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OCCUPATIONAL SAFETY AND HEALTH STATISTICS WITHIN THE SUSTAINABILITY AGENDA

Abstract: *This paper analyzes the situation with occupational safety in the Republic of North Macedonia, including non-fatal and fatal accidents at work in the last decade (2010-2021). According to the official data published in the annual reports of the Macedonian Occupational Safety and Health Association (MOSHA) and statistical data processing, there were a total of 1,708 accidents at work in the last decade, out of which, unfortunately, 23.30%, or 398 accidents, ended fatally. By far the most numerous were the accidents in Public Administration and Defence, 461, but with the lowest mortality rate of 5.21%. On the other hand, 259 accidents were registered with Households during the entire period, but the mortality reached as much as 51.74%, which is an extremely high number. Construction is also a characteristic sector, where 25.40% out of a total of 315 accidents were deaths. These data are even more alarming given that a large number of accidents at work remain unregistered.*

Improved sustainable concepts should improve the quality of workplaces and prevent injuries and deaths, which should be the primary goal of every employer. Social and economic benefits of better health and safety at work are the main objectives of a stronger national strategy, which will lead to many benefits, such as reduced healthcare costs and sick leave, and improved working methods.

Key words: non-fatal accidents, deaths, occupational safety and health, sustainability agenda.

INTRODUCTION

If the sustainability agenda, by definition, involves a strategy to meet the needs of the present without compromising the ability of future generations to meet their own needs in the future, then occupational safety has a clearly defined resource conservation platform, that fits right into the Rio Summit declaration (WHO, 1995). This platform is based on saving resources that have a particularly high value because they are human (Taubitz, 2010).

The importance of workplace safety is a crucial factor in the quality of life at both the individual and the collective level, so improved sustainable concepts should help create higher quality workplaces and prevent injuries and deaths, which should also be the primary goal of every employer (Eurostat, 2022). Relying on the Treaty establishing the European Economic Community, the 'Council directive 89/391/EEC' (1989), as a fundamental safety and health legal act, lays down the general principles concerning the prevention and protection of workers against occupational accidents and diseases. For safety and health purposes, this act contains specific principles for the assessment, prevention and elimination of risks and factors of accidents (Directive 89/391/EEC, 1989). Also, particular importance is

attached to the implementation of basic principles such as: information, consultation, balanced participation in accordance with national laws and practices, and training of workers and their representatives.

In accordance with the statement of the European Union's information agency for occupational safety and health (EU-OSHA) that poor occupational safety and health always involves financial costs, poor occupational health and reduced working capacity of workers may cause an economic loss of up to 10-20% of the Gross National Product of a country (WHO, 1995). Globally, occupational deaths, diseases and illnesses account for an estimated loss of about 4% of the Gross Domestic Product (GDP) (Amponsah-Tawiah, 2013). Particularly high rates of deaths, injuries and accidents at work are found not only in non-EU countries, but also in those that are in the EU, (Amponsah-Tawia & Mensah, 2016). Despite all the controls and measures being taken by the Labour Inspectorate and the publicly disclosed data by State Statistical Office, the Institute for Public Health, the Macedonian Occupational Safety and Health Association (MOSHA) and the Organization of Employers of North Macedonia (Lutovska et al., 2017), occupational related accidents, diseases and hazards are estimated to cost our country over €400 million (MOSHA, 2021).

Consequently, every employer is obligated to identify the hazards and risk factors related to work or working conditions, eliminate or reduce them and assess the effects of the remaining risks to the employees' health and safety (Anttonen and Pääkkönen, 2010). Among other things, employers should ensure the safety and health of workers in every aspect related to work and prepare reports and keep records of accidents at work that result in absence from work longer than three days (European Commission. European Statistics on Accidents at Work (ESAW), 2013).

MATERIALS AND METHODS

Accidents at work in the EU

In total, 3.1 million non-fatal accidents in the EU with at least four calendar days of absence from work occurred in 2019. Considering that the number of accidents registered as fatal is 3,408, a ratio of approximately 920 non-fatal accidents for every fatal one is obtained (Taubitz, 2010). Compared with 2018, there were additional 76 fatal accidents at work in the EU in 2019, which is equivalent to an increase of 2.3 % (Eurostat, 2022).

Moreover, it is obvious from the analysis by activity that the number of accidents at work varies greatly depending on the economic activity (Fig. 1). Thus, 43.9% of all accidents at work in 2019 were attributed to the construction, transport and storage, manufacturing and agriculture, forestry and fisheries sectors combined. Also, 64.4% of fatal accidents occurred in this group of sectors. Specifically, 22.2% of all fatal accidents at work in the EU are attributed to the construction sector, while about 15% pertain to transportation and storage. They are followed by manufacturing with 14.8% and agriculture, forestry and fishing with 12.5% (Eurostat, 2022).

In the NACE (Statistical classification of economic activities in the European Community) sections, double-digit shares of the total number of non-fatal accidents were recorded, whereby the manufacturing sector share was 18.7%, wholesale and retail 12.3 %, construction 11.8 %, and human health and social work activities 11.0 %.

Fatal and non-fatal accidents at work by NACE section, EU, 2019 (% of fatal and non-fatal accidents)

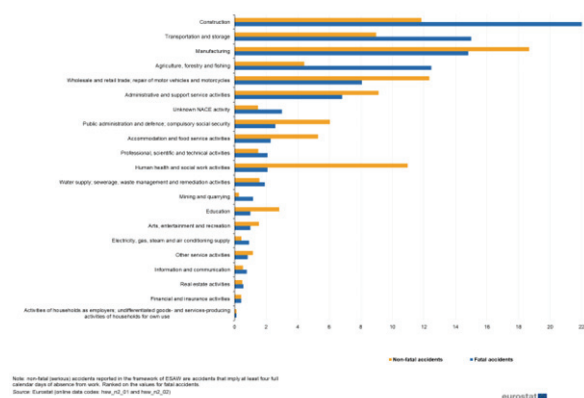


Figure 1. Fatal and non-fatal accidents at work by economic activity, EU-28, 2019 (Source: Eurostat)

The figures indicate that more than a fifth of all fatal accidents at work in the EU took place within the construction sector. Considering the research that showed the highest number of fatal accidents occurring in the construction sector in Europe, it is clear that the construction industry is the sector with the highest risk.

Accidents at work in the Republic of North Macedonia

In 2007, North Macedonia adopted the Law on Occupational Safety and Health (Official Gazette of the Republic of Macedonia, No. 92/2007) and completely incorporated the provisions of 'Council directive 89/391/EEC' (1989), as a legal act for basic safety and health at work (European Commission. European Statistics on Accidents at Work (ESAW), 2013). According to the official data published in the annual reports of MOSHA (2010-2021), and statistical data processing, there were a total of 1,708 accidents at work in the last decade, out of which, unfortunately, 398, or 23.30%, ended fatally (Table 1).

Table 1. Accidents at work in North Macedonia in all sectors for the period from 2010 to 2021

Year	2010	2011	2012	2013	2014	2015
Non-fatal accidents	85	79	116	70	88	105
Fatal accidents	44	44	45	28	42	39
Year	2016	2017	2018	2019	2020	2021
Non-fatal accidents	94	134	124	153	127	135
Fatal accidents	19	24	33	25	25	30

The highest number of accidents at work, 178, occurred in 2019, whereby 14.04% were accidents with fatal outcomes, which is the lowest percentage of mortality in the entire analyzed decade. On the other hand, the highest mortality rate of 35.77% was recorded in 2011. In 2021, there was a slight increase in the number of accidents compared to 2020, but the fatality percentage of 16.45% in 2020 rose to 18.18% in 2021.

A decline was observed in 2016, when a total of 113 accidents at work were registered and 16.81% of them were deaths (Fig. 2).

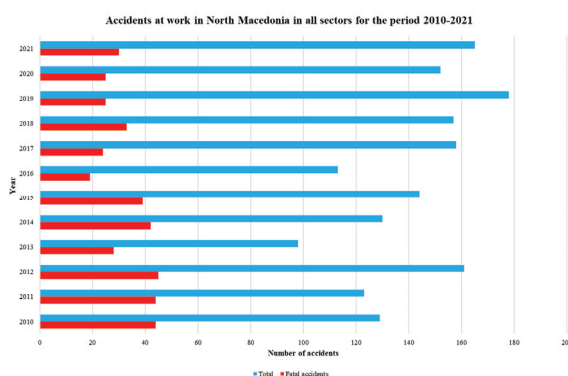


Figure 2. Total and fatal accidents in North Macedonia in the period from 2010 to 2021 in all sectors combined

Unfortunately, despite all the control measures being taken, North Macedonia still has a high incidence rate of fatal accidents at work, which amounts to 3.77 (out of every 100,000 employees, 3-4 die) for 2021 (Table 2) (MOSHA, 2010-2021).

Table 2. Incidence rate for injuries and fatal accidents in the period from 2010 to 2021

Year	2010	2011	2012	2013	2014	2015
Injuries	/	/	17.2	10.2	12.64	14.69
Fatal acc.	/	/	6.8	4.08	6.03	5.44
Year	2016	2017	2018	2019	2020	2021
Injuries	13	17.98	16.33	19.18	15.97	16.97
Fatal acc.	2.62	3.22	4.34	3.13	3.14	3.77

Although this is a lower rate in relation to 2012, when the country had a record incidence rate of 6.8, compared to some European countries such as the UK, where the incidence rate for fatal accidents at work is only 0.5 (MOSHA, 2010-2021), such low rates will be very difficult to reach.

Regarding the incidence rates of injuries, the obtained data suggest that they are far lower and incomparable to the injury rates in EU countries. The reason for this is that North Macedonia does not report accidents that result in injury and absence from work for more than three working days.

RESULTS AND DISCUSSION

According to the National Classification of Activities in North Macedonia, the riskiest occupational sectors within the 2010-2021 period, were 'Public administration, Police and Defence', 'Households as employers and agricultural activities' and 'Construction sector' (Table 3).

Table 3. Accidents at work for occupational sectors with the highest risk in North Macedonia (2010 to 2021)

Year	Public administration, Police and Defence		Households as employers and agricultural activities		Construction sector	
	Total number of accidents	Fatal accidents	Total number of accidents	Fatal accidents	Total number of accidents	Fatal accidents
2010	26	0	22	16	17	6
2011	26	2	19	15	26	15
2012	45	0	19	17	28	3
2013	9	0	31	10	20	7
2014	47	5	23	17	12	5
2015	94	11	15	8	7	4
2016	46	0	23	9	18	6
2017	35	1	26	12	31	6
2018	31	2	22	10	39	8
2019	24	3	29	8	42	6
2020	35	0	20	8	36	5
2021	43	0	10	4	39	9

By far the most numerous were the accidents in Public Administration and Defence, 461, but with the lowest mortality rate of 24 deaths, or 5.21%. On the other hand, 259 accidents were registered with Households as employers and agricultural activities during the entire period, but the mortality reached as many as 134 cases, or 51.74%, which is an extremely high number. Construction is also a characteristic sector, where 80, or 25.40%, out of a total of 315 accidents were deaths (Fig. 3).

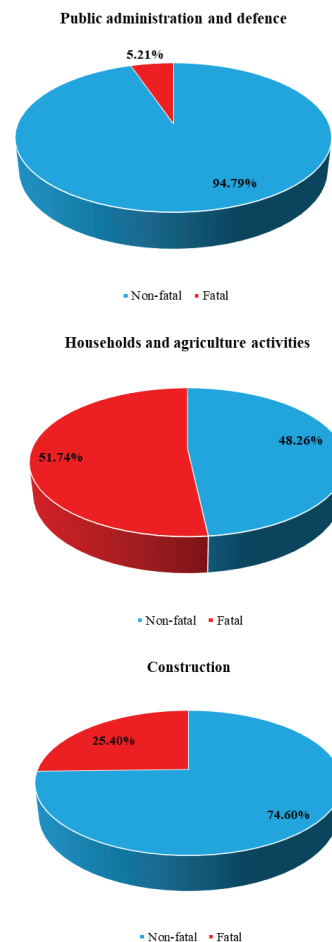


Figure 3. Occupational sectors with highest risk in the 2010-2021 period

The processed data indicate that out of the total number of accidents (1708) that occurred in the 2010-2021 period, the 'Public administration, Police and Defence' participated with 27%, 'Construction' with 18.44% and 'Households as employers and agriculture activities' with 15.16%.

However, the 'Households as employers and agriculture activities' sector has an extremely high percentage of deaths owing to the insufficient level of education, the use of child labour from an early age, as well as the low standard of living, because of which households are forced to do various types of work. These data are even more alarming given that a large number of accidents at work remain unregistered.

CONCLUSION

Every life-sustaining process, production outcome and consumption endeavour should be sustainable through satisfying the human beings at the centre of the concept of sustainable development, as individuals entitled to a healthy and productive life in harmony with nature. Improved sustainable concepts should create higher-quality workplaces and prevent injuries and deaths. Social and economic benefits of better health and safety at work are the main objectives of a stronger national strategy, which will lead to many benefits, such as reduced healthcare costs and sick leaves, and improved working methods. Therefore, developing a strong culture of safety and health in our country should be achieved by a fully engaged leadership working together with a committed workforce toward the goal of zero injuries, illnesses and incidents.

In the EU, 43.9% of all accidents at work in 2019 were attributed to the construction, transport and storage, manufacturing and agriculture, forestry and fisheries sectors combined. Also, 64.4% of fatal accidents occurred in this group of sectors.

In North Macedonia, most accidents at work (178) occurred in 2019, of which 14.04% were fatal, but the highest fatality rate of 35.77% was registered in 2011. According to the National Classification of Activities in North Macedonia, most accidents occurred in 'Public Administration and Defence', 461, but with the lowest mortality rate of 24 deaths (5.21%), and 259 accidents occurred in 'Households as employers and agriculture activities', where the mortality reached as many as 134 cases (51.74%). In the 'Construction' sector, out of a total of 315 accidents, 80, or 25.40%, were deaths.

The described state within the 'Households as employers and agriculture activities' sector is caused by insufficient care by the state, the low level of education, the use of child labour from an early age, as well as the low standard of living, due to which households are forced to do different types of work. This is a matter of serious concern and the problem grows further considering that many occupational diseases and workplace accidents remain unregistered.

Therefore, the main lifesaving rules of our country must always be designed to reduce risks during critical activities, provide an added measure of protection and strengthen our existing occupational safety and health management system.

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Monika Lutovska was born in Bitola, North Macedonia, in 1971. She received a diploma in mechanical engineering and a Ph.D. degree in mechanical engineering from the University of Bitola, Faculty of Technical Sciences in Bitola.



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