# Study unit 2: Occupational safety

# Introduction

Every employer is required to prepare and keep an up-to-date written statement of a safety policy. Employee safety programs are a vital component of Human Resources Management.

Managers are concerned about employee safety because they realize that safety makes an employee more productive and without safety programs, employers incur costs through workers’ compensation, medical costs and at times industrial unrests.

Employee safety is attained when accidents are prevented. Accidents prevention and safety have become necessary because the modern industrial workers are subject to mechanical, electrical, chemical and radiation hazards arising out of advancement in technology.

Box 2.1: Safety

Safety refers to activities undertaken to safeguard employees from dangerous work practices that may be faced at work.

Work plays a central role in people's lives, since most workers spend at least eight hours a day in the workplace, whether it is on a plantation, in an office, factory, etc. Therefore, work environments should be safe and healthy. Yet this is not the case for many workers. Every day workers all over the world are faced with a multitude of health hazards, such as:

* Dusts;
* Gases;
* Noise;
* Vibration;
* Extreme temperatures.

Unfortunately, some employers assume little responsibility for the protection of workers' health and safety. In fact, some employers do not even know that they have the moral and often legal responsibility to protect workers. As a result of the hazards and a lack of attention given to health and safety, work-related accidents and diseases are common in all parts of the world.

# Learning Outcomes of Study Unit 2

By the end of this lesson, you should be able to:

2.1 Define the concept of Occupational Accident

2.2 Explain the nature of accidents

2.3 Identify the different types of Accident

2.4 Discuss the causes of Accidents at the workplace

2.5 Explain the concept of Accident Proneness

2.6 Give measures of combating Accidents

2.7 Concept of Occupational Diseases

2.8 Identifying the Direct and Indirect costs of Accident and Diseases

## 2.1 Define the concept of Accident

The life of industrial workers is full of risks and hazards. Therefore, their life is prone to accidents and injuries; and for that matter the injuries may be caused as a result of any unsafe activity or act on their part or chance occurrence i.e. ‘walking on past plate-glass window, just as someone hits a ball through; as a result of unsafe war: conditions or acts of employees themselves or defective plant or shop layout, inadequate ventilation, unsafe and insufficient space for movement inside plant and shop e.t.c.

An industrial injury is defined as a personal injury to an employee which has been caused by an accident or occupational diseases and which arises out of or in course of, employment, in which would call such employees compensation.

It is estimated that at least 250 million occupational accidents occur every year worldwide. 335,000 of these accidents are fatal (result in death). (Since many countries do not have accurate record-keeping and reporting mechanisms, it can be assumed that the real figures are much higher than this.) The number of fatal accidents is much higher in developing countries than in industrialized ones. This difference is primarily due to better health and safety programmes, improved first-aid and medical facilities in the industrialized countries, and to active participation of workers in the decision-making process on health and safety issues. Some of the industries with the highest risk of accidents worldwide are: mining, agriculture, including forestry and logging, and construction.

**Box 2.1: Accident**

An accident is unplanned and uncontrolled event in which an action or reaction of an object, substance, a person or radiation results in personal injury.

## 2.2 NATURE OF ACCIDENTS:

The nature of accidents may vary from one industry to another. Any employee may fall from a height while engaged in particular assignment, he/she may be caught in a machine while working on it or he/she may fall against the machine or part of machine having a horizontal protruding motion may strike against him; or explosives used carelessly may explode injure an employee such accident may result in death or disablement.

***Disablement***

Whether partial or total, may take the form of loss of ability to work or move. Such incapacity may be partial or total. Both types of disablement may be temporary or permanent.

*A temporary partial disablement* reduces earning capacity of an individual in the employment in which he was engaged when he sustained an injury at the time of accident.

 *A permanent partial disablement* reduces his ability to earn income from any employment which he was capable of doing at time an accident occurred. He is entitled compensation only to the extent to which his ability to earn is reduced or impaired.

*Total disablement* on the other hand is a disablement, whether temporary or permanent which incapacitates a workman and makes it impossible for him to engage in any work which he was capable of undertaking at the time of accidents which resulted in disablement. The affected employee is entitled to full compensation.

## 1.3 TYPES OF ACCIDENTS:

Accidents are of different types; they may be classified as major and minor ones depending upon the severity of the injury. An accident which end with death, or which result in prolonged disability to the injured is the major one. A scratch or a cut which does not seriously disable him is minor accident but an accident never the less.

A mere incision or a deep scratch say on the leg or the shoulder mayor may not immediately disable the worker but he may develop a disability later. Again, a wound which may disable a worker may not disable another who receives an injury.

An accident may be internal or external; if a worker falls or the object falls on him. It’s possible she or he may show no external signs of injury that she may have fractured bone or sustained muscle or nerve- which is an internal injury. A worker may be disabled by an injury for an hour, half a day, a week, a month or a few months. If she recovers from that disability, her disability is temporary.

If the injury is such that she will never recover fully, her disability is permanent. Again, a disability may partial or total. An accident may be fatal or non-fatal.

ACCIDENTS

Temporary

Total

Partial

Total

Partial

Permanent

Disability

Fatal

Minor

Major

External

Internal

**Figure 2.1: Types of Accidents**

## 1.4 Causes of accidents at the Workplace at

In some cases, the cause of an industrial injury is easy to identify. However, very often there is a hidden chain of events behind the accident which led up to the injury. For example, accidents are often indirectly caused by negligence on the part of the employer who may not have provided adequate worker training, or a supplier who gave the wrong information about a product, etc. The consistently high fatal accident rates in developing countries emphasize the need for occupational health and safety education programmes that focus on prevention. It is equally important to promote the development of occupational health services, including the training of doctors to recognize work-related diseases in the early stages.

***The following are the causes of accidents at the work place***

**1. Falls on Same Level**

This is one of the most common types of workplace injuries and it involves things like falling while walking or standing on slippery or wet surfaces.

**2. Falls to Lower Level**

This includes falling from an elevated height, such as ladders, roofs, ledges and stairways. If you are working at heights, ensure you have fall arrest protection.

**3. Trips**

Extension cords, misplaced equipment often cause trips or stubbed toes or shins. Dark passageways and stairways can also cause trips since employees can’t see the way. Trips can result in injury to many body parts if the employee hits other objects or falls after tripping.

**4. Overexertion**

Overexertion is a result of excess pulling, lifting, pushing or carrying that is beyond the employee’s capacity or when the activity is not performed properly. A common example is using your back to lift instead of using your legs.

**5. Hazardous Materials**

Protective clothing, eyewear and gloves should be required for employees who work with or around hazardous chemicals or materials. Not using protective gear or misusing protective gear can cause a range of injuries from cuts, burns, blindness and more.

**6. Repetitive Motion**

Carpal tunnel syndrome is a common for workers who perform repetitive activities that use their fingers, hands, arms or legs. To minimize the risk of repetitive strain injury, employees should take frequent breaks and stretch often.

**7. Fatigue**

Workers who are physically or mentally exhausted, which can be due to anything from lack of sleep, overly long shifts, or prolonged periods of exertion, are more susceptible to causing and being in accidents. Fatigue results in impaired judgment, slower reaction times and less attention to details.

**8. Lack of Training on Safety Procedures**

New workers should receive thorough training and practice on safety practices. Management should also proactively provide refresher training to current workers. Addressing questions and issues on a timely manner protects all workers and reduces the risk of major incidents that could put a company’s reputation at risk.

**9. Toppling Objects**

If equipment and supplies are not securely stored, these could fall and injure workers underneath or nearby. Injuries by falling objects are more severe than stationery objects due to the force that’s accumulated as the object falls.

**10. Dehydration**

Not staying hydrated can also bring about disastrous consequences. On exceptionally hot summer days, failing to drink adequate amounts of water can cause heat stroke or cardiac conditions. This can be avoided by simply drinking at least eight glasses of water per day. Management should stress the importance of proper hydration and rest, as it maximizes the efforts of personnel.

**11. Poor Lighting**

Inadequate lighting is responsible for a number of accidents each year. This is often overlooked when attempting to prevent accidents in the warehouse or workplace.

**12. Acts of Workplace Violence**

Sadly, violence among co-workers has become all too common. It is usually brought about by office politics or other sensitive issues. Integrating conflict resolution and peer mediation can help to reduce the risks of such outbursts.

**13. Stress**

Stress is one of the leading causes of death. It affects the human body in every facet imaginable. Stress can foster negative effects physiologically, emotionally and mentally, as well as debilitate or distract any worker. Therefore, it is essential to encourage a supportive team environment.

**14. Equipment design**, the design of equipment used on the job has been found to contribute to accidents. Poor placement of switches and other contacts can lead to accidents e.g. locating a top button where it is difficult to reach can have grave consequences if a machine must shut down immediately that is to say if the operator is short yet the switch is at a far distance.

**15. Lack of maintenance of machines,** where the organization does not carry out regular maintenance checks on machines, they are likely to be faulty and thus making workers vulnerable to accidents that these machines may cause.

 **16. Work overload or work under load**, work overload is where employees are given work that is beyond their stipulated work. They work over and above their designation that is they are given too many tasks to handle. This causes a lot of fatigue to employees as they become more tired thus becoming susceptible to accidents

## 2.5 Concept of Accident Proneness:

It's a condition in which human being is mentally, strongly deposed and addicted or personally destined to become continually involved in an ongoing and never-ending series of accidents or injuries. Therefore, some people· may be more involved in accidents than others. In other words, they are accident prone. They get involved-in accident however much they try avoiding, them. The causes of accident prone are muscular weakness, emotional inability, visual disability, recklessness, hostility and indifference.

Accident proneness is being replaced by accident repeater. Accident repeater generally has more than normal share of accident during particular period of time. Repeated accidents are not due to any supernatural cause but arc to:

* Personality
* Emotional makeup
* Family back ground
* And physical condition of an individual in context of specific circumstances
* Age
* Working experience
* Supervision and monitoring are also sometimes related to recurring nature of accident and injuries.

## 2.6 HOW TO PREVENT RATE OF ACCIDENTS AT WORKPLACE:

In practice accident reduction boils down on two basic activities: reducing unsafe conditions and unsafe acts;

* Reducing unsafe conditions; here employers' first line 'of defense is reducing unsafe conditions.' Safety engineers should design jobs to remove or reduce physical hazards like noise, heat, vibration and radiation.
* Proper selection and placement: this approach aims at screening out accident prone person s before they are hired. here the best technique is identifying the human traits (such as visual skill) that might be related to accidents on the job.
* Safety education and training; the goal of safety education is a, two folded as it develops safety consciousness among employees and build up favorable attitude on that part towards safety measures and precautions and secondly it ensures better work performance on part of each employee by developing his skills in the use of safety equipment.
* Through top management commitment and trade unions; safety contest, disciplinary action and enforce safety rules. Establish safety policies emphasizing that a firm will do everything to eliminate or reduce accidents and injuries and emphasizing importance of accidents and injury prevention.
* Investigating all accidents resulting in damages to establish the cause and to initiate corrective actions.
* Carrying out risk assessments, audits, inspections and checks &taking action to eliminate the risks.
* Maintaining good records and statistics in order to identify problem areas and trends of accidents and injuries.
* Leadership and motivation when treated properly contain most of occupational problems
* Recognizing outstanding achievement of employees who have engaged in safe work practices. This can be done by rewarding them thus motivating them to promote safety and health.
* Provide protective wears and make sure that employees use protective gears/gadgets when necessary.
* Organizations should start up health and safety committees in places of work to handle health and safety matters especially in industries which are very prone to accidents. The committees act as coordinators of safety and health activities.
* Management should encourage an open-door policy which encourages workers to report incidences that are likely to lead to occupational accidents and diseases. This will encourage safety representatives to consult with employees on matters affecting their health and safety.
* Potentially dangerous areas should be marked and measures taken such that workers know what could happen or what they must do before they enter such areas.
* There is need for regular maintenance tests to check on the conditions of equipment and also the premises. This involves work place inspections where inspectors point out conditions or practices that appear to be hazardous.
* Encourage employee participation in all aspects of the organization’s safety programs. That is to say in jointly setting safety standards with management, involvement in designing and implementing special safety training programs, inclusion in accident investigation and involvement in establishing safety incentives and rewards.
* Management should communicate to employees. They should tell employees the specific rules and regulations concerning safe work practices and it can be done through the supervisors, bulletins, notice boards and employee handbooks i.e. safety rules should be emphasized in regular meetings and manuals of standard operating procedures.

## 2.7 Occupational Diseases

Under federal law, employees have a right to a safe work environment. This means that employers have a responsibility to protect their workers from potential diseases caused by the job-related activities and atmosphere.

An “occupational disease” is any disease contracted primarily as a result of an exposure to risk factors arising from work activity. “Work-related diseases” have multiple causes, where factors in the work environment may play a role, together

Some occupational diseases have been recognized for many years, and affect workers in different ways depending on the nature of the hazard, the route of exposure, the dose, etc. Some well had known occupational diseases include:

* Asbestosis (caused by asbestos, which is common in insulation, automobile brake linings, etc.);
* Silicosis (caused by silica, which is common in mining, sandblasting, etc.);
* Lead poisoning (caused by lead, which is common in battery plants, paint factories, etc.);
* And noise-induced hearing loss (caused by noise, which is common in many workplaces, including airports, and workplaces where noisy machines, such as presses or drills, etc. are used).

There are also a number of potentially crippling health problems that can be associated with poor working conditions, including:

* Heart disease;
* Musculoskeletal disorders such as permanent back injuries or muscle disorders;
* Allergies;
* Reproductive problems;
* Stress-related disorders.

Many developing countries report only a small number of workers affected by work-related diseases. These numbers look small for a variety of reasons that include:

* Inadequate or non-existent reporting mechanisms;
* A lack of occupational health facilities;
* A lack of health care practitioners who are trained to recognize work-related diseases.

Because of these reasons and others, it is fair to assume that in reality, the numbers of workers afflicted with occupational diseases are much higher. In fact, overall, the number of cases and types of occupational diseases are increasing, not decreasing, in both developing and industrialized countries.

### 2.7.1 Identifying the cause of occupational disease

The cause of work-related diseases is very often difficult to determine. One factor is the latency period (the fact that it may take years before the disease produces an obvious effect on the worker's health). By the time the disease is identified, it may be too late to do anything about it or to find out what hazards the worker was exposed to in the past. Other factors such as changing jobs, or personal behaviors (such as smoking tobacco or drinking alcohol) further increase the difficulty of linking workplace exposures to a disease outcome.

Common reasons an employee may develop an occupational disease includes:

* Hazardous materials – When an employee works with hazardous materials, such as chemicals, they expose their health to potential diseases. It is important these individuals have the appropriate training and equipment when dealing with such materials.
* Noisy environments – People such as construction workers and engineers often work on sites that have a lot of noise. Drills, heavy machinery, and hammering can all take a toll on a person. The constant stress on the eardrums can cause irreversible hearing loss.
* Ill-ventilated workspaces – Employees have a right to work in well-ventilated areas. If they work underground or in confined spaces, dust and fumes can damage one’s health. This can take a physical toll and cause health problems.

Although more is understood now about some occupational hazards than in the past, every year new chemicals and new technologies are being introduced which present new and often unknown hazards to both workers and the community. These new and unknown hazards present great challenges to workers, employers, educators, and scientists that is to everyone concerned about workers' health and the effects that hazardous agents have on the environment.

## 2.8 Costs of occupational injury/disease

Work-related accidents or diseases are very costly and can have many serious *direct and indirect effects on the lives of workers and their families*. For workers some of the direct costs of an injury or illness are:

* The pain and suffering of the injury or illness;
* The loss of income;
* The possible loss of a job;
* Health-care costs.

It has been estimated that the indirect costs of an accident or illness can be four to ten times greater than the direct costs, or even more. An occupational illness or accident can have so many indirect costs to workers that it is often difficult to measure them. One of the most obvious indirect costs is the human suffering caused to workers' families, which cannot be compensated with money.

*The costs to employers of occupational accidents or illnesses* are also estimated to be enormous. For a small business, the cost of even one accident can be a financial disaster. For employers, some of the direct costs are:

* Payment for work not performed;
* Medical and compensation payments;
* Repair or replacement of damaged machinery and equipment;
* Reduction or a temporary halt in production;
* Increased training expenses and administration costs;
* Possible reduction in the quality of work;
* Negative effect on morale in other workers.

*Some of the indirect costs for employers are:*

* Accidents often arouse the concern of fellow workers and influence labor relations in a negative way;
* Poor health and safety conditions in the workplace can also result in poor public relations.
* The cost which the government incur because it has to maintain a large number of factors inspect to- check accidents because it has to spend more on the employee health insurance and other social security benefits, because the cost of these -is recovered by-imposing higher taxes on the people.
* The time lost by the foreman, supervisor or other executive while assisting injured employee investigating the cause of accident arranging for his replacement, selecting and training new employee, preparing incident reports, and attending hearings conducted by the government or other officials.
* The loss of profits on production which the injured would have been responsible for, including loss incurred because the machine on which he was working is idle.
* Overhead cost (fixed costs); the expenses incurred on lights, heat, rent, insurance and other items which continue to be used while the injured worker is a non-producer

Overall, the costs of most work-related accidents or illnesses to workers and their families and to employers are very high. On a national scale, the estimated costs of occupational accidents and illnesses can be as high as three to four per cent of a country's gross national product. In reality, no one really knows the total costs of work-related accidents or diseases because there are a multitude of indirect costs which are difficult to measure besides the more obvious direct costs.