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SITUATION REGARDING ACCIDENTS AT WORK IN THE EUROPEAN UNION AND IN THE REPUBLIC OF MACEDONIA

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Abstract: In this paper, some of the statistical indicators which refer to serious and fatal accidents at work in the European Union (EU-28) and in the Republic Macedonia are presented. The performed statistical analysis shows that the number of serious and fatal accidents at work in EU-28 and in the Republic Macedonia, in 2012 was decreased in comparison with 2008. Nevertheless, the Republic of Macedonia has high incidence rate for fatal accidents at work compared to highly develop European countries. The activities of public administration and defense, construction, manufacturing, transportation and storage sector and the activities of households as employers are the economic sectors in which it is possible to prevent injuries caused by serious accidents at work. The activities of households as employers, construction sector, transportation and storage sector and agriculture, forestry and fishing are the economic sectors in where prevention of injuries at work caused by fatal accidents must be addressed.

Key words: accidents, fatal, serious, incidence rate.

1. INTRODUCTION

Accidents at work are directly related to the characteristics of the work process and workplace conditions. According to the European Agency for Safety and Health at work, occupational diseases and accidents at work, that is a consequence of inadequately organized system for safety and health at work, each cost the country between 2.6 to 3.8% of GDP, [7]. This is the basis for serious concern, and the problem grows further if we consider that many occupational diseases and workplace accidents remain unregistered. In 1990 the Eurostat harmonization project of European statistics was initiated on accidents at work (European Statistics on Accidents at Work - ESAW) to develop methodologies for the collection of comparable and significant data within the European Union, [5]. In European Statistic for Accidents at Work methodology an 'Accident at work' is defined as 'a discrete occurrence in the course of work which leads to physical or mental harm'. The phrase 'in the course of work' means while engaged in an occupational activity or during the time spent at work, [5].

The following types of accidents are included: cases of acute poisoning, wilful acts of other persons, accidents that occurred on the premises of an employer other than that which employs the victim, accidents in public places or public means of transport during a journey in the course of works. According to this methodology, accidents in workplace do not include: commuting accidents (accidents that occur during the normal journey to or from home and place of work), deliberate self-inflicted injuries, accidents from strictly natural causes (accidents caused solely by a medical condition, e.g., cardiac or cerebral incidents), accidents to members of the public, even if such an accident is due to a work activity within a company, [5]. In the European methodology a 'fatal accident' is defined as an accident which leads to the death of a victim within one year of the accident. It should be emphasized that according to the European methodology, in the statistical analysis of data in order to provide comparative data, only injuries at work that has caused an absence from work for more than three calendar days, are analyzed. In the Directive 89/391/EEC, [4] on the safety and health of workers at work is contained provision for the employer to keep records of accidents at work resulting in an inability to perform their duties for more than three days.

In accordance with national law regulations, employer is obliged to drawn up reports for occupational accidents suffered by his workers. In Macedonia this area is regulated by the Rulebook on keeping records of Occupational Safety and Health at Work (Official Gazette of RM, No. 136/2007), [8]. There are several specialized organizations and institutions in the Republic of Macedonia dealing exclusively with working conditions. These include State statistical office, the Labour inspectorate, Institute for

public health, the Macedonian Occupational Safety and Health Association, Organization of the employers of Republic of Macedonia and the Trade unions. In this paper, some statistics indicators which relate to accidents at work in Republic of Macedonia and in the European Union are given.

2. SITUATION REGARDING ACCIDENTS AT WORK IN THE EUROPEAN UNION

The accident at work has a high degree of variability within the European Union, which is influenced by different social and legal practices, [3]. The European Statistics on Accidents at Work (ESAW) methodology considers two main types of indicators on accidents at work: the number of accidents and the incidence rate. To define the frequency of accidents i.e. incidence rate, it is necessary to define the relationship between the number of accidents and the reference population which ideally is the number of persons in employment (persons exposed to the risk of accident at work). The incidence rate is defined as the number of accidents at work per 100 000 persons in employment, [5]

$$\text{Incidence rate} = \frac{\text{Number of accidents (fatal or non-fatal)}}{\text{Number of employed persons in the covered population}} \times 100000$$

This rate can be based on the variables that classify the victims of an accident (e.g. economic activities, age, etc.), it could be calculated for the whole European Union, for a Member State or any other subdivision of the population, and the type of injury (injured body part, etc.). For a more than-three-day injury which results in the injured person being away from work or unable to do their normal work for more than three days¹; or for fatal accidents, the incidence rates are calculated separately. In 2012, there were just over 1.8 million serious accidents that resulted in more than three days of absence from work and 2797 fatal accidents in the EU-28, [5]. It is a considerable reduction of number of accidents in relation to 2008, when there had been approximately more than 1.3 million serious accidents and 604 more fatal accidents (based on time series for the EU-27). Across the EU-28 there were, on average 2.03 fatal accidents per 100 000 persons employed in 2012 (Figure 1).

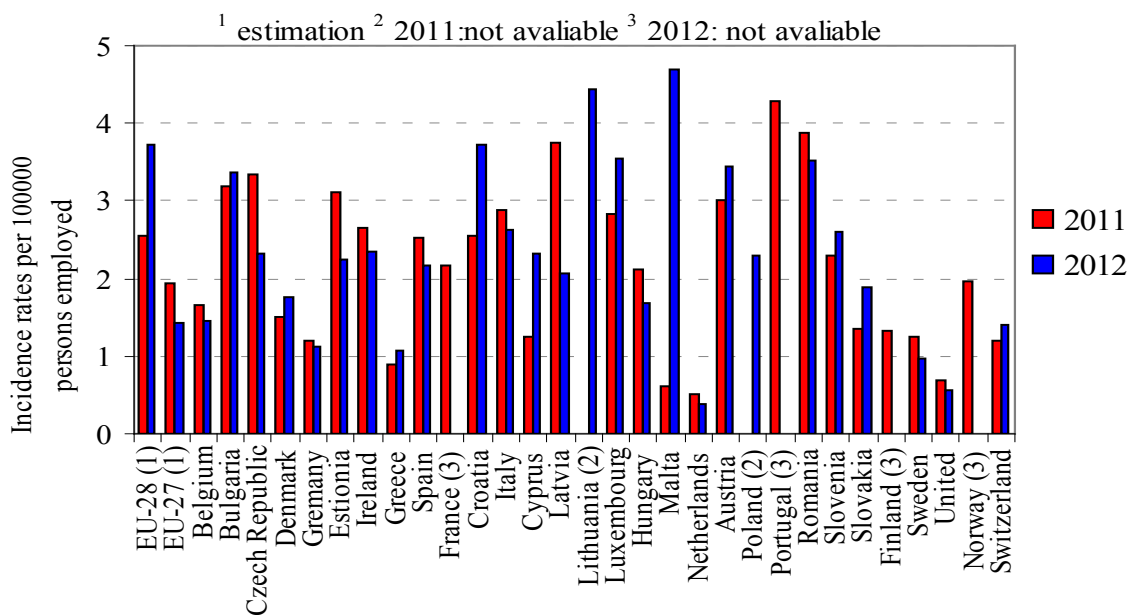


Figure 1. Number of fatal accidents at work, 2011 to 2012-Source: Eurostat^[6]

Among the EU Member States, the highest incidence rate of fatal accidents at work in 2012 was recorded in Malta (4.70 deaths from accidents at work per 100 000 persons employed), followed by Lithuania with 4.50, Croatia with 3.73, Luxembourg with 3.55, Romania with 3.53 and Bulgaria with 3.37 deaths from accidents at work per 100 000 persons employed. On the other hand, the Netherlands, Sweden and the United Kingdom, recorded the lowest incidence rates, below 1.0 fatal accidents at work per 100 000 persons employed. In EU-28 there were 932 serious accidents at work per 100 000 persons employed (Figure 2). The incidence of serious accidents at work in 2012 was highest in Spain reporting in excess of 2594 serious accidents per 100 000 persons employed. This trend was followed by Denmark with 2148 serious accidents. In the second group, Switzerland, (1837), Germany (1867), Luxembourg (1814), Netherlands (1794) Belgium (1740) and Slovenia with (1697) accidents per 100 000 persons employed, can be classified. By far the lowest rates were reported in Bulgaria (78), Latvia (89), and Romania (42), below 100 serious work accidents per 100 000 persons employed. To explain these differences deeper statistical analysis is needed.

The number of accidents at work varies considerably depending upon the economic activity. In Figure 3 the fatal and serious accidents at work by economic activity in the EU-28 in 2012 are shown.

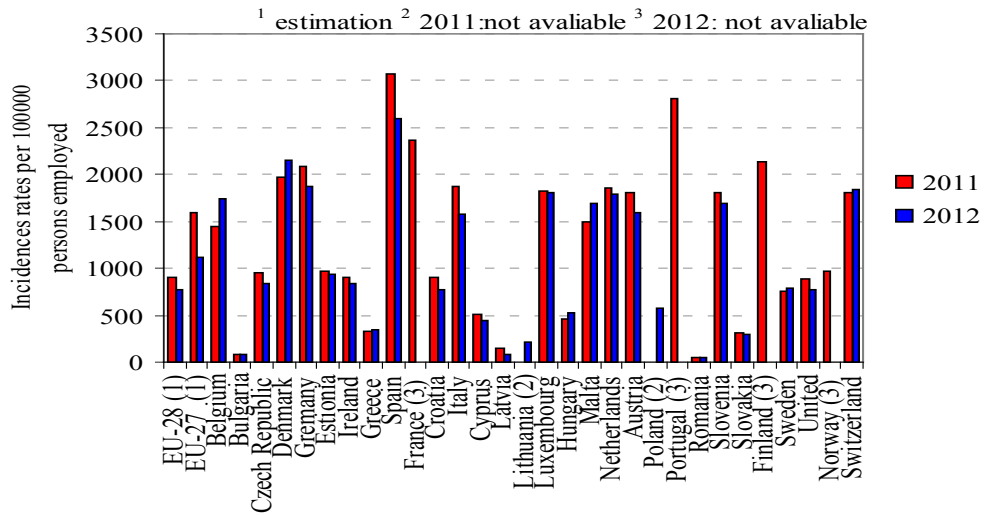


Figure 2. Number of serious accidents at work, 2011 to 2012-Source: Eurostat^[6]

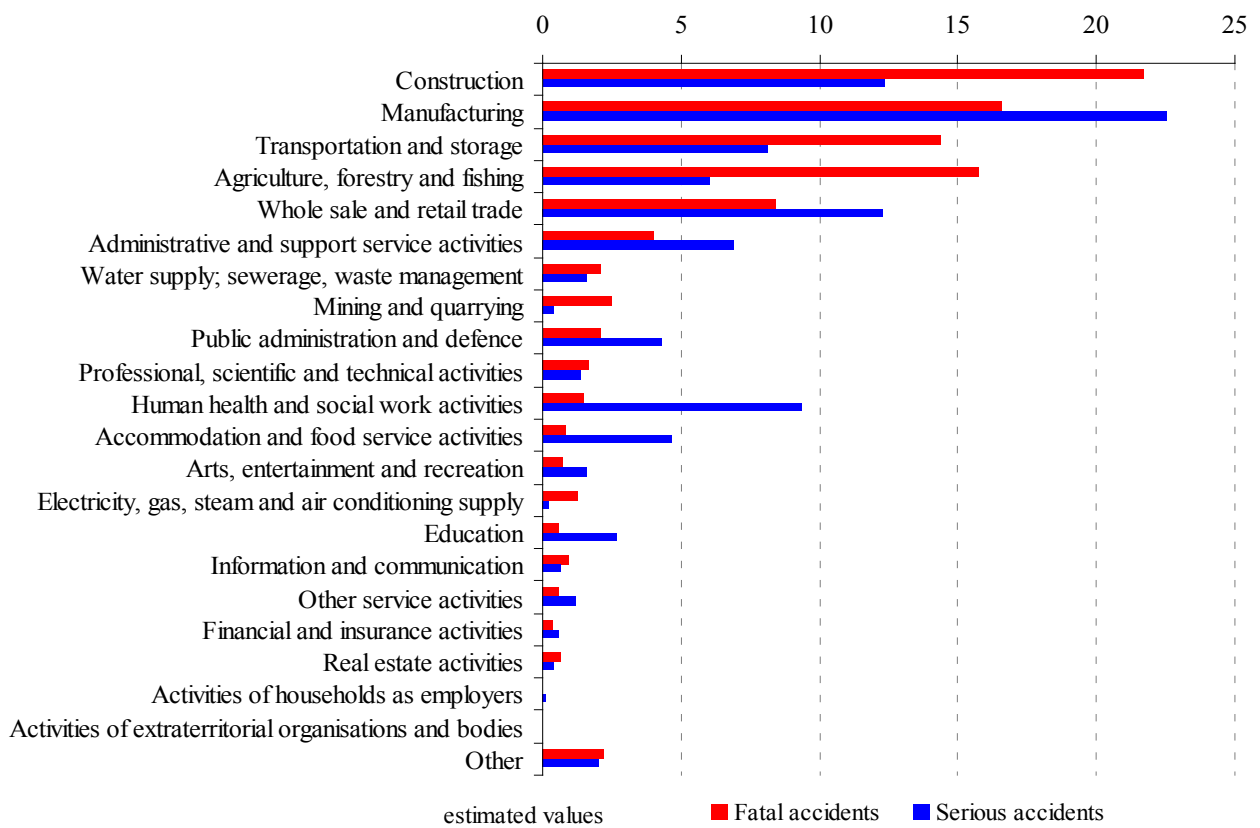


Figure 3. Fatal and serious accidents at work by economic activity, EU-28, 2012-Source: Eurostat^[6] (% of fatal and serious accidents)

In the EU-28 in 2012, the construction, manufacturing, transportation and storage, and agriculture, forestry and fishing sectors together make 68.4 % of all fatal accidents at work and 49.0 % of all serious accidents. The construction sector with 21.7% of all fatal accidents at work is on the first place, followed by manufacturing sector with 16.6% of all fatal accidents at work. Agriculture, forestry and fishing with 15.7% and transportation and storage sector with 14.4% of all fatal accidents at work are in the top four sectors. After that follows whole sale and retail trade and repair vehicles and motorcycles 8.4% and administrative and support service activities with 4%. Nevertheless, serious accidents were relatively common within water supply; sewerage, waste management and remediation activities, mining and quarrying, public administration and defense, professional, scientific and technical activities, human health and social work activities, electricity, gas, steam and air conditioning supply (between 2.51% to 1.27%). The rest fatal accidents at work in all other sectors are under 1%. With 22.5% of all serious accidents at work manufacturing sector took first place. Follows construction 12.4%, whole sale and retail trade 12.3%, human health and social work activities 9.4%, transportation and storage 8.1% and agriculture, forestry and fishing sectors with 6.0% of all serious accidents at work.

Data according to the type of injury sustained during the accident in the EU-28 is shown on Figure 4.

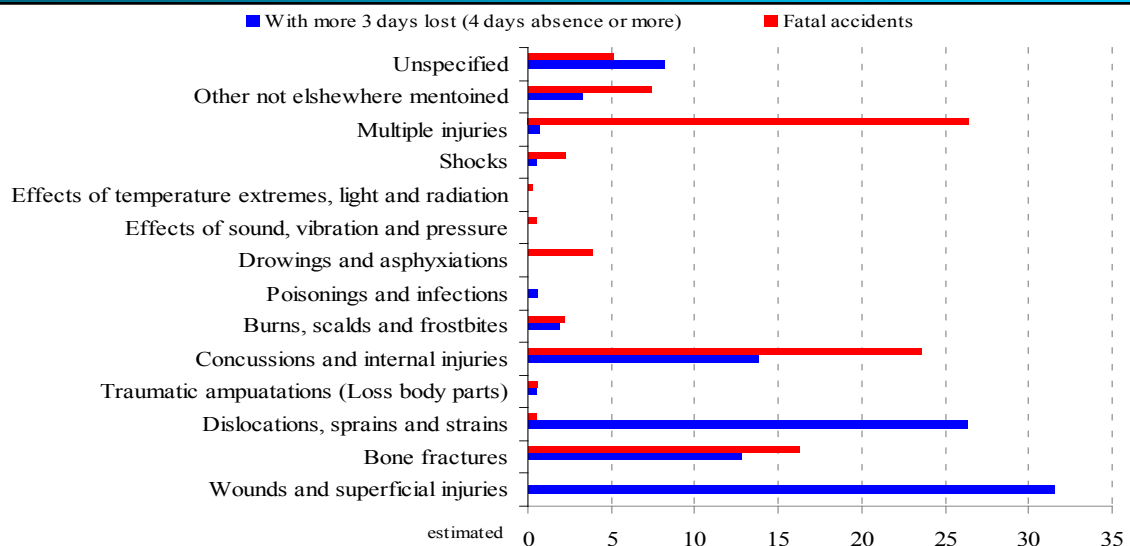


Figure 4. Accidents at work by type of injury, EU-28, 2012 (%), -Source: Eurostat^[6] (% of fatal and serious accidents)

The data for the EU-28 for 2012 shows that there were two types of common injury which caused more than 3 days lost (4 days absence or more), wounds and superficial injuries 31.5% of the total and dislocations, sprains and strains 26.4%. Next are accidents which caused concussion and internal injuries 13.8%, while a similar proportion of accidents concerned bone fractures 12.8%. After that accidents which caused unspecified injuries 8.1% and burns, scalds and frostbites 1.8%, follow. All other injuries are below 1%. The highest percentages of injuries that are caused as a result of fatal accidents were multiple injuries 26.4% and concussion and internal injuries 23.6%. Follow accidents which caused bone fractures (16.3%), other not elsewhere mentioned 7.4% and unspecified with 5.1%.

3. SITUATION REGARDING ACCIDENTS AT WORK IN THE REPUBLIC MACEDONIA

The data on the number of accidents at work in the Republic of Macedonia is not confidential for the reason that different relevant institutions (State statistical office, Institute for public health, State Labour Inspectorate, Institute for occupational health of Republic Macedonia, and Macedonian Occupational Safety and Health Association) published various statistical data. This is confirmed by the fact that in 2011, 786 serious accidents at work and 16 fatal accidents are registered by the State Labour Inspectorate [7], while by the Institute for Public Health 1520 serious accidents are registered, [7]. In the annual report for accidents at work for 2011 by Macedonian Occupational Safety and Health Association were registered 79 serious and 44 fatal accidents at work, [1].

In the Republic of Macedonia, in 2012, the total number of accidents at work was 161 from which there were 116 serious accidents that resulted in more than three days of absence from work and 45 fatal accidents at work, [1]. In comparison with 2008 when 178 total accidents at work were registered, [2] it is a reduction of 10%. This is due to the reduction in the number of fatal accidents at work that in 2008 year consisted of 62 fatal accidents at work.

The incidence rate of fatal accidents at work in 2012 in the Republic of Macedonia were 6.8 deaths from accidents at work per 100 000 persons employed. In comparison with Malta with the highest incidence rate of fatal accidents, 4.7 deaths from accidents at work per 100 000 persons employed in the E-28, it may be concluded that Macedonia has a fairly higher incidence rate of fatal accidents at work. The incidence rate of serious accidents at work in the Republic of Macedonia in 2012 was 17.2 serious accidents per 100 000 persons employed. This means that the Republic of Macedonia can be classified in the group of EU countries that have less than 100 serious work accidents per 100 000 persons employed. In Figure 5 the fatal and serious accidents at work by economic activity in the Republic of Macedonia in 2012 are shown.

The activities of public administration and defense, construction, manufacturing and transportation and storage sector together accounted for 81.4% of all serious accidents. As far as serious accidents at work in 2012 for the Republic Macedonia are concerned, the public administration and defense sector with 38.1% took first place, followed by construction sector with 29.7%, manufacturing with 7.63% and transportation and storage sector with 5.9% serious accidents. As far as serious accidents at work in the Republic of Macedonia in 2012, the activities of households as employers with 38.6% took first place, followed by construction sector with 20.5%, and transportation and storage sector with 18.2% and agriculture, forestry and fishing with 9.1% serious accidents at work.

In Figure 6, the data according to the type of injury sustained during the accident in the Republic of Macedonia for 2011 is presented, mainly because there is no relevant statistical data for 2012. The data for the accidents at work by type of injury in the

Republic of Macedonia for 2011 shows that there were two types of common injury which caused more than 3 days of absence and fatal accidents at work, and the total number of accidents at work with more than 3 days lost (4 days absence or more), bone fractures 45.4% of the total and other not elsewhere mentioned 28.2%. After that follow accidents which caused concussion and internal injuries 9.5%, wounds and superficial injuries 6.0%, injuries to the head and neck 4.8%, burns, scalds and frostbites 2.2% and injuries to the eye 1.9%. The fatal accidents participated with 2.1% of the total number of injuries.

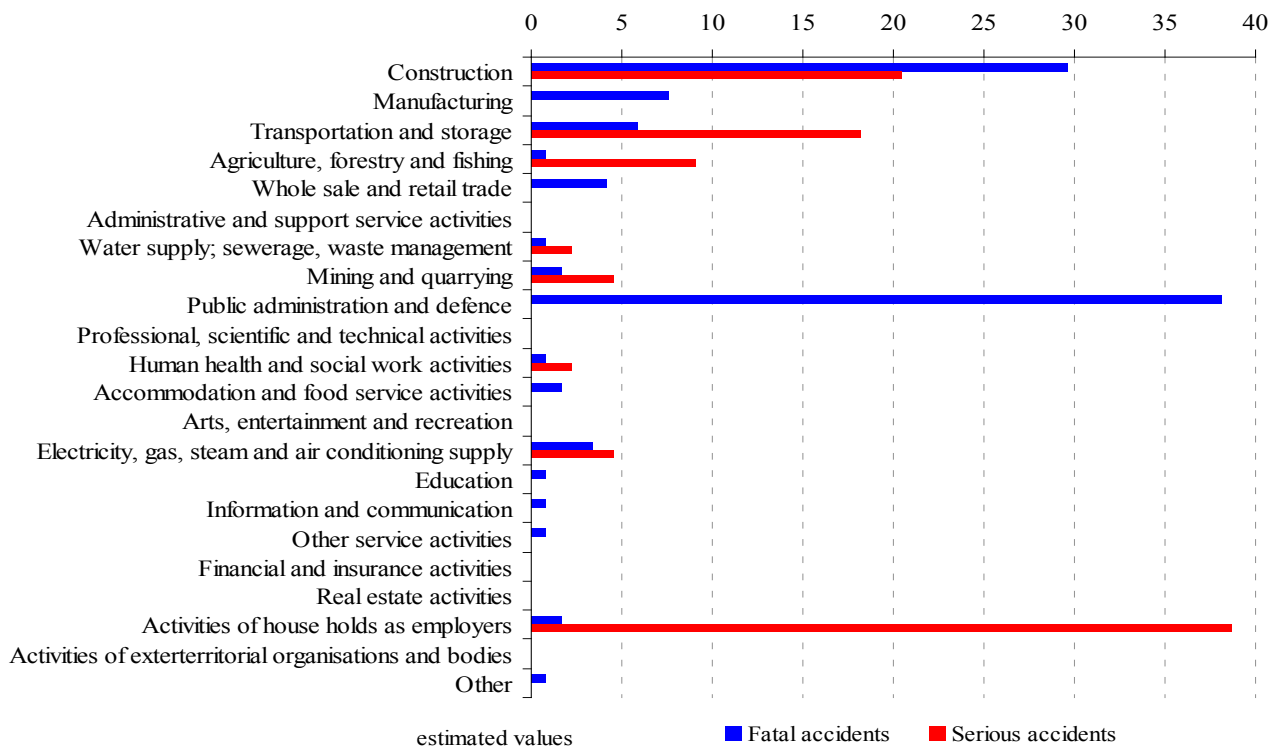


Figure 5. Fatal and serious accidents at work by economic activity, the Republic of Macedonia, 2012-Source: Macedonian occupational safety and health association (% of fatal and serious accidents)^[7]

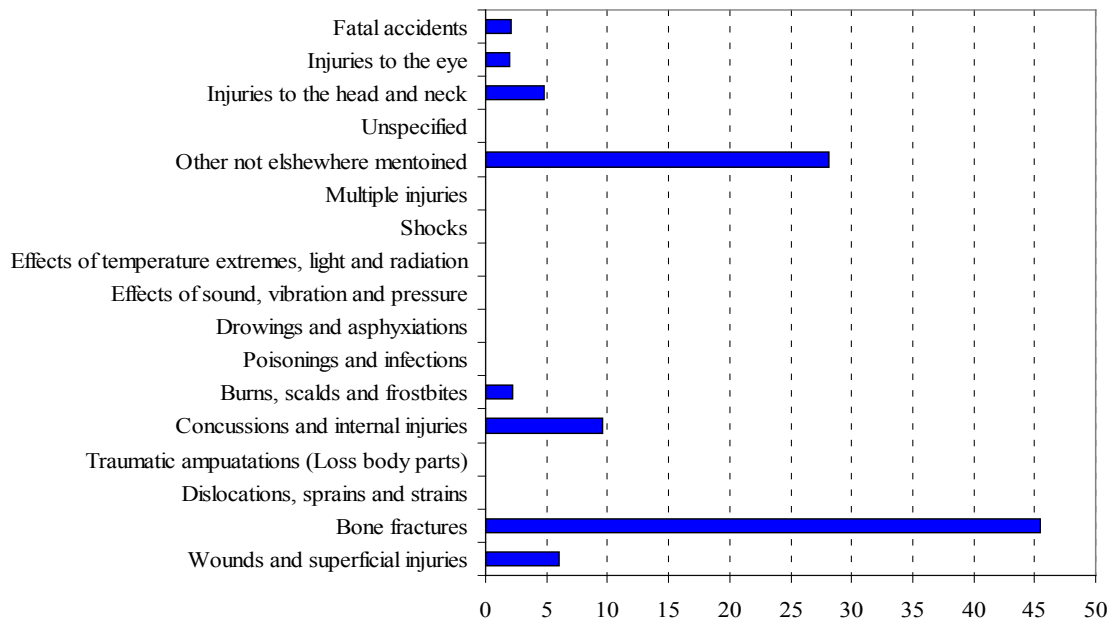


Figure 6. Accidents at work by type of injury, Republic of Macedonia, 2012 (%), -Source: Information for workplace injuries and occupational diseases in Republic of Macedonia 2010-2011^[7] (% of fatal and serious accidents)

4. CONCLUSION

From the performed statistical analyses for the number of serious accidents at work in the European Union and in the Republic Macedonia in 2012, it may be concluded that there is considerable reduction of number of accidents at work in relation to 2008. But the high value of incidence rate of fatal accidents at work (6.8) ranks the Republic Macedonia as the country above the European average. While with the incidence rate of serious accidents at work (17.2 serious accidents per 100 000 persons employed), Republic of Macedonia can be classified in the group of EU countries that have less than 100 serious work accidents. The

construction, manufacturing, transportation and storage sectors and agriculture, forestry and fishing are the top four sectors in which fatal and serious accidents of work in the EU-28 occurred. With 21.7% fatal accidents at work in the EU-28 in 2012 the construction sector took first place, while manufacturing sector with 22.5% was first in the rank of serious accidents at work. In the Republic Macedonia in 2012, top four sectors in which serious accidents at work happened are: the activities of public administration and defense, construction, manufacturing and transportation and storage sector, while for fatal accidents at work, the sector households as employers is on the first place. In EU there were two types of common injury which caused more than 3 days of absence and fatal accidents at work, the total number of accidents at work with more than 3 days lost (4 days absence or more), wounds and superficial injuries and the total and dislocations, sprains and strains. The highest percentages of injuries that are caused as a result of fatal accidents were: multiple injuries and concussion and internal injuries. This analysis cannot be done for Macedonia because of the unmatched injuries and work according to the Eurostat classification of injuries. But, we can say that bone fractures are the most common injuries, while the fatal accidents at work participated with 2.1 % of the total number of injuries.

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