



*When Recognition Matters*



WORLD'S MOST  
HAZARDOUS OCCUPATIONS

# Occupational Health and Safety

We all know there is no such thing as zero risk. People are exposed to risks at every corner of their lives. Even the simplest activities we do on a daily basis involve taking risk, for example going out, crossing the street, driving a car, riding a bike, etc. All these may be considered minimal risks, so we must agree in this: risk is an inevitable part of our lives.

But when it comes to risks related to work activities, the magnitude of risk (which depends on the magnitude of the harm and its probability of occurrence) may be higher, and these risks need to be controlled. Organizations are responsible to create mechanisms that eliminate or reduce risks by eliminating the hazards or reducing them to acceptable levels. Different occupations may present different hazards that may cause temporary or permanent injuries and illnesses.

## What are the most hazardous occupations?

According to statistics and data published by different national and international organizations dealing with occupational problems and issues, ranking may vary a bit. However, some of the most dangerous occupations that take part in almost every top list are listed below.

**Construction** is known as one of the world's biggest industrial sectors, which comprises a wide range of industries involving building, civil engineering, demolition and maintenance. In addition, it is one of the most dangerous industries in terms of Occupational Health and Safety. Potential hazards for workers of this industry include exposure to dusts and vapors, falls from height, motor vehicle crashes, electrocution, potentially dangerous machines, uncomfortable working positions, heavy loads, being struck by large objects, adverse weather conditions, and noise and vibration among many others. According to statistics from the International Labour Organization (ILO), at least 108,000 employees are killed on site every year, which represents about 30 percent of all occupational fatal injuries. Data of industrialized countries show that construction employees are 3 to 4 times more likely than other workers to die from accidents at work. However, these risks may be 3 to 6 times greater in developing countries.

The causes of accidents in construction are well-known and almost all are preventable. The four leading causes of worker deaths on construction sites were falls, electrocution, being struck by an object, and caught-in/between heavy equipment, unguarded parts of equipment, excavation, building collapse, etc. The U.S. Bureau of Labor Statistics (BLS) reports of 2011 show that these four fatal causes were responsible for more than 50% of construction worker deaths that year. This means that elimination of these causes would save more than 400 lives every year.

Although this industry is still very dangerous, studies show that there has been a steady decrease in the number of fatalities in the past few years. For instance, in the United States, the number of deaths in the construction industry decreased to from 774 to 738 deaths in 2011, compared with the previous year and the fatality rate in 2011 was lower at 9.1 per 100,000 workers compared with the rate in 2010, which was 9.8 per 100,000.



In many countries, **agriculture** is ranked as one of the most hazardous sectors. Main industries are included in this sector, such as horticulture, grain farming, cattle farming, fishing, and forestry. Agricultural workers often work long hours and are exposed to numerous safety, health and environmental hazards. The most common hazards in the agricultural industry include manual harvesting, machinery, exposure to pesticides and other chemicals used in this industry etc. The International Labour Organization (ILO) estimated that 170,000 work-related deaths occur among agricultural workers each year. A high number of the world's 1.3 billion agricultural workers suffer serious injuries or occupational diseases. As death rates among other dangerous occupations decreased throughout the 1990s, those in agriculture have continued to increase, both in the industrialized and developing countries.

Over the last few years, the risk of occupational diseases and injuries has increased due to the increase in use of pesticides and machinery. Pesticide exposure can cause acute effects, such as nausea, vomiting, dizziness and burns. Chronic effects of pesticide exposure can include cancer, sterility, birth defects, and damage to the nervous system.

Agricultural workers in developing countries are especially at risk due to lack of education on Health and Safety, training and safety systems. Main causes of accidents are due to physical, mechanical, ergonomic, chemical and biological hazards.

In 1994, reports from the Statistical Office of the European Communities (EUROSTAT) revealed that a large number of agricultural accidents involving more than three working days lost and 900 fatalities had placed agriculture as the second most hazardous sector in the region, at that time.

**Mining** has always been among the highly hazardous occupations. "Glück Auf!" is a German miner's greeting that has been used since the 16th century, and when translated into English has a meaning similar to "Good luck". Throughout history, the word was adapted to all languages, and today all around the world, similar expressions are used by miners to greet each other when they enter and leave the mine site.

Mine workers face a constantly changing combination of workplace circumstances. Hazards of all kinds are present in this industry, and the most common are airborne contaminants which include dusts, gases, fumes, odors, and airborne biological material. Other mine site hazards include high temperature and humidity, noise and vibration, toxic gases, and various other hazards. Rock falls, fires, explosions, mobile equipment accidents, falls from height and electrocution are common causes of fatal injuries in this industry.

Despite regulatory efforts on improving mine safety, in most countries mining remains the most hazardous occupation when the number of people exposed to risk is taken into account. Although only accounting for one percent of the global workforce, it is responsible for about eight percent of fatal accidents at work. No reliable data exist on injuries, but they are significant, as is the number of workers affected by such disabling occupational diseases as pneumoconiosis, hearing loss and the effects of vibration.

**Oil and Gas** industry certainly takes place among the most dangerous occupations of all time. Common hazards related to petroleum industry are exposure to hydrogen sulfide, various mud components, fumes, acids, coatings, drilling fluids, noise and vibration, various forms of radiation and extreme thermal conditions and handling heavy objects. Workers exposed to these hazards may develop occupational diseases of the lungs, skin, and other organs, depending on the amount and length of time of exposure. In addition to common industrial risks, oil and gas workers face other occupational risks due to some products being flammable or poisonous and also due to risks associated with getting to offshore facilities. Also machines, appliances, and dangerous equipment used in this industry cause serious damages and life-threatening injuries to workers. Nearly one quarter of fatalities in this industry are vehicle-caused incidents. The rate of fatal accident in oil and gas industry has improved between 1997 and 2007. In addition to the occupations mentioned above, manufacturing takes part in almost every list of hazardous occupations as well. The manufacturing sector is a wide range of diverse industries and covers the production of textiles, food and drinks, leather, plastics, heavy machinery, chemicals, electronics, and so on. Considering the range of industries and sub-industries that it covers, manufacturing employs the highest number of workers,

including seasonal and young workers. Hazards common to the manufacturing industry are uncomfortable working procedures, manual handling, inappropriate machine surveillance, repetitive movements, improper configuration of workstations, high levels of noise and vibration, slips, trips, falls, energy sources, and many other hazards. Chemicals are also widely used within the manufacturing industry. Workers of this industry are exposed to health risks with both acute and chronic effects - meaning the harm can occur as soon as a person comes in contact with the hazard (acute effect), or it can occur over a prolonged time period (chronic effect).

## Conclusion

Occupational Health and Safety covers all conditions and factors that affect, or could affect, the health and safety of employees or other workers (including temporary workers and contractor personnel), visitors, or any other person in the workplace. OHSAS 18001 covering Occupation Health and Safety (OH&S) management is intended to provide organizations with the elements of an effective OH&S Management System that can be integrated with other management requirements and help organizations achieve OH&S and economic objectives.

Organizations worldwide are increasingly concerned with improving Occupational Health and Safety performance by controlling their health and safety risks, consistent with their business activities. Every organization, whether public or private, needs assistance in OH&S issues sooner or later. The need for OH&S experts is increasing significantly, in both industrialized and developing countries.

PECB (Professional Evaluation and Certification Board) is a personnel certification body for a wide range of professional standards. It offers OHSAS 18001 training and certification services for professionals wanting to gain a comprehensive knowledge of the main processes of an OHSMS, project managers or consultants wanting to prepare and to support an organization in the implementation of an OHSMS, auditors wanting to perform and lead OHSMS certification audits, and staff involved in the implementation of the OHSAS 18001 standard.

### OHSAS 18001 and Occupational Health and Safety Trainings offered by PECB:

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- Certified OHSAS 18001 Lead Auditor (5 days)
- Certified OHSAS 18001 Foundation (2 days)
- OHSAS 18001 Introduction (1 day)

OHSAS 18001 Lead Auditor, OHSAS 18001 Lead Implementer and OHSAS 18001 Master are three certification schemes accredited by ANSI ISO/IEC 17024.

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