ЕКОНОМІКА

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SOME ASPECTS OF ORGANIZING OF THE OCCUPATIONAL SAFETY AND HEALTH SYSTEM OF EMPLOYEES

The overall policy of enterprises cannot have economic performance as its sole objective, systematically neglecting the issue of life and health protection of employees, as well as their safety. The final goal of the activity in the field of safety and health at work is to ensure the life and anatomical-functional integrity of man during the work process. There is no system in which the potential danger of injury or illness is completely excluded. It is essential that societal decision-makers identify the consequences of insufficient preventive actions and plan efficient measures in different policy areas. According to European requirements, the achievement of safety and health at work within an adequate policy must become part and parcel of the social and ethical role of all enterprises, regardless of their activity or size.

Key words*: work safety and health, risk factors, work accidents, occupational diseases.*

Classification JEL: M12, J80, J81

Introduction. Generally speaking, work safety and health aims at knowing and removing all disturbances that may occur during work process, likely to cause occupational accidents and diseases. Therefore, safety and health at work are a part of activities through which a state ensures social protection, an essential component of guaranteeing a certain level of life quality.

The goal of occupational safety and health (OSH) is to minimize the probability of employee injury or illness by creating comfortable working conditions, thus maximizing productivity [1, p. 238].

According to the International Labor Organization, «*occupational health is promoting and maintaining the highest degree of mental, physical and social well-being of workers by preventing disruptions caused by working conditions, protecting from health risks due to harmful agents, and assigning and maintaining the workers in a job appropriate to their physiological and psychological abilities*» [6].

The novelty of the topic is revealed from the situation imposed by the need to avoid production losses and interruptions, medical leaves, administrative and legal costs, benefits that companies can obtain from the organization of an optimal occupational health and safety system and the reduction of workplace accidents and occupational diseases. There has been applied a complex methodological approach, which enabled the accomplishment of the study. The methodical support of the research was provided by works in the field of occupational health and safety management. The informational support of the research constituted the results of international statistical data and online questionnaires presented by such renowned organizations in the field as: WHO and EU-OSHA.

Methodology. To argue the approaches presented in this scientific paper, the following research methods were used:

▪ analytical method – applied to the analysis of international reports specific to the field of occupational health and safety management.

▪ the comparative analysis method – applied to the comparative analysis of global and European estimates of various aspects of work accidents and occupational diseases and their costs.

Results and discussions. ***Societal costs of work-related accidents and occupational diseases***

Developing a comprehensive estimate of the societal cost as per occupational accidents and diseases is a difficult task. However, it is essential that societal decision-makers identify the consequences of insufficient preventive actions and plan efficient measures in different policy areas. If the economic effects on people's quality of life and work are not expressed in equivalent financial terms, there is danger that they will not be sufficiently taken into account, either in the political sphere, or in the people's everyday lives.

According to the new estimates within an international project, occupational accidents and diseases cost the European Union at least €476 billion every year [10].

Only the costs related to occupational cancer amount to €119.5 billion [11].

The European Agency for Safety and Health at Work (EU-OSHA) aims to inform policy, business and scientific decision-makers to better understand the economic effects of occupational safety and health.

EU-OSHA aims to tackle the need for comprehensive estimates of the societal cost of occupational accidents and diseases in the project "*Costs and benefits of occupational safety and health*" carried out in two stages, which objective is to develop an economic cost calculation model that provides reliable cost estimates [7]. In the *first stage*, a large-scale study was carried out to identify and evaluate the data available in each Member State, which can be used to develop a costing model (2017). In the *second stage* is being created an approximation model for calculating the economic costs based on internationally available data sources.

The method is based on estimates of Disability Adjusted Life Years (DALYs), which can be caused by diseases and injuries. This situation is compared to an ideal scenario, in which a country or region would lose no DALYs at all, either through absenteeism or fatal accidents or diseases.

This was put into practice by calculating deaths, years of life lost (YLL), years lived with a disability (YLD) and the sum of these figures, disability adjusted life years − DALY. Calculations are based on the current IOM and Institute for Health Metrology and Evaluation (IHME) figures.

The research results of Global and European costs of occupational accidents and diseases in 2017−2019 are the following [10]: The global and European costs of occupational accidents and diseases are considerable. Figure 1 shows the global cost of €2,680 billion, which is 3.9% of world GDP. By comparison, the European cost accounts for €476 billion, which, at 3.3% of European GDP, is below the global average.

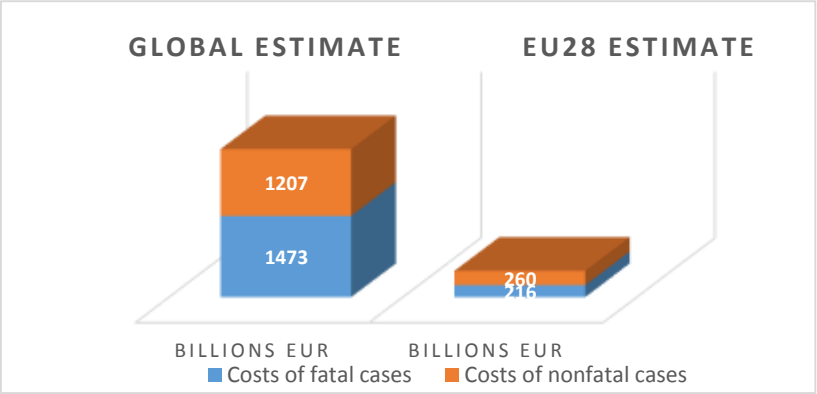

Fig. 1. The cost of work-related accidents and diseases in the world and in the EU-28. *Source: [10]*

Other differences between the world and European estimates become apparent when only the number of fatal cases is considered (fig. 2), the overall proportion of deaths accounted for by fatal occupational accidents being significantly lower in Europe (1.8%) than in the whole world (15.8 %).

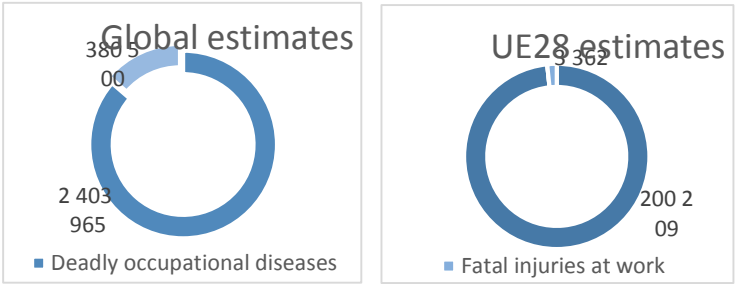

Fig. 2. Global and EU-28 deaths resulting from occupational diseases and work-related injuries. *Source: [10]*

The analysis of global deaths resulting from occupational diseases and workplace injuries is reflected below (fig. 3-4), depending on the regions and income categories.

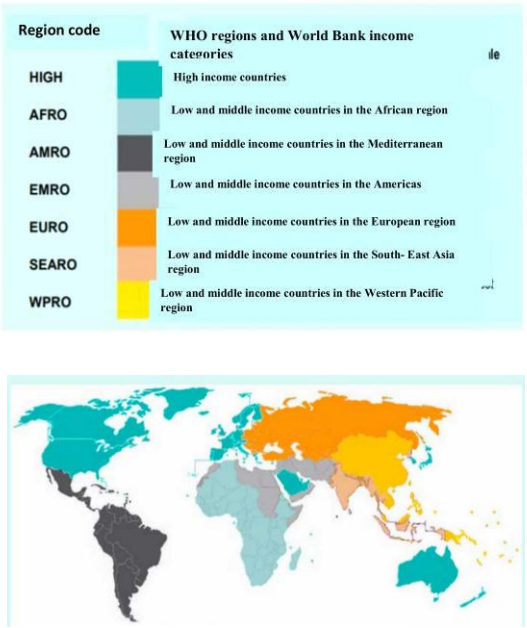

Fig. 3. World regions according to the WHO classification. *Source: [10]*

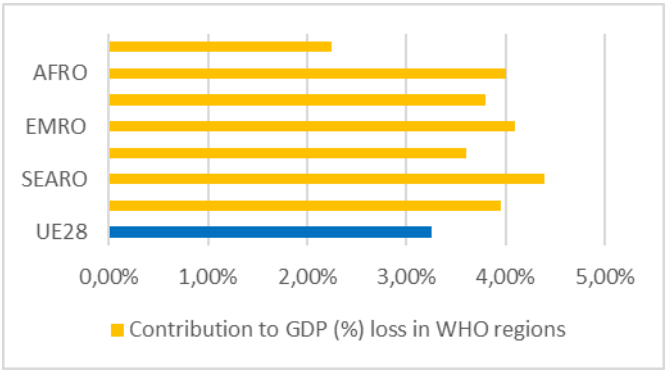

Fig. 4. The cost of occupational accidents and diseases in WHO regions. *Source: [10]*

The small number of fatal work-related accidents in industrialized countries, from the overall number of deaths, can also be seen in the analysis of WHO regions (fig. 5).

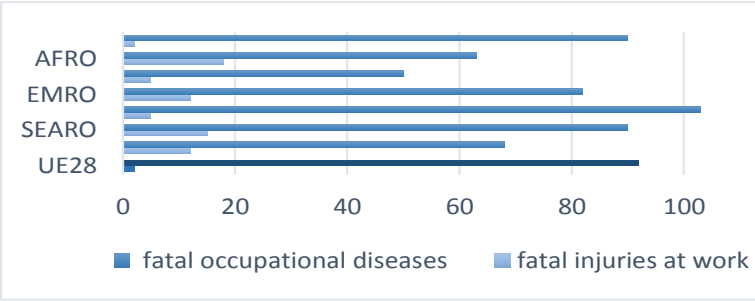

Fig. 5. Work-related accidents and fatal occupational diseases in WHO regions, deaths per 100,000 employees. *Source: [10]*

The HIGH and EU-28 regions have the lowest accident rate. In addition to the general economic and technological developments of the affected countries, the economic structure of the regions is certainly a key factor. Less developed countries tend to rely more on agriculture and construction, and namely sectors with significantly higher accident rates in comparison to the service sector, which is becoming dominant in industrialized countries. It is surprising that the number of fatal occupational diseases in the HIGH and EU28 regions is higher than in most world regions. Therefore, better working conditions in industrialized countries mainly have an impact on the accident rate, but not on the incidence of disease.

First of all, there are identified the main factors causing almost 80% of deaths, due to work accidents and occupational diseases: various forms of cancer, circulatory system diseases and fatal workplace accidents (fig. 6).

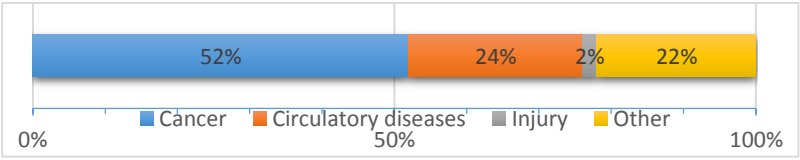

Fig. 6. Causes of workplace deaths in the EU, (%). *Source: [11]*

Subsequently, DALY data for the main identified causes of occupational mortality and morbidity in all EU countries have been calculated to present the proportion (%) of these causes for each country (fig. 7), from which there can be outlined the negative health effects related to the workplace, causing the largest loss of life years (DALY) all over the EU-28. Forms of cancer (25.01%) are the main cause, followed by diseases of the musculoskeletal system, circulatory system diseases and injuries. The category "Other" (36.52%) includes the rest of diseases, such as mental illnesses or communicable diseases.

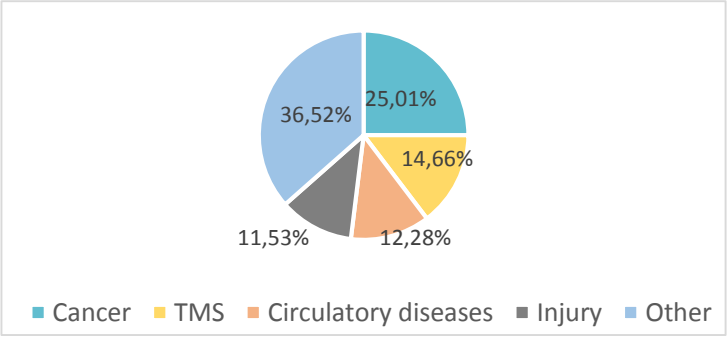

Fig. 7. The rate of the main causes of occupational mortality and morbidity in DALYs per 100,000 inhabitants in the EU-28 (%).
Source: [11]

The occupational safety and health system and its risk factors

Occupational Safety and Health (OSH) as a concept, being successor and equivalent to Labor Protection, can be defined as *a system of social, economic, organizational, technical, curative and prophylactic measures and means, based on legislative and normative acts, undertaken to ensure workplace safety and health, and maintain the employee's ability to work.* [5, p. 27]

The final goal of the activity in the field of safety and health at work is to ensure the life and anatomical-functional integrity of man during the work process. There is no system in which the potential danger of injury or illness is completely excluded; there is always a «residual» risk, if any, due to the unpredictability of human action. If no corrective interventions are made, this residual risk increases while the elements of the work system degrade through «aging». Consequently, the systems can be characterized by «security levels», i. e. «risk levels», as quantitative indicators of security and risk rates [3]. The more secure a system is, the lower the level of risk is, and vice versa.

Occupational injury and illness risk factors are factors (attributes, processes, phenomena, behaviors) specific to the elements of the work system, which can cause, under certain circumstances, on-the-job accidents or diseases [4, p. 68].

These factors are found at the level of each element of the work system and are divided into (fig. 8):

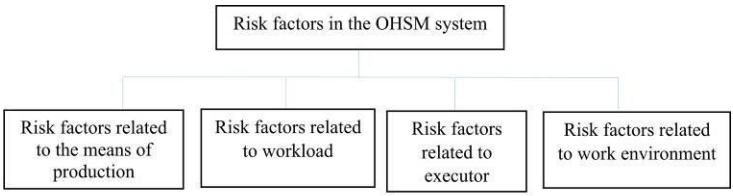

Fig. 8. Risk factors in the OHSM system.
Source: developed by the author

A. *Executor risk factors.*

Such risks are involved in the genesis of all other risk factors, because the human being is the developer and, at the same time, the one who checks and can influence on the other elements of the work system: the means of production and the workload.

Regardless of the division of tasks between the man and machine, the work activity carried out by the executor involves the reception of information, its processing, making and adopting some decisions, as well as executing and correcting them, when appropriate. The way the worker performs these stages defines his work behavior – the totality of facts, acts, reactions (motor, verbal, affective), through which a person meets the task requirements.

B. *Risk factors related to workload.*

There are *2 forms* of risk factors specific to the workload:

- inappropriate content or structure of the workload, in relation to the purpose of the work system or the requirements imposed by the risk situations (operations, rules, wrong work procedures, absence of some operations, inappropriate work methods);
- under-/over-sizing the requirements imposed on the executor, inappropriate to his skills.

C. *Risk factors related to means of production*. These factors can occur in the following forms:

C.1 Physical risk factors (mechanical aspect, thermal aspect, electrical aspect)

C.2. Chemical risk factors

C.3. Biological risk factors

D. *Risk factors related to work environment:*

Physical environment can present risk factors in the form of exceeding the level or functional intensity of specific parameters, as well as occurrence of certain work conditions.

Social environment is characterized by psychological risk factors whose effect is overloading the executer and are generated by the characteristics of interpersonal relationships.

Advantages and benefits of an efficient occupational health and safety management system

Preserving a good health of workers has a direct and measurable positive impact on their productivity and contributes to improving the sustainability of the social security systems.

In specialized literature there are various definitions of the Occupational Health and Safety Management System (OHSMS):

- a set of related or interdependent elements intended to establish a policy and objectives of safety and health at work, as well as achieving these objectives *(ILO-OSH: 2001)* [6];
- a part of an organization's management system used to develop and implement OH&S policy and OH&S risk management (*SROHSAS 18001:2008)* [6];
- a set of decision-making, organizational, informational, motivational, etc. elements within the company, through which all the processes and relations of

occupational safety and health management are carried out in order to obtain the desired level of work-related safety and health [2, p. 34].

OSH is not just complying with the law, and is more than just an administrative task. It is, without any doubt, an essential component of good business management. Expertise shows that every euro invested by the employer in OSH will bring more than two euros in the future. [6]

Avoiding production losses and interruptions, sick leaves, damage to the company's equipment and image, as well as administrative and legal costs are just some of the possible benefits that companies can obtain from reducing work accidents and occupational diseases. Among the advantages and disadvantages of an occupational health and safety management system can be specified below:

Tab. 1.

Advantages and disadvantages of Occupational Health and Safety Management System. *Source: [2]*

ITEM	ADVANTAGES	DISADVANTAGES
Management	• provides a well-organized framework for managing occupational health and safety issues; • allows a unitary managerial approach to various information from all sectors of activity; • helps to ensure an adequate legislative forecast, better relations with control bodies and those that issue authorizations.	• may come into contradiction with existing programmes and procedures; • may cause difficulties when applying simultaneously different standards in the interference areas of management systems.
Marketing	• improves the image of the organization and its relations with various partners; • represents an advantage in the competitive dispute; • strengthens the position on the capital market.	
Cost	• avoids penalties and other costs due to non-conformities; • ensures the gradual, time planning of the costs for actions regarding occupational safety and health, avoiding short-term, unplanned costs due to new legislative requirements.	• requires significant resources for implementation: time, money, human resources, logistics, etc.; • the amortization of this investment is not always achieved in quantifiable terms; • requires additional costs for operating, maintaining, reviewing and renewing certification.
Monitoring	• enables the identification of risk factors related to the production process; • contrubutes to improving processes and yields; • creates and develops a detailed and relevant database.	• modifies the existing programmes and procedures; • generates, in the first stage, possible confusions and difficulties in using the equipment, processing and erroneous interpretations.

ITEM	ADVANTAGES	DISADVANTAGES
Training	• improves employees' awareness of safety and health at work; • operational personnel becomes aware of their responsibilities; • leads to increasing workers' productivity; • contributes to reducing the number of work accidents and occupational diseases.	• involves costs; • compels the removal from production, for certain periods, of those who participate in training programmes; • may lead to personnel reshuffles.
Public perception	• increases confidence in the quality of the organization's management; • demonstrates interest and care for the employees' safety and health; • reflects an anticipation of legislation and not a reaction to legislation.	
Certification	• provides a proof and a guarantee of the commitment fulfillment, assumed by the occupational health and safety policy.	
Other	• helps to obtain specific authorizations; • facilitates communication and collaboration with investors, insurance companies, etc.	• the operational staff may be against change.

There have been developed several occupational health and safety management systems (ISO 45001 and OHSAS 18001).

The most important *principles of OSH* (OSHA (Occupational Health and Safety Management Systems), developed by the International Organization for Standardization) are:

- Commitment and leadership to improve OSH
- Effective OSH policies and procedures
- Pro-active risk assessment programmes
- Well trained and competent workforce
- Efficient risk control measures
- Continuous monitoring and reviewing processes

At the moment *are operating three international documents*, aimed at developing and implementing occupational health and safety management systems at the enterprise. They are:

- The document of the International Labor Organization ILO-OSH 2001 «Guidelines on Occupational Safety and Health Management Systems» / «Guide for occupational safety and health management system» [9];
- The British standard BS OHSAS 18001:2007 «Occupational health and safety management systems − Requirements» / «The health and safety management system at work. Requirements» [12];

- The new standard ISO 45001:2018 «Occupational health and safety management system» [12].

Occupational health and safety (OSH) systems have advantages for businesses, in addition to being their legal and social obligation. Companies believe that OSH prevents occupational accidents and illnesses, thus playing an essential role in their success.

An efficient Occupational Health and Safety Management system:

- shows that the enterprise is socially responsible,
- protects and improves brand image and brand value,
- helps to maximize the workers' productivity, improves the employees' loyalty,
- builds a more competent and healthier workforce, reducing costs and downtime,
- enables businesses to meet customers' OSH expectations and encourages the workforce to stay active for longer.

Conclusions. Any business can benefit significantly from investing in OSH. Întreprinderile ar trebui să integreze SSM în managementul afacerilor şi ar trebui să crească gradul de conştientizare al principalilor factori de decizie din cadrul întreprinderii./ Simple investments can increase competitiveness, profitability and employee motivation. Implementing an OSH management system provides an effective framework for preventing or minimizing work-related accidents and illnesses. Good OSH practices are useful regardless of the size of the enterprise, and OSH management does not have to be a complex process. A few simple improvements can often contribute significantly to better occupational health and safety, and in most sectors there is not required special expertise to be able to identify potential risks and decide how to manage them. In most cases, simple measures such as visually inspecting the workplace, recalling previous incidents and consulting employees can give you useful clues about potential hazards, health threats and areas needing improvement. Good OSH performance means good business. Enterprises should integrate OSH into business management and raise the awareness of its key decision makers.

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