The Way Forward

From Occupational & Environmental Health to Environmentally Sustainable Industrial Development

Dear Reader,

An outcome of PRIA’s strategic review conducted in 1998 is the creation of the Centre for Environmentally Sustainable Industrial Development (CESID). The overarching mission of this Centre is to promote participation of workers and community in assuring environmentally sustainable industrial development.

We have initiated a process of consultation with different stakeholders - Government, Worker's Organisations, Civil Society Organisations, Industry - seeking inputs to plan future strategies of CESID. Our attempt is to share our concerns and understanding about environmentally sustainable industrial development and learn from those who are or have been working towards this goal.

PRIA comes with a history of working on issues of Occupational and Environmental Health and has established a strong network with Worker's Organisations, Health Professionals, Government Departments and NGOs working on the same issues. We would, in our future strategy, like to build on our strengths while exploring new horizons.

The following are some of the thoughts that have been generated by individuals who have been associated with PRIA or know of PRIA's work. These include their perspective of Environmentally Sustainable Industrial Development and what they consider are the kinds of work that CESID/PRIA can do in future.

We would like to know your views and thoughts about the transition of COEH to CESID and the kind of work CESID can do in future.

Introduction to Environmentally Sustainable Industrial Development

Globalisation is about the growing interdependence of the world’s people, not only about the movement of money. In this particular era globalisation is characterised by new markets, new tools (internet etc.), new actors (WTO, Global networks of NGOs) and new rules (multi-lateral agreements on trade, services and intellectual property).

The age when issues of ethics, equity, human security, sustainability and development are taking centre stage in the process of growth, this is also the
period when the world has seen a growth in dislocations - from development projects, from economic and corporate restructuring, from the steady dismantling of institutions of social protection, precarious work arrangements, environment degradation and changing consumption patterns.

Industrialisation is here to stay. Seen as an instrument of economic growth, it's sometimes unbridled spurt has left behind a legacy of environmental degradation and inadequate compensation, while undermining livelihoods of vulnerable communities. Uneven distribution of the benefits from growth have added fuel to the debate on whether economic growth reduces poverty or widens inequalities.

To minimise the negative consequences of such growth there is indisputable need for promoting "Environmentally Sustainable Industrial Development”

What is Environmentally Sustainable Industrial Development (ESID)?

In one perspective ESID may be understood to be based on three pillars - economic growth, ecological balance and social equity.

Stakeholders and their concerns

From the aforementioned contention, one can identify five stakeholder groups in the process of sustainable development. Each of these groups is interrelated as well as voices its own particular concern.

Workers: They are the most significant group of actors in this context, of which the unorganised sector which forms more than 90% of the work force is at highest risk. Consisting of migrant, casual labour - a majority of whom are women, they are doubly vulnerable - because of their social position as well as their level of literacy and skill.

Community: This is the place which promotes and supports and is most affected by industrial growth. Besides being able to access employment of some form or the other, the community is also most affected by the establishment of industry, in terms of displacement of access to resources, dislocation of home, besides having to deal with pollution and incorrect waste disposal - with the more vulnerable groups such as women, the poor, the unskilled bearing the brunt of the negative consequences of industrialisation.

Industry: A major player, which promotes technical innovation in process and production in order to maximise profit and provide appropriate employment to the people. Medium and small industry are the critical mass in this category vis-a-vis their level of awareness regarding the impact of their activity on the physical and socio-economic environment, and their commitment to invest in the redemption of such impacts.

Government: It creates the space for and regulates industrial growth in the country, through the Ministries of Commerce, Industry, Labour and Environment & Forests. All play an important role in promoting regulating and monitoring laws and regulations passed for protecting workers, industry and the environment.

Civil Society Organisations - who are recognised for playing the role of "watchdogs" - ensuring that the industries fulfill their responsibility towards the Community as a social obligation.

International Agencies - Recent years have seen the increasingly proactive role being played by international agencies and NGO Networks such as World Bank, ADB, GEF, UNEP, UNCED, ILO as well as Greenpeace, Friends of Earth, - to impact the formulation and implementation of policies related to environment protection.

Relationships among stakeholders

More often than not, each of these groups work in isolation and perceive themselves in conflict with one another. Isolation because each of the groups pursues its interest according to its own time and need, with little co-ordination or sharing of ideas and initiatives. At the same time, they see their interests/needs conflicting with each other at times.

What is required therefore is the need for better understanding, communication and greater collaboration among these stakeholder groups which is often ignored.

Civil Society Organisations (CSOs), specifically Voluntary Development Organisations (VDOs) are seen as playing an important role vis-a-vis different stakeholders, some of which are mentioned below:

1. To create a resource base - a data bank - which would contain information about those persons/consultants who are working in the field of environment and are willing to share their experience and knowledge with others.
Inventory preparation on analytical laboratory for pollution monitoring and providing guidance, laboratory equipment for analysis and raw material availability, pollution control equipment and accessories etc.;

Promoting better waste management - the creation of a waste exchange bank to ensure optimal and appropriate utilisation of waste to ensure minimised environmental degradation/pollution;

Developing a clean technology bank especially for small scale industries;

Participatory safety and environment auditing;

Promoting better working environment, preventing accidents and controlling exposure to hazardous materials;

Ensuring health protection of workers and community at large;

Promotion of good housekeeping practices in industry;

Environment friendly industrial siting;

Effecting social reformation through eradication of illiteracy, promoting secondary financial support to free child labour, health care for society on neighbourhood concern;

Providing training to employers, workers and members of society to look at things in a positive way while protecting environment.

Organising fora for dialogue and joint activities creating an enabling environment - in the arena of workable Policy formulation,

Research on issues of Sustainable Industrial Development and the dissemination of its product, to empower the disempowered, is another form of work that CSOs may be involved in.

Creating a knowledge bank of best practices and innovations in Sustainable Industrial Development.

Monitoring - through engagement and not conflict - of the implementation of the national/ state government Policies and International agreements, and studying the effect on local and regional situations.

Capacity building of workers and community to understand planning vis-à-vis Industrial growth and expansion and the role that community and workers can play in this process - the formulation of "peoples plans" for Industrial Development.

PRIA’s CESID seeks to find a path for itself which brings together all the stakeholders. The above listed roles are few which PRIA can play in achieving the objective. We would like our readers to suggest more what PRIA can do or debate what PRIA should or should not do in achieving its goal for environmentally sustainable industrial development.

We are specifically looking for your suggestions and advice in the following areas.

1. In what ways can we conceptualise Environmentally Sustainable Industrial Development in the context of India and South Asia?

2. What kinds of initiatives are currently not being undertaken in this area of promoting Environmentally Sustainable Industrial Development?

3. Given the past work of PRIA and its existing competencies and networks, which of these activities should be pursued by PRIA?

Your thoughtful and frank advice on these issues as well as suggestions to access other individuals / organisations and documents and networks will be greatly appreciated.

We will send you a report on the future directions as well once it is ready and hope that you will continue to provide guidance and support to us in pursuit of those activities.

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Occupational & Environmental Health Special Issue 1999
Hearing People's Voice
Sumedha Sharma¹ and Ashok Kadam²

The development of an industrial area near Chipul has brought various problems for the people living there. Caught between the need of the government to bring overall development and their own needs of survival in a conductive environment, the community is trying to find an amiable solution to the problem. Keeping this in mind, this intervention was planned to search for a sustainable solution where the interests of both are protected and a conductive atmosphere for the co-existence of community and the industry created.

This paper talks about the process of a Public Hearing organised on March 14, 1999 in Chipuln by PRIA and Parivartan, which attempted to bring all the development partners together.

Introduction
Lote-Parashuram Industrial Area (LIA), is located in the Ratnagiri district of the Konkan region of Maharashtra. Spread over 530 hectares, with two rivers, i.e. Jagbudi and Vashi, the belt houses 78 Chemical production Units with the possibility of another 42 being set up in the near future.

In 1978, the Maharashtra Government appropriated 512.73 hectares of land with the express purpose of setting up an industrial belt for chemical units, by virtue of the area's proximity to the sea as much as the presence of the two rivers which meet at the Dabol creek - ensuring the availability of clean water as well as a natural drainage system.

Since 1981 when the first Chemical Industrial Unit was set up, the industrial area has flourished and its success prompted the Maharashtra Industrial Development Corporation (MIDC) to go for further expansion. The decision to acquire another 640 hectares for inclusion in the Industrial belt was stymied by a writ petition filed in the Mumbai High Court in 1994 by some local people's groups.

The petition opposed the expansion with the plea that already existing structures were not monitored by MIDC, resulting in large scale degradation of the area. Existing

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² Author works with "PARIVARTAN"

Industries have created havoc with water, soil and air pollution affecting the local community who subsists on farming, fishery or horticulture. Expansion would only exacerbate the steady impoverishment of the land and the community.

The court appointed a fact-finding committee that included experts from the Bhabha Atomic Research Centre, the Indian Institute of Technology, Mumbai, MIDC and the Maharashtra Pollution Control Board.

The committee's confirmation of pollution in the area prompted the court to decree a shift from an exclusive focus on the chemical industry. The court further ordered for the provision of green belts, setting up of effluent treatment plants, water and air monitoring centres and corrective measures for industries to prevent the pollution of Dabol creek. The court orders were a welcome step, but they were never really implemented.

Background
The development of Lote-Parashuram Industrial Area (LIA) has been a double-edged sword. On the one hand, people from the urban pockets of Chipul and Khed, as well as from the surrounding villages of Lote, Asgani Awashi, Dhamandevi, Ghana, Kotwali, Songaor and Chirani are employed in these Units. Many more are indirectly supported through an expansion of the support infrastructure like transportation, hotels, entertainment, communications, construction, banking, small trades in terms of supplying necessary services - milk, stationary, uniforms to workers etc. Nearby towns have developed at a faster rate because of the industries.

On the other hand, water and air pollution have badly affected the agriculture, fishing and horticulture. Acquisition of land and the pollution of agricultural land has drastically decreased yield - whether it is the staple crops of rice and millet or cashew or the world famous alphonso mango. The creek and rivers have become so murky with pollution due to effluent-dumping, that fishing no longer remains the livelihood of the 42 communities settled near the creek. Families that used to earn as much as Rs.3000 a month from fishing, are strug-
People from the Lote revenue village were a part of this process. The village has seven clusters, two of which are near the factory area. Being the worst affected clusters these were selected for the purpose of the study. These have a population of about 300 each. The villages included were Asgani - at a distance of 1.5 kms from the factory area; Satwin - 7 kms north of the Lote Industrial Area; and Kotwali - at a distance of 4 kms from the industrial area.

The process included the following components.

Family Survey: The study covered 213 families from these villages

Group Discussions: Information was gathered through group discussions in Lote, Asgani, Kotwali, Songoon and Satwin villages. These informally-held discussions were mainly on the problems faced by the villagers due to pollution.

Lung Testing Programme: A number of people were tested for lung problems caused by the air pollution in the study area. Lung Function Tests were carried out using ventilometer.

Water Testing: To know the extent of water pollution by the chemical industry, water testing was conducted.

Study period: from September 1, 1997 to November 30, 1997.

The process of obtaining information generated public interest in terms of involvement in the future development of the area. Accepting that Industry is here to stay and that there is a high degree of interdependence between the community and the industrial area, what is required is a mechanism or a process through which all four - community, industry, workers and state - may be able to work towards their goal in a more collaborative manner.

The Public Hearing

The next step was to share with the Industry and the Government the plight of the people.

To those for whom public hearing is a new term, this is a process where a parallel and popular judicial structure is created outside the judiciary, which has no legal standing. Through this process, the affected people of the community put their grievance in front of a jury that consists of eminent academicians, ex-government officials, legal experts and social activists. Other actors involved in the whole process (government and the industry) are also
present during this process and they too share their views. After hearing all sides, the jury gives its verdict that is then sent to the policy makers and government as a reference document for further action.

This whole process may not be able to help in getting justice immediately, but it definitely helps in creating awareness of a particular issue and generates participation of the community.

With this aim in mind, PRIA and its partner in this endeavour PARIVARTAN decided to hold a public hearing in Chipun on March 14, 1999. During this public hearing, the affected communities would share their difficult situation and at the same time present an alternative plan to the Government and Industry for the future development of the Lote-Parshuram Industrial Area. The plan would envisage that the community and industry benefit and the present conflict decrease towards a better understanding of the mutual interdependence.

Proceedings
A cross section of people from Maharashtra and outside participated in the public hearing - Government Officials, NGO Representatives, Trade Unionists, Journalists, Academicians, Health Professionals, Social Activists besides the project affected people.

A day prior to the public hearing, a team of government officials and NGO activists were taken for a visit around the industrial area to assess the extent of the damage. The areas visited were Lote, Songao and Bhole.

The Public Hearing broadly followed the framework mentioned below.

I. Problems of people due to loss of land, MIDC extension and employment,

II. Problems due to pollution and effluent pipe line,

III. Problems of women,

IV. Sharing of the Development Plan

Presentations were made by community people, NGO activists, Government officials and the doctors who were involved in the medical examination.

Outcome of the Hearing:
This was for the first time that representatives from all 33 affected villages and hamlets came together to discuss problems regarding environmental degradation in their area. Previous efforts had been more isolated in nature, in the sense that communities had participate separately at different times. The strength of the process was the inclusion of women in the planning and decision making processes. At the same time, through the process of discussions around the development plan and public hearing, a trained batch of around forty committed activists has emerged from the area - who are willing to continue the struggle.

The presence of Government Officials in the public hearing and their promise of co-operation boosted the morale of the people tremendously. MIDC shared that compensation package designed for the people of Asgar Village because of the MIDC expansion was under revision. Those present at the Public Hearing were very happy with this measure since it was one of the issues raised in the development plan. MIDC also talked about the Memorandum of Understanding (MoU) signed between the ICL Exchange India Ltd., MIDC and the Lote Industrial Association for the setting up of a Common Effluent Treatment Plant.

Though no representatives of the industry appeared at the Public Hearing, the attitude of people of co-existence on a different basis and positive suggestions has invoked good response from industrialists e.g. (i) one medium industry has promised to give work to co-operatives of labourers and not the middlemen.

(ii) One industry has shown willingness to buy non-pasteurised milk (good quality) from local producers.

Awareness about problems in Lote area increased due to exposure in the local media. The one year preparatory process leading up to the public hearing generated a high degree of interest among the local communities. The attitude is now to be more proactive than reactive.

Other organisations around Chipun have offered their

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Functioning of Safety Committees in India

Anjeev Pandita

INTRODUCTION

Realisation of the importance of workers' participation in the management of their industry is the result of a long struggle. The advent of industrial revolution saw enterprises bulging in both size and their work-force. This was not accompanied by a change in the environment at the workplace. Workers continued to remain neglected and were exploited to get maximum profit. A conducive social environment remained a dream though workers began realising they had a much greater stake in the organisation's affairs. Thus unions came into being. Demands were put forth, invariably detailing their point of view on the management of the workplace. Management began to yield as the unions became more powerful. It was out of sheer compulsion.

The various schemes that were aimed at enhancing workers' participation in management, mainly focused on issues like: enhancing production and skills of workers; equalisation of wages and other benefits and ensuring two-way communication between workers and the management. Even though issues on health and safety were included, they were never taken up seriously. It was only realised that the effective implementation of safety policy in any organisation could not be accomplished without the participation of workers. Millions of workers are affected globally due to improper safety measures causing grave social and economic implications. It was felt that the participation of workers in health and safety issues of the company should be emphasised. This would not include workers' participation in other management related issues of the enterprise. This led to distinction in workers' participation in safety issues from their participation in other management issues. The developed countries took lead in this regard, when safety committees and safety representatives came into picture almost two decades ago. This ensured the participation of worker at shop-floor in the health and safety of the company. Safety representatives and safety committees since then have played a major role in controlling the hazards at the workplace. They have been instrumental in predicting any eminent occupational risk or danger prior to any of the 'experts'.

In India, however, the real participation of workers in the health and safety issues is yet in its juvenile stage. The Factories Act, 1948 is a central legislation that deals with safety, health and welfare of the persons employed in the factories. Since the time of its formation, there have been many amendments in the act especially after the Bhopal Gas disaster. The need was felt to shift the approach from dealing with disaster or disease to preventing their occurrence. In this regard, the Factories (Amendment) Act, 1987 that came into force from December 1, 1987 made it mandatory to have the participation of workers in safety management.

Study conducted by PRIA

Even though the formation of Safety Committee has been made mandatory by Factories Act with defined set of functions and rights, yet the need has been felt to test the effectiveness of these committees. Keeping this in view, PRIA in collaboration with Ministry of Labour carried out a country-wide survey of Safety Committees.

Objective

- Assess the overall effectiveness of the safety committees in India
- Understand the level and type of participation by members of safety committee in the decisions related to health & safety
- Understanding of the workplace hazards by the safety committee members
- Type and quality of training received by members of safety committee

Methodology

The survey was carried out by questionnaires that were
distributed with the help of Ministry of Labour, Trade Unions and by directly approaching the industries. A total of 328 safety committee members responded, representing about 47 different industries.

Sample

Out of 328 committee members surveyed, the majority (81.4%) belonged to the public sector enterprise, 17.1% belonged to defence production sector, 0.6% were from private sector and 0.9% were from the central government undertaking units. (Table 1)

Table 1

<table>
<thead>
<tr>
<th>Respondent Industry Undertaken by</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public sector</td>
<td>81.4</td>
</tr>
<tr>
<td>Defence Sector</td>
<td>17.1</td>
</tr>
<tr>
<td>Central Government</td>
<td>0.9</td>
</tr>
<tr>
<td>Private</td>
<td>0.8</td>
</tr>
</tbody>
</table>

The different types of industries that were surveyed are given in the Table 2 below.

Table 2: Categories of Industries & No of Respondents

<table>
<thead>
<tr>
<th>Industry Type</th>
<th>Frequency</th>
<th>Percent Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Chemical/Petrochemical</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Defence Leather Products</td>
<td>24</td>
<td>7.3</td>
</tr>
<tr>
<td>Electric Generation and Distribution</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>Electronics</td>
<td>46</td>
<td>14.0</td>
</tr>
<tr>
<td>Engineering</td>
<td>52</td>
<td>15.8</td>
</tr>
<tr>
<td>Explosives (Defence)</td>
<td>28</td>
<td>8.5</td>
</tr>
<tr>
<td>Fertilisers</td>
<td>45</td>
<td>13.7</td>
</tr>
<tr>
<td>Metallurgy</td>
<td>13</td>
<td>4.0</td>
</tr>
<tr>
<td>Mining</td>
<td>43</td>
<td>13.1</td>
</tr>
<tr>
<td>Ports and Docks</td>
<td>21</td>
<td>6.4</td>
</tr>
<tr>
<td>Pulp and Paper</td>
<td>3</td>
<td>0.9</td>
</tr>
<tr>
<td>Ship building</td>
<td>8</td>
<td>2.4</td>
</tr>
<tr>
<td>Steel and iron</td>
<td>35</td>
<td>10.7</td>
</tr>
<tr>
<td>Textile</td>
<td>6</td>
<td>1.8</td>
</tr>
<tr>
<td>Total</td>
<td>328</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 3

<table>
<thead>
<tr>
<th>Belong to any Union</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>227</td>
<td>69.2</td>
</tr>
<tr>
<td>No</td>
<td>101</td>
<td>30.8</td>
</tr>
<tr>
<td>Total</td>
<td>328</td>
<td>100</td>
</tr>
</tbody>
</table>

2. Years in Safety Committee

Majority of safety committee members are in there for more than two years which would mean either they are getting elected again and again or the elections are not taking place. Due to either of the cases, there is no rotation of the members as fresh members are not getting chance and hence bringing sort of stagnancy into the committee. (Table 4)

Table 4

<table>
<thead>
<tr>
<th>Years in Safety Committee</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1</td>
<td>68</td>
<td>20.7</td>
</tr>
<tr>
<td>1-5</td>
<td>129</td>
<td>39.3</td>
</tr>
<tr>
<td>&gt;5</td>
<td>131</td>
<td>39.9</td>
</tr>
<tr>
<td>Total</td>
<td>328</td>
<td>100</td>
</tr>
</tbody>
</table>

FINDINGS IN BRIEF

1. UNION

Majority of members belong to some union (90%), the rest 10% do not belong to any union. This means that unions play a major role in the formation of the safety committee.

c) Training received by Safety Committee members:

An ideal safety committee should have all of its members properly trained but in the survey it was found that only 79% of the members have received training. Majority of the trained members have received safety training from company only. (57.14%) The training capacity of
specialised institutions like CLI/RLI, NSC and workers' education board is well known. It has been seen that the in-house training given by companies gives only minimal information about the safety at workplace. Safety committee members have to handle specialised jobs so they need specialised training.

2. Health Hazards at Workplace

The members have not been quite open in expressing the possible hazards at their workplace. This is evident from the response received from the members about the prevalence of chemical hazards at the workplace where 45.6% of the members have said that no such hazard exists at the workplace. If we take the composition of the surveyed industries, almost 70% of the industries use chemicals in their work-process. This is indicative of either pressure from management or general ignorance about the workplace hazards.

The major Chemical hazards at the workplace were chemicals and solvents and toxic fumes and gases, the major physical hazards at workplace are dust (67.6%), noise (50.9%), dangerous machines (47%), vibration (20%) and stress (21.7%).

3. Other Problems at Workplace

The safety committee members have not opened up on issues like sexual harassment, management techniques and other specific problems marring the workplace. 73% have kept mum on the subject and only problems like shift work (18.3%) and workload (16.5%), which are common workplace problems have been expressed to certain extent.
4. **Health & Safety Policy of Surveyed Companies**

Reacting to queries like if management provides OH facilities, if it has well written health and safety policy and if it carries risk assessment, majority of members have agreed that such facilities exist in their industries.

**Table 5**

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>308</td>
<td>93.9</td>
</tr>
<tr>
<td>No</td>
<td>9</td>
<td>2.7</td>
</tr>
<tr>
<td>Don't Know</td>
<td>11</td>
<td>3.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>328</strong></td>
<td>100</td>
</tr>
</tbody>
</table>

**Table 6**

<table>
<thead>
<tr>
<th>Written Health &amp; Safety Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Don't Know</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

**Table 7**

<table>
<thead>
<tr>
<th>Risk Assessment Carried</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
</tr>
<tr>
<td>Yes, adequate</td>
</tr>
<tr>
<td>Yes, inadequate</td>
</tr>
<tr>
<td>Yes, but not recorded</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Don't know</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

5. **Extent of participation on issues related to health & safety**

Members have expressed that there is satisfactory participation of safety committee members on issues of safety, environment and risk assessment. However, majority of members have expressed that the medical record are not shared with the committee.

**Table 8**

<table>
<thead>
<tr>
<th>Management Consults on Safety Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
</tr>
<tr>
<td>Frequently</td>
</tr>
<tr>
<td>Occasionally</td>
</tr>
<tr>
<td>Never</td>
</tr>
<tr>
<td>Not Available</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

**Table 9**

<table>
<thead>
<tr>
<th>Management Consults on Environmental Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Not Available</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

**Table 10**

<table>
<thead>
<tr>
<th>Involvement of Safety Committee in Risk Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
</tr>
<tr>
<td>Satisfactory Involvement</td>
</tr>
<tr>
<td>Involved but not Enough</td>
</tr>
<tr>
<td>Not Involved</td>
</tr>
<tr>
<td>Not Available</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

**Table 11**

<table>
<thead>
<tr>
<th>Medical Records Shared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>
CONCLUSION

In a developing country like India, issues like wages, bonus and unemployment attain prominence over health and safety issues. Hence, the role of safety committees becomes even more important. In the present scenario, safety committees exist only perfunctorily (it is important to comply with the law). In reality, they have very little control over the decisions related to health and safety.

Participation is the mental and emotional involvement of a person in a group situation that encourages him/her to identify himself/herself with the goals identified by the group and share responsibilities with them. It is considered to be a process by which workers can influence decision making at various levels in any industry -- through representation or other participatory forums. We assume that there is no disputing that a worker working at the shop floor will know about any hazard much before an expert may realise it. Thus, his involvement and participation in matters related to health and safety are not just essential. In fact, they are prerequisite for the health and safety issues at the workplace and must be tackled jointly by management, workers and the government.

Many issues have come up in the present survey. We are aware that some issues could still remain camouflaged. The surveyed safety committee members have been sceptical in expressing their opinion about the hazards at their workplace. This could be indicative either of the pressure from the management about not revealing the hazards or even because the members themselves take it lightly.

For a safety committee to function effectively and efficiently, its members have to receive specific training. This will enable them to deal with issues like TLVs, and chronic effects. Besides, it will be of help in handling legal issues such as rights regarding the quality of data provided by the employer, and in effectively handling issues like accident analysis and safety surveys. The CL/RLI, Workers Education Board and NSC are the leading non-employer bodies playing this role. However, it is necessary to increase their outreach and work on the modules that are specific for the safety committee of any specific industry.

Safety committee members have expressed satisfaction over their participation on the issues related to their participation in matters related to health and safety, environment and risk assessment. However, the extent and type of participation have not been explored so far. This needs to be investigated deeply.

CIS

CIS 98-1177 Introduction to Occupational Safety and Health
Topics: glossary; hazard evaluation; occupational safety and health; plant safety and health organisation; risk factors; safety and health committees; Spain; training course; training material.

CIS 98-1185 Welding in tanks and confined spaces: Essential points for your safety
Topics: check lists; electricity; exhaust devices; fire hazards; fire hazards; gas cylinders; oxygen deficiency; personal protective equipment; safety guides; Switzerland; Training material; welding and cutting; work in confined spaces.

CIS 98-1189 Laboratory handling of Mutagenic and Carcinogenic products
Topics: bio-safety cabinets; carcinogens; decontamination (personal); disposal of harmful waste; emergency organisation; European communities; experimental animals; exposure tests; France; health engineering; health service records; ILO; IPCS; laboratory work; legislation; local exhaust; medical supervision; mutagens; personal hygiene; personal protective equipment; plant health organisation; safe layout; safe working methods; safety by design; storage; training manuals; training material; translation; UNEP; ventilation; WHO.

CIS 98-1198 Work Psychosociology: Trainers guide
Topics: human factors; human relations; individual variables; job dissatisfaction; mental stress; neuro psychic stress; occupational psychology; psychological effects; psychology of work organisation; social aspects; Spain; stress evaluation; stress factors; training course; training manuals; training material.

CIS 98-1218 Software A-Z
Topics: chemical safety; programme; computerised data bases; construction industry; dangerous substances; directory; harmful substances; hazard evaluation; legislation; notification of accidents and diseases; occupational safety and health; plant safety and health organisation; United Kingdom.
Victims of lead Poisoning

Nearly half the children under the age of 12 living in Indian metros have alarming lead levels in their blood. This was found by the George Foundation (GF) a non-governmental organisation in a study titled “Project Lead Free”

In Bangalore, 40 percent of the children in the said age group are said to have levels above 10 micrograms of lead per decimetre. The tests were conducted among the 22,000 children in Delhi, Mumbai, Calcutta, Chennai, Hyderabad and Vellore. The lead finds its way into the body through food, water and air. As per T. Venkatesh of St John’s Medical College Hospital, Bangalore, lead intake was higher among children with low nutritional background. Low calcium and iron in children results in higher susceptibility to lead poisoning.

Down to Earth April 15, 1999

Labour Pains

The Labour Ministry’s annual report for 1998-99 has painted a grim picture of the worsening employment situation. While the employment levels expanded steadily during the 1970s and the 1980s, the rate of growth of employment continued to lag behind that of labour force. Consequently there was a steady rise in the unemployment levels over the years. Moreover, a sizeable proportion of the employed work at low levels of productivity and income, and there has also been a rise in casualisation with a corresponding decline in self-employment.

According to the 50th Round of the National Sample Survey Organisation (NSSO), while “open” unemployment rates declined in 1993-94, compared to 1987-88 from 3.77 per cent to 2.55 per cent, that of under-employment, a little over 6 per cent, remained more or less unchanged. States where incidence of under-employment was over 10 per cent as per the 1993-94 estimates are Goa, Kerala and Tamil Nadu. According to the report, casual wage employment increased from 31.2 per cent in 1987-88 to 33.5 per cent in 1993-94, while self-employment declined from 53.6 per cent to 51.9 per cent, and regular salaried employment from 15.2 per cent to 14.7 per cent. Though the NSS data is available only upto 1993-1994, other studies indicate a further deterioration in the employment situation in the subsequent years. Quarterly employment reviews of the organised sector show that the growth of jobs between March 1996 and March 1997 was only 1.09 per cent. The growth was relatively better in the private sector at 2.03 per cent compared with just 0.67 per cent in the public sector. Incidentally, post-reforms growth in the organised private sector employment out-stripped that of public sector employment for the first time since independence. This is to be attributed to the creation of new job opportunities in the private sector with many areas earlier reserved exclusively for public sector being thrown open to it and virtual dismantling of licensing and controls. The year 1996 turned out to be the best year for private sector jobs with an impressive growth of 5.62 per cent. That year the public sector record a negative growth of 0.19 per cent. Since then, however, there has been a major deceleration in the employment growth rate in the organised private sector because of the industrial slow down and the ongoing large scale restructuring.

The problem of unemployment and under-employment has become a world-wide phenomenon. As per the International Labour Organisation (ILO), out of global labour force of three billion, 20-30 per cent is under-employed. Some 60 million people in 15-24 age group are actively seeking employment. The ILO expects labour market condition to worsen in India, Pakistan and Bangladesh, countries which have so far not been significantly impacted by the Asian financial crisis.

'ou will never work alone: Privacy at work is a health and safety issue.

Employers are keeping a close eye on the workers' behaviour inside and outside work. But monitoring the workforce can be bad for productivity and very bad for health. Studies have shown that production decreases when workers are monitored and workers health can be adversely affected. A US study found monitored workers suffered much more depression, extreme anxiety, severe fatigue or exhaustion, strain injuries and neck problems than unmonitored workers.

Hazards 66, June/July

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999

's worse than war at work.

Over one million workers die work related deaths every year and hundreds of millions more are harmed by their jobs. Dr Juka Takala, Chief of ILO's health and safety programme has worked that annual tally of 1.1 million workplace deaths exceed the average annual deaths from road accidents (999,000), war (502,000), violence (63,000) and HIV/AIDS (312,000). He maintains:

- 3000 people are killed by work everyday, two every minute.

As per ILO, "Some 600,000 lives could be saved every year if available safety practices and appropriate information were used.

Hazards 66 June/July 1999

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Occupational & Environmental Health 11 Special Issue 1999
Books

Building the Capacity of National Health Authorities
Health is not a mere medical issue but a wider concept of social well being. The onus of responsibility to create good health falls upon all of us in the society. The book tries to examine sequentially:
- the complimentary nature of health-for-all and sustainable development policies in improving the level of health in all countries.
- the role and function of public authorities in improving these policies.
- the tangible and intangible reasoning that health authorities will need to perform their functions in the light of constraining that will shape the development of their capacities to perform them and
- how planning can be used as a tool in meeting the challenge.

Author: Prof. Morris Schaefer.
Published by: World Health Organisation, Regional office for South East Asia.
Year of Publication: 1999.

Trade Union Training in Health & Safety
This study summarises the findings of a survey of trade union health and safety training provisions carried out by TUTB (European Trade Union Technical Bureau for Health and Safety) with the assistance of two authors. The response to this survey showed that training in health and safety objectives remains a priority concern of many trade union organisations.
The TUTB survey endeavours to describe the practices used to train the elected representatives by reference to selected basic criteria: who does the training, on what topics, how much of the target group does it reach, how is it evaluated?

Authors: Annie Raulier and David Walters
Published by: European Trade Union Technical Bureau for Health and Safety (TUTB)
Year of Publication: 1995
Price: 800 BEF.

Against Child Labour - Indian and International Dimensions and Strategies
This volume through contributions from renowned socioreformers and experts, constitutes a veritable compendium of information about child labour and analysis of its multiple facets, and the practical steps involved in its abolition. It will be of interest and utility in developing countries sharing India's problems and fact also in industrially advanced countries to enable them to adopt trade and aid policies vis-a-vis developed countries that will best serve the objective of promoting fair trade and the progressive eradication of child labor with the trade

Editor: Kalus Voil
Published by: Mosaic Books, N. Delhi
Year of Publication: 1999
Price: Rs 600

Preventive measures in hazardous occupations in Asia: A guide.

Rapid economic development in the Asian and Pacific region has led to the significant improvements in income and quality of life. However, rapid industrialisation has also resulted in great increase in the number of people killed and injured at work.

This booklet presents a brief overview of the occupational safety and health situation in the region and highlights the issues which require special attention. It also provides guidelines concerning the practical steps that need to be taken at both the national and enterprise levels to improve workers health and safety.

Author: Kazutaka Kogi
Publisher: International Labour Organisa- tion (ILO)
Year of Publication: 1994
assistance to the people of Late Industrial Area in process of implementing their development plan. PRAYAS, a Pune based organisation has shown willingness in assisting to set-up a laboratory and testing facility. The two partners in the endeavour - PRIA and PARIVARTAN are also continuing with their commitments. PRIA will initiate discussions at the Policy level, while conducting training programmes in First Aid, Peoples Rights etc. as follow-up. PARIVARTAN will facilitate the process of setting up peoples institutions in the area to monitor the MIDC and implement the development plan.

HAPPY Diwali TO All Our READERS
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-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, it disseminates information through the bulletin, publications, training/workshops and information service.

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EPZ - THE EXPLOITATION PROMOTION ZONES

In the era of globalisation, developing countries are shedding their trade barriers and are opening up their economies. The import substitution policies are giving up to export led growth. In the initial stages, however, instead of opening the whole market, the developing countries are creating certain enclaves where free trade is allowed. In these zones, the raw material is imported, processed and the finished product is re-exported for the global market. Investors are given heavy incentives like no import duty, tax holiday, etc. There are 19 terms to describe the above concept, export processing zone being just one of them.

Approximately 27 million people work in 850 such zones spread world wide, mostly in third world countries. 80% of the workforce is constituted by young and unmarried women only. These workers toil day and night in these walled enclaves with wages too less to suffice them and virtually no rights. These are the real scenes inside the beautiful buildings of the walled enclaves. The scenes are horrifying, no labour laws are applicable inside the zones, in fact, there is gross violation of overall human rights within the zones.

The zone authorities' prime concern is to earn foreign exchange. The poor workers who are the important components in making it happen are grossly neglected. These zones are heaven for Multi National Companies (MNCs). In developed countries the cost of production goes high due to strict legislations. The employers have to provide good wages and other facilities to the workers. In contrast, the zone authorities in developing countries proudly advertise the abundant availability of low cost labour and conflict free labour relations.

These zones mostly have labour intensive industries, like garment, electronic assembly etc., that require low skilled labour. In third world countries there are the grave problems of unemployment and poverty. Workers are ready to work at very low wages. Investors mostly employ young and unmarried women. Outdated explanations, like women are patient thus, better suited to do monotonous jobs, have nimble fingers etc., are given. The truth, however, lies somewhere else. Even though the women constitute the major portion of the labour force in the EPZs, but the jobs they do are always unskilled or the low-skilled ones. They are never preferred for the skilled jobs and always occupy the bottom of the occupational hierarchy. Investors are reluctant to invest in developing the skills of women as they feel it may be a waste because women may leave after marrying or having children.

Health and safety scenario is worse in these zones. Nobody is concerned about that. Workers suffer from all sorts of problems - musko skeletal disorders, repetitive strain injuries (RSI), stress related ulcers etc. There is an atmosphere of terror created by the
employers and workers are too afraid to come forward with their problems and if they do they lose their job. In the absence of any effective enforcing labour legislations inside the zone, it is easy for any investor to simply hire any willing employee instead of investing in making the workplace safe and healthy. Many countries have banned trade unions inside the zone in order to ensure complete peace for the employer. In other places where forming a union is not illegal, any attempt by workers to get organised is dealt with severely resulting in loss of job and even loss of life.

The Indian scenario is not any different. India was the first country in the Asia-Pacific region to establish an EPZ in 1966. At present there are seven EPZs in the country employing about 100,000 people of which women constitute 70% to 80%. The labour legislations of the country are applicable in the zones too. But that is only on paper and in reality they are not implemented at all. The Ministry of Commerce, which is the regulatory authority of these zones, shows no consideration towards the workers. The Ministry of Commerce while framing the policies of EPZs does not show any commitment towards safeguarding the workers rights. Worse, the Ministry of Labour has no part to play in framing the policies. With heavy tax concessions, Indian EPZs, are ideal for investment. Investors invest and reap the benefits of concessions and then when the time comes for repayment, they shut down the unit and restart somewhere else, leaving thousands of workers jobless. The wages received by Indian EPZ workers are the lowest compared to the other EPZs (approx. $30 a month). Even though the trade unions are not banned but none of the zones have an union in spite of so many years of existence.

A recent audit on Indian EPZs, made by the Comptroller and Auditor General of India has revealed serious lapses in their functioning. Customs duty amounting to Rs 7,500 crores was forgone for achieving net foreign earnings of about 4,700 crores (lower value of imports). This questions the whole purpose of their existence. In the 1999-2000 budget, the Government has raised the corporate tax holiday period in EPZs from 5 to 10 years which means the Government has much to offer to investors but nothing to workers.

The time has come to realise the worth of workers working in these zones. Development cannot be achieved by sacrificing poor workers. Poor workers cannot be denied their basic rights in the name of earning foreign exchange. Efforts are required to shift the trend which is making these zones more of ‘Employer’s Profit Zone’ or Exploitation Promotion Zones rather than Export Promotion Zones. An accumulated effort by the government, trade unions and industries is required to take a collective responsibility for the welfare of the workers toiling in these zones. Healthy and satisfied workers are an asset to the production and not an obstruction to the profits.

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The Bulletin

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The Indian Mining Industry

* Dr. L. Mishra

In this article, Dr. L. Mishra shares his thoughts on the mining industry of India which has travelled a long way through its history. This article is an excerpt of his speech given on the 98th Foundation Day of Directorate General of Mines Safety. Dr. Mishra analyses the mining industry from the perspective of the economic importance of mines in India. He also throws light on the workers' perspective, where there are still miles to be covered in providing a safe and healthy working environment to the workers who have been working in constant danger of accidents, injuries and deaths while working in the mines. Readers are requested to contact PRIA to get the detailed article of Dr. Mishra.

I feel both delighted and privileged to share my thoughts with all of you on this historic occasion of the observance of the 98th Foundation Day of Directorate General of Mines Safety. The Foundation Day is a day of multiple reckoning. It is a day of introspection. On this day we reflect on the mandate given to us, what we have achieved so far, what have been our failings and weaknesses and what are the unfinished tasks which remain to be attended to. It is a day when all members of the organisation reflect and introspect together to pledge their commitment to promote, protect and preserve the basic unity and integrity of the organisation and set it firmly on its chosen path of action.

While reflecting, I would like to base my thoughts on the following issues:

A. The status of the Indian Mining Industry between 1902 and now in terms of production, productivity, technological development and upgradation:

As we step into the 21st Century, we will also be completing 100 years of State intervention for protecting the life and limb of persons at work in mines from occupational hazards through legislative measures. During this short span in the long history of mining and more so during the past couple of decades, the Indian mining industry has achieved phenomenal progress in terms of production and productivity through intensive mechanisation and adoption of new technology. At the time of independence only 17 minerals of value were being mined in India. In keeping with the spirit of the Industrial Policy for higher targets of mineral production, the expansion of mineral based industry in the country was undertaken. Ambitious programmes were successfully launched to increase the production of minerals to meet the ever growing demand of the core industries like steel, non-ferrous metals, fertilisers, etc. keeping in view also the need for higher exports. At present, India produces 65 minerals including 4 fuel minerals, 11 metallic and 50 non-metallic minerals besides a host of minor and atomic minerals. The total value of minerals produced has increased from Rs. 70 crores to Rs. 32,300 crores in 1995.

India ranks first in the world in terms of production of sheet mica, second in barytes, third in coal, fourth in chromite, fifth in iron ore and manganese ore and seventh in magnesite and sillimanite. India has a unique blend of big and small, manual and mechanised opencast and underground mines. The total number of working coal mines as on date are 592, in oil sector there are 29 oil projects excluding off-shore installations beyond territorial waters. The number of metalliferous mines that are submitting returns stands at about 2500 but the total number metalliferous mines are estimated as 6000-7000.

B. Occupational Safety & Health Legislation in Mines:

Even in the sphere of safety movement, beginning with one time prevailing climate of complete laissez-faire when the mining lessees/agents did not even believe, far less being convinced or committed that protection of persons at work in mines against mining hazards was their responsibility at all (miners being left to fend for themselves out of the natural instinct of self-protection) to a reasonable acceptance of legislative measures, we have moved a long way. The twin concepts of “Self-regulation” and “Workers’ Participation in Safety Management” coupled with the above, the steady decline in fatality rates can easily be characterised as a silent revolution by every reckoning. This is not to say that we have reached the goal of a completely accident free environment.

Under the Constitution of India, Safety, Welfare & Health of workers employed in mines are the concerns of the Central Government (Entry 55, Union List Article-246). The OSH legislation in our country has evolved over the
years consistent with the Constitutional obligation and National Policy, the basic objective being reduction in risk of occupational disease, causality to persons employed and providing a better and safer working environment in mines. Mining has been and continues to be a hazardous profession and has rightly been treated as a war against the inscrutable forces of nature. The condition of the roof and sides of underground mines can change without any prior indication. Dangers due to sudden inrush of water, release of lethal and inflammable gas or the collapse of the roof are inherent in mining. It is essentially because of such unpredictable dangers that mining is considered to be the most hazardous of all peace-time occupations. To develop OSH legislation to guard against all these traditional and new hazards, while bringing out minerals from the bowels of the earth against the schemes of nature, is undoubtedly a Herculean task. The operations in mines are regulated by the Mines Act, 1952 and the regulations framed thereunder. These laws are constantly reviewed and upgraded based on the experience gained while implementing and enforcing the same in the mines. The recommendations of the Courts of Inquiry which are set up to inquire into the causes and circumstances leading to major accidents, forms a potent tool in bringing about legislative changes to prevent recurrence of such accidents.

Over the last 5 decades significant legislative changes have been introduced in terms of safety and health of miners, employment rules, induction of safety officers in mines, provision of training facilities for workers, provision of proper work environment etc.

C. Why does India have the highest record for mining accidents in the whole world?

These are incidents which are indicative of the concern with which importance of human life is viewed in mines—both on the surface and below the ground. The concern notwithstanding, India accounts for the single largest number of accidents in the whole world. Quite apart from the callousness and insensitivity of the mining lessees/licences/permit holders on the one hand and ignorance and illiteracy of the miners, there are several factors related to the size of the mines and the scale of investment which make or mar their operation. If the areas of the mines are not of the adequate size to work safely it is the job of the safety departments to close them and prosecute the authorities, who have taken such unsafe actions at the initial stage while granting the lease.

Most of the mining engineers in the lease granting department (this is no casual reflection on the functioning of the Directorate of Mines in the States) do not have any certificate of competency and related commensurable technological competence as such. They do not consider it essential to enforce the safety legislation but on record they would like to show that they do take action when safety provisions are violated.

As a matter of fact, the lease granting department is the real owner or custodian of the mineral property. If the concerned lease granting engineer of the area is held responsible for breach of safety provisions in different leases granted by this authority as important provisions of safety laws are part of lease agreements then things will definitely improve and the concerned department will provide all the information and details required by the DGMS.

It is also true that mine management is taking undue advantage of the existing situation of supremacy of dual authorities and does not bother much about serious application of the provisions of any safety legislation as they have never witnessed the application and effectiveness of its penetrating rule in the form of closure of mines on account of prevailing unsafe mining conditions. On the other hands notices for cancellation of leases sanctioning authority are the order of the day.

There are several other formidable bottlenecks in conducting inspections, filing and contesting prosecutions on account of the following reasons:

- Long distances which the officers are required to travel.
- The days spent on court cases are substantial.
- There are genuine difficulties in scientific allocation of time between court work, office work and inspection work.
- There has been a tradition of grant of liberal adjournment by the courts and the cases drag on for several years.

Keeping the above limitations inherent in the entire process of inspection and filing of prosecutions for acts of omission and commission on the part of mining lessees/permit holders/licences, I had suggested to Chief Secretary, Government of Rajasthan the following:

- Contravention of any of the provisions of the Act or its subordinate legislation (Regulations & Rules)
should be taken serious cognisance of and should result in cancellation of lease/permit/license by the State Government.

- Mining operations shall not commence unless a qualified manager and other supervisors have been appointed under the Metalliferous Mines Regulation Act, 1961 and relevant notices are sent to the Director General of Mines Safety, Dhanbad with a copy to the concerned officer of the Mine Safety.

I regret to share that I have not yet been favoured with any reply from the office of Chief Secretary, Government of Rajasthan. A similar situation is present in several other cases. Regrettably it is one of callousness and insensitivity. This brings out a dilemma inherent in the functioning of the federal polity. In a federal polity the concerned Ministry/Department in the Central Government (in case of Mines it is the Ministry of Labour, Ministry of Coal and Department of Mines) enacts the laws (including subordinate legislations); sets up the institutional mechanism for securing compliance with provisions of the law and provides tools, equipments/vehicles and funds for adequate and effective functioning of the mechanism. It is futile, however, to expect that an institutional mechanism set up by the Central Government (in this case the DGMS) will be able to do full justice to the laudable intentions & provisions of the constitution and law of the land without adequate, effective and timely liaison, coordination with and support of the State Governments/UT’s. The institutional mechanism (DGMS) itself is small and has inherent limitations in making its presence felt all over the country. Successive Committees have gone in to assess the adequacy and effectiveness of the DGMS in terms of its visible presence. They have come to the conclusion that DGMS in its present shape is grossly inadequate to deal with the magnitude of the problem of accident prevention and safety promotion arising out of large number of mines and quarries scattered all over the country, some running in a legal and authorised manner but majority in an illegal and unauthorised manner.

Even in its present truncated form the DGMS cannot function effectively without the support and help from the Collectors/Divisional Commissioners in all the States/UT’s. What is most important in a sea of inadequacies is the responsiveness and timeliness in responding to the various queries/pleas/requests made by the officers of DGMS for support sought for by the Ministry of Labour / DGMS. This is sadly lacking.

D. Role of Research

It has been observed that in the wake of liberalisation and globalisation of the economy in developing countries the job, health and safety of workers are at stake. There is progressive increase in the number of accidents causing injury resulting in death or disablement. The same causes and factors contributing to accidents continue to be repeated year after year and that enough has not been done to generate a critical consciousness about the importance of the dignity of human life and how to preserve and protect the same. There are certain accidents which are intractable like fire lying concealed in the roof of a coal mine. As it is totally invisible, practically nothing can be done to pre-empt the out break of fire of such nature. This is what has been the observation of the Court of Enquiry investigating into the causes of accident in New Kenda Colliery which took place on 25.1.1994. But there are a large number of accidents where the source is visible, the causes are tractable and the agencies and authorities can be made accountable in dealing with them, in preventing them, in minimising the rigour and intensity of the damage being caused by them. A specific reference could be made to the accident that had struck Gaslitand mine on the fateful night of 27th September, 1995. The communication system on that night had completely collapsed as the persons in charge of the communication system were either absent or unresponsive. As the flood water started rushing to the mine and the alarm bells started ringing there was no response at the other end. A little responsiveness and timely action to evacuate the miners could have resulted in saving 64 innocent lives. I am making this statement with a full sense of responsibility in the wake of completion of the work of the Court of Inquiry and submission of its report by the end of June, 1998.

From the point of perspective - both short term and long term, there are two ways of dealing with such situations. One is to disseminate the findings of scientific and technological action research related to safety for the benefit of humanity in a simple and intelligible manner instead of confining them to the four walls of a research laboratory. Such transfer of findings of research from laboratory to land should take place in a natural and spontaneous manner. The second is that the laws backed by executive action meant for protection of human and natural environment must empower, through generation of critical awareness, through orientation and training, the workers.

Continued on page 44
AIDS (Acquired Immune Deficiency Syndrome) was first identified in 1981. AIDS is the term used to refer to the physical conditions resulting from infection by HIV (Human Immuno deficiency Virus). HIV is the causal agent and gradually disables an important part of the body’s immune system by invading the T-helper lymphocytes and macrophages, that are cells in the bloodstream and normally help protect the body from attack of infection.

The AIDS syndrome has a long gestation period (8-10 years) during which no symptoms appear. This characteristic of the virus adds to the complexity of the situation as the person infected might act as a mute transmitter. Moreover, at present there is no vaccine or curative drug for the treatment of AIDS and prevention is the only option.

In India, the rise in the incidence of AIDS is alarming. Till August 1992 as many as 10,362 HIV positive cases were reported. AIIMS (All India Institute of Medical Sciences) estimates show Maharashtra, Manipur and Tamil Nadu leading the percentage count. In Maharashtra and specially city like Mumbai, the percentage of HIV positive persons is higher than the all India average. Some sample studies reported the percentage in Mumbai to be 7 times higher than other states and areas.

Area of the Study

The study ‘AIDS and Health Care Workers’ is based on a detailed survey of three selected hospitals of the Municipal Corporation, Mumbai, Maharashtra. The Municipal Corporation, Mumbai runs 3 medical colleges, 1 dental college, 5 nursing colleges and 3 colleges for physiotherapists. The corporation also manages 25 public hospitals and 25 maternity hospitals. It also has a network of municipal dispensaries and community health workers. These sections are represented by many unions. The Municipal Mazdoor Union (MMU) and the Nursing and Paramedical Staff Union (NPSU) both represent the largest number of municipal health care workers in Mumbai that include the ward boys, helpers, nurses, lab technicians and others. Three large hospitals - KEM at Parel, the TB Hospital at Sewri and Nair Hospital in Central Mumbai were selected for the study.

In these crowded hospitals patients come from all over the country. They come at different stages of infections. For example, KEM at Parel caters to 30,000 in-door patients and 3,60,000 out patients in a year. Until blood tests are done, every HIV positive patient is treated equally with other patients. As a result, care has to be taken as if every patient may be HIV positive.

Objective

In our country, public health strategies are very minimum to combat this deadly scourge. In hospitals where the workload is heavy, wards are crowded with patients and budgets for equipments are arbitrarily cut every year, the potential risk increases many times for health care workers who face the real risk of contact with body fluids of HIV infected patients.

It is important to note here that even precautions to control transfer of infection of Hepatitis B & C are exactly the same as they too are transferred by body fluids. In this sense, HIV infection or the potential threat of HIV infection can not be seen in isolation. Hence, the whole system of taking precautions has to be seen in its totality. If the awareness among authorities and health care workers is low about safe procedures regarding blood testing, prick injuries, gloves and other protective equipments then it is also expected to be low regarding HIV infections.

It is against this backdrop, that the study was conducted with the following aims and objectives:

(i) to find out the extent of awareness in all relevant health care workers about the precautions to be taken to avoid infections due to their work;

(ii) to find out the possibilities of the spreading of infections arising due to contact with body fluids of the patients;

(iii) to observe and record the work culture from the point of view of occupational health and safety of the health care workers;

*This Study is done by PRIA in collaboration with AIDS.
Methodology
The study was conducted in a scientific and analytical manner. For the secondary sources a broad literature survey was done. Preliminary discussions with the office bearers and activists of Municipal Mazdoor Union (MMU) and (NPSU) constituted the major part of the primary sources. During the course of study, work procedures were observed and personal interviews were conducted to elicit relevant details regarding various issues. One hundred questionnaires were processed and analysed in order to assess the subject matter. The study was conducted by PRIA in collaboration with the American Centre for International Labour Solidarity (ACILS), MMU and NPSU.

Profile of the employees interviewed
A total number of hundred employees were interviewed. Among them 49 were from KEM, 23 from TB hospital and 19 were from Nair hospital. All these three hospitals cater to 66,000 in-door patients and 7,90,000 out patients every year.

Nurses form the dominant part of the study as they are directly involved in the treatment and care of the patients. Out of 100 interviewees, 35 were nurses. Around 16 lab technicians were interviewed as they also come in close contact with infected body fluids during the process of the patient’s examination. Others include ambulance drivers, etc. The study sample constituted 41 women and 59 men. Married with living spouses constituted 84% and 5 were widows. Only 11% were unmarried.

Contact with body fluids
Contact with the body fluids of the patients such as saliva, liver extract, blood and others are the real hazards for the health care workers.

Majority of health care workers i.e., around 86% reported contact with saliva in their work. Out of this, 38% accepted that it is always without any personal protective equipment while 17% said this happens frequently while 31% reported such contact occasionally. Almost 38% reported urine contact without any protective equipment.

In the treatment of a patient, contact with blood is a most common incidence, 91% accepted such contact. 37% came into contact with blood without personal protective equipment (PPE) always in their work. A very high percentage came in contact with other body fluids. Almost 41% reported such contact many times or always in a week.

Nine out of thirty-five nurses (25.7%) and five out of sixteen lab technicians (31.2%) reported injuries from sharp edged instruments or broken parts of glassware on an everyday basis.

The worst scene can be witnessed in the TB Hospital where ICD (Internal Coastal Drainage) bottles are washed. While washing these glass bottles, some break in the process and cause minor as well as severe cuts. The fluid inside the glass drips on the cut. These incidents take place frequently. In the operation theatre if the wound is deep then it is stitched and treated. Otherwise, minor cuts, etc. are considered routine affairs and get neglected. In the laboratories the job of washing test tubes and slides (manually done) also involves such a risk.

The barber who shaves the body parts that are to be operated upon, gets cuts many times. This happens due to the awkward positions in which he has to work. The work of a barber is a risky occupation in hospitals. The dressers who clean and dress the wounds, come in contact with pus and blood all the time. In the labour room, employees come in close contact with the fluids in the uterus. There are many jobs in a municipal hospital where contact with blood, urine and other body fluids is an every day reality.

Protective Equipment
Protective equipments are an important integral part of the health care techniques and the profession. They include items like gloves, foot covers, goggles; masks, etc. Among the respondents 77% confirmed the availability of gloves. Around 5% denied having been in need to use them ever but 18% said they are not available at all. Estimates reveal that 64% of the employees reported that the size of the available gloves is not proper. 77% employees found the quality of gloves below standard. All of them are of larger size and fit for one time use only. Sometimes these are torn and employees realise only when some substances touch the palms. Fluids enter from the sides of the wrist as the gloves are larger than the wrist size.

Only 32% said that the quality of footwear is good. Only two employees said they get proper goggles. About masks too, 29% said they are not of good quality. Employees in the TB Hospital said that even when it is very necessary they are not provided with masks. Cotton masks are provided which have to be reused after washing. They do not get properly disinfected.
The study observed that the general protection measures are neglected such as in the simple and important aspect of providing antiseptic soaps and serious matters such as the provision of lead aprons. Lead aprons are not provided to every one who is exposed to X-rays or nuclear radiation. Among cath-lab employees, only the ones with permanent posting are provided radiation badges. Employees posted in the Cath-lab for 2 years or less are not provided any radiation badge.

Training and Medical Check-ups

No special training is provided to the employees on the job regarding health and safety issues. All the precautions and tasks regarding health and safety are learnt on the job. No special training regarding cadavers, infected cadavers and AIDS is provided to the employees. Only 4 employees have so far attended health and safety training courses.

Medical check-ups are not regularly done as reported by 85% of the employees.

Inoculation

A large majority (93%), reported that they are not inoculated for Hepatitis B. Only 6% have been administered vaccine for Hepatitis B. KEM hospital authorities had asked the employees to submit a written request for Hepatitis B vaccine, but the employees who made such a request, were told later that such a vaccine can not be administered now. They denied the request orally because the authorities realised that the whole process was quite costly. Anti-tetanus (AT) injections are administered to children with a schedule including boosters but this is not provided to health care employees. Some employees reported the possibility of injuries due to the rusted trolleys and so on. These employees too are not administered AT with proper schedule. Only injured employees get a one time injection.

Diseases reported

The study also tried to elicit responses about HIV infection among the employees. About 92% refused to have such infection and 8% said the question is not applicable to them. Though the employees unofficially disclosed some of the cases among them who were reported to be HIV positive. Later it was also learnt that those infected with HIV were unofficially told not to come to work in the hospital because of the stigma attached to it.

Recommendations:

After analysing all the secondary and primary information on the various aspects of the issue, the study has come to certain conclusions. The following recommendations based on these conclusions can be of immense help to the policy planners not only in preventing the infection to spread in the society but also in making the occupation of health care workers safe and healthy.

1. Educational inputs on various aspects of occupational health and safety should be made compulsory for all the junior and senior level employees in the health care profession.
2. There should be systematic efforts to incorporate suggestions made by the health care employees.
3. Every hospital and nursing home must have a vibrant and participatory Infection Control Committee.
4. Considering the increasing number of AIDS cases and also the available funds for AIDS control under various AIDS control programmes, efforts should be made to provide proper protective equipment to all the employees who face the real risk of exposure.
5. The procedures like recording accidents and injuries, getting sick-leave and other matters should be made less cumbersome.
6. Proper procedures of waste disposal should be strictly implemented. They should not remain confined to the domain of bureaucratic formalities.
7. While realising the severity of the impending health hazards, proper medical check-ups and inoculations must be made a regular practice. Precautions against AIDS, Hepatitis B (also transmitted through blood) and TB demands that research must be geared to develop economical and useful inoculation techniques and vaccines.

Finally, the study has given birth to the strong realisation that there is a need to have employees’ participation at every stage from the designing of work to the level of evolving precautions in hospitals. Employees had given their suggestions from time to time to improve health care services to the patients. This trend must be encouraged by the authorities. Today, economic pressure has been forcing planners to curtail expenditure on public health services. These reductions in the health budget make direct impact on health strategies and in the long run are sure to jeopardise the health of our society. There is a need to generate a public debate on health issues, health budget and cuts, improving the health of health-care workers and above all healthier and better services to the patients.

* Kindly contact PRIA for detailed report
Kalyan: The Budding Gas Chamber

*Sangeeta Malshe*

On March 17, 1993, the chemical plant of Century Rayon in Kalyan released acid effluent into a drain resulting in the death of eleven persons, injury to 61 persons and several heads of cattle outside the plant.

On December 14, 1998, National Rayon Corporation plant in Kalyan released hazardous gas in the night resulting in 150 people being affected with immediate symptoms of vomiting, severe headache, tingling of eyes, and fainting spells.

A fortnight prior to this incident, sulphuric acid was released from Dharansi Morarji Chemicals early in the morning and people residing in the nearby societies and the railway station got affected.

**Introduction**

Maharashtra state has the largest concentration of chemical units in the country. According to the Annual survey of industries of 1985-86 there were 6,402 registered chemical factories in India employing a total of 372,400 workers, out of which Maharashtra accounted for 1235 factories (19%) and 70,743 workers (19%).

Within Maharashtra, six districts accommodate about 95% of the units manufacturing chemicals and chemical products. These districts are Mumbai Central and Mumbai Suburban, Thane, Pune, Aurangabad and Raigad. Most of the units are small scale, employing an average of 20-30 workers many of these even being subsidiaries of larger companies, operating on loan, licensing basis.

Kalyan is one such area in the Thane district that is suffering from the pollution caused by chemical industries. Rivers' Kalu, Ulhas, Mohna, Balu, etc., are flowing within Kalyan to Ambernath area. This green land was prosperous due to easy availability of water. Kalyan area is of Kolis, Agaris and Adivasis. Their main land production was rice, their routine was to produce a little on the land and to work as labour to make meet both ends. Fishing was a subordinate activity. They lived the same life till 30 years ago until the industrialists and the Maharashtra Industrial Development Corporation (MIDC), reached there.

This study was conducted in the Kalyan region with the objective to analyse the effects of pollution on the workers as well the entire population living in the area. As a part of the study a number of people were interviewed and company sites were visited.

**History of Development**

It was in between the 60’s and 70’s, when the Maharashtra government planned for a heavy industrialisation in the region, in order to develop the region in general and enhance employment in particular. Chemical industries were set up on a large scale for this purpose. The task was undertaken by Maharashtra Industrial Development Corporation (MIDC).

Between 1960-65, MIDC acquired land of the poor farmers in Kalyan. The land was acquired against very little money. The land was taken up for the development of the area for the better location of the small scale industries, for production and so on. Some farmers opposed the sale of the land and it is reported that they were harassed by the local hooligans and big businessmen. The farmers finally lost their land. Industrialists as part of the settlement declared that one person from each family will be employed but in reality they got work as contract
workers. As many people could still not get the job they had to leave the area and settle in a totally new city. The history of development is of 30 years, the history of problems is also 30 to 35 years old.

Present Scenario

There are numerous big and small-scale industries flourishing in Kalyan. They are reported to cause immense destruction to the place due to their callous attitude. The liquid and gaseous effluents are released without treatment and solid waste is dumped in the open resulting in wide spread loss to the health of people, agriculture and animals. Fishing activity has totally vanished due to contaminated water in the rivers. The fish have died and fishermen have lost their means of livelihood. Whatever fish is remaining is not safe for consumption.

As per the categorisation of MIDC, industries are put into three groups namely red, orange and green. The categorisation is done based on the pollution caused by them. ‘Red’ stands for the highly polluting industries like distilleries and fermentation industries, sugar and fertilisers, pulp and paper industries, basic drugs and pesticides, oil refineries and tanneries among others. Industries in less hazardous ‘orange’ group include unite manufacturing mirror, cotton spinning, and weaving, pulp and fermenting of coffee beans, production of non-alcoholic drinks, organic nutrients, etc. The least polluting ‘Green’ category industries include mollors, mineralised water production facilities, bakery products, apparel making and handloom weaving.

The chemical factories in-between Kalyan and Ambernath area come under the Red Category.

Workers’ Health

The high risk borne by workers in industries manufacturing hazardous substances often results in severe damage to their health. Lot of dangerous emissions from small plants go unnoticed, simply because none of the affected workers talk about it, their jobs are temporary and if they raise issues about safety the employer will kick them out. As reported by the workers in Century Rayon Company “Unionisation among permanent workers is possible” said a union activist “because once you have guarantee of the job then only you can raise other important issues. But when it is contract labourer’s problem then we are unable to do much for them”.

Workers working in these hazardous factories are affected by different types of diseases- as they are working in close contact with the chemicals - trained workers are aware about the chemicals they are utilising but they cannot explain the type of consequences they risk. It is easier to show the connection between the work and accident but it is somehow difficult to show a connection between the nature of work and disease and many times it is clear that the worker himself is not aware about his disease and its exact connection with work.

Among the health problems reported were bronchitis, asthma, tuberculosis, digestive problems, pain in stomach, burning of skin, diarrhoea, pulmonary edema, damage of kidney, etc.

Workers related that many times union activists have made efforts to raise the issue of pollution as well as the ill health of the workers. But the efforts are limited as compared to the vast problem of the environmental health. The unions are more busy in the struggle for more wages and bonus related issues. In some places it is seen that there are local unions who are influential because of their local domination and connections with the management and that is why management tends to take advantage of this connection to oppress workers.

Public Health

The companies release toxic gases at night and early morning. The local population constantly face this menace. Drinking water is another problem as the effluent water many times gets mixed with the drinking water resulting in spread of water borne diseases. The other problem is the constant water shortage as lots of unauthorised industries pull water from the pipelines. As a result the local people are always short of water supply.

There are many complaints of people, who live in this chemical belt. They have breathing problem, i.e. bronchitis and asthma. In the whole area, waste is disposed by the factories, in nallas and rivers, this stops the flow of the river and that is why water accumulates and gets messy. Mosquitoes breed and this results in out break of Jaundice, Malaria and other diseases.

The chimneys of the factories are short in height so that the gas released from the chimney gathers in the air. It can only be felt when one enters this area of Ambernath. The primary health complaints are cough, breathing problems, fainting spells and giddiness.

Children are also victims of the pollution. Digestive problems, malaria, jaundice are some of the common diseases reported in them. Women workers have their own set of health problems. Many of them are working in the small-scale as well as big industries. Those working
they boil the water for pure water? They all are living below the poverty line and how can one expect from them to do something for their health?"

Management's Perspective

The big companies in the region have their own effluent treatment plants. But the toxicity of wastes can not be removed totally and therefore management should take proper steps to control the waste disposed from the company. A safety officer from DMCC reported, "We have our own training workshops for the workers. We give training about safety measures while working in the company". The management claims that it provides first aid facility and safety instruments but workers are careless. "They cannot use them. They do not have knowledge about the provisions as they are illiterate. So what can we do in this context?" asked one Manager.

Workers complained that the safety instruments are not safe. The hand gloves are torn, safety glasses are cracked and one can not use them to reduce the health problems. 'The management should provide us safe and good instruments', stated one worker.

Conclusion

It was quite apparent from the study that industries have proved to be more of a menace to the region than a boon for them. Instead of developing an interdependent relationship between the people and the industry, the callous attitude of the industries has resulted in a conflicting relationship. People are paying the cost of development through their own health and destruction of the environment around them. There have been movements in the region, demonstration by people and demands for closure of these industries. Till the time a common future for the people and the industry is envisaged where both can survive in mutual surroundings, this conflict will take more bitter shape. The need of the hour is for the industries, MPCA, MIDC and the community to come together and devise an alternate plan that benefits all.

It is never too late to rectify the past mistakes. People's participation in these ventures is very essential as they are the worst affected and also a very rich source of information as they belong to the area. Public Hearing as a toll to search for a common future has been found to be an effective method if conducted in a planned and mature manner. We hope that this study is able to generate some action among the various stake holders from the policy to the grass roots level.

Kindly contact PRIA for detailed report.
Industrial pollution cause for respiratory disorders in workers

India

Pollution at the workplace is causing a rise in the respiratory disorders among the industry workers of Delhi. This is evident from the examination of some workers from the ‘Jilmil’ industrial area in East Delhi by the radiology department of Guru Teg Bahadur hospital. As per Professor S.K.Bharghav, who heads this research, almost 75% to 80% of the examined workers were suffering from respiratory disorders. The most common disorders were breathlessness and pain in the chest. It was noted that not only the management of these polluting industries was indifferent towards the pollution problem but the workers are also quite ignorant about it.

During the research study, medical examination of more than 100 workers, belonging to one rubber and one metal foundry, was carried out. The reason for the high prevalence of respiratory disorders among the workers is due to the presence of suspended particulate matter (SPM) in higher concentrations. In both the factories the particulate of ‘Benzo alpha pyrine’ and ‘Benzo anthracin’ were found in very high concentrations at the workplace. The pollutants released in the metal foundry contain many traces of heavy metals that can cause mental retardation and blood related disorders. The workers in these factories are at a high risk of acquiring lung cancer. The simple remedial measures like installing exhaust fan in order to reduce SPM and job rotation can drastically reduce the problem.

Jansatta, New Delhi, February 21, 1999

The Silent Killer

Bangladesh

Air pollution causes approximately 15,000 premature deaths and several million cases of sickness every year in Dhaka alone. A World Bank sponsored study by the Department of Environment and Atomic Energy Commission shows that Dhaka air in certain areas has high levels of lead - as much as 463 nanograms per cubic meter with 50 tonnes of lead deposited in the city’s air annually. The World Bank’s environmental economist, Cater Brandon, identified two stroke-three-wheeler auto-rickshaws, known in Bangladesh as baby-taxi, as the main culprits in polluting the air. There is a fleet of 30,000 to 50,000 auto-rickshaws in the city and unless an economical and social alternative is found, these cannot be banned. The need for proper inspection and availability of lead-free and pure motor gasoline are among the prerequisites to control vehicular pollution and its hazardous impact on human health. The progress in reducing air pollution without a better inspection system is not possible. This can be seen in failure of controlling the pollution in Delhi and Mexico.

The government is reviving a 100 million taka project to make petroleum products lead free in the wake of wide spread public concern on lead pollution and its impact on humans particularly children. A study by child neurologist, Naïla Khan, showed that the level of lead in blood samples of children was eight times higher than the limit permitted by the World Health Organisation (WHO). The study was conducted on children reporting for behavioural and mental disorders at the Dhaka Children’s hospital.

Statesman, N. Delhi March 1, 1999

One million needless deaths

In excess of a million men in western Europe will die of asbestos cancers over the next 35 years. This has been concluded by a study backed by Cancer Research Campaign. The research focused on six countries, Britain, Italy, France, The Netherlands, Germany and Switzerland, covering three quarters of the population of the Western Europe. The highest risk will be among men born around 1945 and 1950. About one in 150 of all
men aged around 50 in Western Europe will eventually die of mesothelioma. The risk is of course much higher in men who worked with asbestos. 

*Hazards 65, Jan/March 1999*

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**Job strain breaks hearts**

People with highly demanding jobs that allow them little scope for making decisions suffer more health problems including heart diseases, a new study has found. US researchers have discovered that workers with little influence over their work have higher blood pressure and are at greater risk of heart disease than those without job strain. The findings show that job strain can lead to hypertension. This damage is not irreversible, those whose jobs over time prove less demanding or provide more decision making latitude experience decrease in blood pressure. 

*Hazards 65, Jan/March 1999*

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**Most Stressed and Half Strained**

*London*

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Reported By</th>
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<tr>
<td>1. Stress</td>
<td>77 %</td>
</tr>
<tr>
<td>2. Slips, Trips and Falls</td>
<td>46 %</td>
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<tr>
<td>3. Back Strains</td>
<td>44 %</td>
</tr>
<tr>
<td>4. Repetitive Strain Injuries (RSI)</td>
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<tr>
<td>5. Chemicals and Solvents</td>
<td>33 %</td>
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<td>6. Noise</td>
<td>30 %</td>
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<td>7. Violence</td>
<td>28 %</td>
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Trade Union Congress (TUC) recently surveyed 6,000 safety representatives to assess the worst hazards prevalent at the workplace. Three out of four union safety representatives said that stress at work was major concern to their colleagues at the workplace. The main causes of workplace stress were: workload and staffing levels, reported by 60%; new management techniques (40%); long work hours (28%); shift work (21%); and bullying (21%).

The other hazards of concern were slips, trips and falls (46%); back strains (44%); repetitive strain injuries (37%); chemicals and solvents (33%); noise (30%) and violence at workplace (28%).

*European Health and Safety Week, October 1998*

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**Health and Safety Concerns in UAE**

*United Arab Emirates*

Researchers in the United Arab Emirates have investigated the use of Personnel Protective Equipment (PPE) and the practice of safety hygiene procedures in the handling of pesticides in agriculture. A questionnaire was used to collect information on the use of protective measures and on disposal of empty pesticide containers. Blood pressure and red blood cell acetyl-cholinesterase (ACHE) activity were measured in exposed and unexposed populations.

Results showed protective clothing was worn by only a minority of farm workers – gloves, by 35%; work coveralls by 36%; a scarf to cover mouth and nose, by 39%; and shoes at work by 79%.

In terms of personal hygiene measures, 83% of the workers changed clothes after the work and the same proportion took a shower after the work; 69% and 43% drank and ate while at work respectively; and 11% used articles of domestic use in the preparation of pesticides in the farm. Most of the farm workers (96%) were asked to prepare pesticides for spraying by foreman and 61% were asked to spray the pesticides on the crops. ACHE activity (an indicator of exposure to organophosphates and carbamate insecticides) was highly significantly depleted in the exposed population as compared with the unexposed population.

*International Archives of Occupational and Environmental Health, 1999*

**Occupational & Environmental Health** 11 Vol. 5 No. 4, March 1999
Books

Invisible Children: Child Work in Asia and the Pacific
This publication is about working children in the Asia-Pacific region. The case studies from Cambodia, Mongolia, Nepal, Philippines, Solomon Islands, Thailand, and Vietnam highlight the diverse context and conditions in which children work in this region. This publication is a joint effort of the Save the Children Alliance and Child Workers in Asia. It is aimed at informing and influencing policy and practice based on the complex sets of factors and conditions that particularly concern "invisible child work" in the Asia-Pacific region.

Publisher: International Save the Children Alliance (U.K) & Child Workers in Asia (Thailand)
Year of Publication: 1997

Chemical Pollution in Environment
In the past 15 years there has been a tremendous increase in the production of synthetic chemicals. About 700 to 3000 new chemicals are being added every year in the environment causing alarming levels of chemical pollution. Out of 35,000 known chemicals, only 6000 have been tested and the rest 29,000 chemicals are still in the environment to be tested for their carcinogenic risk. This book deals with the significant achievement made in the recent years in the field of environmental toxicants. It covers numerous chemicals used in the industries that are toxic to human beings and animals; cumulative effects of such chemicals on human beings and environment; and assessment of their carcinogenic risk potential.

Authors: K.P. Sing and A.K. Srivastava
Publisher: Ashish Publishing House, New Delhi
Year of Publication: 1995
Price: Rs 200

Economic Instruments for Sustainable Development; Improving the External and Working Environment: Part 1
Two key components of people's quality of life are the quality of the environment in which they live and the quality of environment in which they work. The report tries to examine the use of economical instruments to improve both these components and looks at the linkages between them and how policy interventions in both areas can be made mutually reinforcing. In addition, a framework is developed for the analysis of employment impact of such interventions by policy makers.

Authors: J. Peter Clinch, Frank J. Convery, Eithne Fitzgerald, Sheenagh M. Rooney
Publisher: European Foundation for the Improvement of Living and Work Conditions
Year of Publication: 1999
Price: 18 ECU

Design for Sustainable Development; Environment Management, Safety and Health
From the perspective of sustainable development environment, health and safety management system contribute to the willingness and ability of companies to improve their environmental and social performance. In this publication the focus is on the interactions at company and at policy level. To illustrate the relevance of the interactions at the company level, five case studies of front runner companies in different EU countries have been included.

The report shows the need for diversity in the implementation of environmental health and safety management. It demonstrates that in front runner companies, workers' involvement is not limited to health and safety but can be very fruitful in implementing environmental management as well.

Authors: Gerald Zwetsloot and Jaap Bos
Publisher: European Foundation for the Improvement of Living and Work Conditions
Year of Publication: 1998
Price: 28 ECU
to be more safety minded in order to safeguard their health as well as surrounding environment.

In research we need facilities for testing and certification and we need to adhere to stringent norms of standardisation and quality control. We need to enlarge the number of research institutions and the ambit of their activities; we need to create and sustain integrated and comprehensive test facilities for the purpose of certification. Evidently we need more liberal allocation of financial resources.

Judged by these norms the research facilities in the field of mining are grossly inadequate. There are in all only about 45 research institutes dedicated to safety in mines all over the world. In many, the nature of research, facilities and objectives are not clearly provided. Most of the documents and brochures published by them are in the nature of information handouts, are not available for wider dissemination and public consumption. Equally insufficient is the extent to which research findings are made adaptable and replicable for the benefit of humanity at large.

To conclude, we have reached a stage of economic and industrial restructuring characterised by technological change and upgradation, managerial innovation, change in the nature of work, change at the workplace by way of outsourcing where we cannot ignore and belittle the importance of skill training. If the traumatic aftermath of structural adjustment is to be countered and mitigated, skill training emerges as an integral part of the human resource development which, by and large, has not received the importance, impetus and attention may it should have received both before and after independence. With more than 300 million people remaining below the poverty line and remaining illiterate, imparting of skill training and acquisition of skills would make some sense only with a very rich cognitive content in education which would enable workers to absorb and assimilate the nuances of various modern skills/trades. Ultimately, this underscores the importance of a strong basic education, continuing education and life long education and learning. By necessary implications, this calls for a massive build-up, reinforcement and consolidation of the existing educational infrastructure which will provide for a functional education and literacy which is also attractive, interesting, worthwhile and enjoyable.

*Kindly contact PRIA for the detailed article*
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-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, it disseminates information through the bulletin, publications, training/workshops and information service.