

MCN401- INDUSTRIAL SAFETY ENGINEERING

MODULE-1



TEXTBOOKS

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7. Vaid, K.N., (1988). Construction safety management. National Institute of Construction Management and Research, Mumbai.
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MODULE-1 SYLLABUS

- **Module I (safety introduction):**
- Need for safety. Safety and productivity. Definitions: Accident, Injury, Unsafe act, Unsafe Condition, Dangerous Occurrence, Reportable accidents. Theories of accident causation. Safety organization- objectives, types, functions, Role of management, supervisors, workmen, unions, government and voluntary agencies in safety. Safety policy. Safety Officer-responsibilities, authority. Safety committee-need, types, advantages.



SAFETY ORGANIZATION

- Every industry must have a safety organisation with well defined objective and well identified functions.
- It has been experienced that safety policies often fail if safety functions are distributed or made part of activities of several departments.
- Under the system of distributed responsibilities the safety functions have often been reported to corporate managers through personnel and human resource department, operational office or legal office.
- Such practices had often obliterated the successful implementation of safety programmes.



SAFETY ORGANIZATION

- Safety functions become successful if they are controlled by a single department with safety personnel interacting with other activities functionally.
- **A top level corporate manager** must supervise safety organisation in a large industry.
- **Safety director or manager at industry level** may report to corporate manager.
- There may be several managers reporting to safety director who would look after special safety functions such as fire, environment, occupational health, claim for compensation etc.
- These managers will necessarily interact with all other departments wherever workers are involved.

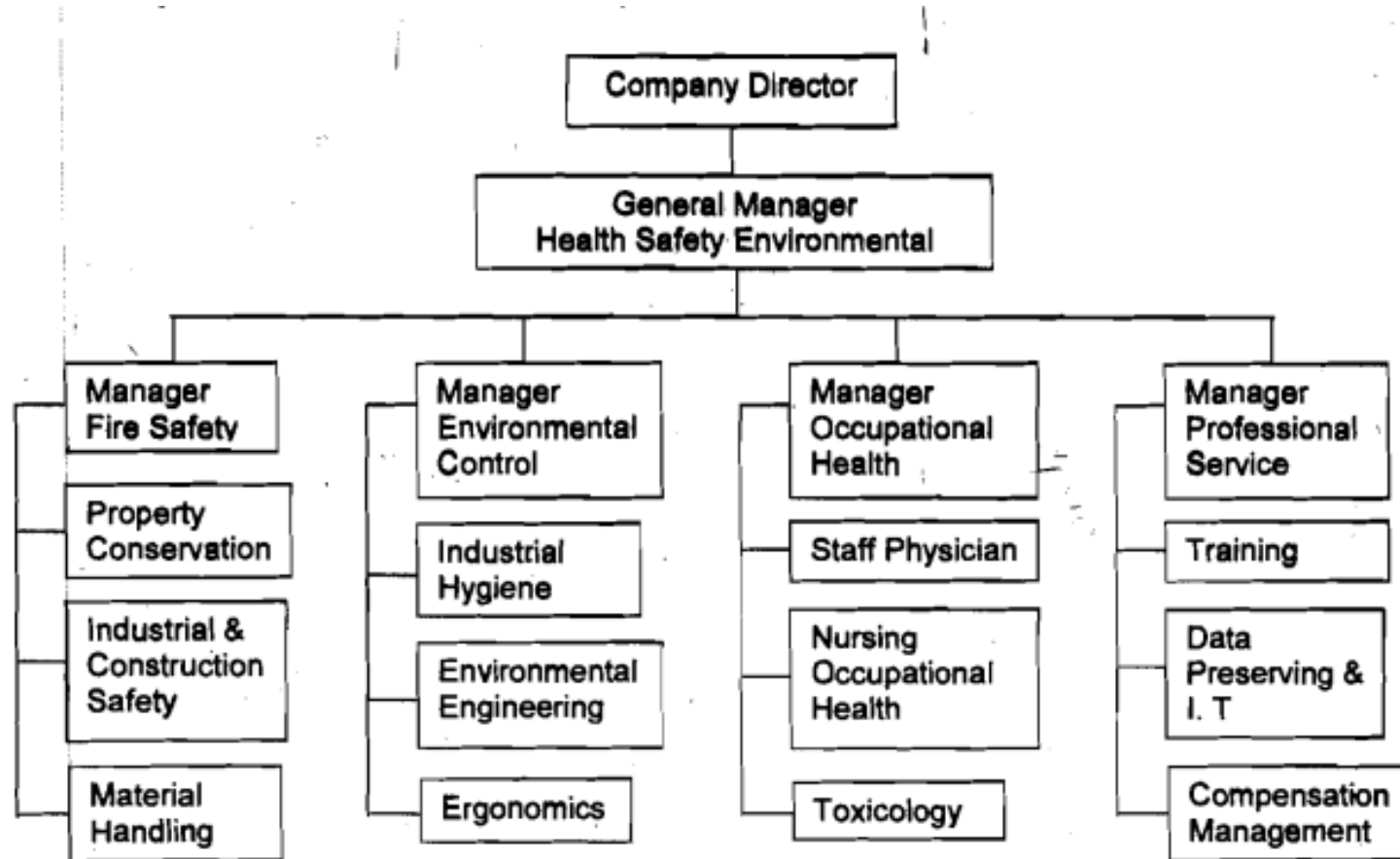


SAFETY ORGANIZATION

- A safety person should not be a narrow specialist but a broad based expert with human values as main plank.
- Teamwork and cooperation with others are other attributes required for a successful safety person.
- A suitable organisation chart for large and highly safety conscious industry is shown in Figure
- This figure clearly specifies the safety functions comprehensively and four levels of responsibility are identified



SAFETY ORGANIZATION



SAFETY ORGANIZATION

➤ Level 1:

- This is a corporate level and there should be a company director who will be engaged in formulating safety policies at corporate level.
- These policies will be issued from time to time if changes are made.
- He will have to see that safety audits are made at proper times.
- He must be readily available for required advice and guidance to all safety personnel.
- The company director must appoint a general manager safety at company level.



SAFETY ORGANIZATION

➤ Level 2

- This is at company level and will directly report to the corporate director.
- He has to continuously monitor safety policies of the company and bring about necessary improvement in the light of directives issued from time to time.
- He must also see that the directives and policies are in accordance with governmental regulatory standards.
- He should provide guidance and assistance for training of safety personnel at various levels and must conduct safety audits. He must see that safety records are properly maintained and data and information regarding safety status of the company are available.



SAFETY ORGANIZATION

➤ Level 3

- This level works at plant level and would directly report to general manager safety.
- There must be four plant safety managers as identified by four plant safety functions, namely fire safety, environmental control, occupational health and professional service.
- Specific conditions and size of plant may dictate combining two or three of these functions under a single plant level manager but in all cases the functions should remain separate and , identifiable.
- The development of procedure of implementing safety measures on job performing and analysing safe job performing, readiness and preparedness to deal with emergency situations are the main requirements at this level.
- Equally importantly it is the level where interactions with other activities are most likely to take place.
- Thus a plant manager will coordinate with managers in the areas of design, manufacture, purchase, sale, R & D, etc.
- A plant manager will have the full responsibility to investigate the injuries to a worker occumng on jobsite and make report to the higher officials.



SAFETY ORGANIZATION

➤ Level 4

- This level comprises representatives of safety departments working at shop floor level or with workers.
- The personnel will actually implement safety procedures, train workers on procedures, guide them to adoption of procedure.
- They will provide all support for maintenance of environment and its preservation.
- Very importantly the personnel at level 4 will conduct safety drills.



INVOLVEMENT IN SAFETY

Promoting safety in the industry is a joint venture of management, government, worker, safety supervisor, unions.

ROLE OF MANAGEMENT

Management commitment is the driving force for organizing and controlling activities within an organization. A safety and health program will be effective when management views a safe and healthy work environment as fundamental and applies its commitment to protect employees as vigorously as its commitment to organizational goals and strategies.



INVOLVEMENT IN SAFETY

OSHA recommends the following actions be taken to show management commitment to the health and safety program:

- State the worksite safety and health policy clearly so all personnel can understand its importance in relation to other organizational values.
- Establish and communicate the goal. Objectives should be clearly defined so all levels of personnel understand the desired results and the required measures to achieve those results.
- Involve employees in decisions that affect their safety and health. If involved, employees will likely commit their insight and energy to achieving the program's goal and objectives.
- Provide visible top management support. Visibility gives employees the sense that the top-level management cares and is truly committed to the safety of the employees.



INVOLVEMENT IN SAFETY

- Assign and communicate responsibility to all personnel levels. Everyone should know what performance is expected and the consequences if performance levels are not achieved.
- Give those assigned responsibilities the authority to act on situations that affect the goal and objectives.
- Hold employees accountable to meet their responsibilities so that essential tasks will be performed.
- Review the safety program periodically to evaluate problems within the program and revise the objectives if the goal is not met.



INVOLVEMENT IN SAFETY

ROLE OF SUPERVISOR

The supervisor is the one person who can take immediate, direct action to make sure that his or her work area is safe and healthful for all employees. The primary role of a supervisor in a safety program is to assure employee safety and health and to protect the company needs.

Responsibilities of supervisor

- Detecting and correcting unsafe working conditions and practices.
- Training subordinates in proper procedures and company safety rules.
- Ensuring that each subordinate knows, understands, and follows safety rules specifically pertaining to his or her job.
- Writing policies, procedures, and/or safe work practices.
- Completing proper reports on all accidents and incidents.



INVOLVEMENT IN SAFETY

- Keeping informed of new developments impacting them and their subordinates.
- Safety motivation.
- Supervisors are also the best choice to investigate small accidents and incidents involving their subordinates and participate with more experienced investigators on more serious accidents
- Supervisors must ensure that 'suitable and sufficient' risk assessments are undertaken and recorded for all activities with significant risk, and that any measures decided upon in the assessment are discussed fully with those involved in the work and that all control measures are properly implemented.
- Supervisors must ensure that all the equipment under their control is properly maintained in a safe condition, and taken out of service if a fault is identified.



INVOLVEMENT IN SAFETY

ROLE OF WORKER

It is important that workers participate in the risk assessment. They know the problems and the details of what really happens when they perform their tasks or activities, so they should be involved in the assessment. Their practical knowledge or competence is also often needed to develop workable preventive measures.

Workers' participation is not only a right, it is fundamental to make the employers' occupational health and safety management effective and efficient.

Employee's responsibilities include the following:

- Responsibility to work in compliance with OH&S acts and regulations
- Responsibility to use personal protective equipment and clothing as directed by the employer



INVOLVEMENT IN SAFETY

- Responsibility to work in compliance with OH&S acts and regulations
- Responsibility to use personal protective equipment and clothing as directed by the employer
- Responsibility to report workplace hazards and dangers
- Responsibility to work in a manner as required by the employer and uses the prescribed safety equipment.

Workers and/or their representatives have the right/duty to:

- Be consulted on arrangements for the organisation of the risk assessment and for the appointment of those undertaking the task
 - Participate in the risk assessment
 - Alert their supervisors or employers regarding perceived risks
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INVOLVEMENT IN SAFETY

- Report any changes in the workplace
- Be informed of the risks to their safety and health and of the measures necessary to eliminate or reduce these risks
- Be involved in the process of deciding on the preventive and protective measures to be put in place
- Ask the employer to put in place appropriate measures and to submit proposals to minimise hazards or to remove the danger at source
- Cooperate to help the employer to ensure that the working environment is safe
- Be trained/receive instructions on the measures to be put in place



INVOLVEMENT IN OCCUPATIONAL HEALTH AND SAFETY

ROLE OF GOVERNMENT

The Ministry's goal is to ensure safe, fair and harmonious workplaces

General responsibilities of governments for occupational health and safety include:

- Enforcement of occupational health and safety legislation
- Workplace inspections
- Dissemination of information
- Promotion of training, education and research
- Resolution of OH&S disputes.
- Focus the Ministry's role on setting, communicating and enforcing fair and reasonable workplace standards while encouraging greater self-reliance in achieving these standards in the workplace
- Establish fair workplace standards that are flexible enough to respond to the demands of the new global economy, and which encourage new investment and job creation
- Remain firmly committed to a strong enforcement program, aimed at helping those employees in greatest need, and
- Improving service to the Ministry's customers



INVOLVEMENT IN SAFETY

ROLE OF UNIONS

A trade union is an organization based on membership of employees in various trades, occupations and professions, whose major focus is the representation of its members at the workplace and in the wider society. It particularly seeks to advance its interest through the process of rule-making and collective bargaining.

Trade unions should therefore:

1. Where appropriate, maintain jointly with management and other trade unions effective arrangements at industry or local levels for negotiation, consultation, and communication and for settling grievances and disputes;
2. Take all reasonable steps to ensure that their officials and members observe all arrangements;
3. Provide for the training of delegates in the scope of their powers and duties and the day-to-day operation of the unions;
4. Provide adequate educational opportunities for the advancement of their members;



INVOLVEMENT IN SAFETY

5. Be properly staffed to serve the needs of their members, and allow for effective lines of communication between such staff and the rank and file membership;
6. Encourage members to take part in their activities by adopting such means as would best allow them to do so, including the compilation and distribution of information;
7. Make available information pertaining to the rules and policies of the union;
8. Provide adequate advisory services for their members and in particular assist them to understand the terms and conditions of their employment; and
9. Identify trends in industrial relations to help their members to anticipate and keep abreast of change.”



SAFETY POLICY

- An industry or a company that follows safety programmes is benefitted in several ways.
- The benefits are shared between employer and employees directly and consumers are Industrial Safety indirectly benefitted. A sound safety policy will avbid or reduce greatly the accidents whereby the employer will save cost of lost man-hours and down-machine time.
- The employer will also save on paying compensation and replacement or repair of equipment.
- The employees feeling safe to work will show better productivity.
- Also since a sound safety policy will guarantee an adequate compensation, the employees will work without apprehension and psychological pressure.
- The latter factor often causes accidents
- The increased productivity and quality conciousness will produce goods which will be to the liking of the customer.

