PREPARATION OF OCCUPATIONAL HEALTH AND SAFETY RISK ASSESSMENT IN THE REPUBLIC OF CROATIA

Review Paper

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Abstract

According to national regulations, all employers in the Republic of Croatia are obliged, taking into account the jobs and their nature, to assess the risks to the life and health of workers and persons at work. The introduction of the paper will present and describe the legal requirements, as well as the main terms and definitions. In the continuation of the work, the concept of risk, risk management and knowledge of risk within the framework of Croatian legislation will be discussed. The process of preparation a risk assessment by an authorized legal entity will also be presented. Risk assessment is a process that determines the level of danger, harm and effort in terms of injury at work, occupational disease, work-related illness, and disturbances in the work process that could cause harmful consequences for the safety and health of workers. Given that national regulations determine the concrete method by which risks must be assessed, a critical review of the process of risk assessment in the Republic of Croatia is given. Based on the analysis carried out, the conclusion states the possibilities for improving the risk assessment of occupational safety in the Republic of Croatia and guidelines for further possible research.

Keywords: method, occupational safety and health, regulation, risk assessment.

1 Introduction

1.1 The importance of occupational health and safety risk assessment

According to national regulations, all employers in the Republic of Croatia are obliged, taking into account the tasks and their nature, to assess the risks to the life and health of workers and persons at work.

Risk assessment methods are very different around the world, where national regulations allow competent professionals to use different risk assessment techniques. In the Republic of Croatia, the risk assessment is made in accordance with the provisions of the Occupational Safety Act (No. 71/14, 118/14, 94/18, 96/18), Ordinance on Occupational Safety for Workplaces (No. 105/20), Ordinance on risk assessment preparation (N.N. no. 112/14, 129/19) and other laws and ordinances that regulate the field of occupational safety. The implementing regulation that prescribes the conditions, manner and method of creating a risk assessment, the mandatory contents included in the assessment, the data on which the risk assessment is based, as well as the classification of hazards, harms and efforts at work and in connection with the work is the Ordinance on the preparation of risk assessments (N.N. no. 112/14, 129/19).

Occupational safety and health (OSH) is generally defined as the science of the anticipation, recognition, evaluation and control of hazards arising in or from the workplace that could impair the health and well-being of workers, taking into account the possible impact on the surrounding communities and the general environment. This domain is necessarily vast, encompassing a large number of disciplines and numerous workplace and environmental hazards. A wide range of structures, skills, knowledge and analytical capacities are needed to coordinate and implement all of the "building blocks" that make up national OSH systems so that protection is extended to both workers and the environment (Alli, 2008.)

In the field of occupational health and safety, risk assessment is of particular importance. The employer is responsible for managing the health and safety of workers and other persons who may be affected by the organization's work activities. The processes of the occupational health and safety management system apply the general principles of occupational risk prevention and health protection, rules for eliminating risk factors, worker training procedures and procedures for informing and consulting workers and their representatives with employers and their authorized representatives.

All employers in the Republic of Croatia are obliged, taking into account the jobs and their nature, to assess the risks to the life and health of workers and persons at work.

According to the data of the Croatian Institute for Health Insurance, in the past 15 years in the Republic of Croatia, an average of 40 workers are killed at work per year, and an average of 17,844 workers are injured at work (Croatian Institute for Health Insurance). Occupational safety risk assessment is a continuous process that is the basis for defining and implementing all occupational safety measures. Risk assessment is the basis for occupational safety and health management.

The occupational health and safety management system is part of the overall system that realizes the management of health risks inherent in the organization's business activities. The system includes the organizational structure, planning, responsibility, practice, procedures, processes, resources for the development, application, implementation, review and maintenance of the health and safety protection policy of the organization (Palačić, Mudri, 2014). Occupational health and safety can be defined as a set of measures implemented to prevent the impact of harmful factors of the work process and/or environment on the health and life of workers, as well as other material and non-material damages at work. Effective management of occupational health and safety is the goal of every employer, including the state.

Occupational safety processes, including risk assessment, are defined by national regulations and international norms in this area. The occupational safety process is part of the organization of work and the execution of the work process, and it is achieved by performing occupational safety tasks and applying prescribed, contracted, as well as recognized occupational safety rules and the employer's ordered measures and instructions. In this sense, depending on the number of employees, it is possible to organize the performance of occupational safety and risk assessment in several ways (Palačić et al., 2020).

The employer is obliged to have a risk assessment made in written or electronic form, which corresponds to the existing risks at work and in connection with the work and which is available to the worker at the workplace. Based on the risk assessment, the employer is obliged to apply occupational safety rules, preventive measures, organize and implement work and production procedures, i.e. methods, and undertake other activities to prevent and reduce the exposure of workers to identified risks, in order to eliminate or minimize the likelihood of occurrence injuries at work, illnesses from occupational or work-related diseases, and to ensure a better level of protection at work at all levels of work organization and management (Palačić, 2021).

The evaluation of risks in the workplace starts with the identification of the types of hazards existing at the facility. Establishing a process to ensure hazards are identified is the primary goal of a progressive organization with a strong safety management program. The organization eliminates or

reduces the risks associated with those hazards to the lowest achievable and reasonable level (Friend, Kohn, 2007).

The employer is obliged to determine and perform occupational safety tasks in accordance with the risk assessment, the state of occupational safety and the number of workers.

Risks, in their different forms and inter-relationships, may be the subject of observation and management based on different perspectives. The main risk observation perspectives stem in particular from studies in the economic-corporate and production areas, and may be summarized as, strategic perspective, corporate governance perspective, financial perspective and operational perspective. Therefore it emerges that, with a view to detecting the many facets and forms under which they appear, risks should be simultaneously observed from many and different perspectives (Borghesi, Gaudenzi, 2013)

A more careful reading of all of the above leads to the conclusion that a quality risk assessment is a prerequisite for the effective implementation of safety at work. However, risk assessment is only one element of overall risk management. Risk management is a comprehensive approach to identifying, assessing and avoiding or mitigating identified risks. The Croatian regulations governing risk assessment do not define a risk management system at all. Risk assessment must necessarily be carried out according to the prescribed method, which most experts consider to be too general and therefore ineffective.

1.2 Kay terms and definitions

When making a risk assessment in the field of occupational safety, it is necessary to know basic terms. Some of the most important terms and definitions from the Law on Occupational Safety and Health (N.N. no. 71/14, 118/14, 94/18, 96/18) are:

- Risk is the product of the probability of the occurrence of a dangerous or harmful event and the harmfulness of that event, or its consequences.
- Hazards are all conditions at work and related to work, which can threaten the safety and health of workers.
- An accident is an unexpected and unwanted event at work or in connection with work that did not cause injury to the worker, but with minimally changed subjective or objective circumstances, could cause it in a repeated case.
- A separate place of work is a place of work where the worker performs the contracted work at home or in another place that is not the employer's place.
- Workplace is any place where workers and persons at work must be, or to which they must go, or to which they have access during work due to the work they perform for the employer, as well as any space or room used by the employer to perform work and which is under his direct or indirect supervision.

As stated, these are just some defined terms. The mentioned terms are very important in creating a risk assessment. If we compare the definition of the term risk with some of the recognized definitions in the world, we can state that it is defined here very clumsily.

1.3 Aim and purpose of the research

The aim and purpose of the work is to present the prescribed method of occupational health and safety risk assessment in the Republic of Croatia and to present opinions on possible improvements.

Given that the process of occupational health and safety risk assessment in the Republic of Croatia is strictly prescribed by national regulations, the purpose of the research is to collect and analyze data on

the issue of creating a risk assessment in the prescribed manner, and to stimulate discussion on possible improvements.

1.4 Research tasks

In accordance with the set goal, the research tasks are:
- analyze and present the basic theoretical principles of occupational health and safety
- analyze and present the basic theoretical principles risk assessment
- analyze and present the legal requirements for occupational safety risk assessment in the Republic of Croatia
- present opinions on possible improvements.

1.5 Methods

Appropriate scientific methods were chosen for the implementation of scientific research, which make up the methodology of the work. The theoretical settings of risk assessment are analyzed from selected scientific and professional literature. The contents of valid national regulations are also analyzed. The prescribed occupational health and safety risk assessment method is analyzed using the analysis method, after which the most important properties are described and displayed using the description method. After analysis and comparison, essential properties are synthesized and conclusions are drawn.

2 Risk and risk management

2.1 Risk

Risk is a term that we often use in everyday life and that we encounter every day, regardless of whether we are aware of this fact. Risk for individuals can be buying a vehicle, renting a property or investing in stocks. For organizations, it can be an investment in marketing activities, a fire in a business building or, for example, an injury with fatal consequences. Depending on the type of activity, risk can be defined in different ways.

Risk is a complex concept that occurs in all areas of life, in private and business terms. Risk constantly accompanies all human activities. Even in prehistoric times, there was a risk of the impossibility of achieving basic living conditions when it was not known what to find in the day to eat, whether to catch an animal and etc. Nowadays, risks in everyday life there are various risks such as participation in traffic in which there is a real danger of a traffic accident, and so on. Therefore, we can say that risk develops over time and that our daily activities have become increasingly insecure. The concept of risk due to its ambiguity and complexity has always attracted the attention of scientists from various fields and branches of science. Risk has been approached from different aspects, so that even today there is no single definition of risk.

Therefore, risk is defined in many ways, of which the most significant are listed below:

- risk is the effect of uncertainty on objectives (an effect is a deviation from the expected - positive and/or negative) (ISO 31073-2022 Risk management – Vocabular)
- risk is the degree of uncertainty (Risk Management Handbook)
- risk is the effect of uncertainty (ISO 9000:2015 Quality management systems - Fundamentals and vocabulary)
- risk is the possibility of something bad happening at some time in the future; a situation that could be dangerous or have a bad result (Oxford English Dictionary)

- risk is a combination of the probability of an event and its consequences, and the consequences can be positive or negative (The Institute of Risk Management)
- risk is a condition in which there is a possibility of a negative deviation from the desirable outcome that we expect or hope for (Andrijanić, Klasić, 2002).
- risk is the uncertainty of outcomes within the exposure range, which arises from a combination of the impact and probability of potential events (The Orange Book: Management of Risk - Principles and Concepts)
- risk is the uncertainty of an event that could affect the achievement of objectives, the risk is measured in terms of consequences and probability (OnRisk: The Giude to Understanding, Aligning, and Optimizing Risk 2020)

The concept of risk has three necessary elements (Kereta, 2004):

- the perception of whether a harmful event could really have happened
- the probability that it will actually happen
- the consequences of a harmful event that could happen.

As stated earlier, in Croatia, in the field of occupational health and safety, risk is defined as the product of the probability of the occurrence of a dangerous or harmful event and the harmfulness of that event, or its consequences. If we compare this definition with recognized definitions from around the world, we can state that in Croatia this term is very poorly defined.

2.2 Risk management

Even the simplest business decision involves some risk. Since every project involves some measure of risk, it is the project's success criteria that often serve as the determining factors for which risks are worth taking and which risks are not. As success criteria are added, decision making becomes more complicated and involves more judgment. Increasing technical complexity increases risk. Every new generation of technology is layered on the old. Nevertheless, most organizations tend to weight decisions heavily toward cost and schedule goals because they are easy to understand. But the effect of cost and schedule decisions related to technical performance risk frequently is unclear. Thus, a formal methodology for evaluating the effects of decision making and foreseeable problems is indispensable and should also help to identify practical and effective workarounds for achieving business goals (Pritchard, 2015).

Risk management is a comprehensive systematic process of managing uncertainties that could threaten the set goals and which aims to improve business performance. The purpose of risk management is to increase the likelihood that organizations will achieve their goals by managing threats, vulnerabilities and adverse situations, and be ready to take advantage of opportunities that may arise. By managing risks, we can also increase the probability of achieving the required level of security (in certain areas of protection), i.e. achieving goals in the area of security, through the management of threats, dangers and extraordinary events. In order for the risk management system in the organization to be effective, it is necessary to develop a risk management culture that includes changing the existing way of thinking of all management levels. Every worker should be aware of the risks in his area of activity in order to be able to assess the risks that he can influence himself as well as the risks that senior management should warn about (Hopkin, 2017). The goal of risk management is to use available risk knowledge to, where it makes sense, define an approach for analyzing and managing the uncertainties we face that may affect the achievement of business goals and results. The goal of risk management is to establish a risk plan consistent with the organization's goals, and to minimize possible consequences (Crouhy, Galai, Mark, 2006).

There are a number of standards for risk management. One of the most applicable is certainly the international standard ISO 31000:2018, which is fully devoted to the risk management process. It is a

norm that is applicable in all organizations, regardless of the activity and size of the organization. By applying this standard, the goals of increasing the probability of achieving the set goals are achieved, and at the same time, there is an increase in the ability to recognize the risk itself within the organization's operations.

ISO 31000:2018 standard contains a total of 8 main principles:

- the risk management process should be integrated into all management processes,
- the risk management process must be carried out in a systematic, structured and comprehensive manner,
- risk management must be adapted to the organization and its specificities
- risk management must appropriately and timely involve management participants
- the risk management process must be dynamic, i.e. permanently monitor and respond in a timely manner to all internal and external changes
- the risk management process must be based on accurate and available information and data,
- the risk management process must take into account human and cultural factors,
- risk management is a process of continuous improvement and development.

Because life is filled with risk, smart people and well-run organizations set out to manage it as effectively as possible. Otherwise, they find that they are controlled by events. Good management is concerned with operating proactively, initiating action that takes the organization where it needs to go rather than responding to a steady stream of mini and major crises that lead the organization to wherever the prevailing currents carry it (Davidson Frame, 2003). Numerous case studies prove that it is necessary to manage risks, and the use of quantitative risk management methods is recommended (Hofer, Frey, McNeil, 2020).

By accepting these main principles, every organization increases its ability to operate in an efficient manner. There are also a number of other international norms dealing with risk management, which, if implemented by an organization, can significantly increase the system of risk recognition, and thus the impact on unwanted consequences. Therefore, it is necessary to apply these principles in the field of occupational safety risk management.

2.3 Risk assessment

When risk analysis and risk evaluation are carried out in a joint process, we say that we do a risk assessment (Rausand, 2011). By definition, risk is the value obtained from the assessment of possible consequences (human losses, direct and indirect damages and costs) caused by incidents or accidents, together with the probability of occurrence of hazardous processes due to the conjunction of the factors involved. Risk is a combination of the probability of unfavorable scenarios and their consequences. In this context, it is possible, and advisable, to evaluate the expected value of these consequences, in order to establish, based on scenarios, procedures for forecasting, preventing, controlling and mitigating the effects of these hazardous processes to people and assets, associated with both natural and technological risks (Rocha, Oliviera, Capinha, 2020).

According to Rocha, Oliviera and Capinha (2020) risk analysis, risk evaluation and risk management are the main pieces in the process known as ‘Risk Assessment’. Risk assessment can be understood as the joint effort of identifying and analysing potential future events, i.e., risk analysis, and evaluating the acceptability of risk based on the risk analysis, while considering influencing factors, i.e., risk evaluation. In short, risk assessment analyses what can go wrong, how likely it is to happen and, if it happens, what are the potential consequences.

Before conducting a risk assessment, a risk management framework needs to be established. This defines the process to be followed and identifies the results to be achieved. This helps to ensure consistency in the way risks are identified and managed and will enable the effectiveness of the actions taken to be assessed (Risk assessment handbook, 2017).

In world practice, numerous risk assessment techniques are generally applied. According to the standard IEC 31010:2019 Risk Management - Risk assessment techniques, there are 10 groups of risk assessment techniques. The techniques described in this document can be used in a wide range of settings, however the majority originated in the technical domain (IEC 31010:2019 Risk Management - Risk assessment techniques). The risk assessment techniques presented in this standard are the world's best risk assessment practice. Risk assessment is that part of risk management that provides a structured process that identifies impacts on objectives and analyzes risk in terms of consequences and their probabilities before deciding on the need for further processing. The techniques are used within the risk assessment steps of identifying, analysing and evaluating risk as described in ISO 31000, and more generally whenever there is a need to understand uncertainty and its effects.

3 Occupational health and safety risk assessment

3.1 Purpose of risk assessment

The use of risk assessment as an aid to the management of health and safety within organizations has increased significantly in the late 1980s and early 1990s as a direct consequence of new legislation. When the risk assessment is applied to the entire workplace (rather than an individual piece of equipment), additional considerations must be taken into account. First, risk assessment is broader. Although the instrumental failure of a hazard may still be one important source of hazard, many more hazards may arise from the various and complex relationships between workers, technology, and the work environment. Factors such as worker motivation and morale, standards of training and supervision, and workplace ergonomics can also have a very important (and sometimes detrimental) effect. Therefore, methods must be used to identify hazards, including in-depth analysis of work activities, examination of how jobs are organized and supervised, and study of individual tasks with the aim of identifying safety-critical elements (Cox, Tait, 1998).

Risk assessment is a procedure that determines the level of danger, harm and effort in terms of injury at work, occupational disease, work-related illness and disruption in the work process that could cause harmful consequences for the safety and health of workers (Ordinance on risk assessment preparation, N.N.no 112/14, 129/19).

Risk assessment is a comprehensive process of risk identification, risk analysis and risk assessment. Risk assessment should be carried out systematically, iteratively and jointly, according to the knowledge and attitudes of the participants. The best available information should be used, supported by further investigation if necessary (ISO 31000:2018 Risk Management – Guidelines).

As stated earlier in the Republic of Croatia, the risk assessment is made in accordance with the provisions of the Law on Occupational Safety and Health (N.N. no. 71/14, 118/14, 94/18, 96/18), the Ordinance on Occupational Safety for Workplaces (N.N. no. 105 /20), the Ordinance on risk assessment preparation (N.N. no. 112/14, 129/19) and other laws and ordinances that regulate the field of occupational safety. The basic implementing regulation that prescribes the conditions, manner and method of creating a risk assessment, mandatory contents included in the assessment, data on which the risk assessment is based, as well as the classification of hazards, harms and efforts at work and in connection with the work is the Ordinance on risk assessment preparation (N.N.no 112/14, 129/19).

Based on the risk assessment, all employers are obliged to apply occupational safety rules, preventive measures, organize and implement work and production procedures, i.e. methods, and undertake other

activities to prevent and reduce worker exposure to identified risks, in order to eliminate or minimize the likelihood incidents at work (accidents and injuries), illnesses from occupational diseases or work-related illnesses, and to ensure a better level of protection at work at all levels of work organization and management.

The biggest risk to an organization is not taking a risk-based approach to protecting people, property, and the environment. Risk assessment is that part of risk management which provides a structured process that identifies how objectives may be affected, and analyzes the risk in term of consequences and their probabilities before deciding on whether further treatment is required. Risk assessment attempts to answer the following fundamental questions:

- what can happen and why (by risk identification)?
- what are the consequences?
- what is the probability of their future occurrence?
- are there any factors that mitigate the consequence of the risk or that reduce the probability of the risk?
- is the level of risk tolerable or acceptable and does it require further treatment? (Popov, Lyon, Hollcroft, 2016).

Creating safe working conditions, preserving the life and health of workers, but also business continuity and the development of the work process is the very purpose of occupational health and safety. Therefore, we can conclude that occupational health and safety is a very important element of any environment. Every incident at work (accident and injury) and occupational disease experienced by a worker and/or a person at work while performing work for the employer is considered, in terms of liability, to originate from work and for which the employer is responsible (unless the employer proves force majeure or the intention of the worker).

Risk assessment is the basis for the implementation of safety at work. Without a high-quality risk assessment, it is impossible to implement quality protection at work. If the risk assessment process – the start of the health and safety management approach – is not done well or not done at all, the appropriate preventive measures are unlikely to be identified or put in place.

The fundamental process of identifying, analyzing, and evaluating risk is necessary in providing those responsible for making business decision an understanding of the risk. This understanding allows decisions to be made regarding whether the identified risk is acceptable, and what control measures are most appropriate. Ultimately, the “output” of risk assessment is an “input” to the decision-making processes. Based on the analysis of the method of creating risk assessment in Croatia, we can state that there are a number of shortcomings and that risk assessment in most cases has no real purpose. The results of the risk assessment are often general or superficial and therefore cannot represent good information for decision-making. In addition, in practice, it is rare to meet the real will of the employer to take appropriate measures and improve the state of safety at work based on the outcome of the risk assessment. This conclusion is particularly worrying.

3.2 Authorization to carry out occupational health and safety work

In the Republic of Croatia, the performance of occupational health and safety activities is regulated by Ordinance on authorizations for occupational for occupational safety affairs affairs (N.N.no 58/22).

The Ministry of Labour, Pension System, Family and Social Policy prescribed the conditions under which the employer and natural or legal person can be authorized to perform occupational safety and health work, the procedure for issuing, canceling and revoking authorization, professional supervision of the performance of work for which authorization has been given, input and updating of data and reports that authorized persons submit to the ministry responsible for work via the Occupational Safety

Information System, ongoing professional training of occupational safety experts in authorized persons, and obligations and method of recording authorizations.

Occupational health and safety tasks for which the organization can obtain authorization are:

- performance of occupational health and safety work at the employer.
- training for safety at work (training of workers to work in a safe manner and training of employers, authorized persons and commissioners of workers for safety at work).
- creating a risk assessment.
- testing of work equipment.
- tests of physical, chemical or biological factors in the working environment.

The provisions of the Ordinance on risk assessment preparation (N.N. no. 112/14, 129/19) stipulate that risk assessments can be prepared by persons authorized to prepare risk assessments, while it can also be prepared by an employer for its own needs, provided that it has an employed occupational safety expert (exceptionally, an employer who does not have an occupational health and safety specialist can use interactive online tools OiRA - Online interactive Risk Assessment for their needs for assessing and documenting risk assessment, which relate to jobs in certain professions or industries, when these tools are set for individual jobs for use via the Ministry's website).

Currently, a total of 92 companies and 70 natural persons are authorized to perform occupational health and safety work in the Republic of Croatia. Authorized companies that make risk assessments do not have the obligation to educate the people who make the assessment on how to make a risk assessment. Practice shows that a small number of authorized companies prepare risk assessments in a high-quality manner. Risk assessment is mostly done to satisfy legal requirements without any real benefit in application. It is often a huge document with hundreds of pages that is put away in a drawer or closet and has no purpose.

3.3 Procedures, conditions and methods for creating risk assessment

3.3.1 Creating a risk assessment

When creating a risk assessment, it is necessary to plan the entire process in detail, implementing an interdisciplinary approach. Planning the entire risk assessment process is crucial for the successful organization and implementation of the risk assessment. Each preparation of a risk assessment consists of several steps: previous recording of the situation in order to determine the necessary data, data collection, recording of the current state, analysis and evaluation of collected data and conclusion.

As the first step in the implementation of the risk assessment, it is necessary to go to the organization ordering the risk assessment in order to determine the activity, technology and the choice of the method of risk assessment. Based on the snapshot of the situation, the determination of a working group for creating a risk assessment. The next step in creating a risk assessment consists of data collection. Before recording the situation, in parallel with the data collection, the expert team familiarizes itself with the basic facts of the jobs to be evaluated, conducts a review of the applicable regulations related to the employer's activity, conducts a review of professional literature, obtained documentation in order to become as fully acquainted with the dangers and harms at work as well as possible health damages. As part of the risk assessment, it is necessary to record the means of work, taking into account the rules of occupational health and safety. Risk assessment chapters are created from the collected documentation and snapshots, that is, the analysis and assessment of the collected data is carried out. Risk assessment is carried out in accordance with the Risk Assessment Matrix according to the general criteria of the risk level (probability, consequence), and the risk is assessed as low, medium or high risk. The conclusion of the risk assessment implies a proposal for measures to eliminate or reduce the level of danger, harm and effort.

In accordance with the regulations, risk assessment implies only the analysis of routine activities, while the risks of non-routine activities are not generally assessed. As already emphasized, practice shows that in most cases risk assessment is carried out only to satisfy legal requirements, that only one assessment method is prescribed, which is too general (matrix 3 x 3). In the case of employers who make their own risk assessment for their own needs, there is a noticeable lack of knowledge about the understanding and application of the risk assessment method.

3.3.2 Risk assessment deficiencies

There are numerous deficiencies of the risk assessment, which is carried out according to the defined method, the method from the Ordinance on risk assessment preparation (Official Gazette 112/14, 129/19).

According to the standard ISO 31000:2018 Risk Management – Guidelines, risk assessment is the overall process of risk identification, risk analysis and risk evaluation:

- risk identification - the purpose of risk identification is to find, recognize and describe risks that might help or prevent an organization achiev ingits objectives
- risk analysis - the purpose of risk analysis is to comprehend the nature of risk and its characteristics including, where appropriate, the level of risk
- risk evaluation - risk evaluation involves comparing the results of the risk analysis with the established risk criteria to determine where additional action is required.

The risk assessment method used in Croatia does not include risk evaluation. The reason for this is the fact that, according to the regulations, it is not necessary to define risk criteria or to determine when it is necessary to carry out additional actions to deal with the risk. Risk criteria should be aligned with the risk management framework and customized to the specific purpose and scope of the activity under consideration. Risk criteria should reflect the organization's values, objectives and resources and be consistent with policies and statements about risk management. The purpose of risk treatment is to select and implement options for addressing risk. Risk treatment involves an iterative process of: formulating and selecting risk treatment options; planning and implementing risk treatment; assessing the effectiveness of that treatment; deciding whether the remaining risk is acceptable; if not acceptable, taking further treatment.

Only one method of risk assessment is prescribed for application, which is too general (matrix 3 x 3). The prescribed risk assessment method is inadequate, and therefore insufficiently detailed in terms of more precise determination of the magnitude and significance of the risk. No risk evaluation is carried out. The assessment document contains a large amount of information that does not make sense to be contained in such a document, especially if the document is to have practical value and be used.

Employers generally do not understand the importance of a quality risk assessment and the implementation of occupational safety. Most employers still have access to occupational health and safety as a cost, and imposed useless obligations.

Experts who make risk assessments mostly do not have enough knowledge and understanding of risks. Additional education on risks and risk assessment techniques and raising awareness are necessary.

In world practice, they apply numerous risk assessment techniques. According to the standard IEC 31010:2019 Risk Management - Risk assessment techniques, there are 10 groups of techniques, with a total of 43 risk assessment techniques. It is necessary to amend the regulations and allow the application of other recognized risk assessment techniques.

The risk assessment procedure needs to be administratively simplified. The risk assessment document does not have to contain all the data on the basis of which the risk was assessed. The risk assessment document must be simple, reviewable and practical for everyday use.

In addition to risk assessment for routine activities, it is also necessary to assess the risks of non-routine activities. Therefore, it is necessary to prescribe the obligation to assess the risk of non-routine activities.

4 Conclusion

According to national regulations, all employers in the Republic of Croatia are obliged, taking into account the tasks and their nature, to assess the risks to the life and health of workers and persons at work. Risk assessment methods are very different around the world, where national regulations allow competent professionals to use different risk assessment techniques. The employer is obliged to have a risk assessment made in written or electronic form, which corresponds to the existing risks at work and in connection with the work and which is available to the worker at the workplace. Risk assessment is a procedure that determines the level of danger, harm and effort in terms of injury at work, occupational disease, work-related illness and disturbances in the work process that could cause harmful consequences for the safety and health of workers. Risk assessment is the basis for the implementation of safety at work. Without a high-quality risk assessment, it is impossible to implement quality protection at work. If the risk assessment process is not done well or not done at all, the appropriate preventive measures are unlikely to be identified or put in place.

In this article, numerous deficiencies of the implementation of risk assessment according to the legal regulations in the Republic of Croatia are presented and a discussion was conducted. The Croatian regulations governing risk assessment generally define the risk management system. The risk assessment must necessarily be carried out according to the prescribed method, which most experts consider to be too general and therefore ineffective. From everything shown, it can be concluded that it is necessary to change the legal regulations governing the preparation of occupational safety risk assessment, enabling the application of various risk assessment techniques, prescribing the obligation to assess the risk of non-routine activities, raising the awareness of employers about the importance of risk assessment, training experts who prepare risk assessment and raising awareness of the importance of risk assessment. Also, it is necessary for employers to understand what economic and other benefits they can achieve by creating a risk assessment that defines effective measures to improve the state of occupational health and safety, and that it is in their interest to create a quality risk assessment.

The aims and objectives of the research have been achieved. Basic theoretical principles of occupational health and safety, principles of risk assessment, legal requirements for risk assessment of occupational health and safety in the Republic of Croatia were analyzed and presented, and opinions on possible improvements were presented.

The results of this research can be used to further improve the risk assessment of occupational safety in the Republic of Croatia, to improve the state of occupational health and safety and for new research to determine the root causes of certain phenomena described in this article.

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