

MANAGING WORK SAFETY BY ANALISING INJURIES AT WORK

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Abstract The process of harmonization of regulatory acts in the area of occupational safety and health with the norms of European Union is taking its course. However, there can be a long way from normative regulation of occupational safety and health to safe work environment. We observe the results of application of measures for safe work through the number of injuries at work. In the paper we will make an analysis of injuries at work in 2016 and 2017, and show the state of safety in real life. As a method of research, the secondary data analysis is used.

Keywords: injuries; work safety; occupational safety.

1. INTRODUCTION

Safety at work is a very important area of social life. It is clear that the man has always aspired to do his activities in a way that will provide him safety. During the development of human civilisation, safety at work went through different phases. In the first phase it wasn't of special importance because of social regulation, role of the state and development level of the workforce. With time and more active involvement of the country in the relationship between the employer and the employee, the role and importance of safety at work is gradually changing. The cognition that injuries at work make enormous costs that reflect negatively both for employer and employee and the state, is a reason enough for more important role of safety at work. In this sense, making and harmonization of normative acts in area of safety at work is a necessary condition.

Does this mean that it is a sufficient condition for creating a safe work environment? In what way can we measure the results that are being achieved in the area of safety at work? In what way are we talking about "near miss" as a form of preventive activity in the process of creating a safe work environment? What is the price of an injury at work? How much are we dealing with and analysing the injuries at work that happened in the previous period? Who is dealing with that data and who are they informing about the results of their research? What did we learn from the injuries that happened and in what way did we turn the bad experiences into an excellent base for taking preventive activities? Those are all questions and dilemmas we will be dealing with in this paper, wanting to present the real condition in the area of safety at work.

In this paper through analysing numbers and structures of injuries at work in 2016 and 2017 on the territory of Republic of Serbia, we will try to indicate some trends. We are aware that a simple comparison of acquired data has multiple traps and can lead us to some results that do not reflect the

real condition. For more precise perceiving of this data we also need data for workforce, economic activity etc.

However, the goal of this paper is to define the clear frame of work from which we will draw some informations, which will motivate us to make a bigger picture when we are talking about safety at work. We will accentuate critical points when it comes to analysis of fatal injuries at work and severe injuries at work with a fatal outcome. In the first part of the paper we will become acquainted with the occurrence of safety at work in these regions, whereby we will pay special attention to normative activities in this area. After that, we will acquaint ourselves with some basic terms connected with the term of injury at work. We will display some dilemmas in terms of costs that occur as an integral part of the injuries at work as well as role and importance of safety culture in the process of making a safe work environment. After that we will engage in exact indicators about number and structure of injuries at work in the two observed years. In the last part we will try to draw attention to the importance of distinct and transparent publishing of the results of the analysis of injuries at work and their transferring to the person who is responsible for safety and health at work that, based on that, needs to correct certain protective measures to create a safe work ambient.

2.THE TERM INJURY AT WORK

The need for legal regulation of work relationships and safety at work is there in accordance with the development of the society itself. So, regulations like Law on Work Inspection from 1921, Law on Employee Safety from 1922, Law on Employee Social Insurance and other are created on the territory of old Yugoslavia. With introducing self-management there are two basic laws- about work relations and about public servants. Laws on work safety on the territory of Republic of Serbia in the past have been brought with numerous additions and changes. In accordance with generally accepted trend and effort for Serbia to get closer to European Union, the first Law on Safety and health at work is brought in 2005 [7].

Existence of legal and by-law acts is an important, but not a sufficient enough condition for creating the conditions for safe work. One of the first definitions of injury at work dates from 1884 and is connected to the procedure of introducing insurance in case of a work accident. Health legal service of social insurance in Germany has determined an injury at work as physical or mental health damage that occurred during one work shift influenced by exogenous factors [5]. In accordance with postulates of International Labour Organization (ILO), injuries at work are defined as any injury, illness or death of the person that occurred as a work accident.

Statistical office of European communities (Eurostat) quotes that in EU, almost 3 % of work-engaged people has experienced an accident at work that caused an absence longer than 3 days, i.e. 83 million sick days [2].

In time when technical systems on working tools prospered, when there is a clear obligation, both for designers and makers of the tools for work, when we are talking about safety aspects for tools for work, we have to look for new ways which will enable the reduction of the number of work injuries. We need to work much more on creating appropriate safety culture which should help in more clear understanding of the role of every individual in the process of creating a safe work environment.

IETI Transactions on Ergonomics and Safety

<http://ietl.net/TES/>

2018, Volume 2, Issue 2, 8-15, DOI: 10.6722/TES.201812_2(2).0002

Without the clear perception that the employee is in great measure responsible for his safe work, we cannot expect a great shift in the process of reducing the number of deadly and heavy injuries at work. Safety and health at work are being observed from the angle of existing and potential dangers and risks to which the employees are exposed to in the process of execution of their work tasks. The risk is usually measured through determination of degree of probability and consequences of some unforeseen event. In a situation when we have low risk level, we have high safety level, and when we have high risk level, we have low safety level. However, the relation between safety and risk is much more complex for us to come to relevant solutions that would show the right way in understanding this matter based on the above mentioned form. [10].

Result of the work of every engineer can be easily quantified. It is only a question of will and desire and the person for safety to acquire all necessary data which could easily point to economical aspect of injuries at work. One of the biggest problems starts from the fact that a big number of employers is not aware of size of costs that occur as results of an inappropriate work environment. Economical burdain of weak safety and health at work culture is estimated at 4% GTP every year (ILO, 2014; [9]). The question of cost of injury at work is the question of all questions. Whether we want it or not, a big part of our activities is being measured or is trying to be measured in money.

In order for us to come to a certain amount of money, it is necessary that we have the correct data at disposal. The basic data which we need concern the number of lost days because of injuries at work. According to our knowledge, you cannot get this data from any institution. What is especially interesting is that the employers do not worry about this because they find that data unimportant. A question comes up: why are the employers thinking like that?

It is because the engineers of work safety do not have the necessary width in perceiving their job and they are not presenting in the right way what are the costs of injuries at work to the employers. The information about the number of lost days due to injuries at work clearly frames the cost we are talking about. When we add that to the salary of the other employees that we have to hire, and also add indirect costs that occurred because of a standstill in the work progress and a greater premium of insurance for injuries at work, we easily see how quickly that amount is growing. Those are the numbers that should be presented to the employers in the right way so that they have a clear picture about the size of costs for injuries at work. Until the employers understand that the resources invested in the area of safety at work are not an expense, but an investment, we cannot expect big changes in employer's perception of work safety. In the base of every preventing, we start from the fact that in the first phase it is necessary to invest certain financial resources for the positive benefits to show in the next phase. Until we deal with work safety as an aspiration to control the causes of injuries at work, we cannot expect a significant move in the process of creating safe work environment. Injuries at work are determined by disbalance between unfavorable work conditions, insufficient understanding of safety and health at work both of employers and employees. Unfavorable work conditions include wide spectrum of biological, mechanical and physical exposure to the environment, psychological demands that refer to concrete tasks, work environment, questions about handling and using the materials, tools and machines, organizational factors, and also management pressure to achieve designed plans and production goals [1].

How much we are dealing with injuries at work and in what way and on what level are the causes and consequences of occurrence of injuries at work observed. From the author's experience, on the

employer's level, in most cases, nobody deals with analysis of the injuries at work that occurred. Employers are not interested and people for safety and health at work are not too interested to draw certain lesson about that. That is what is especially interesting, because it is them that are responsible people for safety and health at work. From the level of state, apart from simple collecting of those data, it is unclear if somebody is dealing with those injuries. Are the special programs that should become an integral part of inspection supervision in the process of controlling the application of measures for safe work in organizations made? The general impression is that nobody is dealing with that data. So how can we talk about safety and health at work as a preventive activity that should create conditions for safe work of all employees? With an approach like that we surely can't talk about a permanent reduction of injuries at work. If we look at the trend of injuries, we see that it is not on the descending path, but that it changes from year to year. The question of consequences of injuries at work on the quality of life of an individual who experienced injuries at work is a special question. In most cases, our health system recognizes only physical work injuries. Connection of stress and conditions in which injuries occur is very hard. According to the author, since the Law on Safety and Health at Work has come into force in Republic of Serbia, no injury at work has been classified as a stress consequence. The results of the studies clearly indicate that the people who experienced injuries at work, compared to other people who got hurt someplace else, suffer from wider spectrum of consequences of mental health, including stress, anxiety and depression [3,4].

By individual analysis of numerous cases of big accidents, it has been confirmed that the safety culture has got a great influence on creating a safe work environment. It is a known fact that the culture changes hard and slow. Because of that we need to comprehend it as a very important factor that influences the increase of business competences of every organization and to actively control its growth and development. Appropriate safety culture creates basic preconditions for long term productivity and health protection of employees which manifests in increase of competence, both for employer and employees but also for the state itself. On the other hand, it creates conditions for safer work environment of the employee [10].

According to Todorović (2010), the process of analysis of injuries at work can be observed through a circular cycle that consists of five phases: analysis of acquired data, determination of consequences of injuries at work, analysis of spent resources, defining the measures for preventing the number and difficulty of injuries at work, tracking of applied measures and collecting the feed back.

Spasić [6] quotes criteria for assessing the size of the injury rate i.e. the ratio of injuries at work over a certain period of time in relation to the average number of employees:

- Low rate of injury- the occurrence of injury up to 2% employees;
- Hightened rate of injury- the occurrence of injury from 2.1 to 4 % of employees;
- High rate of injuries- the occurrence of injuries from 4.1 to 6% of employees;
- Enormous rate of injuries- the occurrence of injuries with over 6.1% of employees.

Irresponsible behaviour of the employees often presents the source of injuries at work. Examples of behavior and positive feedback related to responsible behaviour strongly influence change of behaviour in the in the field of protection against the risk of injury.

Long term, safety programs based on behaviour have the goal to apply the normal way of safety at work: “We either do it this way or don't do it“ [10].

3. RESULT OF RESEARCH AND DISCUSSION

Injuries at work occur in several ways, but generally observed injuries occur due to inadequate working conditions, defective and unsafe work tools, incompetent workers for safe work. We can look at the end result of that state in the following chart.

Table 1. Review of work injuries in the period 2013-2017.

Year	Number of performed inspection supervisions in case of a deadly, sever with fatal, collective, difficult and light injuries at work					
	Total	Fatal	Severe injuries with a deadly outcome	Collective	Difficult	Light
2013.	1146	24	14	11	849	248
2014.	1100	21	17	19	904	139
2015.	947	24	14	18	780	111
2016.	900	29	13	20	774	64
2017.	919	23	16	14	817	49

For the purposes of this paper, we will put the accent on the analysis of injuries at work from 2016 and 2017. Before any analysis we must start from the fact that simple observation of official data unfortunately does not represent the real state. A large number of employers still do not report injuries at work. Fatal injuries or severe injuries at work are hard to cover, but everything else often goes unreported. It sounds incredible that in the entire year only 49 light injuries has been reported. For the purposes of this work, we will not deal with this. We just want to indicate on the fact that these statistical data shouldn't be taken at face value. It is clear that simplified looking at the data on the number of injuries at work says that there is a slight decline for 21% when we are talking about fatal injuries. An identical situation exists with data for severe injuries with fatal outcome with 19%. There is also a declining trend with collective injuries with fatal outcome in the amount of 30%.

What is concerning is the negative trend when it comes to severe injuries. When we are talking about them, there is a negative trend, i.e. increase of number of injuries at work up to 6%.

Looking at the report from the work inspection we can conclude that there is a certain positive breakthrough because it is being relatively precisely said as to what are the causes that led to injuries at work. The problem starts from what is not visible, at least not to authors, and that is who uses this data and in what way do they use the data to conclude the change of conscience and use of undertaking corrective measures in the process of creating a safe work environment. By analysing the causes and circumstances due to which the injuries at work occurred, it has been confirmed that the most common causes of injuries in 2016 were the following: unsafe work at altitude and on improperly mounted scaffolds, not using the prescribed funds and tools for personal safety at work, primarily work without the safety helmet and safety belt, work in improperly secured excavations, non-application of the basic principles of the organisation of works, deviation from proper and

established work process, improper cooperation (coordination) of participants in the works, improper work with working tools, incompetence of engaged at work for safe work, incomplete implementation of safety and health at work measures at work places, engaging a significant amount of untrained people to 'work black' [11].

What is not good is that the number of fatal injuries based on every of above mentioned basics is not seen. If we say, for example, that from 29 fatal injuries, 20 occurred as a consequence of unsafe work on altitude and improperly mounted scaffolds, then we can come to clear conclusions that the scaffolds are our biggest problem. In the next phase we should organize seminars for all people in safety and health work which would, as a goal, would have only education when it comes to scaffolds and work at altitude. All people for safety and health at work would have an obligation to necessarily attend to one seminar with this topic once a year. An integral part of all these activities would also be a periodic organization of work inspection at construction which would have a goal that through preventive scaffolds and work at altitude check ups influence the change of business practice in making of scaffolds and the technology of working at altitude. In such continuous work we are sure that the general ambient would change and that the number of these injuries at work would gradually decline. Of course, there shouldn't be expectations that there will be significant shifts in a relatively short period because it still depends a lot on the perception of employees and employers.

However, until we start dealing with fatal injuries in this way, we don't see a clear guide mark that will create environment for the work of all employees. In the yearly report of Work Inspection for 2017 [12], jobs in which the injuries occurred are clearly showed. However, the basic question that comes up is related to the end users of this data, in which way do this data change the perception of safe environment and create safe working conditions.

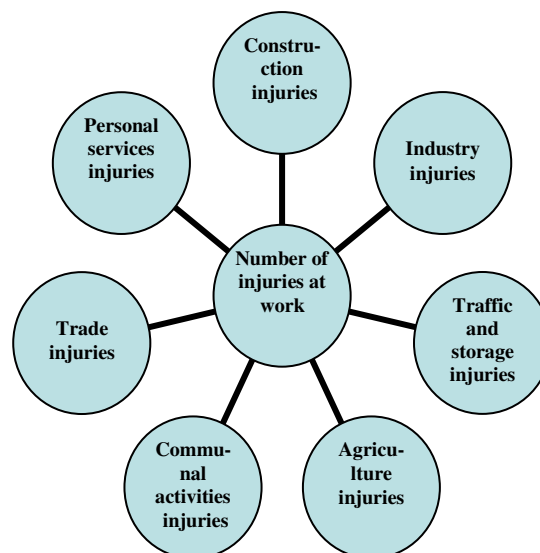


Figure 1. Structure of work injury in 2017 by activity.

If we look at this data, we can see in which direction preventive activities should be organized. When analysing the official reports of the number of injuries at work for 2016 the data on injuries at certain jobs were not available, unlike those for 2017. What we want to point out is the fact that these data exist at a hardly approachable place on the site of Ministry of Labor, Employment, Veterans' Affairs and Social Affairs. The Ministry fulfilled its legal obligation and updated the public about the current situation when it comes to injuries at work and the results of work inspections. Analysing the report of work inspections, we can notice that they give clear guidelines that should help in creating conditions for reduction of the number and severity of injuries at work. Except the general measures and many nice wishes, in one policy, the urge to establish efficient national registration and collecting the data on injuries at work and professional illnesses system is defined. The first question we ask is related to the legal grounds which would obligate the employers to keep records which are connected to injuries at work and lost work days. Is there such a legal ground? No, there isn't. Then how are we supposed to make the employer keep that kind of records? Work inspection should organize its' activity in two directions when it comes to causes which led to severe and fatal injuries at work. The first direction should be related to reinforced supervision of application of safety work measures in these jobs during which the accent should be placed on observing the causes which in that job generated causes for occurrence of fatal injuries at work. The other direction of activities of the work inspection should be related to education of people for safety and health at work whereby the accent would be placed on critical points which in the most cases lead to creating the conditions for fatal injuries at work.

4.CONCLUSION

Based on everything aforementioned we can conclude that there is a trend of reduction of fatal deaths at work. Should we be pleased with the fact that in the previous year died 6 people less? That only 23 people died? Does it mean that in this ambient this year there won't be 6 more? Of course it doesn't. The current fall shouldn't and mustn't be an encouragement because human life is priceless. Without preventive observation of causes of injuries at work there is no significant breakthrough. In that sense and learning from the mistakes that happened and making the preconditions for those same mistakes not to be repeated. The causes which led to fatal injuries at work must be interpreted in seminars for people for safety and health at work with concrete explanations of what led to those injuries and in which way the conditions for prevention of these injuries. In the next phase people for safety and health at work should work on prevention of repeating of these causes as well as proactive communication with their employees with goal that through analysing the events that have almost happened, preconditions for safe work environment will be created. The role of work inspection is especially significant in that process and through various ways of education should influence a change of conscience that we should be dealing with safety at work once the injury happens.

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