, empowered the government to set emission and effluent standards. Pollution abatement facilities in all new factories were made mandatory. The responsibilities for the enforcement of the PNPL was assigned to an understaffed Environmental Division, under the Ministry of Health and Social Affairs - a Ministry with the least clout in the government. Consequently, there was no systematic monitoring and rarely did polluters face any penalty. As public concern with environmental degradation grew, the PNPL was replaced by the Korean Environment Preservation Act in 1977; the Environment Division was upgraded to the Environment Administration in 1980. Finally in 1990, the Environment Administration attained the status of a Ministry.

Korean courts have tended to adopt a "dual cause" approach to Karoshi. Karoshi is a 'sudden death' syndrome occurring among employees who work too hard or under very stressful conditions. In cases of death at work, while it is necessary to state that work may be considered to be a cause of death, it need not necessarily be considered to be the main cause, there may also be related causes and it is appropriate for this to be taken into account. Most cases that were denied eligibility for worker's compensation were taken to the courts. Court decisions are made after a more favourable and detailed discussion. Atty. Kim Hanju in his thesis, analysed the Korean Supreme Court cases as follows: "Usually the Supreme Court recognises the causal relation if overwork of the applicant is recognised and there is no clear opposition to the fact that the disease is caused and worsened by overwork, even in cases where there is no clear medical evidence of the causal relation."

According to a report from Korea, in the past one and a half years, 126 cases have been reported to the Karoshi Consultation Centre. Sixty-one cases applied for workers accident insurance medical compensation; only 20 cases were recognised as work related. Strict 'recognition standards' for Karoshi exist in Korea. According to a report by Atty. Lee Kyong Woo, the following are among the biggest difficulties in getting final recognition:

- The Ministry of Labour asks for an extremely severe certificate of causal relation between worker's death and work.
- The process of getting recognition is too formal and takes a long time.

Trends of Industrial Injuries and Occupational Diseases

Thailand: It is difficult to gauge the real situation concerning labour accidents in Thailand. Soon after an accident, employers are required to submit an accident report to the Department of Labour (DOL); many enterprises do not comply with this requirement. Therefore, the only reliable information comes from the Workmen's Compensation Fund. The number of victims that have been given compensation by the fund, has greatly increased in recent years.

Table No. 1 gives the percentage share of labour accidents in different industries in 1988.

A substantial percentage of accidents take place in the manufacturing industry, mainly in the fabricated metal products industrial machinery and equipment industry; food, beverage, and tobacco industry; textiles and apparel industry; and wood products industry. Fatal accidents occurred mainly in the food, beverage, and tobacco industry; construction industry; and transport, storage and communication industry. In 1988, victims of industrial injuries, between 20 to 29 years of age, accounted for 55.3 percent of the total, followed by workers aged between 30 to 39 years (20.3%).

Table 1

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percentage Share of Accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>81.0%</td>
</tr>
<tr>
<td>Construction</td>
<td>6.9%</td>
</tr>
<tr>
<td>Retail, wholesale traders, restaurants and hotels</td>
<td>5.1%</td>
</tr>
<tr>
<td>Services</td>
<td>2.6%</td>
</tr>
<tr>
<td>Transport, storage and communication</td>
<td>2.4%</td>
</tr>
</tbody>
</table>
The following Table No. 2 lists cases of occupational diseases:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pesticide poisoning</td>
<td>2600</td>
<td>3107</td>
<td>4633</td>
<td>4263</td>
<td>5172</td>
</tr>
<tr>
<td>Lead poisoning</td>
<td>17</td>
<td>51</td>
<td>51</td>
<td>32</td>
<td>18</td>
</tr>
<tr>
<td>Other heavy metal poisoning</td>
<td>10</td>
<td>13</td>
<td>22</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Petroleum and its products</td>
<td>7</td>
<td>6</td>
<td>13</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gas and vapour poisoning</td>
<td>44</td>
<td>28</td>
<td>32</td>
<td>51</td>
<td>46</td>
</tr>
<tr>
<td>Caisson's disease</td>
<td>12</td>
<td>9</td>
<td>8</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Silicosis</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2690</strong></td>
<td><strong>3214</strong></td>
<td><strong>4759</strong></td>
<td><strong>4352</strong></td>
<td><strong>5248</strong></td>
</tr>
</tbody>
</table>

Taiwan: As stated earlier, the cost of economic development in Taiwan was paid for by workers. Apart from economic exploitation, they were also victims of physical impairment. Till date, very few cases of occupational diseases surface due to lack of awareness amongst the workers. According to a rough estimate, in the past 40 years, over 5,00,000 workers have died due to industrial accidents. Industrial accidents have maimed another 2,00,000 workers, disabling them for life.

In the 1990s, there are still close to 30,000 industrial accidents every year! Taiwan's annual rate of industrial accidents is between five to ten times greater than Japan or Singapore. Taiwan still has an average of 1500 workers dying from industrial disasters and 6000 workers permanently handicapped in industrial accidents, every year. The figures are very high - for every 47 workers, 10 workers are victims of industrial accidents! It is equivalent to about three workers being killed every hour. It is like being forced to be casualties in a long, slow civil war, which sacrifices worker's life and health - in the name of the "economic miracle". It is not surprising that Taiwan is called the workers slaughter house.

The Table No. 3 lists the industrial accidents reported in the early 1990's.

Efforts have been undertaken by various groups to highlight and educate workers and the community, on the issue of occupational health and safety. Two factors hinder their efforts, firstly, due to isolation at the global level, local groups neither participate nor learn from developments outside. Secondly, most of the material produced is in English. There is need to provide intense support to groups like ICLE, to build their capacity and develop educational material in local languages. The exchange of experiences and information can play a significant role.

Philippines: The data available for Philippines is from a survey carried out by the Department of Labour and Employment (DOLE).

Case Studies:

 Elfreda worked for four years in the tin-dip and plastic moulding sections at Dynetics, a major semiconductor assembly plant in Philippines. Here she was exposed to various chemicals. In her third year of work, she was diagnosed as having severe anemia and was...
found to be suffering from skin problems and swollen lymph glands. Later, it was found that she had lymph cancer. In 1982, she died of the disease, at the age of twenty two. (Health Hazards in Electronics: A Handbook, Thomas Gassert)

In 1984, Bernardita employed at the Silicon Technology Inc. Philippines, died of typhoid fever complicated by pneumonia. Her job subjected her to frequent and sudden changes in temperature; she had to get chips from cold workrooms and bake these in hot ovens. (The Semiconductor Industry, IBON, Manila)

Malaysia: Data on the number of industrial injuries or occupational diseases could not be obtained for Malaysia. The only case cited was of a woman called Rani working in a solder department. She was constantly breathing in solder fumes, as a result of which she suffered from terrible headaches and tearing pain in the eyes. (Health and Safety Problems of Electronics Factory Workers: Workers Perspective, Manohara Subra-maniam and Chee Heng Leng, 1992)

Korea: The Table 5 gives a picture of the health condition of workers employed in Korea.

In 1978, a survey was conducted in Korea amongst 600 workers workers employed in soldering work; 48 percent suffered from skin diseases caused by metal fumes. (Health Hazards in Electronics: A Handbook, Thomas Gassert)

Dust related diseases, accidents, repetitive strain injuries, chemical hazards, are some of the pressing health problems related to the workplace. A great deal of material is available on the subject in the Korean language. It would be useful for groups engaged in occupational health and safety in other countries, if an institute or organisation could undertake to translate this literature into English.

Doosan Electro-Materials Company: In March 1991, eight officials of Doosan Electro-Materials Company were arrested for dumping 300 tons of phenol, known to cause cancer and damage the nervous system, into the Nekdong river. The river supplies drinking water to around ten million people. Seven government officials were arrested for trying to cover up this crime. A month later, the Environment Minister was forced to resign. This was an unusual development in a country like South Korea, where anything that was seen as a hindrance to growth maximisation - be it political freedom, labour rights, social equity, or protection of the environment - was ruthlessly suppressed or wilfully neglected. However, since democratisation began in 1987, the political climate has changed. In an unprecedented reaction to industrial pollution, the citizens of Taiga, where the plant was located, took to the streets and the environmental protest movement spread rapidly. It led to the closure of the factories, and successful boycott of Doosan products.

<table>
<thead>
<tr>
<th>Year</th>
<th>Fatal workers</th>
<th>Injured disabled</th>
<th>Workers diseases</th>
<th>Occupational</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>2236</td>
<td>129019</td>
<td>27819</td>
<td>1638</td>
</tr>
<tr>
<td>1993</td>
<td>2210</td>
<td>86665</td>
<td>29932</td>
<td>1413</td>
</tr>
</tbody>
</table>

The law applies to establishments with five or more workers.
Won-Zin Rayon Factory: The famous case of the Won-Zin Rayon factory, brings to light the government's attitude towards workers. A used machine was imported for three billion yen from Japan. This machine had caused carbon disulphide poisoning in Japanese workers. There were various political reasons for importing this used machine into Korea. In May 1961, in discussions regarding "after war compensation" with Japan, this machine was secured as a "bargain". It was purchased with government funds and as such there were no questions asked. The owner, To Yo Woo Rayon, made an enormous profit by selling this machine to Korea and did not let them know that it caused lethal carbon disulphide toxicosis.

It was only in 1988, that reports concerning this occupational disease at the WZR factory, surfaced. Hankoreh Shinmun, a Korean daily newspaper reported that 12 labourers suffering from this disease were dismissed. The workers started their long struggle against the company. In July 1988, they organised a conference of WZR labourers and their families. After the conference, this health problem amongst WZR's workers was investigated by specialists. The team of investigators announced that since the factory began in 1965, eight workers had died and another nine workers had been poisoned by carbon disulphide.

In September 1988, a special health examination was conducted; 76 persons were found to be affected by the occupational disease. The workers continued to struggle and in 1991, the company agreed to some of the demands of the workers, including a medical investigation of past and present workers. Subsequently, a team of investigators from Seoul Graduate School of Health, conducted various investigations on 1,376 past and present workers. Medical examinations revealed that eighty five persons were affected by the disease. In this investigation, the earlier Standard that had been fixed in 1988, by the "Committee for Judgment of Occupational Disease" (doctors recommended by the company and injured workers both), was changed for the worse. These 85 workers struggled to change the Standard of Judgment of Occupational Disease for the better, with a signature campaign on the streets. The petition was submitted by 115,200 persons from various sections of society, including Kim Mal-ryong of the Democratic Party (a Member of the Committee of Labour in the National Assembly) and 68 members of the National Assembly. These workers fasted for 21 days. Finally the Standard of Judgment was changed in their favour.

In 1994, a special health examination was conducted at An-anm Hospital, attached to the Korean University. The details of the investigation are given in Table No. 6.

The factory finally closed down in 1995 and as many as 600 WZR's workers were deprived of their jobs. It has become increasingly difficult for WZR workers to find jobs for themselves. As news about the disease affecting the workers has spread far and wide, whenever they seek re-employment, and it is discovered that they are 'WZR's workers', they are asked to visit the hospital and pass a special health examination. Workers that have contracted the disease continue to suffer. Tables No. 7 and 8 give details of the victims of carbon disulphide poisoning at the WZR factory.

According to an agreement jointly made by workers, company and government at the time of the closure of the factory, it was agreed that WZR's workers would be re-employed in the public sector. The Korean government had promised to re-employ them in the City Railway Company.

Institutions Involved in OSH

Thailand: In Thailand, NICE was established with help from UNDP. It conducts research, however, the reports are not given to workers. FES is working with the Government Public Sector Association (they are not allowed to have unions) and unions to bring about better legislation. They are asking for workers participation in safety inspections.

Malaysia: In Malaysia, groups like Consumer International and Consumer Association of Penang are doing tremendous work. They are working towards increasing community awareness about health hazards. CAP

<table>
<thead>
<tr>
<th>Table 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Patients Affected by CS2 (1994)</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Victims</td>
</tr>
<tr>
<td><strong>1981</strong></td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
Table 8
Deaths

<table>
<thead>
<tr>
<th>Year</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1984</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>1985</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1988</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1989</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>1991</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>1992</td>
<td>4</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>1993</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>1994</td>
<td>4</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>1995</td>
<td>6</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>3</td>
<td>27</td>
</tr>
</tbody>
</table>

has produced a memorandum for change in law regarding lead and production safety. Groups with different capacities and expertise can participate in monitoring MNC’s, exports of hazardous production. ERA is also working in the area of occupational safety and health and legal training programmes for workers. OSH in the informal sector, is a matter of concern.

Korea: It was only in 1987, that unions were recognised in Korea. However, problems concerning the rights of workers continue to exist. In a dispute in a company, an unrecognised union representative or a worker’s representative, is not allowed to intervene, support etc. They can be arrested under state security law. Many are arrested for third party intervention.

The Automobile Workers Federation has 600,000 automobile workers registered with it; 250,000 of these are contract workers. The federation plans to take up issues regarding occupational health and safety and educate workers. It will need assistance in terms of information and so on.

In 1986, an institution named Clinic was established with funds from workers. The Clinic is involved in the education and training of individual workers and unions. Research activities are also undertaken; they have conducted studies and brought out publications on the effects of lead, mercury and solvents. Although, their diagnosis is often challenged by company doctors, they have always passed the test of law in Korea.

Thailand: Some Pressing Issues

In Thailand, the major weakness in the medical system is that doctors are not properly trained in the diagnosis and treatment of occupational diseases. Some courses have recently been started. Earlier, if a doctor diagnosed an occupational disease and a higher level expert disagreed with the diagnosis, the doctor could be sued. Fortunately, this threat is no longer there and doctors feel safe to issue certificates.

The money contributed to the Workmen’s Compensation Fund, is paid by employers with 20 or more workers and is spent only for compensating victims of labour accidents. Additional funds will be required to meet the following needs:

- Many employees are expected to suffer from occupational diseases, like occupational cancer and pneumo-coniosis (which are caused by long term exposure to dust or chemicals), if the present work environment is not improved. The number of persons suffering from occupational diseases is also expected to rise with the expansion of the chemical industry. As the kinds and quantities of chemicals used in enterprises increase, workers will increasingly be exposed to chemicals of high concentration, resulting in occupational diseases.

- Most enterprises cannot themselves undertake collection of information on safety and health, physical examinations, and work environment measurements.

- The expansion of the economy and modernisation of industry, will lead to increased mechanisation. With the introduction of new and dangerous machines, the risk of labour accidents will be greater, leading to an increase in the number of labour accidents. Moreover, as the number of workers increased, especially in the manufacturing industry, the number of accidents can only be expected to spiral.

Highlights

Compensation Mechanism and Funds: The visiting PRIA team had discussions with various groups on issues related to the condition of workers in their countries. In almost all the countries visited, the mechanism of granting compensation to victims of occupational diseases, is weak. PRIA has conducted a nation-wide study in India on the Employee State Insurance Corporation (ESI), an autonomous body responsible for providing medical treatment and granting compensation to insured workers. The study reveals the various lacunae in the system. In 1992-93, the contributions collected by ESI amounted to Rs. 4499.4 million. However, the benefits paid to employees totalled only Rs.2825.5 million. Consequently, excess income reserves continue to build up every year. The scheme is yet to recover Rs. 1302 million from employers. In 1990, in Malaysia, the surplus compensation fund amounted to 281 million ringgits.

The compensation fund has become a
major profitable business for governments and the money is allocated to various schemes on a soft loan basis. In Philippines, the SOCSO (Compensation Fund) is getting richer. In all fairness, this money should be utilised to improve and increase benefits and preventive safety measures. In 1990, SOCSO received contributions from 4.6 million workers and income from its investments. SOCSO funds increased from $1.7 billion in 1989 to $2.0 billion in 1990. In 1978, contributions were $37.4 million; only $4 million (10.7%) was paid out as benefits to workers. In 1990, $237.6 million was received as contributions; only $26.6 million was paid out to workers for invalidity pension, $4.3 million for medical benefits and $69.8 million for injuries. While SOCSO has increased its benefits to workers, the amount is only a small percentage of what it can easily afford. Moreover, like compensations funds in other countries, SOCSO also obtains further income by investing the surplus money in government securities, the stock market or fixed deposits.

Asian countries need to follow the example of European and other countries. In these countries, social security organisations also finance epidemiological studies into the cause of accidents at the workplace and ensure that subsequent follow-up measures are undertaken. Research and advocacy is required at an all Asia level to study the lacunae in social security schemes, educate workers regarding their rights with regard to compensation and treatment, etc.

Right to Information: In almost all the countries visited, information on health and safety is denied to workers. Even the educational material produced is suitable only for managers. For example, in Malaysia, the government department provides training only to the management staff. There is need to develop learning material for shopfloor workers that can be distributed during training programmes and also during the normal course of work. This lack of flow of information leads to incorrect diagnosis of occupational diseases and deprives workers of basic human rights. They die in ignorance, without knowing the factors responsible for their early death. Training programmes for safety representatives and union officials is the need of the hour.

The situation is not very much different in India and the Philippines. Compensation funds are mostly used for accidental injuries; occupational diseases go undetected and uncompensated. Doctors receive inadequate training on this subject. Government inspectors, unions and workers do not possess adequate knowledge. Consequently, workers are denied their rights and compensation funds pile up. Experiences in India and Thailand reveal that when workers possess information regarding occupational diseases, they are able to make doctors listen, learn and change. The increasing reserves in compensation funds etc., need to become part of workers education. The publication of such figures itself, will generate awareness about the inadequacies in such systems and the need to act. ILO, FES and IOSH etc. are trying to work with unions and develop training programmes and educational literature. All our efforts fall short of our expectations.

On the whole, workers education is a very weak area, particularly, education regarding occupational safety and health and occupational diseases. The majority of workers are not aware of legislation relating to OSH (pg.157, OSH Issues in Malaysia, MTUC publication). This report states that only 83.7 percent of union officials were aware of the Factories and Machinery Act. How many actually abide by it, is questionable. Only 59.2 percent of union officials, were aware about the Workmen's Compensation Ordinance, 1952. This is the condition in Malaysia, one of the most developed countries in this part of Asia. The situation in EPZ and electronic industries is well documented.

The information section of NICE, Thailand has published 42 information sheets (four on chemicals), eight newsletters and 8000 microfiche. Workers and unions find the information sheets more useful than microfiche. The above publications were published during a seven year period.

These countries have witnessed rapid industrialisation and there is a need to monitor and develop training modules to educate workers on the trends and behaviour of MNC's, with regard to their health and safety policies. Further research and documentation is needed in this connection. Some companies are now operating in more than one Asian country. There is a need to monitor their activities and educate workers on the health hazards associated with the raw materials, production process and the product. All countries should have a legal requirement to form safety committees. Untrained safety committees do not function well. It will be necessary to develop a package for the education of safety committees. Knowledge and understanding of the law, is also necessary.

The need of the hour is a network of workers groups, freely exchanging information on issues that are of mutual concern.

Migrant Workers

The issue of migrant workers becomes quite significant when we take occupational health and safety into consideration. As observed in Japan, most of the alien workers are termed 'illegal' (as per immigration laws), and employed in dangerous, dirty and difficult (3D's) jobs. As they do not understand the local language, it is difficult for them to understand local laws and avail the benefits due to them. There is need to develop booklets in local languages about work processes, methods of prevention, laws and benefits etc.

* Kindly contact PRIA for a detailed report
Pesticides - A Growing Menace

Dr. Gopal S. Singh

Pesticides have become a menace, specially in developing countries where pesticide poisoning is on the increase. Careless handling of pesticides and lack of proper information regarding their ill effects, pose a serious threat to workers and farmers using it. Overuse and misuse of pesticides has also polluted the air, soil, underground water and contaminated crops. This has in turn adversely affected the health of consumers.

With the objective of exploring this growing problem, a study was conducted in Kullu district, situated in the state of Himachal Pradesh. The district occupies about ten percent of the total geographical area of the state. As much as 93 percent of the population of the district live in rural areas; agriculture is their prime economic activity. With the introduction of new on-farm technologies in the form of high yielding varieties of food crops, fruit bearing trees and vegetables, the quantum of chemicals being used in the form of pesticides, insecticides and fungicides has increased at an alarming rate. If this reckless use of chemicals is not checked and the recommended doses, based on scientific study, are not popularised, it will have adverse repercussions on the traditional systems, environment and health status of users. This research study was undertaken to study the factors responsible for changes in indigenous landuse patterns, intensity and impact of chemical use and finally make recommendations for the sustainable use of chemicals in the area.

The findings of the study are presented here.

Objectives of the Study

This research study has been conducted with a view to carrying out a baseline survey on the socio-economic status of the people. It also seeks to enumerate the reasons responsible for changing traditional landuse patterns. Finally, it aims to highlight the impact of chemical use (pesticides, insecticides and fungicides) on the health of the population in Kullu district of Himachal Pradesh. The specific objectives were to study and ascertain the following:

- General socio-economic status of the people.
- Reasons for changes in the traditional landuse pattern.
- Type and intensity of chemicals being used in the area.
- Adverse impact of chemical use on fruit and vegetable crops.
- Impact of chemical use on the health of farmers and the general population.

Methodology

After a primary reconnaissance of Kullu district, three villages, namely Jigala in Banjar valley, Jhiri and Jater in Kullu valley, were selected for study. These villages were found to be representative of the villages in the district. Rapid appraisal method was adopted to record the necessary information. On the spot randomisation sampling techniques were used and questionnaires filled. Forty five families, fifteen from each village, from different economic groups and with varying landholding sizes, were selected for detailed study. Based on the data collected, recommendations for the benefit of marginal farmers on sustainable chemical use, would be made.

Profile of the Study Area

Geographical Location: Kullu district is located in the heart of the state...
of Himachal Pradesh, in the northwestern Himalayas. It is surrounded by Lahaul and Spiti districts in the north and east, by Shimla and Kinnaur districts in the south and south east, by Kangra and Mandi districts in the west and south west. It covers a geographical area of about 5500 sq. km. In general, Kullu valley has a difficult terrain with gorges, ravines and extreme climatic variability. The valley is popularly known as Dev Bhomi (land of God). The valley spreads on either side of river Beas, covering a distance of about 85 kms between Aut at the lower part and Rahla at the upper part of the valley. The width of the valley varies from a few meters to about three kms and supports a variety of land use types. The valley is surrounded by higher hill reaches in a continuous chain. Far flung hamlets are located across the valley, commencing from the hill base, close to the river beds and spreading up till the middle terraces.

On the basis of the micro-climate and height above sea level, the valley has been divided into two parts, viz., the lower Kullu valley (area from Aut to Kullu, height less than 1200 m.) and the upper Kullu valley (area from Kullu to Manali, height more than 1200 m.).

Climate: Broadly, the area has three distinct seasons, a summer season (April-June), rainy season (July-September) and a winter season (October-February). The climate is cool and dry for most parts of the year. The district generally receives snowfall between the months of December and February. There is moderate rainfall in the months of July-August and December-January.

Village Communities: The people and the culture of Kullu valley are specifically identified by the collective term, 'pahari' (of the mountains). The population in the district consists of local people, people that have migrated from the plains, Nepalese, Tibetans and Kashmiris. The majority of the population (96%) are Hindus. Buddhist and Islamic cultures are the other predominant cultures in the area.

Different types of settlements are found in Kullu valley; they range from isolated hamlets to conglomerated settlements.

Results and Discussion
Location of the Sample Villages: Village Jhiri (900m) is located in the lower portion and Jater (1400m) is located in the upper part of Kullu valley. The third village, Jigala, is located in Banjar valley, at an elevation of about 2100m. Banjar valley is not as wide as Kullu valley and lies along the Tirthan river. The infrastructural facilities were noted.

Demographic Structure of the Sample Villages: Table 1 shows the composition and demographic profile of the study villages. The family size varied from 5.7 in Jater village, 6.4 in Jhiri and 6.7 in Jigala village. The sex ratio (females per 1000 males) is remarkably higher in the study villages (1047-1133) as compared to the district level (920) and state level figures (975). The percentage of literates (26.7% - 46.6%) in the surveyed villages is sharply lower than that of Kullu district (54.8%) and the state of Himachal Pradesh (63.9%). The male literacy rate is higher than the female literacy rate. A lower literacy rate in the study villages could be attributed to a lack of awareness regarding education and educational facilities in conjunction with a lower priority afforded to education.

Socio-Economic Profile: Agriculture is the main occupation of the village people. Ninety six percent of the work force are engaged in cultivation. The remaining work outside the village, either in wage paid activities or are engaged in business. Twenty percent of the total cultivators work as labourers on daily wages, in or around their own village, whenever they are free from their own agriculture work.

The per capita land availability is remarkably lower in the higher altitude village, as compared to the lower valley settlements. This is related to the availability of flat land in the valley. Fruit production is much higher in the lower valley land because of the diversity of fruit trees grown and a larger land area given over to the cultivation of fruit trees. A high cropping intensity in the higher village land, favours a better agronomic yield.
The number and diversity of livestock was found to be significantly higher in the higher altitude village, as compared to villages located at lower altitudes in the valley. Sufficient quantities of fodder and free grazing land near the forest fringes, allow farmers to rear a variety of animals in the higher altitude village. This not only helps in upgrading the economy of poor and marginal farmers but also subsidises the agriculture and domestic sector. In the lower villages, there is meagre production of fodder, as a result of the adoption of horticulture and olericulture in the valley lands. This fact, coupled with the unavailability of free grazing lands, has curtailed the rearing of livestock in these villages.

Changes in Landuse: Kullu valley was once well known for its subsistence farming operations, tuned to the particular conditions prevailing in the region; such practices are still being maintained at higher terraced lands. Barely fifty years ago, cultivation of a local breed of staple food crops was the prime agricultural activity of the people. However, all this has now changed with the massive introduction of high yielding varieties of food crops and fruit bearing trees in the area. Vegetable cultivation is a recent phenomenon.

Fruit producing trees, particularly apple trees, were initially introduced in the lower parts of the valley. However, they are now gradually being grown in the middle and higher located terraced lands. Apple cultivation in higher located villages is a relatively new phenomenon. Farmers have been cultivating a variety of apple trees to ensure optimal fruit production. There is a wider variety of fruit bearing trees being grown in the valley land as compared to the terraced lands.

 Unsuitable environmental conditions, spread of tree diseases, unprofitable nature of apple produce, have curtailed apple cultivation, particularly in the lower portions of Kullu valley. Farmers have started cutting down old apple trees that are no longer profitable or economical. Farmers have recently taken to growing vegetables and have greatly increased their earnings. Geographical feasibility, adequate water availability in conjunction with market facilities and demands, are the prime causes for the rapid spread of vegetable cultivation in the lower portion of Kullu valley. In a year, farmers have harvested cabbage thrice and tomato, brinjal and chili twice, from a particular field. Apple is harvested only once a year.

The introduction of these new on-farm technologies has brought about significant social, cultural, economical and environmental changes. Farmers have yielded to market-based resources and forces and this has resulted in modifications in the traditional landuse pattern. This in turn has led to changes in traditional farming practices; increased competition between available human and natural resources; intensified use of inputs like chemical fertilisers, pesticides, insecticides and fungicides; led to massive loss of tree cover at the cost of introduction of fruit bearing trees; reduced the homogeneity of crops (loss of crop biodiversity); increased dependency of farmers on market-based resources.

Intensity of Chemical Use: Intensification of apple cultivation has led to the massive use of non-renewable resources like pesticides, insecticides, fungicides and chemical fertilisers. Market demand and heavy subsidies provided by government agencies, by and large, have accelerated the use of chemicals in the fields. Chemicals were first introduced in the lower parts of the valley. Its introduction at higher elevations is a very recent phenomenon. Application of insecticides and pesticides on vegetable crops, is barely 4-6 years old. The majority of farmers (80%-93%) cultivating apple trees, reported using chemicals (pesticides, insecticides and fungicides). Use of chemicals for vegetable crops is much higher in the lower altitude villages as compared to the upper terraced lands.

With the heavy use of harmful chemicals, the trees and fruits have fallen prey to an increasing number of diseases. The varieties of apple that are in high demand, are more prone to the infection of pests, insects and fungus. This has in turn made the farmers, intensify their use of pesticides, insecticides and fungicides. As coloured apples are increasingly in demand, specific chemicals are being used by farmers to colour the apples. Some of the common diseases that apple trees suffer from are: canker (tree bark starts peeling and finally the trees dry); scale (red patches on tree trunk, the tree stops growing); and scab (small red spots which rot the fruit).

<table>
<thead>
<tr>
<th>Name of Crops</th>
<th>Jigala</th>
<th>Jhiri</th>
<th>Jater</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit trees</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apple</td>
<td>80.0</td>
<td>93.3</td>
<td>86.7</td>
</tr>
<tr>
<td>Plum</td>
<td>20.0</td>
<td>53.3</td>
<td>33.3</td>
</tr>
<tr>
<td>Pear</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Almond</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetables</td>
<td></td>
<td>80</td>
<td>40</td>
</tr>
<tr>
<td>Food crops</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3
Intensity of Chemicals Used in Apple and Vegetable Cultivation in the Study Area

<table>
<thead>
<tr>
<th>Apple Varieties</th>
<th>Chemical Used</th>
<th>Market Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Early royal</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Golden</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Green</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Jonathan</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Kalidevi</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Red</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Red golden</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Red june</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Rika red</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Royal</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Vinter</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Vegetables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cabbage</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Tomato</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Brinjal</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Chilli</td>
<td>Low</td>
<td>High</td>
</tr>
</tbody>
</table>

Chemicals Used: Table 4 lists the chemicals (insecticides, pesticides, fungicides) that have been recommended for spraying by the horticulture department. The horticulture authorities recommend that apple trees be sprayed a minimum of eight times, at different stages of its growth. Depending upon the disease and availability of money, some of the chemicals like Dodi and Dithiamon are even sprayed twice and thrice in one crop season. However, the high cost of the chemicals allows poor farmers to use only 3-4 effective chemicals like Dodi, Dithiamon, Captan and Fultop. While the table states the amount of chemicals to be used, it does not show either the number of trees to be sprayed nor the age of the plants. Marginal farmers are not even aware of the exact amount of chemical that is to be mixed with the water; they make the mixture arbitrarily. Some of the chemicals that are not in the list recommended by the horticulture department, are being frequently used by apple growers. These include synthetic growth regulating chemicals like Multiplex (apple attain the desired size). Fultop used for colouring and enlarging the size of the apple, was banned by the horticulture department in 1994-95. However, farmers continue to use it and it is easily available in the market. This chemical is supposed to be detrimental to human health.

A variety of dangerous chemicals are also used by vegetable growers; Table 5 lists the insecticides being used by them. Insecticides like Nuvon are highly dangerous; it is consumed by persons attempting suicide. It is used for killing flies, pissa and rats; zinc phosphate is used for killing rats; Cypermethrin is used for killing flies. Aluminium phosphate, used while storing wheat grains, is also dangerous. These chemicals are easily available at private shops.

Table 4
Chemicals Recommended by the Horticulture Department

<table>
<thead>
<tr>
<th>Tree Stage</th>
<th>Chemicals (Per 100 litres of water)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Silver tip to green tip</td>
<td>Chlorothalonil (400g)/Dodiene (100g)/Mancozeb (400g)/Dithianon (75g)/Captan (300g)</td>
</tr>
<tr>
<td>2. Pink bud stage</td>
<td>Bitertanol (50g)/Fenamiph (40ml)/Myelobutanil (40g)/Mancozeb (300g) + Sulphur (200g) + Floodt (100ml)/Sumithion (100ml)/Acothion 50EC (100ml)/Dursban (100ml)/Danusban (100ml)/Durmec (100ml/)</td>
</tr>
<tr>
<td>3. Petal fall</td>
<td>Carbendazim (50g)/Thiophanate methyl (50g)</td>
</tr>
<tr>
<td>4. Fruit set (pea size)</td>
<td>Dodiene (75g)/Bitertanol (50g)/Fenamiph (40ml)/Myelobutanil (40g)/Mancozeb (300g)/Captan (300g)</td>
</tr>
<tr>
<td>5. Fruit development (walnut size)</td>
<td>Carbendazim (25g)/Thiophanate methyl (25g)+Mancozeb (250g)/Dithiamon (50g)+Metasystox 5EC (100ml)/Rogor 30EC (100ml)/Folitith (100ml)/Sumithion (100ml)/Acothion 50EC (100ml)/Dimecron (35ml)/Dursban (100ml)/Danusban (100ml)/Durmec (20EC (100ml))</td>
</tr>
<tr>
<td>6. Fruit development</td>
<td>Mancozeb (300g)/Captan (300g)/Bitertanol (50g)/Fenamiph (40ml)/Myelobutanil (40g)</td>
</tr>
<tr>
<td>7. Pre harvest</td>
<td>Mancozeb (300g)/Captan (300g)+Carbaryl (Sevin 50 WP) (100g)/Malathion (Cythion 50EC) (100ml)</td>
</tr>
<tr>
<td>8. Post harvest spray</td>
<td>Fenitrothion (Sumithion/Folitith/Acothion 50EC 100ml)/Chlorpyriphos (Dursban/Danusban/Durmec 20EC 100ml)</td>
</tr>
</tbody>
</table>
Table 5
Chemicals Used in Vegetable Production

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Quantum (In 100 litres of Water)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indocelphon</td>
<td>200g</td>
</tr>
<tr>
<td>Cypermethrin</td>
<td>100ml</td>
</tr>
<tr>
<td>Fenbelret</td>
<td>100ml</td>
</tr>
<tr>
<td>Nuvan</td>
<td>75ml</td>
</tr>
<tr>
<td>Monocrotofos</td>
<td>100ml</td>
</tr>
<tr>
<td>Malathion</td>
<td>200ml</td>
</tr>
</tbody>
</table>

Chemical Supply: The quantum of chemicals that are being distributed by the horticulture department in three blocks of Kullu district, (Nagar, Kullu and Banjar) has decreased, even though the area under apple cover has increased. The majority of the farmers (67-100%) purchase the chemicals from privately owned shops. The majority of farmers complain that government agencies fail to supply an adequate amount of chemicals (pesticides, insecticides and fungicides) at the required time. Farmers with larger landholdings and in a better economic position, are the prime beneficiaries of government subsidies. Despite the subsidy provided by the government (50% subsidy for marginal and small farmers and 30% subsidy for larger farmers), small and marginal farmers are unable to fully avail the benefits of subsidy, because of the lack of coordination.

Farmers Awareness of Chemicals:
The dosage prescribed by the horticulture department, is adhered too, by only 27-40 percent of the farmers. Farmers claim that most pesticides are ineffective. Farmers are unaware that masks and goggles should be worn at the time of spraying. Very few users (27-53%) stated that they wash their clothes after spraying; only 60 percent of sprayers bathed after a spraying operation. Eating and packing apples without washing them, is a common practice amongst villagers. Empty chemical bottles and packages are commonly used after a mild wash.

Table 6
Percentage of Farmers Suffering from Specific Health Problems Caused by Chemicals

<table>
<thead>
<tr>
<th>Health Problems</th>
<th>Percentage of Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jigala</td>
</tr>
<tr>
<td>Headache and giddiness</td>
<td>94.6</td>
</tr>
<tr>
<td>Vomiting</td>
<td>20.3</td>
</tr>
<tr>
<td>Stomach pain</td>
<td>46.6</td>
</tr>
<tr>
<td>Dysentery</td>
<td>52.6</td>
</tr>
<tr>
<td>Skin allergy</td>
<td>60.0</td>
</tr>
<tr>
<td>Eye problem</td>
<td>40.0</td>
</tr>
<tr>
<td>Respiratory/breathing</td>
<td>46.6</td>
</tr>
<tr>
<td>Difficulty Weakness</td>
<td>80.0</td>
</tr>
<tr>
<td>Body pain</td>
<td>80.0</td>
</tr>
</tbody>
</table>

Some farmers (7%-20%) reported that empty chemical packets are found buried in the soil. The three study villages have not been visited by any technical person from a government department. As the users have neither the information, nor the training, they continue to be unaware of the exact amount of chemical that has to be mixed in the water. There is indeed a strong need to provide training and basic facilities to farmers in this area.

Health Problems Faced by Chemical Users: Table 6 summarises the health problems faced by chemical users. Spraying is mostly performed by the younger members of the family, with the help of neighbouring families. Families with fewer members or with large landholdings, engage Nepalese or other local people on wage basis. A majority of chemical users stated that at the time of spraying, they suffered from headaches, giddiness, abdominal pains and weakness. Skin problems, respiratory difficulty, eye infections and dysentery problems were also a common occurrence. Some of the people noted a sharp increase in people suffering from dysentery, particularly in the rainy season. This could be related to the contamination of ground water by various chemicals. Attempted suicides, a thing previously unheard of in this isolated hill society, are now being reported. This could be related to the availability of insecticides and pesticides in the area.

New Diseases: Particularly in the lower regions of Kullu valley, where chemical use has been high, a variety of new diseases have been reported.
A majority of farmers (93%) reported that a variety of diseases have recently invaded the area, requiring the use of heavy doses of pesticides, insecticides and fungicides.

It has been noted that residents of the area have been suffering from a number of new diseases. Local people are of the opinion that the intensity and frequency of dysentery problems have increased; it could be related to the contamination of ground water by various chemicals. Similarly, stomach pain is a common complaint; a majority of the farmers strongly feel that it is a new health problem and could be related to the intensity of chemical use in the area.

Strategies and Priorities for Sustainability

This report analyses the impact of the introduction of on-farm technologies on traditionally operated land use systems. It has been found that traditional agricultural practices that have evolved locally, are now gradually being replaced with apple cultivation. Heavy subsidies provided by government agencies on different items, is primarily responsible for the sudden growth in apple cultivation in the area. Subsidies need to continue, provided marginal and small farmers reap maximum benefit. There is an urgent need to study the different land use systems and subsequently formulate strategies for sustainability of these systems. However, development priorities and strategies need to be centered around agricultural based activities that will improve the quality of life of small and marginal farmers. Farmers lack adequate technical know-how on the proper use of these dangerous chemicals. The horticulture department needs to provide training in the proper use of chemicals. Unfortunately, poor farmers are not the main beneficiaries of the subsidies provided by government agencies. Overuse and misuse of pesticides, insecticides and fungicides, could possibly result in the development of resistant strains of pests and insects. There is a strong need to design, develop and test biochemicals, in the form of bio-pesticides and bio-insecticides. Scientific studies need to be conducted on the possibility of reducing the recommended eight spray schedule for apple trees. Integrated training of growers by government agencies, NGOs and planners, would help in upgrading their technical knowledge and economic conditions.

Major Findings and Recommendations

- Changes in traditional land use patterns, have led to a tremendous increase in the use of new on-farm technologies in the form of horticulture tree species and chemicals.
- Barely 20-25 years ago, chemicals in the forms of insecticides, pesticides and fungicides, were introduced in the study villages. However, with the introduction of apple cultivation, their use has intensified.
- Subsistence farmers do not have adequate knowledge, regarding the proper use of these dangerous chemicals.
- Farmers continue to use dangerous and harmful chemicals that have been banned.
- Farmers are found to be using non-recommended synthetic chemicals.
- Government agencies have been unable to supply the desired chemicals at the required time to the farmers.
- Marginal farmers are not adequately benefiting from the subsidies provided by government agencies.
- The intensity of chemical use has had a number of short-term and long-term impacts on the health of the human population. New diseases have been reported in the area.
- Overall ecological, environmental and socio-economic changes have been noted in the study villages.
- Developmental priorities need to be centered around agricultural based activities.
- Scientific support and integrated training of chemical users by government agencies and planners, would help in improving the farmers technical knowledge and socio-economic status.
- The number of recommended chemicals (insecticides, pesticides, fungicides), need to be curtailed to a minimum. Bio-chemicals need to be introduced, promoted and distributed.
- Infrastructural facilities are required for the provision of masks, goggles and body covers at subsidised prices.
- Technological alternatives are still needed. Knowledge on sustainable on-farm management needs to be enhanced. This requirement can be met by a well planned integrated training programme.
- High-level policy-makers, researchers and experts from NGOs, need to work together to formulate alternatives to the use of harmful chemicals.
health hazards in industry. The remaining chapters cover hazards associated with materials and processes in different industries: metal production (aluminium, iron and steel); metal preparation (abrasive blasting, acid and alkali cleaning of metals, metal degreasing, grinding, polishing and buffing); metal product fabrication (forging, foundry operations, metal machining, welding, heat treating, non-destructive testing); metal finishing (electroplating, metal thermal spraying, painting); chemical-based products (chemical processing, petroleum refineries, rubber products, acids, ammonia and chlorine, paint manufacturers, plastic products); electronics (soldering, microelectronics, batteries); minerals (quarrying, mining, smelting, mineral products); pulp and paper; textile fibres (cotton and rayon). Control methods are outlined.


The contents of this manual include: structure and function of the lungs and skin; deposition of inhaled materials in the respiratory tract; effects of inhaled materials on target organs; health effects of some physical agents (temperature, noise, pressure); nature and properties of workplace airborne contaminants; sampling of gases, vapours and aerosols; control and noise and vibration; light and lighting; the thermal environment; effects and control of ionizing and non-ionizing radiation; ergonomics; biological monitoring; sampling strategies; retrospective exposure assessment; statistics; epidemiology; control philosophy; ventilation; personal protective equipment; audit in occupational hygiene.

CIS 96-1296 Year Book of Labour


Chapter VIII of this publication (pp.373-942), covers occupational injuries. Statistical tables include: total number of persons injured as a result of work accidents, including persons fatally injured and persons injured incurring lost workdays, and the number of workdays lost; frequency or incidence rates of fatal occupational injuries. Data are given for ten major industry divisions: agriculture and forestry, mining and quarrying, manufacturing, utilities, construction, hotels and commerce, transport and communications, banking and insurance, social and personal services, others. The figures given are for the period 1985-1993 and cover 111 countries.


It contains the entire text of the 1995 Lane Lecture, delivered on 15 Nov. 1995 at the Centre for Occupational Health (University of Manchester), by the Director General of the UK Health and Safety Executive (HSE). The lecture surveys the main achievements on OSH during the past 50 years - reduction in pneumoconiosis and silicosis deaths in the UK from 2,000 to 3,000 deaths/yr.; heavy reduction in the incidence of byssinosis and anthrax, etc. Trends foreseen for the next 50 years include: greater significance of office and service related hazards, rather than those in manufacturing industries; continuous technology change; greater competition (globalisation); an aging worker population; introduction of new chemicals into the work environment (currently approx. 100 newly notified chemicals per year); information gathering on ill health among work-
ers; health surveillance and genetic testing; attitudes towards and perceptions of risk; the future of occupational health research; legal and economic considerations.


A comprehensive annotated bibliography of the (primarily English language) scientific and popular literature on the health effects of visual display terminal (VDT) use. Vol. 1 covers the period till the middle of 1990; Vol. 2 covers it from late 1990 till 1992. Items are classified by broad subject area: emissions (radiation sources, VDT's); health hazards (cancer, cardiovascular, dermatological, immunological, gastrointestinal, neurological, reproductive, repetitive strain injury, stress, vision); legal aspects (including litigation); legislative and regulatory aspects of worker's compensation (US Federal and State, international, professional societies); monitoring; noise; prevention safety; sick building syndrome, glossary. The annexure contains excerpts from relevant articles and reports.


A survey was carried out of working conditions and exposure to arsenic, among copper workers in Chile. High levels of arsenic and other pollutants were found in two smelting shops and in the surrounding area. Analysis of dust samples from the shopfloor, showed an arsenic content of 11 percent to 19 percent. Workers rarely used any form of respiratory protection. There was a high frequency of silicosis among mine workers. The role of trade unions in improving the working conditions of these workers is emphasised.


This book deals with different aspects of lead pollution. Lead pollution remains a serious problem for workers and the public, despite its early regulation as a result of environmental concerns. While this comprehensive text focuses on the assessment and mitigation of lead based paint hazards, other sources of lead and their relative contribution to lead poisoning problems are also described. Topics covered include: source of lead contamination; health consequences of exposure; US federal environmental regulations; occupational safety; abatement studies; assessment of hazards; liability and insurance considerations. The annexure includes: acronyms; glossary; information sources in the US; summaries of the lead based paint risk assessment process and of OSHA General Industry Standard (29 CFR 1910.25); OSHA fact sheets for lead exposure in construction; the National Lead Abatement Council Mission Statement.


This manual contains contributions from specialists in various disciplines on recent research into dioxins and related compounds. Contents include: an overview of the effects of dioxins and dioxin-like com- pounds; methods of risk assessment; environmental sources, distribution and fate; dioxins in food; toxicology; pharmacokinetics; immuno toxic effects; species comparison of dose-response effects and implications for risk assessment; developmental and reproductive toxicity; aquatic toxicity; mammalian carcinogenesis; neuro-chemical and behavioural effects; exposure assessment and measurement in human tissues; human health effects of polychlorinated biphenyls; cancer epidemiology; reproductive epidemiology of dioxins; health effects of the Seveso accident and other incidents.


This monograph contains presentations made at a one day symposium held in Prague (Czech Republic) in 1994; additional papers are also included. The topics covered in the papers include: alcohol and drug prevention at the workplace - a WHO/ILO project in Poland (statistics on drug abuse, description of the programme at 7 core companies); prevention of alcohol abuse in heavy industry in Macedonia; alcohol prevention and treatment strategies in Latvia; an alcohol abuse prevention programme carried out by a private medical consultancy firm in Hungary; influence of alcohol on industrial accidents in the Czech Republic; role and initiatives of the ILO in developing alcohol and drug prevention programmes in business and industry; development of an alcohol policy within 'Heineken', a Dutch beer brewing firm; results of a comparative study of alcohol workplace poli-

Chemical Safety


These guidelines have been prepared by the International Agrochemicals Industry Association and are aimed at groups involved in the formulation and packing of crop protection products. Contents include: hazards of pesticides (health hazards, fire and explosion hazards, hazards due to combustible dusts and flammable liquids, hazards to the environment, product hazard data, hazard classification); organisation and management (responsibilities, documentation, training, OSH, quality control etc.); location and buildings (tank farms for bulk storage, etc.); formulation and packing facilities (formulation of liquids, solids, packing facilities, materials and equipment); occupational health, hygiene and personal safety (housekeeping, PPE, laundry facilities, medical supervision, fire and explosion prevention, emergency planning); environmental protection (avoidance and minimization of risk, treatment and disposal of contaminated air and water, treatment and disposal of contaminated waste). The annexeure contains a check list and a glossary.

OTHERS

Slow Murder: The Deadly Story of Vehicular Pollution in India

Today, more than ever before, people complain of respiratory diseases in cities. In India, air pollution is rising faster than the efforts being made to control it. Vehicular pollution is one of the major causes for this growing problem, specially in the metropolitan centers.

This book is an in-depth study of the phenomenon of vechicular pollution. It investigates the reasons that have made vehicular pollution an alarming menace in our cities, namely - poor town planning, outdated technology, use of poor quality fuel, non planning of traffic etc. The authors have also offered various suggestions and recommendations to curb this hazard. Interviews with two eminent personalities, Rahul Bajaj (Chairperson of Bajaj Auto Ltd.) and D.K Biswas (Chairperson of Central Pollution Control Board) have been included. They offer justifications for their inability to control the growing levels of pollution in our cities.

Authors: Anju Sharma and Anumita Roy Chowdhary

Published: Centre for Science and Environment, 41 Tughlakabad Institutional Area, New Delhi 110062

Year of Publication: November 1996

Price: Rs 75

Your Health and Safety at Work: A Modular Training Package

A training kit designed by ILO, this set of modules provides information regarding training for representatives, members of health and safety committees, line supervisors, foreman, rank and file workers. The issues covered in these modules were selected in consultation with trade unions from a number of different countries.

The collection of modules include:

- Instructor’s guide to the modules
- Introduction to occupational health and safety
- Your body at work
- Ergonomics
- Controlling hazards
- Male and female reproductive health hazards in the workplace
- Health and safety for women and children
- Using health and safety committees at work
- Noise at work
- Chemicals in the workplace
- Aids and the workplace
- Legislation and enforcement

Published: International Labour Organisation, CH-1211, Switzerland, Geneva

Year of Publication: 1996

Price: 50 Swiss francs (the collection)
5 Swiss francs (the module)
Employees Availing ESI Facilities Can Now Move to Consumer Courts

Following a recent national consumer disputes redressal commission order, all employees availing medical services under the Employees State Insurance Act, can now approach consumer courts, anywhere in the country.

On October 31st, the National Commission, headed by Justice V. Balakrishna Eradi and members, B.S. Yadav and Ms. R.Thamarajakshi, upheld a Kerala State Commission judgment that all employees availing ESI facilities were entitled to approach or move to consumer courts. This is despite the fact that ESI is governed by the ESI Act and that the forum for ESI employees is the Employees Insurance Court.

The facts of the case are as follows - in 1994, an ESI employee, T.I. Ulahannan, approached the district forum in Kottayam, Kerela. He complained that he could not avail medical facilities, despite being an ESI employee since 1988, only because some papers about his medical services entitlement were not transferred by the Corporation to the particular district where he was posted. He informed the Court that before 1988, he had been availing these facilities. Aggrieved, as he was suffering for no fault of his own, the man sought compensation. Both the district court and the State Commission held that Mr.Ulahannan was entitled to compensation.

Times of India, New Delhi, November 5, 1996

Kanpur and Lucknow Will Get a Face-lift With Dumping Junctions

As a sequel to the threat posed by industrial hazards, pollution control authorities have proposed an ambitious blueprint for two mega townships of Uttar Pradesh – Lucknow and Kanpur. The focus is on providing a “dumping junction” for industrial waste products of the two cities. The Uttar Pradesh Pollution Control Board (UPPCB) has commissioned Industrial Toxicology Research Centre (ITRRC) and the National Environment Engineering Research Institute (NEERI) to conduct a study on waste disposal facilities in Lucknow and Kanpur.

According to a conservative estimate, over 7,000 industrial units in the twin districts of Kanpur and Akbarpur alone, have an annual garbage load of 900 metric tonnes. The state capital accounts for 600 metric tonnes of industrial waste.

The detailed study conducted by toxicology scientists in collaboration with the UPPCB brought alarming facts to light. The NEERI report on Kanpur claims that superphosphates account for more than 90 percent of chemical pollutants, followed by dyes and vegetable oils. Metallic industrial waste has been pegged at 412 metric tonnes, tanneries at 203 metric tonnes, dyes at 24 metric tonnes and chemicals at 2.5 metric tonnes. Coal ash emission is approximately 71 metric tonnes in the city area.

The negative fall out of the hazardous waste has been 86 hepatitis and 15 gastro deaths in the twin districts, during the year 1994-95. The need for a proper dumping site was further highlighted by reports of environment-related ailments among the workers. Earlier, ITRC reports had claimed that tuberculosis and skin-related diseases were rising among the working class.

Times of India, Mumbai, November 5, 1996

Mumbai: Second Most Polluted City in India

Mumbai is the second most polluted city in India in terms of vehicular pollution load, with over 650 tonnes per day. However, vehicular pollution is by far the worst in Delhi, where the vehicular pollution shot up from 871.92 in 1987 to 1046.30 in 1994, a 165 point increase, to earn the dubious distinction of being the most polluted city in the country. Next in the “Foul Air” list comes Mumbai, where it went up by 111 points in the seven year period, to touch 659.57 tonnes per day in 1994.

The 1994 vehicular pollution load (in tonnes per day) are Delhi 1046.30, Mumbai 659.57, Bangalore 304.47, Calcutta 293.71, Ahmedabad 292.73, Pune 255.31, Madras 226.25, Hyderabad 202.84, Jaipur 88.99, Kanpur 86.17, Lucknow 83.49, Nagpur 57.39.

The Minister of State for Environment, Capt. Jai Narain Prasad Nishad, providing the findings of two major official vehicular pollution surveys conducted in 12 important cities, during 1987 and 1994, admitted, in a written reply in the Lok Sabha, that pollution had gone up in all cities, though at varying rates. The latest figures are not yet available.

Free Press Journal, Mumbai, November 26, 1996

Industries Penalised Excessively by PCB

The Supreme Court’s verdict in the Patancheru pollution case, applying the “principles of polluter compensating the victims”, has caught the of-
fending industries by surprise.

More than the verdict, what has upset the offenders is the court order empowering the State government to recover the amounts in such proportion as it considered appropriate from the industries. These industries were identified as causing pollution and affecting the farmers living along the Nakkavagu stream.

As per the judgment, about Rs. 1.39 crores were to be collected from these 80-odd polluting units. However, according to the offenders, the Pollution Control Board has collected Rs. 30 lakh in excess of the actual amount ordered. According to reports, the aggregate of the demand notices issued to the units by the Pollution Control Board works out to about Rs. 1.69 crore - an excess of Rs. 30 lakhs. The minimum compensation ceiling from each unit was decided on three factors: capital investment, flow of waste water and the percentage of COD.

Deccan Herald, Hyderabad, November 5, 1996

Health Pesticides Prove Fatal

Every third patient in Haryana, Punjab, Maharashtra, Gujarat, Madhya Pradesh and Rajasthan is diagnosed with hepatitis. Also on the rise is liver carcinoma. Our country’s mortality rate shows that in 1974, 73 percent of the deaths were due to communicable parasitic diseases. Two decades later in 1993, the figure fell by only three percent, despite the increase in the number of doctors and hospitals and the advances made in the health care.

“The change is not significant because environmental degradation and toxicology is increasing”, says a genetic scientist specialising in parasitic diseases at Pant Nagar University “Diarrhea and respiratory diseases - the biggest killers of children in India, are exacerbated by toxic chemicals that are on the rise in our environment”, he adds.

Medical experts agree that general health is deteriorating, specially in rural areas. The Green revolution has also introduced pesticide sprays which have changed the ecology of rural India. A National Agricultural Research Centre study in cotton growing regions of Maharashtra, recently found that 77 percent farmers reported health risks or side effects after handling pesticides; some 16 percent had blisters; 42 percent experienced vomiting; 49 percent complained of headaches; 26 percent complained of allergic reactions; ten percent experienced diarrhea.

Doctors contend that pesticides in minute amounts, may not affect an adult. However, it will surely harm children because they have a weaker defense mechanism. Doctors state that most deaths in hospitals from where health statistics are compiled, are not properly investigated. Decomposed pesticides leave behind substantial heavy metals like lead, mercury and arsenic which from the components of most pesticides. This obviously leads to heavy accumulation of heavy metals in soils.

The Pioneer, New Delhi, November 9, 1996

Effluent Plants Cannot Erase Pollution in Gujarat

The general belief that common effluent treatment plants (CETP) is a permanent solution to prevent pollution has been described by the Greenpeace International as a 'myth', "as they are designed to address only a limited range of physical, biological and chemical variables."

Referring to the efforts made by the Gujarat Industrial Development Corporation and many small chemical units to set up CETP’s, in the wake of protests in Gujarat by some environment groups, the report of the Greenpeace published last month after conducting a series of tests, said that these plants are not adequate to eliminate dangerous chemicals, especially persistent organic pollutants.

Referring to various surveys conducted in industrial estates of Vapi and Ankleshwar in Gujarat, it said that nearly 50 percent of the chemical storage tanks were found to be in a bad condition. Over 61 percent units did not have any scheduled maintenance system for storage tanks. Almost 80 percent workers were not using personal protective equipment and alarm systems were ‘visible’ only in 18 percent units.

Moreover, the survey found that nearly 68 percent units suffered from pollution and almost 80 units faced twin problems of water contamination and irritating odour. The effects of air pollution on workers at present exposure levels, including respiratory and irritation troubles, exists in 77 percent to 82 percent factories. Adverse effects on skin and eyes were noted in 86 percent units.

Times of India, Mumbai, December 11, 1996

Thane-Belapur Pollution: Industries Shrink Forest Cover

Increased urbanisation and industrialisation are destroying forest cover in the vicinity of Thane - Belapur Industrial Area (TBIA), according to a study conducted by Coopers and Lybrand. The pace of industrialization is also destroying the coastal wetlands in the area which are rich in mangroves. Not to forget, the indiscriminate quarrying and flooding every year during the rains, which is causing uncontrolled soil erosion.

The survey, which specifically studied TBIA and Chembur and touched upon other areas in the territory, concluded that the two regions faced acute environmental problems due to intense industrial, commercial and residential growth. TBIA, which is the largest industrial estate in the country has approximately 1,182 industrial units in functioning condition. These include chemical manufacturing, engineering pharmaceutical, food, textile dying
and processing, petrochemicals, paper and steel making, besides other industries.

Continuous burning of rubber and garbage and domestic fossil fuel combustion thrives there while partially treated and untreated waste water continue to flow into the Thane creek there. There are nine open drains in the area where industrial effluents combine with domestic effluents and are then discharged into the Thane creek. A large quantity of domestic waste water is also discharged into the Thane creek.

The study adds that most of the areas studied have solid wastes being dumped at unprotected disposal areas, which get directly transferred to the soil medium. The study states that leachate from the wastes can enter ground water as a secondary contaminant.

Times of India, Mumbai Nov. 28, 1996

**Supreme Court Raises Labour Compensation for Delhi Closures**

The Supreme Court declared that the hazardous industries which choose to close down instead of moving out of Delhi will have to pay six years wages to their workers. The compensation may be payable either in installments or in a lumpsum to the retrenched workers by 30th April, 1997.

These conditions were imposed on the first batch of 168 units in the National Capital Region, which were ordered to be relocated or closed down by 30th November.

The order further said that units which are not relocating but intend to start activities conforming to the Master Plan 2001, will protect the workers and set up industries afresh, getting all necessary permissions from the government and the Pollution Control Board. "Even fresh electric and water connections will have to be obtained," the order said.

Business Standard, New Delhi, December 5, 1996

### Financial Performance of Coal India Ltd.

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### Coal Mines Accidents

*(1993 to Nov. 1996)*

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**Total** 582 783 2823 3022
Cancer Associated With Research Work

Research workers in biomedical laboratories typically come into contact with a large number of chemicals. They may also work with biological materials like animal or human tissue, viruses, bacteria or physical agents like radioactive materials.

Between 1981 and 1984, five workers at the Pasteur Institute, a research institute in Paris, developed cancer. This led to a study being conducted on whether the incidence of cancer was associated with workplace exposure. Among nearly 4,000 workers who had worked at the Institute between 1971 and 1986, there were found to be more deaths from cancer of the pancreas or brain cancer among female workers than expected; increased deaths from bone cancer were recorded among male workers. An increased incidence of some other types of cancer were also noted amongst male workers, including leukemia and multiple myeloma.

Uttusan Konsumer, Volume 26, No.11, July 1996

Male Reproductive Hazards in the Timber Industry

A study of male sawmill workers in Canada, has reported reproductive effects which may be linked to exposure to wood preservatives called chlorophenates. Chlorophenates are chemicals which are commonly used as fungicides in the treatment of wood and include pentachlorophenol (PCP). Chlorophenates are contaminated with dioxins, substances which have raised much concern in recent years because of their health effects. Workers in the timber trade can be exposed to this chemical during dipping and spraying of wood, handling and processing of treated wood.

The Canadian study investigated the incidence of congenital abnormalities among children born to male sawmill workers. Approximately 20,000 infants were included in the study. Among these children, researchers found that some congenital abnormalities were more common than would be expected in the rest of the population. For example, congenital abnormalities of the genitals, anencephaly, spina bifida, eye problems - cataract in particular. These congenital effects were found to be associated with exposure to chlorophenates.

Hazards, Volume 56, Autumn 1996

Hazard in the Plastic Industry

How hazardous is it to work with plastic? More than you might think, according to a new Canadian report. The Occupational Health Clinic for Ontario Workers in Windsor and the Windsor Occupational Health Information Service conducted this study, after listening to complaints from workers in the plastic industry. Workers complained about the following health problems - respiratory difficulties, dermatitis, reproductive problems, and carbon monoxide poisoning.

The survey results showed that there were high rates of work related injuries, such as cuts, repetitive strain injuries (RSI), dermatitis, hearing loss and carbon monoxide poisoning. There also appeared to be a significant increase in other possibly work-related medical conditions, such as respiratory problems and spontaneous abortions. A number of cancers were reported by young female workers that had worked for only a few years.

Worker’s Health International Newsletter, Summer 1996.

Polyvinyl Chloride (PVC): Toxic Waste in Disguise

According to a report filed by Greenpeace International, of the plastics that have an impact on our everyday lives, Polyvinyl Chloride (PVC) is the most dangerous. PVC is dangerous for the environment and human health, at all stages of its life cycle - during primary production processes - when it is used, and in the process of disposal - at the end of its useful life.

Exposure to chemicals used in PVC manufacture can cause cancers, liver tumours and birth defects. Throughout its life cycle, PVC generates a toxic chemical by-product called dioxin. Some additives used to make PVC “soft” are not only toxic but have been recently been listed as chemicals that are thought to interfere with hormonal systems, thus interfering with fertility and possibly threatening the future of humanity.
India Toxics Briefing, Greenpeace International, October 1996

Sick of Work

Almost one in every five European workers reported sick for five or more days last year, because of health problems related to their job. Based on responses from 15,500 workers in the European Union's 15 member states, researchers concluded that over the last 12 months, “due to their work, out of the 147,000,000 workers in the EU: 30 percent suffer from stress; 28 percent think their health is at risk; and 18 percent were absent from their work, for at least five days on account of occupational health problems.”

The second European survey on working conditions was undertaken in January this year, by the Dublin-based European Foundation for the Improvement of Living and Working Conditions. The Foundation concluded that “while traditional risk factors still affect a very high proportion of workers and are not decreasing, new risk factors linked to organisational developments are increasing. Work is getting more irregular.”

The work of a third (33 percent) of the respondents, involved manipulating heavy loads; 45 percent had painful or tiring work positions. Other “traditional” risk factors included intense noise (28 percent of the sample) and polluted workplace air (24 percent).

More than half the respondents (57 percent) had to do repetitive hand and arm movements or “work at a very high rhythm” (54 percent). A third of the respondents (32 percent), had no influence on their work rhythms and methods. Two thirds (67 percent) had their pace of work dictated by demands from customers, patients, passengers or other service users.

Hazards, Volume 56, Autumn 1996

Solvents Cause Malformation and Retardation in Unborn Children

According to a Mexican Research, 44 Mexicans from the same area were found to have the same phenotype and mental retardation. A study at the Dr. Manuel Gea Gonzales General Hospital, Mexico city, was aimed at finding the causes. The researchers found all 44 patients to be children of mothers, who had worked at the same factory. They had been in direct contact with organic solvents without protection. The solvents were methyl cellosolve and ethylene glycol. The syndrome was found to consist of facial peculiarities, mental retardation, musculoskeletal and sensorial abnormalities.

An experimental study was done in rats to confirm the teratogenic effect of the solvents. It was demonstrated, that both methyl cellosolve and ethylene glycol cause cranio-facial, musculoskeletal and central nervous system abnormalities.

Chemical Sector Newsletter, Volume No. 6, December 1996.

Editors Mail

✦ I have been a regular reader of your quarterly bulletin since the last three years. The bulletin is highly informative. The concern of your society for the health of people is applaudable. Being a science teacher in a public school, I use the information given in the bulletin while teaching children. They often find it strange how various diseases are related to different occupations. They are keen to use this knowledge to warn people against the ill effects of various occupations. I would like to suggest that children be included in awareness programmes regarding occupational hazards. This information might help them in identifying their future occupation.

J.S Negi, 281/1, Block I, Chukhwala, Dehradun 248001.

✦ I have gone through your bulletin, “Occupational and Environmental Health”, June 1996, and find the articles very interesting. The work done by the Centre for Occupational & Environmental Health of PRIA, in the field of occupational health deserves commendation. The articles, based on data collection at the grassroots level and analysis of the same, have meaningful conclusions. The contents of the journal reflect the devoted work of your organisation.

T. Nityananda S., Asst. General Manager, Loss Prevention Association of India Ltd., Warden House, Sir Phirozeshah Mehta Road, Mumbai 400001.

✦ We receive your bulletin regularly. It provides us with useful information relevant to our field of work. We would also like to subscribe to the Hindi bulletin, to enable more people at the community level to benefit from it.

Dr. Ghanishyam Butwall: Ghoshala Bhawan, Kalidas Marg, Mandvi, Madhya Pradesh 458002.

✦ Till date, we have received two issues of your bulletin. They are very informative and interesting. We are working in Pithoragarh district of Uttar Pradesh, in the field of community organisation, awareness and community education. The health of women and children in this area is one of our prime concerns. We would like to receive your bulletin regularly.

Uma Pandey, Himalayan Adhyayan Kendra, District Office, Mansarover Path, Gocchar Thal, District Pithoragarh, Uttar Pradesh.
Question: I am working in a bottling plant. The noise level in our plant is very high. Kindly provide us with information regarding the possible hazards of noise.

Answer: Noise has been described as sound, 'without an agreeable musical quality', or as an 'unwanted' or 'undesired' sound. Sound and noises are an important part of everyday life. In moderation they are harmless but if sounds are too loud, for example, from noisy machines, gunfire or loud music, permanent hearing loss may result, depending on the level of noise and the length of time of exposure to it. Hearing deteriorates gradually and you may not notice changes from one day to another. However, once the damage is done there is no cure, although some people benefit from the use of hearing aids.

Noise can be a problem in various kinds of jobs. Some simple observations reveal the presence of excessive noise at work:

✦ You have to shout to be clearly heard by someone two meters away.
✦ You get a ringing in your ears after leaving the workplace.

Noisy Workplaces

Some examples of workplaces where noise level can be dangerous, if protection is not worn or noise levels are not monitored are:

✦ Engineering workshops
✦ Saw mills
✦ Textile industries
✦ Discos/pubs/pop concert halls
✦ Bottling plants
✦ Places using noisy machinery (sewing machines, compressors, jack hammers or forestry machines).

It should also be noted that people with jobs involving frequent visits to such places, could also be at risk.

Signs of Hearing Loss

We may experience some degree of hearing loss, without being aware of it. Some signs to detect hearing loss are:

✦ Difficulty in being able to hear people clearly when others are talking, for example, at workplace, meetings etc.
✦ Speech sounds mumbled, muffled and sometimes lacks clarity.
✦ High pitched noises, such as a telephone ringing maybe difficult to hear, unless you are close to them.
✦ Other noises, for example, people talking, prevent you from being able to hear the television or radio properly, unless you increase the volume.
✦ Your partner, family or friends may have noticed a change in your hearing ability - very often they notice a change before you do.

Noise Induced Hearing Loss (NIHL)

The process of NIHL tends to be gradual and often goes unnoticed in the individual. Age or general fitness do not afford any protection - young people can often have their hearing damaged as easily as the old. Contrary to popular belief, it does not necessarily take unbearable noise levels to cause permanent damage. The noise level needs to be measured, if you regularly have to raise your voice to have a conversation.

Hearing loss should not be seen as unavoidable - people often have the attitude that some industrial deafness is "part of the job" or "inevitable", with increasing age. Infact, your employer has a responsibility to control noise levels at work.

Non Auditory Effects of Noise

Exposure to noise may cause annoyance, interfere with speech communication and be a source of distraction. It has been reported that it may also reduce output and efficiency and cause fatigue. A variety of other health disorders, unrelated to the effects on hearing, are also known to occur. The most apparent physiological, non auditory effects of noise concern sleep and stress reaction. Studies have shown that the presence of noise can cause difficulty in falling asleep and levels of ambient noise, as low as 35 dB (A) m, can awaken sleeping people. Differences in sensitivity are related to age and sex.

Source:

1. Liverpool Occupational Health News; Liverpool Occupational Health Project, National Bank Building, 24 Fenwick Street, Liverpool L27NE.
RECENT AMENDMENTS IN WORKMEN'S COMPENSATION ACT


The above act is for setting a legal framework for workers to get compensation for occupational accidents or diseases.

A) The employer can in specific cases deny paying compensation if the accident resulted due to willful disobedience or willful removal of guards by employees.

This defence was not available in cases of fatal accidents prior to September 15, 1995. Now with fatality even for accidents which results in total permanent disablement above defence is not available to employees due to amendment in section 3,(1)(b) of the Act.

The liability of paying compensation is absolute if the accident or disease as arisen out of and during the course of employment. After September 15, 1995 in the following cases the employer cannot take defence that the

employees act of disobedience or removal of guards resulted in the injury:

a) The accident or disease results in death.

b) The accident or disease results in total permanent disablement.

B) The amount of compensation after amendment is more than before. Following examples are clear. This is due to changes in section 4(1) of the Act.

Where death results from injury -:

Earlier minimum Rs. 20,000
Now Minimum Rs. 50,000.00

Calculation :-

Earlier 40% of monthly wage xmultiplying factor
Ceiling on salary Rs. 1000.00 for calculation.

Now 50% of monthly wages x multiplying factor
Ceiling on salary Rs. 2000.00 for calculation.

Examples:

1) Age 50 at accident; monthly wage Rs.500.00
   Earlier 200 x 153.09 = Rs. 30,618.00
   Now 250 x 153.09 = Rs. 38,272.00
   but minimum is Rs.50,000. So, the dependence will get Rs.50,000.
   Multiplying factor of age 50 is 153.09 as per schedule IV of the Act.

2) Age 50 and Salary Rs.2,500
   Earlier 40% of 1000 x 153.09
   400 x 153.09 = Rs. 61,236.00
   Now 50% of 2000 (the new ceiling for calculations) x 153.09
   1000 x 153.09 = Rs. 1,53,090.00.
   The difference is obvious.

C) Similar change has taken place in case of result of accident or diseases resulting in permanent total disablement.

Earlier minimum Rs. 24,000.00
Now minimum Rs. 60,000.00

Calculation - 60% of monthly wage x multiplying factor.

Example:

At age 40 accident results in total permanent disablement. Monthly wage Rs. 1800.00

Earlier 50% of Rs. 1000 x 184.17
(Multiplying factor at age 40)

500 x 184.17 = Rs. 92,085

Now 60% of monthly wage (ceiling Rs. 2000.00) x 184.17

$\frac{60}{100} \times \frac{1800}{1} \times 184.17 = Rs. 1,98,903.00$

Note : If monthly wage is below Rs. 3000, it is not necessary that you are covered by Employees State Insurance Act in every case. Many areas are left out of ESI and many employees too are left out if the employer is not listed with ESI.

D) Ceiling on monthly wage for purpose of calculation of compensation amount.

The act is meant for compensating the loss of earning capacity. Earlier the Act arbitrarily reduced the capacity to Rs.1000.00 up to September 15, 1995. Now the Act increases to Rs.2000.00, but the fact remains that actual earning capacity or the actual loss of the earning capacity is not taken into account if your wage is above Rs. 2000.00 per month.

This is an obvious injustice and needs to be challenged vociferously in others as well as in the courts.

E) Interest and penalty for default on the part of employer to pay compensation when it fell due.

The provision before September 15, 1995 amendment Section 4A (3) where any employer is in default in paying the compensation due, under this Act within one month from the date it fell due, the Commissioner
may direct that in addition to the amount of arrears simple interest at the rate of six percent per annum on the amount due together with, if in the opinion of the Commissioner there is no justification for the delay, a further sum not exceeding fifty percent of such amount shall be recovered from the employer by way of penalty.

The amendment.

Simple interest there on at the rate of twelve percent per annum or at such higher rate not exceeding the maximum of the lending rate of any scheduled bank as may be specified by the Central Government by notification in the official gazette.

This is a laudable change. The companies enjoy the interest on amounts which are due to workers but not paid when they are due. Many times the judicial system is in effect used for delaying payments.

With the above amendment the Government added Section 4 (3A) saying:

The interest payable under sub-section (3) shall be paid to the workman or the dependent as the case may be, but the penalty shall be credited to the State Government.

The penalty which was received from employer used to be paid to the workmen or dependent, but now the penalty will go to the State Government. Why?

This also needs to be challenged.

If the Government wants to receive charges for running court it may find other sources, why to tax the injured workman or the dependants of expired workman? This amendment is worthy of being challenged.

F) Schedule III lists Occupational diseases.

There are now additional diseases in Part B and Part C of the Schedule III, namely:-

B 25 - Snow blindness in snow bound areas.

B 26 - Diseases due to effect of heat in extreme hot climate

B 27 - Diseases due to effect of cold in extreme cold climate.

Earlier skin disorders due to heat were included in B13. Other effects of heat were excluded.

Now all diseases caused due to working near furnaces and other work in hot climate is included. Similarly due to B-27, diseases due to work in cold storage’s and due to work in prawn parcelling in cold atmosphere are covered.

In Part C - Acute pulmonary oedema of high altitude is added.

Many necessary additions are left out.

G) Suggestion for additions in Schedule III

I. Work with visual display units

Now compensation is spreading fast and diseases caused due to working with such display screens in offices, factories, railway signalling centres, air traffic controllers need to be taken note of. Similarly backache is noticed as an occupational problem in manual works as well as sedentary work. This is a problem experienced by a vast number of workers.

II. In Part C, pneumoconiosis due to coal dust etc. are considered. Recent research by Dr. Sayied et.al (RIOH, Calcutta) shows that dust also causes chronic obstructive lung diseases (COLD). Such other problems are not covered by the present wordings i.e. 'pneumonic caused by

C-1 should be reworded as in C-3, 'broncho pulmonary diseases caused by cotton, sisal dust (byssinosis)'.

Similar addition or changes saying 'bronco pulmonary diseases including pneumoconiosis caused by dust and wording should cover other dusts not only sclerogenic mineral dusts. Such broad wording would give benefit to workers of newer research as in coal and jute etc.
PRIA

The Society for Participatory Research in Asia (PRIA) is an independent, non-profit, non-government organisation registered under the Society Registration Act 1860.

Over the last fifteen years PRIA has promoted people-centred development initiatives within the perspective of participatory research. As the cherished mission, PRIA endeavors to promote people-centered, holistic and comprehensive evolution of society characterised by Freedom, Justice, Equity and Sustainability, by

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- engaging in independent and critical analysis of societal trends and issues, development policies and programmes; and

- enabling dialogue across diverse perspectives, sectors and institutions.

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