CHAPTER 3

SAFETY MANAGEMENT
INTRODUCTION

Safety, as a concept and practice, has been in transition since its beginning. Right from the Stone Age, man has developed himself taking care for his own safety. Very recently, safety has shifted its old form, which was just a meagre approach, to a more complex approach for reliable control of harm.

This current shift occurs in the growing awareness of and ability to meet the need for effecting the wanted hazard controls. In fact, the government, after independence, had enacted the Indian Factory's Act 1948 in which safety finds recognition.

Legal requirements do not in themselves optimise safety. At best they may create a climate of the study and enhancement of means to attempt the desired objectives vis-a-vis safety. Mere knowledge of the law and its performance requirement does not necessarily optimise safety. It is absolutely necessary to ensure that the spirit and the letter of the law are fulfilled for that to take place.

ESSENCE OF SAFETY MANAGEMENT

A number of factors add difficulty to the safety problem, but none may be more troublesome than the universal failure to see that the hazard control problem frequently is most complex. Safety, quite often, is viewed as a simple matter of applying specific routines. In many cases these routines are repeated regularly despite their inadequacies. It must be understood that there is a great need to know the source of harm which the safety should have the ability to control. Merely regulating hazards is not the right way to limit its effects. There actually is a necessity first to employ the means of controlling the causes responsible for the presence of injurious agents. This is the essence of practicing safety management.
CHALLENGES TO SAFETY MANAGEMENT

Every control requires action. But the steps taken must be accepted. They must meet the objectives without interfering with other aims because safety requirements often conflict with fiscal restraints, convenience or other factors. The implementation of safety depends upon information and judgement. However, there is very little knowledge about safely. One of the inadequate areas lies within the procedure for classifying results of safety violations, which are called as Accidents.

From the various safety records the majority of the safety cases reported can be predictable and some of them may not be wholly accidental. Their causes and remedies are actually established by similar earlier occurrences.

Most harmful events are the results of failure to apply known principles for their control. Persuading people to apply these principles is the real challenge to safety management.

Safety's achievements rarely get any constant attention. Actually, the achievement of safety requires devolution to fulfilling the responsibility. In the case of safety, this involves almost everybody, with those who are accountable of the well being of others having special duty to perform. They must see that hazard identification and control procedures are followed effectively but this is not done due to a low profile, safety assumes.

EXTENT OF TRAUMA

Trauma means simply common types of injuries such as cuts, abrasions, fractures or burns. But it can encompass a variety of disorders that disable people and afflict people as a result of the existence of uncontrolled hazard.
COST SAVINGS

The effective safety efforts result in significant savings both in human suffering and in profits. The uninsured cost are also very substantial, often greater than the insurance cost. The companies undertaking serious safety efforts find that the frequency and the severity of their injuries drop to half the previous rate. As the injury is brought under control, it becomes more difficult to continue the major reductions and a good programme to maintain the gains achieved is required.

SAFETY MANAGEMENT FUNCTION

In most of the organizations the managers of respective departments which accomplish the prime objectives of the organization have a direct authority over the personnel in their unit. When the safety management starts functioning the powers of the line function of the safety management. In a complex work situation, variety of special knowledge and skill is required. Managers cannot very well master but at the same time have to carry out their responsibilities. At this time, special officers are appointed known as staff officers. The only power the staff function possesses is that of the authority of knowledge. With this only he can have strong influence on line organization. One must be clear enough that the regulation of an operation cannot be under someone who does not have the responsibility of its mission.

SAFETY RESPONSIBILITY AND ACCOUNTABILITY

Safety is synonymous with management responsibility. Whenever work is accomplished through the organization the safety becomes the obligation of management, particularly that of line management (Line of authority). Holding the line accountable then becomes the key to safety achievement. It is not possible to establish accountability for an occurrence over which no one clearly
could have any control. Accountability of safety is often limited to the following responsibility:

1. Detection of conditions and practices which the safety discipline had identified as hazardous.

2. Applications of the most appropriate established counter measures for controlling each of the identified hazards.

PROPOSITIONS OF SAFETY MANAGEMENT

1. Keep separate and visible the line responsibilities for safety from the staff's.

2. Hold the line management accountable for the operation's safety effectiveness.

3. Hold the safety staff accountable for the correctness and persuasiveness of the information it provides to line management.

4. Develop operating objectives for safety that align with management's needs and goals, while leading to the fulfillment of establishing safety requirements.

5. Measure hazard control effectiveness on the basis off which conform to management's appraisals of its performance.

MANAGEMENT’S VIEW ON COST

Every injury has an expense associated with it though it is termed as dimensionless. The expense of cost includes hospital treatment, rehabilitation, loss of wages as well as expenses of law suits if any, damage to property and production
interruptions. All this put together reflects on the cost of injurious occurrences. The management though desirous of carrying out safety objectives, cannot simultaneously sacrifice efficiency. There is no proper relationship established between safety and efficiency - a concept very few people accept. In fact, there are instances where proper safety devices, precautions have always resulted in increasing the efficiency. Alternatively, in some situations, to maintain or to improve efficiency, the management has sacrificed its safety aspects.

SAFETY COMMITTEE

A safety committee (sometimes called a council) is standard in many corporate safety organizations, although there are mixed opinions about its merit. One of the reasons for organising these committees is the notion that they provide a useful way of involving employees in the safety effort. (Most safety committees are composed of members of management and representatives from the employee group.) An alternate means of enabling employees to identify with the safety program utilizes safety observers.

In considering the place of committees in safety planning, it is well to bear in mind the merits and limitations of committees in general. As means of administration, committees are usually too cumbersome and slow-moving to be very effective. It is usually only if there is a good presiding officer that they get much done, and then the officer is hampered by having to get the members together, bring them up to date, and secure majority approval.

There are, on the other hand, some purposes for which committees are excellent instruments. They are often an effective means of interesting or educating a large number of people in an activity. They may also be a good method for securing cooperation, coordination, and an exchange of ideas among people not otherwise regularly thrown together; and they may be effective in making broad policy decisions.
When starting a committee, a written statement should be prepared stating the:

1. Mission or responsibility of the committee.

2. Authority, including a budget, if any, afforded the committee.

3. Procedures, i.e., frequency of meetings, start-up times and duration, agenda, attendance requirements, minutes or records to be kept, and to whom reports are to be submitted.

Committee size should be small enough for effective work, but large enough to provide the knowledge required to serve the mission. In larger organizations these two needs are met generally by establishing one committee at the corporate (overall) level and one or more committees at plant, departmental, or shop levels. The safety director is responsible for coordinating the committee activities, providing assistance in the pursuit of their deliberations, and otherwise encouraging the fulfillment of the mission.

Employee's participation in Management's activities is now vividly seen through various open forums such as Quality Circles, Co-operative society, Welfare committees, Trusts etc. Similarly, involvement of employees in organization of SAFETY will definitely prove mutually beneficial.

Objectives of Safety Committee

To have better safety standards and safer working conditions, formation of 'SAFETY COMMITTEE' with following objectives is a must.

1. Advise and assist co-management on effective measures to be undertaken to have safe and healthy work environment.

2. Recommend and organise training programs and safety education such as Fire Fighting, First Aid, How to deal with emergencies and need based technical training on critical and hazardous operations.
3. Organise health and safety surveys.

4. Carry out accident analysis and recommend preventive measures to be undertaken.

5. Have regular safety audits and inspection and take suitable actions in neglected areas, if any.

6. Ensure meticulous compliance of Factories Act, particularly in respect of Health, Hygiene and Safety of employees.

Functions of Safety Committee:

(a) Assessment of safety requirements on machines, jobs, shop floors, workplace etc., and provision of safety appliances, equipment's devices, goods, apparels to prevent accidents.

(b) Identify hazardous areas in the company and take suitable actions to prevent dangerous occurrences or accidents.

(c) Organise safety programmes-campaigns to create safety awareness amongst employees at all levels.

(d) Observe National Safety Day-Week starting from 4th March every year.

(e) Review accident statistics and device ways and means to minimise accidents.

(f) Take correct actions on remarks made by various Government Inspectorate authorities e.g. Factory Inspectorate, Pollution Control, Boiler Inspectorate Health Officer etc.
Ideal Constitution of Safety Committee can be as under:

![Safety Committee Diagram]

**Working of Safety Groups**

1. Safety Groups along with safety officer will meet and take rounds in their workshop. During rounds, the group will make observations and plan required measures in consultation with the department head.

2. The group will ensure that employees observe safety instructions and use safety appliances and wear appropriate personal protective equipment.

3. Recommend appropriate training to employees.

Safety, Health, Hygiene, and Environment Standards in any industry are interlinked. To global standards, participation of employees in such activity through SAFETY COMMITTEE is possible.
SAFETY MANAGEMENT PROPOSITIONS

Five safety management propositions emerge. The first three are addressed essentially to higher management in general, with numbers four and five to be carried out by the safety staff.

1. Keep separate and visible the lines responsibilities for safety from the staffs.

2. Hold the line clearly accountable for the operation's safety effectiveness.

3. Hold the safety staff accountable for the correctness and persuasiveness of the information it provides line management.

4. Develop operating objectives for safety which align with management's needs and goals, while leading to the fulfillment of establishment safety requirements.

5. Measure hazard control effectiveness on bases which conform to management's appraisals of its performance.

Analysis of the Propositions

1 and 2. Separating line responsibility for safety from staff often has been easier to discuss than to accomplish. The principle is clear. On one side is the power line of authority, on the other is the authority of knowledge that competent specialists acquire. (Sometimes the staff is credited with wisdom that is greater than it deserves. A title often implies a special capability that is not quite warranted for the person who holds it.) In any case, the designation of a staff specialist in a functional operating area allows the hard-pressed line manager to concentrate on other problems. The critical point to bear in mind is that the manager of a given department has full authority over the activities in that
department and should be held accountable for what happens in that
department to the extent that it was within his or her range of control. The staff
specialist is accountable for performing functions, which may be to investigate,
analyze, record, advise, instruct, offer persuasion, or prepare procedures. The
safety specialist, like any other staff position, does not have authority over the
employees in the operating department and cannot be held responsible for their
actions. The department manager must be aware that he or she is expected to
see that hazards in the department are controlled and that this will be one of the
means of appraising his or her performance. On this basis, he or she should be
glad there is a safety specialist whose activities make the supervisor's job more
feasible.

3. The accountability of the safety staff is complicated, but not difficult to
define. Staff positions in general fall into one or two types; advisory and/or
assisting, or performance of a specialized function for the total organization to
facilitate the operation of the line departments. Some prefer to call the latter
type service departments. Among these would be the personnel and accounting
departments. The reason for pointing this out is that staff functions are not limited
to advising. Safety specialists are expected to investigate and to locate possible
hazards and or unsafe activities. They must recommend appropriate control
measures or endeavor to enlist the efforts of others to develop control procedures
or equipment. They are, of course, available as advisers.

They may be expected to keep certain records and prepare specified analyses
and reports. There are some duties they may be asked to perform or that may be
assignee to someone else. While they cannot properly be held completely
accountable for the injury and illness experience of the organization, the safety
specialists should be held accountable for exercising the investigative, advisory,
stimulative, and persuasive efforts that might reasonably be accomplished by
them. The history of safety is full of the records of specialists who knew where
Injury causes were but could not persuade line management to eliminate or
control them. Certainly, good safety experience redounds to their credit. Credit need not be granted parsimoniously. Broad sharing of credit need not reduce that going to each of those deserving it. On the other hand, if the record is poor, all those responsible should be brought to task for their own particular failures. Generally, it will be more productive, however, to emphasize the importance of the matter and to concentrate on what should be done in the future rather than to dwell on the negatives.

4. Operating objectives that fulfill safety requirements and parallel management goals in effect energize the hazard-control mechanism. It cannot be assumed that safety requirements will be complied with simply because they are called for. Hence, means must be found which at least will harness the power of the hierarchy in mounting the attack on hazards. This is a reason, of course, for safety laws and regulations. They are expected to furnish the unambiguous motivation for safety needed for its fulfillment — and as to specify the required controls. If the strength of the organization can be engaged for safety-health achievement, then compliance can be more reasonably assured. This may be assumed since the purpose of the organization is to marshal the abilities of its members in the pursuit of its mission. An institution’s regulation of hazards, as with the accomplishment of its other requirements, must rely on the potency of its organization and management. There often is a significant gap, however, between the need and its fulfillment. Organizational leadership plainly is absorbed frequently by other pursuits (even though commonly professing a safety-oriented policy). This occurs when safety subjects do not stimulate management’s mind as much as other concerns of the moment. The correction, obviously, is a matter of making safety as important as other issues that command attention. This usually is easier said than done.

Two of the obstacles that impede the ability to overcome safety’s frequently light impact on management’s consciousness are these: First is the normal inclination to regard exposures that are deemed to have a low probability of
harmfulness as if there were no possibility of danger. Second is the fact that managers are likely to gain more credit from solving operating problems than from actions that prevent problems from arising. In other words, putting out fires is more heroic than fire prevention. It is true that negative rewards may be severe to the manager for failing to have taken logical step to prevent serious harm from developing. The difficulty is that manytimes no one knows certainly that the harmful situation would have risen if the prevention steps had not been taken. Thus there is an observed necessity and sure reward involved in solving an already known problem, such as an emergency. The urgency often is not seen in matters where correction or control of hazards keeps the crisis from occurring in the first place.

5. Measurements of hazard-control effectiveness must be developed and presented in such a way that they are understood and appreciated by upper levels of management. They must be such that they provide some compelling interest and afford the opportunity for appraising management performance.

SAFETY OFFICER

Section 40 (b) of the Factories Act, 1948 provides for the appointment of a safety officer in every factory: (i) wherein 1,000 or more workers are ordinarily employed; or (ii) wherein, in the opinion of the state government, any manufacturing process or operation is carried on, which process or operation involves any risk or bodily injury, poisoning or disease, or any other hazard to health, to the persons employed in the factory in pursuance of this amendment to the Factories Act in 1976, the Government of Maharashtra framed rules called the Maharashtra Safety Officers' (Duties, Qualifications and Conditions of Service) Rules, 1982. A notification was issued requiring all factories employing more than 1,000 workers to appoint safety officers as per the Rules. The Rules empower the government to relax the requirement of qualifications for any person if he has been working as safety officer for more than 5 years at the time of introduction of these Rules. It stipulates the proportion of safety officers to employees in any factory employing 1,000 or more workers as specified in the Schedule.
Schedule

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<thead>
<tr>
<th>Sr. No.</th>
<th>Number of workers ordinarily employed</th>
<th>Number of safety officers</th>
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<td>1.</td>
<td>1,000 but not exceeding 2,000</td>
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**Duties of Safety Officer (under Rule 8)**: (1) The duties of a Safety Officer shall be to advise and assist the factory management in the fulfillment of its obligations statutory or otherwise, concerning prevention of personal injuries and maintaining a safe working environment. These duties as stated by A.M. Sharma shall include the following, namely:

(i) to advise the concerned departments in planning and organising measures necessary for the effective control of personal injuries;

(ii) to advise on safety aspects in all job studies and to carry out detailed job safety studies of selected jobs;

(iii) to check and evaluate the effectiveness of action taken or proposed to be taken to prevent personal injuries;

(iv) to advise the purchasing and stores departments in ensuring high quality and availability of personal protective equipments;

(v) to advise on matters related to carrying out plant safety inspections;
(vi) to carry out plant safety inspections in order to observe the physical conditions of work and the work practices and procedures followed by workers and to render advice on measures to be adopted for removing the unsafe physical conditions and preventing unsafe actions by workers;

(vii) to render advice on matters related to reporting and investigation of industrial accidents and diseases;

(viii) to investigate selected accidents;

(ix) to investigate the dangerous occurrences reportable under rule 115 of the Maharashtra Factories Rules, 1963 and the cases of industrial diseases contracted by any of the workers employed in the factory reportable under rule 116 of the said rules;

(x) to advise on the maintenance of such records as are necessary relating to accidents, dangerous occurrences and industrial diseases;

(xi) to promote setting up of safety committees and act as advisor to such committees;

(xii) to organise in association with the concerned departments, campaigns, contests and other activities, which will develop and maintain the interest of the workers in establishing and maintaining safe conditions of work and procedures; and

(xiii) to design and conduct either independently or in collaboration with the training department, suitable training and educational programmes for the prevention of personal injuries.
No Safety Officer shall be required or permitted to do any work which is inconsistent with or detrimental to the performance of the duties mentioned in sub-rule (1).

The role of a safety officer in an organisation should be:

1. To formulate safety procedure, safety policy and to assess critically the safety requirements and standards of the company.

2. To promote schemes to guarantee observance of legal requirements.

3. To act as chairman or secretary or in any other capacity on the works safety committees.

4. To promote formation of such committees, where they do not exist.

5. To administer safety suggestion schemes.

6. To organise safety education, training, publicity at various levels of company’s operations.

7. To investigate the causes of industrial injuries and the circumstances leading to accidents.

8. To complete and circulate accident statistics.

9. To act in close liaison with governmental agencies like inspector of factories and also with non-governmental agencies.

10. To co-ordinate the safety effort of the company in every possible way.
11. To assess critically the safety performance of the organisation and if necessary conduct safety training programmer and feedback sessions on an ongoing basis.

12. To perform the job of a salesman of safety to the top executives, and as a technician, planner, organiser and stimulator of safety.

RESPONSIBILITY FOR SAFETY

Under the Factories Act, 1948, the responsibility for safety matters is placed on the occupier. In other words, the occupier must comply with the safety provisions of the Act without waiting for an inspector to visit and give instructions for what ought to be done. Safety is thus primarily the responsibility of the management. This responsibility should rest on all cadres of management, such as, plant manager, production manager, chief engineer, purchasing agent, physician, personnel manager, maintenance engineer, individual foreman, safety officer/engineer/director. The role of personnel department in promoting safety management consists of planning, organising, directing, coordinating, controlling and communicating all matters and policies regarding accident prevention and safety. The solution to the removal of undesirable safety habits to convince the people and to appeal to them at induction, training or personal interviews stages. Proper selection of the employees through psychological tests, proper care in placement on the job and periodical physical examination are important in prevention of accidents.

In order to succeed in the objective of accident prevention or elimination all levels of the organization are to be tuned into that goal.
A few must's to be considered in any safety organisation are:

1. Responsibility for safety must be with the supervisory personnel;
2. Safety must have top management approval, sanction and support;
3. Provision must be made for prompt action in the elimination of mechanical and personal hazards;
4. Safety must be given equally important consideration with that of other factors of production;
5. Definite programme should be developed to educate all employees in safety and to secure their active co-operation in the effort to eliminate accidents. It should be included in all phases of planning, purchasing, supervision and operation. Once these fundamentals are understood by management, the appropriate type of organisation can be evolved.

Safety organisations may be classified into three general types, viz. (i) those in which the safety work is carried on wholly through the line organisations; (ii) those in which the safety work is directed by a safety officer/engineer reporting to a major executive; and (iii) those in which safety work is carried on primarily by committees set-up for the purpose.

In type (i) Organisation all safety matters are entrusted to the departmental executives. The entire responsibility for all safety efforts centres around each operating unit. In such an organization no full time safety personnel are appointed. One of its main weaknesses is lack of specialist advice and knowledge. Such arrangements are prevalent usually among small organizations.
In type (ii) Organisation safety officers/engineers/safety directors are appointed. Naturally, such organizations are comparatively larger in size. In such units the effectiveness of safety depends upon two things namely, on the attitude of the person in charge of safety. The job of a safety man is not easy. His is a service job rendering necessary advice.

In type (iii) Organisation safety work is primarily implemented into practice by the safety committees. The advantages of such committees are that they bring together different viewpoints and generally yield sound decisions. It also provides opportunity for active participation by a number of persons in safety matters.

The responsibility for administration of the Factories Act lies with the state governments who administer it through their own factory inspectorates. In Maharashtra, the state safety inspectorate has a (1) safety wing; (2) mechanical wing; (3) medical wing; and (4) certifying surgeon. Separate Inspectors of Factories (Class I) have been appointed to look after safety promotion work. In addition to it, Chemical and Medical Inspector of Factories have been appointed to perform their specialised functions under the inspectorate. The Civil Surgeons of the State are notified as certifying surgeons under the Act.

Central Labour Institute

The Central Labour Institute was established in Mumbai in 1966 for facilitating proper implementation of the Factories Act, 1948; to provide a centre of information for inspectors, employers, workers and others concerned with the well-being of industrial safety, health and welfare. **The Institute has the following wings:** (i) Industrial Safety, Health and Welfare Centre; (ii) Industrial Hygiene Laboratory; (iii) Productivity Centre; (iv) Staff Training Centre; (v) Industrial Physiology Section; (vi) Industrial Psychology Section; (vii) Library-cum-Information
Centre; and (viii) Training Centre. Regional Labour Institutes have been set-up in Kolkata, Chennai and Kanpur in order to give the Central Labour Institute adequate field support.

**National Safety Council**

The National Safety Council was established in March 1966 as a voluntary, non-profit making organisation. It is governed by a Board of Directors representing the government, employers and trade union representatives. It has (i) Publication Service which publishes Industrial Safety Chronicles, Industrial Safety News, Technical Publications, Proceedings of Seminars and Conferences. (ii) Safety Training Service which provides advanced theoretical and practical training courses at different levels. (iii) Technical Information Service which gives the names and addresses of manufacturers, suppliers of personal protective equipments and clothing, machinery guards and other safety devices. (iv) Educational Service which propagates safety through posters, mini-posters, safety calendars, safety diary, exhibition, film library, radio programmed national safety day, national contests, and the like.

**SAFETY INSPECTION**

The Director-General, Factory Advice Service and Labour Institute (DGFASLI), Mumbai which is an attached office of the Ministry of Labour functions as the technical arm of the Ministry in all matters concerned with safety, health and welfare of workers in factories and docks. It assists the Central Government in formulation and review of policy and legislation on occupational safety and health in factories and docks; maintains a liaison with factory inspectorates of states and union territories in regard to implementation and enforcement of provisions of the Factories Act, 1948; and renders advice on technical matters; enforces the
Dock Workers' (Safety, Health and Welfare) Act, 1986; undertakes research in industrial safety, occupational health, industrial hygiene and industrial psychology; and provides training mainly in the field of industrial safety and health including a one year diploma course in industrial safety.

The Directorate General of Mines Safety (DGMS) is entrusted with the responsibility of enforcing the provisions of the Mines Act, 1952 and the Rules and Regulations framed thereunder. He inspects electrical installations and machinery provided in the mines and determines the thickness of barriers of two adjacent mines in order to prevent spread of fire and danger of inundation. Apart from inspection of mines, the DGMS conducts industrial hygiene surveys; undertakes investigation into all fatal accidents and certain serious accidents and dangerous occurrences; and makes recommendations for remedial measures to prevent recurrence of such mishaps. He is entrusted with the power of prosecution in cases of violation of statutory provisions.

National Commission on Labour Recommendations

The N.C.L. has made the following recommendations on industrial safety

1. The statutory provisions on safety are adequate for the time-being. Effective enforcement is the current need.

2. In the case of every fatal accident, the inspectorate shall conduct an inquiry and the findings be given wide publicity among workers in the unit where the accident has occurred.

3. There is little evidence of collective action by the employers' associations in safety and accident prevention programmed although some of them have made a significant contribution in this regard. Employer's Association have to play a special role in arousing safety consciousness.
4. "Safety" should become a habit with employers and workers. At present it has assumed the form of a ritual. The employer provides safety devices if he must; the worker uses safety equipment, if at all he does it, to complete a formality. This is particularly so in the case of smaller establishments and unorganized workers.

5. Unions by and large have not taken much interest in safety promotion. Unsafe working conditions have not attracted their attention to the same extent as claims for higher wages and other cash benefits. This attitude has change.

6. Every factory employing 100 or more workers should have standing arrangements at the plant level to ensure clued participation of workers in matters connected with safety. These arrangements may be in the shape of safety committees which should be set-up and run with the assistance of factory inspectorates, if necessary.

7. Safety officers should be appointed in all factories employing 1,000 or more workers or where manufacturing process carried on exposes the workers to serious risk of bodily injury, poisoning or disease.

8. The factory inspectorate should advise and assist employers in drawing up induction and training programmes in safety. These should cover managerial personnel, supervisors and workers.

9. Industrial safety should be included as a subject in the syllabi of all technical institutions, particularly the Industrial Training Institutes which provide a substantial number of skilled workers to industrial establishments.

10. A Standing Committee consisting of users of machines, machine manufacturers and safety experts should be set-up for encouraging the incorporation of built-in safety features in new machinery and equipment.
11. **Workers do not** use a safety equipment because (a) they generally dislike use of masks worn by others; and (b) in the tropical climate the use of these appliances is inconvenient. This reluctance of workers can be overcome through **education of the workers** on the need for using safety equipment.

The recommendations of NCL on safety in factories apply equally to mines.

**I.I.O. Deliberations**

The International Labour Organisation organized a three-day seminar on Occupational Safety Policies at Turin (Italy) from 24 to 26 November 1976. The participants in the Conference felt that not only legislation, but every country should provide the know-how of hazards and train inspectors to check them. The trade union leaders expressed the need that employers must evince genuine interest in safety. While employers, felt that workers should get involved in safety activities. The main deliberations focussed the following:

1. It is essential to value man's safety as much as his freedom and dignity.

2. Improvement in safety can only be achieved by action at the work place.

3. It is necessary to encourage safety and overcome apathy and lack of clear responsibilities.

4. Safety must be incorporated in production planning and process. Measures should be taken to minimise hazards in an integrated manner.
The National Seminar on Safety Management in Industry (1984) suggested various action plans to be followed by the government, industrial managements, organizations of employers/workers for making the work places safer for work. The main recommendations are as follows:

1. **A comprehensive legislation should be enacted for safety** in construction industry covering also construction workmen within the factory premises and the contract workers.

2. **Academic institutions should be appropriately encouraged** for taking up research and allied activities on occupational safety and health problems.

3. **The licence free for registration of factories** under the Factories Act may be suitably increased and from the additional revenue realised, the strength of the factory inspectorates may be augmented.

4. **Safety policy performance of a company** should find place **in its annual report** circulated to the shareholders.

5. **Trade unions should play a more active role in arranging the safety training programmes for their workers.**

In sum, every industrial undertaking must ensure good safety performance. The thrust of all activities, such as the enforcement of safety legislation and training, educational, promotional and motivational activities in the country should be geared towards these objectives. Employers must accept their statutory and voluntary responsibilities on safety without any reservations. Greater emphasis must be laid on the acceptance of voluntary responsibility by creating awareness and self-motivation.
SAFETY MANAGEMENT AND THE COMPUTER

The practice of safety may be involved heavily with the collection, calculation, and analysis of a significant quantity of information that often requires arithmetic calculations before it can be used intelligently. The implication is that the practitioner should be prepared to spend a considerable amount of time in such work, as may be the case for many current practitioners. When the mechanical tasks can be minimized, more time will be free for the productive work of managing.

The advent of the microcomputer and the improvements that followed have made it possible for practically anyone to have a computer at his or her desk. It is this potential that can reduce the time a safety officer may spend on detail. It must be borne in mind, however, that the computer needs to have data fed into it before it can process the information. The input function in itself can become a significant chore if it is to be done extensively by the safety practitioner.

COMPUTER APPLICATIONS

At one time the computer's utility was quite dependent on the programming skill of the user. Since the computer performs only as it is directed, it needs programs (software) to carry out the desired functions.

The software for an application may be developed by a programming specialist even now, but more and more specialized software is available each year commercially—or in relevant professional publications. In any case, one must work with specific software that is compatible with one's own computer to obtain the desired results. The following applications are at hand now.
Spreadsheets:

Safety statistics may be handled by using the general software packages for spreadsheets that are available for all of the commonly used personal computers.

Spreadsheet programs enable the user to set up a table of columns and rows (to form cells) into which raw data are inserted. After the user provides the computer with an appropriate series of directions the computer will perform calculations as it has been instructed to do. The results are then recorded in unoccupied cells. The directions are stored in the computer unless erased accidentally or deliberately. Amending the raw data will simply revise the spreadsheet calculations.

Word Processing:

Probably the most frequent use of personal computers is in preparing communications. In as much as the practice of safety management calls for communicating effectively, the thoughtful preparation of written information is a significant necessity.

Unlike a typewriter, the computer that is provided with a word processing program can display on its video screen a composition as it is being drafted. This information is stored in the computer's memory as it is displayed. This allows the author to rewrite and edit by recalling earlier sections, deleting or moving parts or all of the material forward or backward rapidly before it is committed to hard-copy.

This facility furnished by word processing can save much time for the safety office as well as its manager. Drafts do not need to be recopied as they would in
normal typing situations and the more advanced word processing programs have the ability to check spelling and perform other functions that can save clerical and typing time.

While the manager doubtless will have to do the individual contributor work associated with preparing his or her communications and so may recoil at the prospect of being a computer user, once the equipment becomes familiar it will save him or her personal time as well as reduce the amount of retyping that ordinarily occurs where only typewriters are available.

**Graphics:**

Memoranda and reports, including statistics, often can be made more readable and persuasive by illustrating the numerical information. Depending on the software and printer that are used, many personal computers are able to deliver appealing documents that incorporate graphs, histograms, pie charts, and so on, in color, transforming tedious enumerations into informative pictorials.

**Safeguarding Computer Disasters:**

Every long time computer user probably can tell a horror story about the time important files were lost on a floppy disk or hard disk. The trouble may be due to a mechanical or software bug. More often it is plainly operator error.

There are steps that can be taken to protect valuable data and minimize the risk of a computer catastrophe. The most important rule is simply to make backup copies of data files. Commercial programs make this quick and easy for hard disk systems.
Further Applications:

While the computer's utility certainly has limitations, its ability to work at electronic speed and perform as directed provides opportunities for further efficiencies other than those whose interests are far-flung geographically, is electronic mail. What has been mentioned up to now. One that may be significant for safety manager, whose interests are far-flung geographically, is Electronic mail.

A computer equipped with a modem and communications software can employ MCI's electronic mail service. New software for both the IBM PC (and its compatibles) make this service easier to use and more powerful.

SMS can transmit instant electronic messages between subscribers or, E-mail to almost anyone in the World. Doubtless this medium will expand in numbers of users and the features of its service as time passes and competition increases.