

M0-EN.2 The “WHAT”, “WHY”, and “WHO”

MO-EN.2.1 The “WHAT” Question: Basic definitions and Explanations

Hazard is anything with the potential to cause harm

Source of hazard: is anything (object, substance, tool, machine, activity, behavior, etc) that may give rise to one or more hazards causing harm

Risk is the likelihood of potential harm (injury, illness, death) occurring from exposure to a hazard

These terms are often being used interchangeable and incorrectly, therefore some examples are given below. In these examples a situation is described, just one source of hazard is identified and only one of the hazards associated with the identified source is given.

Example 1: Work is performed at the roof of a building in a construction site
Source of hazard: Work at height
Hazard: Falling objects from the roof of the building
Risks: A worker at the ground is hit by the falling object and is injured

Example 2: An operator is charged of the service of motor vehicles
Source of hazard: The engine’s oil
Hazard: Spilling of oil on the operator’s hands
Risk: Skin irritation

Example 3: An operator is asked to work with a cutting machine for 2 consecutive working shifts
Source of hazard: Extensive working hours
Hazard: The operator being too tired forgets to close the safety screen in front of the cutting machine
Risk: The cutting machine cuts a finger of the operator

Example 4: An operator is asked to lift and carry large sacks filled with sugar
Source of hazard: Heavy load
Hazard: Manual handling of the heavy load
Risk: Back injury

As evident from the above definitions:

- The source of hazard has a physical substance and is always present.
- The hazards appear during an activity at the presence of the related to the activity sources of hazards, meaning that they are always there.
- The risk related to the hazards that appear during an operation depend on the undertaken safety (preventive) measures, meaning that the risks decrease as the preventive measures increase.

There are several ways or the **Categorization of Hazards**. In a specific workplace, hazards can be categorized based on the activities and tasks of each job position, or

based on their sources. In most cases a combination of these two approaches is applied. The following table aims to relate the different categories of hazards that are widely used with their respective sources and the related potential harms.

Source of Hazards	Category of Hazards	Potential Harms
Electrical installations, electrical equipment	Electrical hazards	Burns, fire, electrifications
Machinery, lifting equipment, vehicles, transport	Mechanical hazards	Injury, death
Chemical substances, emissions (gases, vapors, mists, fumes, dusts), leaks, flammable materials	Chemical hazards	Health problems, irritations, headache, cancer, death, explosions, fires
Micro-organisms (viruses, bacteria, parasites, mold, etc), Lab cultures, Animals, Plants	Biological hazards	Health problems, allergies, Legionnaire's disease
Noisy operations and machinery	Noise, communication problems	Loss of hearing, psychological, accidents
Vibrating hands machines	Vibration	White fingers
Work at height, Confined spaces	Working conditions	Injuries, health problems, death, explosions, fire
Office equipment, Manual handling, Physical strain, Awkward postures	Ergonomic hazards, psychosocial hazards	Musculoskeletal disorders, stress
Temperature and relative humidity	Work micro-climate, psychosocial hazards	Health problems, stress
Ionizing radiation, UV radiation, Infrared radiation, Electromagnetic fields, microwave	Radiation	Burns, eyes injuries, health problems, cancer, fires
Slippery floors, uneven surfaces, lighting, ladders, exits, signs, ventilation, space	Working environment	Injuries from fall, slips, trips; health problems; fire
Tightness of a workplace	Housekeeping	Injuries
Hygiene and resting facilities, First Aid	Welfare	Infections, contaminations, illnesses
Work organization, Work load, Repetitive work, Working schedules, Isolation, Inter-	Psychosocial hazards; ergonomic hazards	Headaches, non-concentration, nervous disorders, stress,

relations among the employers, Relations with the management, Poor consultation, Poor support, Poor participation, Harassment, Violence, Mobbing, Person's temperament		musculoskeletal disorders
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OSH principles require elimination of risks during each activity

Given that hazards are always present during an activity, the related risks can be eliminated or at least minimized only through the establishment of the appropriate safety measures. The later measures can be established through the process of Risk Assessment (R/A).

Risk Assessment is the process of identifying what hazards exist in a workplace and how likely these hazards are to cause harm to employees and others, in order to decide what prevention or control measures are needed. It is a systematic and dynamic process for the creation of a healthier and safer working environment.

The Risk Assessment is the foundation of a company's occupational safety and health (OSH) system, of which the aim is that no one becomes ill or gets injured due to work activities. A Risk Assessment is nothing more than a careful examination of what, in a workplace, could cause harm to people, so that to become possible to weigh up whether enough precautions are taken or more should be done in order to prevent harm.

A Risk Assessment involves the identification of the hazards present and the evaluation of the risks involved, taking into account existing precautions and their effectiveness. According to the later evaluation new precautions may be suggested. Apparently, the complexity of a risk assessment is directly proportional to the complexity of the operations in the workplace under consideration. In small businesses with few or simple hazards, the R/A is a more or less straightforward process and no special skills are required, while in large and hazardous sites a sophisticated approach is required, especially for the novel or complex processes, or more strict regulations are applied.

M0-EN.2.2 The "WHY" question: Benefits for All

The aim of a risk assessment is to make sure that no one gets hurt or becomes ill. The performance of a thorough risk assessment is to the benefit of both employees and employers. If a workplace has been properly assessed and each worker that is assigned to do a job has been informed on how to do the job safely then the main benefits are the following:

For the employee:

- Reduction of accidents' rate and provision of better working conditions

- Elimination of the worry or his/her personal safety and the safety of his/her coworkers
- Increased job satisfaction
- Establishment of a fruitful communication with the management

For the employer:

- No lost output due to accidents
- No damaged machine from the non-establishment of the appropriate preventive measures
- No increase of insurance costs
- No costs for compensation for workers whose health is damaged in a workplace accident or by an occupational disease
- Compliance with legislation – No costs due to fines
- Increase of productivity due to the increase of the employees' job satisfaction
- Establishment of a human oriented image for the public

It is important not to treat the Risk Assessment as just more paperwork. Risk Assessments must be carried out with the intention of putting prevention systems in place. R/A should be viewed as a tool for improving prevention policies. It should not be just the drawing of checklists of risks and the determination whether what were considered as appropriate levels of control were applied. The R/A must go a step further and integrate the outlined prevention measures into the work organization.

M0-EN.2.3 The “WHO” question: Involvement and Responsibilities

The individual or the team that is to perform the risk assessment must have sufficient training, experience or knowledge in order to be able to identify the hazards and to evaluate the effectiveness of the precautions to control those risks. In small businesses the employer or a senior manager may have the competence for this task, while in larger businesses the safety officer or a risk assessment team carries out the assessment. In several cases the task is contracted out to consultants

A Risk Assessment can be performed by:

- The safety officer of the enterprise, if there is one, or the person appointed by the employer and has sufficient training, experience and knowledge
- The employer himself, in case that he has undergone an appropriate training and has an adequate certificate, and employs less than 5 persons
- External consultants. A possible disadvantage of this approach is the fact that consultants several times have a macroscopic view of the specific enterprise. In most cases the external agency has no real influence on integrating prevention management into the work organization, resulting in just some more paperwork.

In any case the performance of **a risk assessment of a workplace requires the active participation of employees or their safety representatives (consultation)**. This means talking to the people who do the jobs and have practical understanding of the hazards and risks involved; in other words observing what is going on at first hand and not just sitting at a desk reading manuals. It is important the risk assessment to take into account all the information coming from the employers' subjective experiences, since it represents real-life work situations. No one knows the problems

of a job better than the employer who has to do it. However, while safety representatives can be involved in the risk assessment of a workplace and should be asked to comment on it, the responsibility of performing the risk assessment lies with the management.