Zuzana SÁGOVÁ[1], Vladimír TLACH[2]

Supervisor: Ivan KURIC[3]

PROPOZYCJA ZINTEGROWANEGO SYSTEMU KOMPLEKSOWEJ OCENY SYSTEMU PRACY

Streszczenie: Wypadki i choroby zawodowe mają wpływ na wszystkie sektory gospodarki. Podstawą europejskiego podejścia do zapobiegania wypadkom przy pracy i chorobom jest ocena ryzyka. Ocena ryzyka jest skutecznym narzędziem wykrywania potrzebnych środków zapobiegawczych lub naprawczych.

Słowa kluczowe: ewaluacja, ocena ryzyka, system pracy

PROPOSAL OF THE INTEGRATED SYSTEM OF THE WORKING SYSTEM COMPLEX EVALUATION

Summary: Occupational accidents and diseases affect all sectors of the economy. The cornerstone of the European approach to the prevention of occupational accidents and diseases is a risk assessment. The risk assessment is an effective tool for detecting the need for preventive or corrective measures.

Key words: evaluation, risk assessment, working system

1. Introduction

The Slovak Republic is bound by international treaties, conventions of the International Labor Organization (ILO) as well as the acquis communautaire of European Union in the field of health and safety at work. Laws and other regulations governing the Occupational Safety and Health (OSH) are transposing international standards, respecting ILO comments and recommendations as well as the European Commission.

[1] University of Žilina, Faculty of Mechanical Engineering, researcher, zuzana.sagova@fstroj.uniza.sk
[2] University of Žilina, Faculty of Mechanical Engineering, researcher, vladimir.tlach@fstroj.uniza.sk
[3] prof. Dr. Ing., University of Žilina, Faculty of Mechanical Engineering, ivan.kuric@fstroj.uniza.sk

According to the **Constitution of the Slovak Republic** [1], the hierarchically superior regulation, „Employees shall have the right to fair and satisfactory conditions of work.“ and the employer is obliged to fill and protect this right.

In labour-law relations, the basic regulation is the Slovak Labour Code [2], which states that “Within the scope of his/her capacity, an employer shall be obliged to permanently secure the occupational health and safety, and to take the necessary measures including securing prevention, necessary funds and appropriate system of labour protection management. An employer shall be obliged to improve the level of labour protection in all activities and to accommodate the level of labour protection to changing circumstances.“.

These facts point to the importance of performing the risk assessment of a working system. Because the risk assessment of the working system makes it possible to detect problems and deficiencies of the existing working system, but also, in case of need, to detect and eliminate deficiencies and problems that might arise in a non-existent or designed working system and to plan appropriate preventive or corrective measures. This will prevent the creation of inappropriate working conditions that cause an increase in work-related fatigue, a fall in labour productivity, a higher incidence of non-conforming products, an increase in the number of occupational accidents and diseases, an absenteeism, and a fluctuation, leading to the elimination of business costs, including possible state sanctions.

2. Occupational accidents and diseases in Slovak Republic

The Statistical Office of the Slovak Republic annually evaluates the status of occupational accidents and diseases in companies. Selected indicators of Incapacity for work due to disease and injury in years 2012-2017 are presented in the Table 1.

Table 1. Incapacity for work due to disease and injury in years 2012-2017

Year					
2012	***2013***	***2014***	***2015***	***2016***	***2017***
Indicator: Average number of people covered by sickness insurance (wage earners)					
2 296 589	2 496 319	2 592 523	2 722 400	2 844 858	2 960 788
Indicator: Number of cases of incapacity for work due to Disease					
629 331	623 846	582 411	675 179	678 290	718 376
Indicator: Number of cases of incapacity for work due to Work injury					
8 767	8 577	8 240	9 565	10 327	10 928
Indicator: Number of cases of incapacity for work due to Other injury					
51 968	50 279	46 933	51 950	55 918	60 229
Indicator: Fatal work injuries					
52	53	39	57	40	41

Table 2. Incapacity for work due to disease and injury in years 2012-2017 - continue

Year					
2012	***2013***	***2014***	***2015***	***2016***	***2017***
Indicator: Occupational diseases (newly notified)					
393	327	370	346	316	353
Indicator: Average daily number of persons incapacitated for work (persons)					
95 185	86 039	80 554	85 636	89 751	94 026

(Source: datacube.statistics.sk)

Development of selected indicators on disability to work due to disease and injury in the Slovak Republic in years 2012-2017 is summarized in the Table 2.

Table 3. Development of selected indicators on disability to work due to disease and injury in the Slovak Republic in years 2012-2017

Year					
2012	***2013***	***2014***	***2015***	***2016***	***2017***
Indicator: Number of fatal occupation injures – total (number)					
52	53	39	57	40	41
Indicator: Number of fatal occupation injures - of which females (number)					
0	1	0	2	2	3
Indicator: Newly notified cases of occupational diseases (number)					
393	327	370	346	316	353
Indicator: Compensated accidents at work – males (EUR)					
18 494 163	18 046 009	17 785 899	18 412 640	19 155 826	19 393 281
Indicator: Compensated accidents at work – females (EUR)					
3 882 160	3 928 130	4 010 585	4 285 779	4 673 460	4 988 250
Indicator: Compensated occupational diseases – males (EUR)					
14 684 267	15 677 066	16 283 983	16 650 499	16 102 255	16 265 420
Indicator: Compensated occupational diseases – females (EUR)					
4 442 599	4 629 357	4 460 072	5 045 148	4 977 782	5 253 569
Compensated accidents at work and occupational diseases – total (EUR)					
41 503 188	42 280 562	42 540 539	44 394 066	44 909 324	45 900 520
Employees at hazardous occupational places total (number)					
99 550	99 062	99 114	101 474	99 507	103 702
Employees at hazardous occupational places - of which females (number)					
21 615	21 609	21 356	22 807	22 104	22 899

(Source: datacube.statistics.sk)

According to the Editions Health Statistics of the National Health Information Center, to the most frequently reported occupational diseases in the long term include professional diseases of limbs from long-term, inordinate, one-sided workload. In 2017, there were 178 cases of these diseases (50.3 % of all reported occupational diseases) reported in the Slovak Republic. Trends in number of professional diseases of limbs from long-term, inordinate, onesided workload are shown in the Fig. 1.

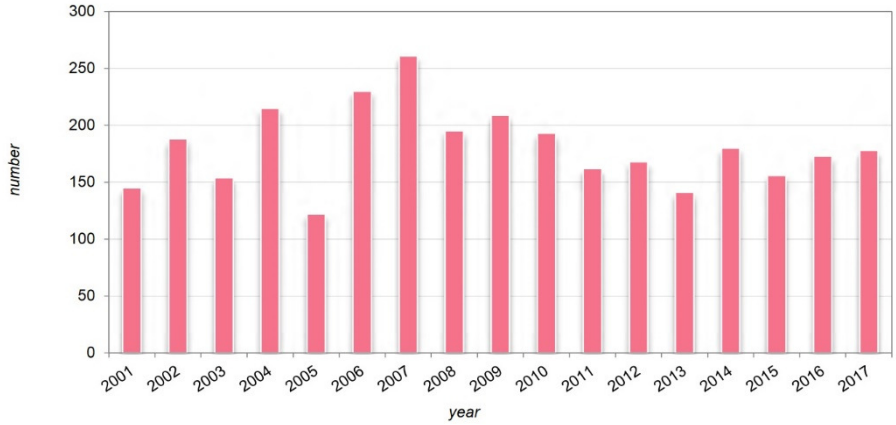

Figure 1. Trends in number of professional diseases of limbs from long-term, inordinate, one-sided workload [3]

It is important to remember that the majority of occupational accidents and diseases can be prevented. In particular, it is necessary to focus on creating healthy working conditions, ergo creating a health-friendly way of doing work and a healthy work environment.

3. Model of the integrated system of the working system complex evaluation

In creating healthy working conditions, it is very important to assess whether requirements concerning healthy working conditions are met. This can be verified by an evaluating of the working system and the risk assessment must also be an inherent part of it. To evaluate the working system, it is necessary to use a complex approach because several negative factors can act simultaneously on the human organism.

A key to making the evaluation of the working system complex and effective is to create an integrated evaluation system that includes three main areas of the evaluation (see in the Fig. 2.).

It is clear from the proposed model what individual areas of the evaluation are about. It outlines four main goals for which the complex evaluation of the working system is carried out. It also points to areas of improvement to which this kind of the evaluation has a positive impact. Thus, it can be said that the model of the integrated system of the working system complex evaluation gives the answer to the question What and why to evaluate?.

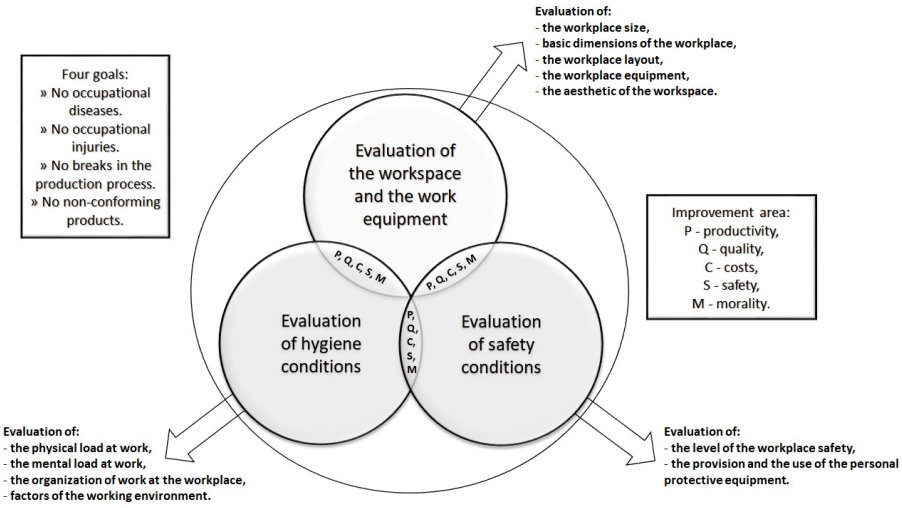

Figure 2. Model of integrated system of the working system complex evaluation [4]

3.1. Phases of the complex evaluation of the working system

The proposed methodical procedure for the implementation of the complex evaluation of the working system consists of following phases [4]:

1. Preparation phase – includes a preparation for the complex evaluation:

Why? Summary of reasons for the evaluation:

Why is there a need for the evaluation?

What? Getting acquainted with the object of the evaluation:

What will be assessed in the evaluation?

How? Getting acquainted with the evaluation process:

How will the evaluation process be made?

How much? Informative knowledge of costs of making the evaluation:

How much will be needed to make the evaluation?

Where? Determining the working system to be evaluated:

Which working system(s) will be evaluated?

When? Submission of an evaluation timeline:

When and how long will the evaluation be conducted?

Who? Appointment of a leader and selection of members of an evaluation team:

Who will perform the evaluation?

2. Analytical phase – includes an analysis of a current state of an evaluation object:

What? Collecting information to evaluate and adjust evaluation criteria:

What information will be need to collect? ↔ Which criteria will be assessed?

From where? Determining sources of information collection:

Where will information be drawn from?

How? Determining methods and techniques for collecting information and evaluating a degree of criteria compliance:

How will information be collected? ↔ How will criteria be assessed?

Why? Determining the degree of compliance with evaluation criteria:

Why is the degree of compliance with some of evaluation criteria conflicting with legislative and other requirements?

Determining Quality and Safety Level Indicators:

Why is there a risk of damaging the health of employees at work?

An analysis phase is further conducted:
A proposal of corrective or preventive measures: What measures will be needed to eliminate risk?
An interpretation of evaluation results: What are results of the evaluation and possibilities of eliminating deficiencies / risks?
A consultation on the choice of appropriate measures: Which of proposed measures can be verified in terms of their effectiveness?

3. Synthetic phase – involves finding optimal measures to eliminate identified deficiencies / risks and their implementation into real conditions:

What? Verification of selected measures and increasing of the working system level:

Which of verified measures showed the highest positive effect?

How? Building Action Plans for implementing of measures:

How will measures be implemented?

How much? Determining an amount of costs incurred in implementing of measures:

How much costs will be needed to implement measures?

When? Submission of a timetable for the implementation of measures:

When and how long will the implementation of measures take place?

Who? Selection of persons responsible for implementing of measures:

Who will respond to the implementation of measures?

Why? Compilation of documentation from the evaluation process:

Why is there a need to create documentation from the evaluation?

4. Implementation and stabilization phase – involves the implementation of measures, its monitoring and control:

What? Monitoring the implementation of measures:

What is a course of the implementation of measures?

How? Occurrence of complications in the implementation of measures:

How can eliminate complications when implementing measures?

Why? Finding reasons for complications when implementing measures:

Why are there complications in implementing the measures?

In order to ensure the proper conduct of a complex evaluation of the working system it is necessary to follow suggested steps. Phases and individual steps of the complex evaluation of the working system are clearly illustrated in the Fig. 3.

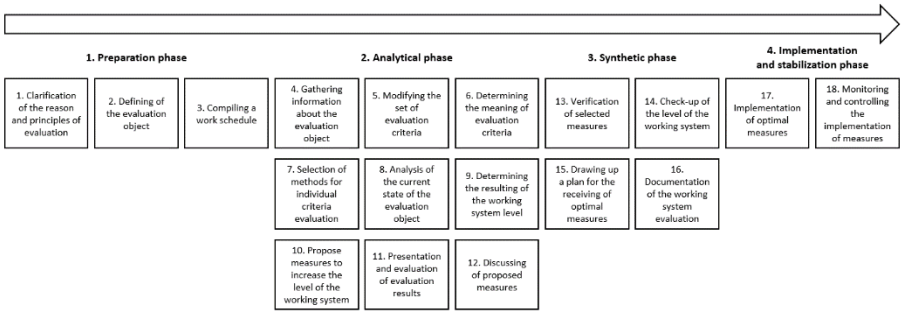

Figure 3. Phases and steps of the working system complex evaluation

3.2. Evaluation criteria

In proposing the integrated system of the working system complex evaluation, one of the key activities was the selection of appropriate evaluation criteria that would provide an overview of the complex level of the working system quality and safety.

The proposed set of evaluation criteria is divided into seven evaluation groups (A-G). Each of evaluation groups includes evaluation criteria that characterize the relevant evaluation group. Evaluation groups of the set of evaluation criteria are presented in the Figure 4.

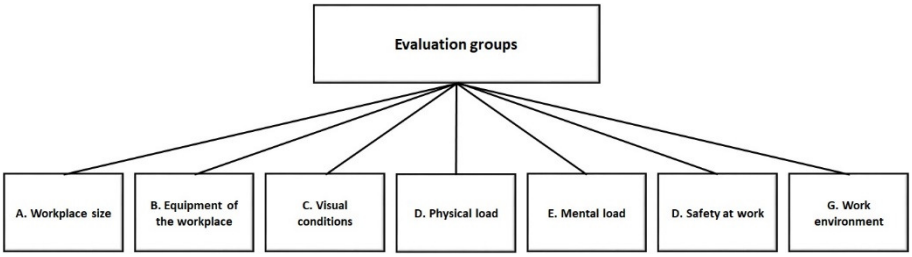

Figure 4. Evaluation groups

The coefficient of fulfillment of the evaluation criterion is used to express a current state of each evaluation criterion under consideration. The current state of most of evaluation criteria can be assessed by measuring, observing or interviewing. However, when evaluating some criteria, it is possible to use a wide range of time-tested, objective, fast and cost-less methods.

An examination of the current state of the evaluated working system is not a simple matter because it is based on the assumption that all sources of risk and factors affecting risks will be revealed.

After assessing the current state of each assessed evaluation criterion, the sub-level of the quality and safety of the evaluated working system is determined by the evaluation group and consequently the resulting quality and safety level of the working system.

The risk of damage to health can be assessed as a very large – unacceptable (corrective action needed to be taken immediately), a large – unacceptable (corrective action needed to be taken as soon as possible), a medium – tolerable (it is necessary to plan measures to eliminate risk) and a small – acceptable (it is necessary to ensure that the risk remains at this level). [4]

3.3. Proposal of measures to increase the level of the working system

When proposing measures to reconcile the current state of the working system with legislative and other requirements, it is necessary to follow two basic principles:

1. Proposed measures must be economically efficient for a company where the complex evaluation of the particular working system is carried out.
2. Proposed measures must have a positive impact on the health of employees working in the working system under consideration.

Measures that can positively affect the quality and safety level of the working system may, by their nature, be generally categorized as organizational, technical and substitute. [4]

4. Conclusion

In Europe and also in Slovak Republic, great attention is paid to issues of occupational health and safety at work and risks assessment in a work process. The main reason is that employees and employers need to be informed about risks they are exposed and how to manage them.

The aim of this article is to highlight the importance of applying a system approach in evaluating the working system. The proposed integrated system of the working system complex evaluation helps to totally and effectively evaluate the partial and overall level of quality and safety of the working system. It also contributes to ensuring the creation of appropriate working conditions by detecting and eliminating identified deficiencies / risks, which will lead to a reduction in the number of occupational accidents and diseases. This will positively influence economic indicators of business entities in which the complex evaluation of working system(s) will take place as well as a prosperity of a state economy.

Acknowledgement

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