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## **Realisation of European Union Committee’s strategy for improvement of Occupational Health and Safety conditions in years 2007-2012 and its influence on accidents at work in the sectors of Polish economy**

Realizacja strategii Komisji Wspólnot Europejskich w zakresie poprawy stanu bhp w latach 2007-2012 i jej wpływ na wypadki przy pracy w sektorach polskiej gospodarki

### **Streszczenie**

Program „Poprawy bezpieczeństwa i warunków pracy” jest głównym narzędziem realizacji przyjętej Strategii UE w zakresie poprawy stanu bhp w Polsce, której konstytutywnym celem było zmniejszenie ogólnego wskaźnika częstości wypadków przy pracy o 25% na 100 000 osób aktywnych zawodowo w latach 2007-2012.

W artykule przedstawiono podstawowe założenia Programu „Poprawy bezpieczeństwa i warunków pracy” oraz poprzez analizę kształtowania się wskaźnika częstości wypadków przy pracy ogółem i ilości zaistniałych wypadków w sektorach polskiej gospodarki w latach 2007-2012 określono poziom realizacji założonego celu UE 27.

**Słowa kluczowe:** *strategia UE, wskaźnik częstości, Program „Poprawy bezpieczeństwa i warunków pracy, statystyka wypadkowości*

### **Abstract**

„Improvement of safety and working conditions” programme is a main instrument to accomplish EU Strategy in order to improve the Occupational Health and Safety conditions in Poland, of which the constitutive objective was to decrease the general

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accidents at work frequency rate by 25% per 100 000 professionally active people in years 2007-2012.

The article showed primary premises of the „Improvement of safety and working conditions” programme and throughout the analysis of evolution of general accidents at work rate and number of accidents which occurred in the sectors of Polish economy in years 2007-2012 was the level of accomplishment of the objective that had been established by EU27.

**Keywords:** *European Union's strategy, frequency rate, “Improvement of safety and working conditions” program, accident statistics*

## **1. Introduction**

Accidents at work, occupational diseases and number of employees hired in hazardous conditions of work environment, have been applied as measurements used to assess the safety level and influence of the work environment on the health of employees. Large numbers of accidents at work and suffering from occupational diseases in the sectors of Polish economy caused by inappropriate working conditions are the most crucial criteria of the issue of occupational safety and health in Poland. In 2007 the ambitious goal to decrease of general accidents at work rate by 25% per 100 000 employees in EU by European Union Committee was established. It was put into practice in years 2007-2012 [1]. An analysis of accident rate in Polish economy was presented in the article in the aspect of strategy realisation established by the European Union as well as primary goals of „Improvement of safety and working conditions” programme were presented. The information and data about accidents at work gathered by Central Statistical Office of Poland include a lot of information often unavailable during cursory analysis. The data of Central Statistical Office of Poland used in the article were presented in the articulate way with graphic form, comments and conclusion.

## **2. Long term „Improvement of safety and working conditions” program**

Occupational safety and health is one of the most important and most advanced aspects of the European Union's policy regarding employment and social matters. To support employers in actions that would improve the safety and working conditions, proper supporting instruments have been developed such as the European and National Strategies and Improvement of Occupational Safety and Health Programmes. The goals established in the documents require consistent realisation of actions leading to improvement of occupational safety and health. They need to meet the goals according to the European Union directives including the decrease of general accidents at work rate by 25% per 100 000 employees in EU countries [1]. The main instrument used in the realisation of EU Strategy in order to improve occupational safety and health in Poland is the „Improvement of safety and working conditions” Programme, coordinated by CIOP-PIB. The priority and main target of

this programme is to elaborate innovative organizational and technical solutions directed to develop [2]:

- human resources
- new products and technology
- methods and systems of management.

Realisation of the requirements established in the Programme with the help of its tools and actions is supposed to contribute to:

- the reduction of the number of people hired in the conditions exposed to harmful factors and unsafe work environment
- the reduction of accidents at work, occupational diseases and economic and social losses related to them.

The „Improvement of safety and working conditions” Programme is a long-term programme and it consists of several stages. The 1<sup>st</sup> Stage was constituted by the Council of Ministers Resolution no 117/2007 from July 3<sup>rd</sup> 2007 and put to practice in the years 2008-2010, The 2<sup>nd</sup> Stage was constituted by the Council of Ministers Resolution no 154/2010 from September 21<sup>st</sup> 2010 and put to practice in years 2011-2014. The 3<sup>rd</sup> Stage is the continuation of the long-term programme, implementing technical and organizational solutions, supporting employers in creating safe working conditions and friendly work environment. The 3<sup>rd</sup> Stage was constituted by the Council of Ministers Resolution no 126/2013 from July 16<sup>th</sup> 2014 and will be put to practice in 2014-2016 [2].

### **3. Benefits from actions taken to improve occupational safety and health**

There were 91 000 people injured in accidents at work in 2012 according to Central Statistical Office of Poland data. 627 of whom suffered from serious personal injuries and 350 of whom died at work [3]. There were around 1750 accidents at work each week, 7 of them were fatal and 12 of them were serious. Accidents at work and occupational diseases are the main criteria of occupational safety and health. They have the essential influence on losses sustained by entrepreneurs, victims of accidents and society from the economic and social point of view. They have also huge impact on the social insurance system and public finance. Accidents at work and occupational diseases result in costs that slow down economic growth and have the negative influence on the competitiveness of businesses in national and foreign market. Accidents at work and occupational diseases result in the absence of employees, dissatisfaction from work, low work quality and efficiency, highly qualified staff turnover and substantial economic losses. Businesses with high accidents rate decrease their ethical and economic credibility [4].

That is why the implementation of modern models of management should be the priority for Polish entrepreneurs. Those models should be based on the implementation of actions directed to prevent the disadvantageous effects of work. The obligation to protect the life and health of employees should not only result from

the obligation of following to the Labour Code article no 207, but also from social and ethical aspects. The presentation of the idea of social and ethical aspects in modern management of occupational safety and health ought to be the action that belongs to behavioural safety techniques focused on people. The techniques should be based on motivating an employee to take responsible actions, considering safety and participation in occupational safety and health shaping throughout the company. Those actions are expected to make businesses more profitable in the future [5].

#### 4. Accidents at work in the sectors of Polish economy in the years 2007-2012

According to Central Statistical Office of Poland data, the numbers of accidents at work in Poland (excluding individual agriculture) in the years 2007-2012 are 99 171, 104 402, 87 052, 94 207, 97 223, 91 000 respectively (fig. 1). There were 17 350 people fewer involved in accidents in 2009 than in 2008, so that could indicate the significant improvement, however, there the increase of 10 000 people injured in accidents in years 2010-2011 again was observed. According to these data, the general number of accidents in the presented period does not show any increasing or decreasing trends so no significant trend that would reflect the efficiency of applied actions and preventive operations can be determined.

However, in order to assess whether or not the applied actions fulfil the strategy established by the European Union Committee, it is necessary to analyse the accident at work frequency rates (fig. 2). Evaluating the data that present the percentage of accidents per 1000 people hired in years 2007-2012, one can observe that there is no significant trend compared to the same rates of accidents in general. Although, the 2007-2009 period indicates some improvement, accident rates increased again in the following years 2010-2011.

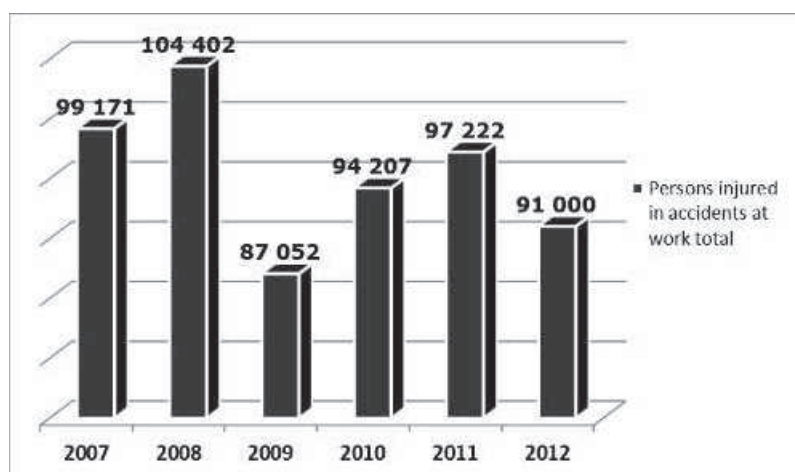


Fig. 1. Victims of accidents at work in the sectors of Polish economy in years 2007 – 2012 [Central Statistical Office of Poland. Accidents at work 2007-2012]

Rys. 1. Poszkodowani w wypadkach przy pracy ogółem w gałęziach polskiej gospodarki w latach 2007 – 2012 [GUS. Wypadki przy pracy 2007-2012]

The fluctuation of accidents at work frequency rate went up slightly in 2008, considering 2007 as a base year. However, it dropped again in the following years to 12% (out of the estimated 25%) difference according to the base year 2007 (fig. 3). Accidents at work frequency rates improved substantially in most of the EU countries, so that the fluctuation of accidents at work rates reflecting the occupational safety in Poland is still dissatisfying in comparison to other EU countries [6].

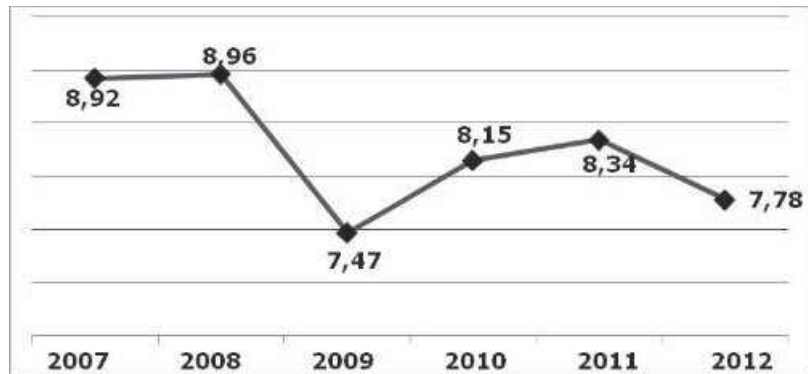


Fig. 2. Frequency rate of accidents at work per 1000 people employed in years 2007-2012 [Central Statistical Office of Poland. Accidents at work 2007-2012]

Rys. 2. Wskaźnik częstości wypadków przy pracy na 1000 zatrudnionych w latach 2007-2012 [GUS. Wypadki przy pracy 2007-2012]

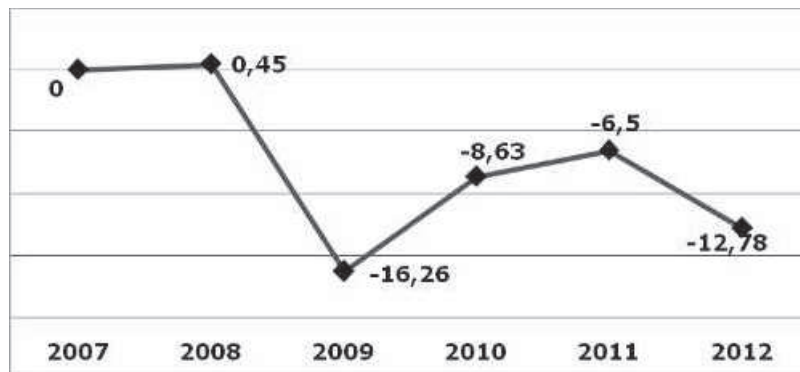


Fig. 3. Fluctuation of accidents at work frequency rate per 1000 people employed in years 2007-2012 with a base year 2007

Rys. 3. Wahania zmian wskaźnika częstości wypadków przy pracy na 1000 zatrudnionych w latach 2007-2012 z przyjętym rokiem 2007 jako rok odniesienia

The large amount of fatal and severe accidents at work in Poland is also disturbing (fig.4). There were 350 casualties in accidents at work in 2012. Nevertheless, there were 2 255 people killed in accidents at work in years 2007-2011. Compared to EU countries, there were 446 fatal accidents at work in Poland in 2010 and the only countries with greater number of fatal accidents were Germany, France and Italy (fig. 5). The fact that needs to be taken into consideration is that there is much bigger active population in Germany, France and Italy than in Poland. However, the fatal accidents at work rate per 100 000 employees look much better in Germany, France and Italy than in Poland (fig. 6).

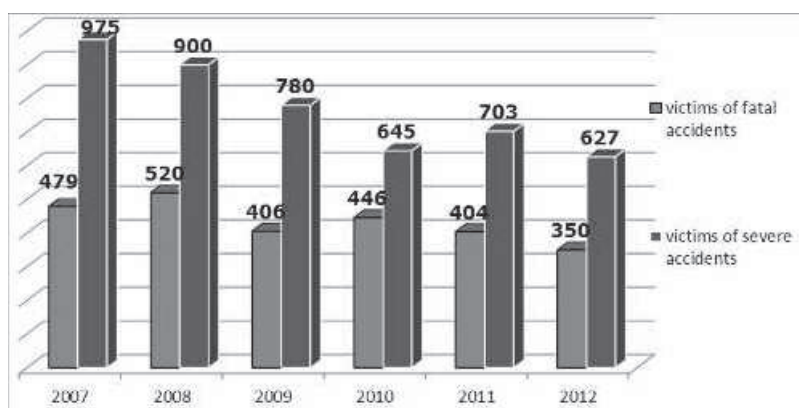


Fig. 4. Victims of accidents at work causing death of an employee or personal injuries in the sectors of Polish economy in years 2007-2012 [Central Statistical Office of Poland. Accidents at work 2007-2012]

Rys. 4. Poszkodowani w wypadkach przy pracy powodujących śmierć pracownika lub ciężkie obrażenia ciała w gałęziach polskiej gospodarki w latach 2007 – 2012 [GUS. Wypadki przy pracy 2007-2012]

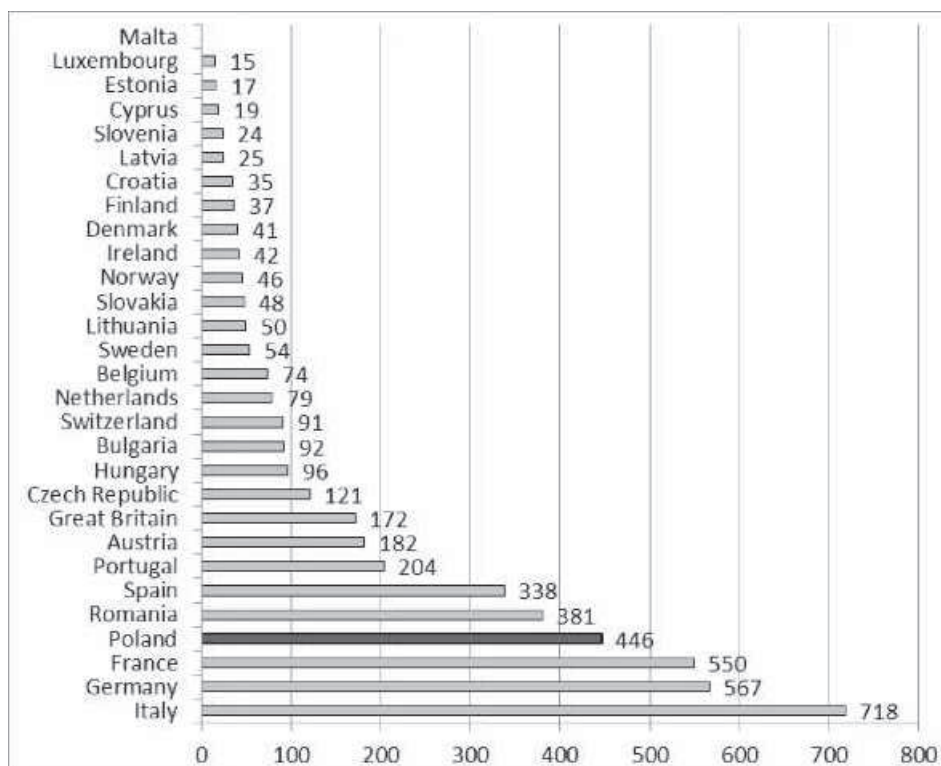


Fig. 5. Fatal accidents which occurred in 2010 in particular EU countries [7]

Rys. 5. Ilość wypadków śmiertelnych zaistniałych w 2010 w poszczególnych krajach UE [7]

Only such countries as Luxembourg, Lithuania, Portugal, Romania, Austria and Cyprus reached higher fatal accidents at work rate per 100 000 employees than Poland (fig. 6).

There are three main sectors of Polish economy that determine the number of fatal accidents. 58% of all fatal accidents occurred in construction, processing and transport in 2012. Those three sectors took 50% of all fatal accidents in years 2007-2011



including the peak of 63% in 2008. In fact, the number of fatal accidents at work in 2012 fell by 129 compared to 2007, but it still maintains the high level. In comparison to most EU countries where there was a consistent reduction of fatal accidents at work rate in 18 countries in years 2000-2010, that trend was inconsistent in Poland and it could be considered dissatisfying [6].

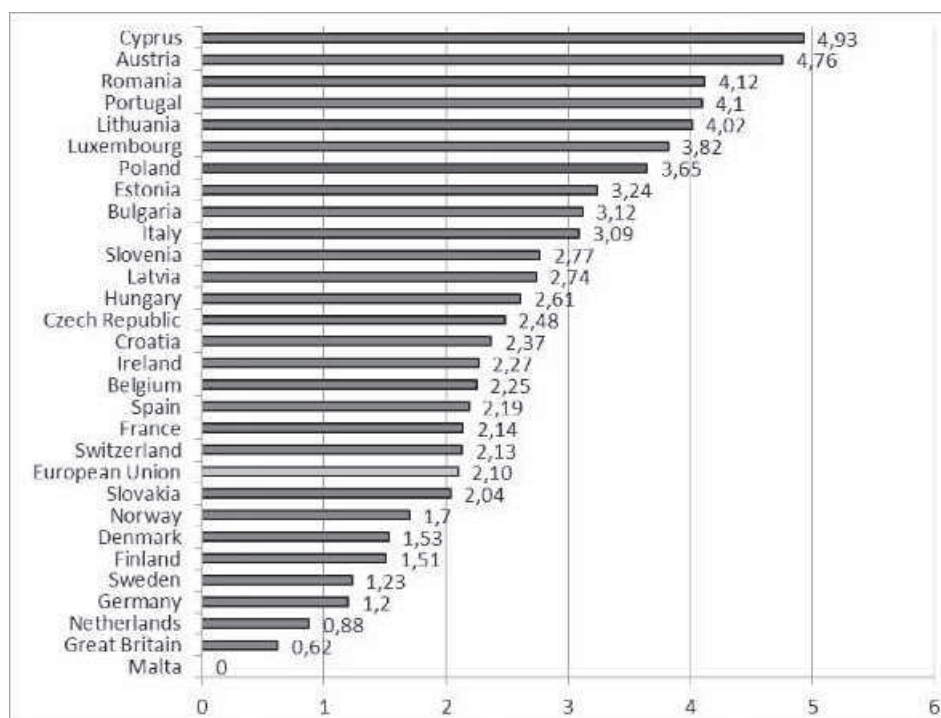


Fig. 6. Fatal accidents at work rate per 100 000 people employed in 2010 in particular EU countries [7]

Rys. 6. Wskaźnik częstości wypadków śmiertelnych na 100 000 zatrudnionych w roku 2010 w poszczególnych krajach UE [7]

In reference to the accidents causing severe personal injuries, there were 627 victims of accidents in 2012 and 975, 900, 780, 645 and 703 victims in years 2007-2011 respectively (fig. 4). Going through the statistics of accidents causing severe personal injuries in years 2007-2012, there is a clear decreasing tendency excluding the year 2011 (fig. 7), which could be a relatively positive indicator. There were 348 fewer severe accidents in 2012 than in 2007, which makes around 36% of them. The decrease of severe accidents that occurred in 2 main sectors of the Polish economy – which are construction and industrial processing has the crucial impact on the decreasing tendency presented in fig. 7. There were 229 severe accidents in industrial processing in 2012 and 131 of them in construction in the same year. The number of accidents in industrial processing in 2012 fell by 159 compared to 2007, which makes around 41% and the number of accidents in construction dropped to 75 (around 36%) and the severe accidents in trade decreased by 41 (around 43%). Comparing years 2012 and 2007, there is a drop of severe accidents in most sectors of Polish economy (fig. 8).

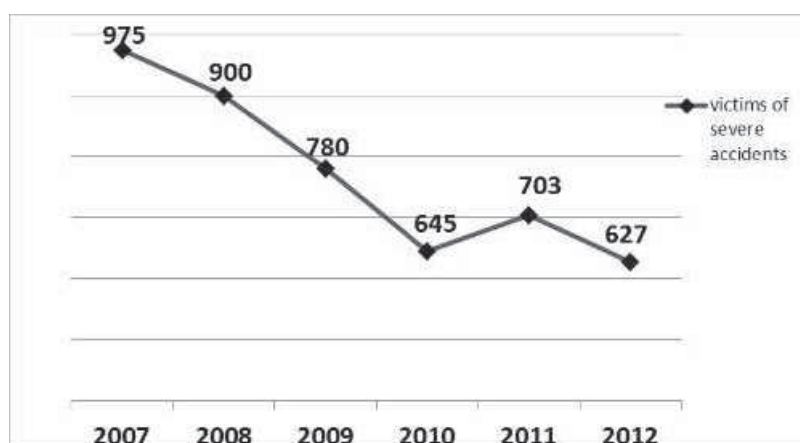


Fig. 7. Victims of severe accidents which occurred in the sectors of Polish economy in years 2007-2012 [Central Statistical Office of Poland. Accidents at work 2007-2012]

Rys. 7. Ilość wypadków ciężkich zaistniałych w sektorach polskiej gospodarki w latach 2007-2012 [GUS. Wypadki przy pracy 2007-2012]

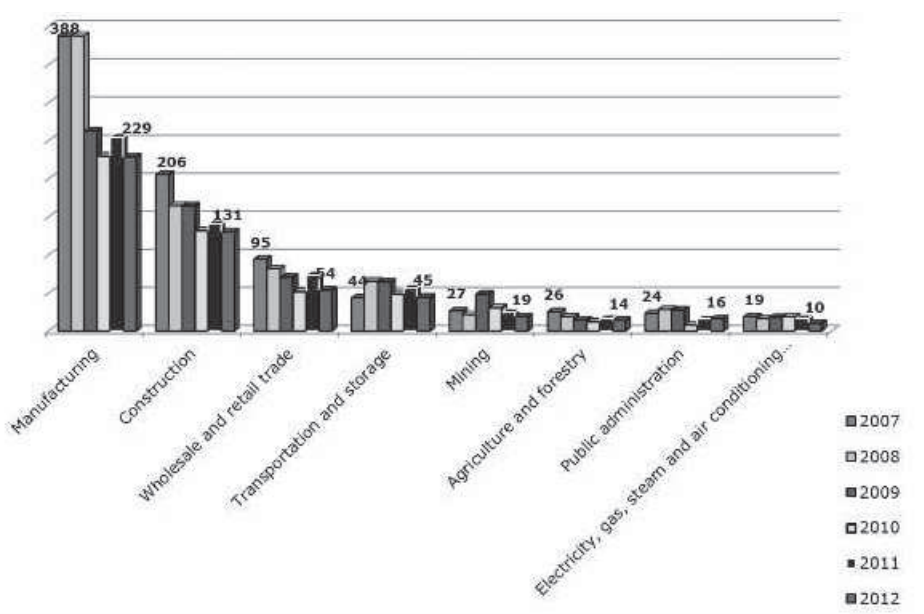


Fig.8. Victims of severe accidents in particular sectors of Polish economy in years 2007-2012 [Central Statistical Office of Poland. Accidents at work 2007-2012]

Rys.8. Ilość wypadków ciężkich w wybranych gałęziach polskiej gospodarki w latach 2007 – 2012 [GUS. Wypadki przy pracy 2007-2012]

Having conducted an analysis over the influence of seniority on the number of accidents at work based on the data delivered by Central Statistical Office of Poland, one can observe that accidents at work occur most frequently to employees with less than 1 year of seniority in a particular work place. Employees with less than 1 year of seniority had 27 267 accidents at work, which is 30% of all the injured in accidents at work. A percentage of fatal and severe accidents at work occurred to employees with less than 1 year of seniority in years 2007-2012 fluctuates between 36% and 48% and it is several times higher than for the employees representing other seniority groups (fig. 9).



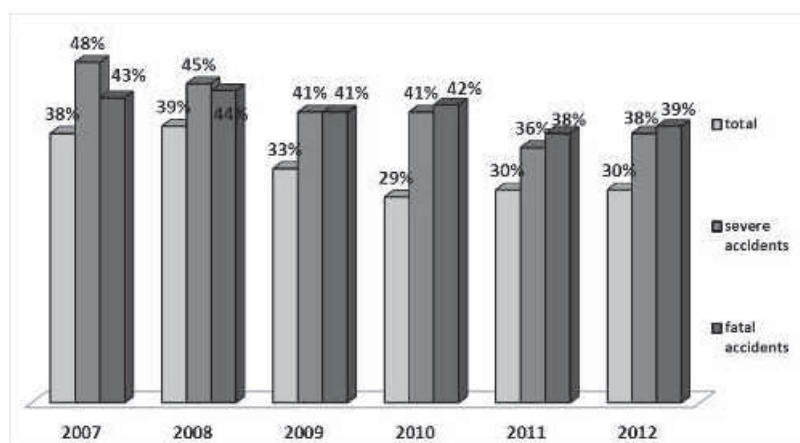


Fig. 9. Percentage of fatal and severe accidents by employees with less than 1 year of work experience in years 2007-2012 [Central Statistical Office of Poland. Accidents at work 2007-2012]

Rys. 9. Procentowy udział wypadków przy pracy ogółem, ciężkich i śmiertelnych pracowników o stażu pracy do roku w latach 2007-2012 [GUS. Wypadki przy pracy 2007-2012]

The number of accidents in this seniority group is a relevant problem shaping the criteria of occupational safety and health (fig. 10 and 11 present the number of fatal and severe accidents by employees with less than 1 year of seniority in years 2007-2012). The responsibility for this situation could be attributed to the economic difficulties of Polish companies and lack of economic stability. Business entities hire random employees, use services of temporary recruitment agencies or, which becomes really popular, hire self-employed workers to do the short-run and dangerous work. These employees often do not held the vocational education or background, required occupational safety and health training or medical examination. The important part of prophylaxis in this matter is to consider the implementation of occupational adaptation systems for new employees with no vocational education and work experience in a particular position and the implementation of additional and obligatory trainings before the employee starts working, including the type of work to do and the sector of economy no matter what their legal form of employment is. Lack of efficient actions reducing the number of accidents at work in the group of employees with less than 1 year of seniority may result in a higher risk of accidents for the younger groups of employees, eliminating them from professional and sometimes even physical activity.

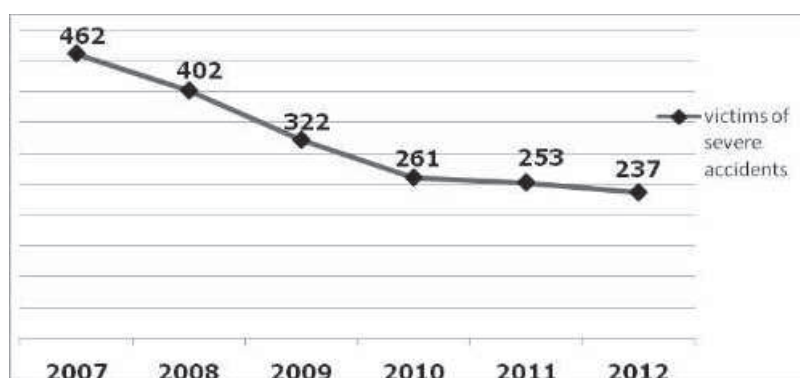


Fig. 10. Victims of severe accidents by employees with less than 1 year of work experience in years 2007-2012 [Central Statistical Office of Poland. Accidents at work 2007-2012]

Rys. 10. Ilość wypadków ciężkich pracowników o stażu pracy do roku w latach 2007-2012 [GUS. Wypadki przy pracy 2007-2012]

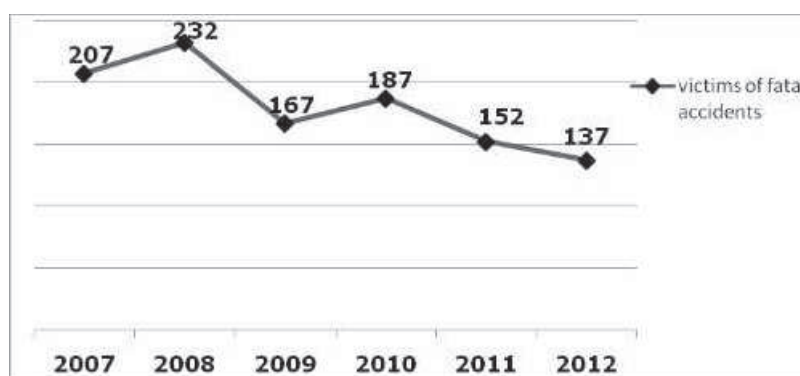


Fig. 11. Victims of fatal accidents by employees with less than 1 year of work experience in years 2007-2012 [Central Statistical Office of Poland. Accidents at work 2007-2012]

Rys. 11. Ilość wypadków śmiertelnych pracowników o stażu pracy do roku w latach 2007-2012 [GUS. Wypadki przy pracy 2007-2012]

## 5. Accidents at work in Polish mining sector in the years 2007-2012

The mining sector can not be omitted during the analysis of occupational risk in the sectors of Polish economy. The work environment in the mining sector is difficult to compare with working conditions in construction, industrial processing or trade due to its specifically aggressive nature. The lack of natural lighting, higher air pressure, heavy dustiness, high humidity, cramped working conditions, exhaustion of employees resulting from the combination of hard work and difficult microclimate system, occurrence of natural hazards, work intensification are some of the factors having an impact on working conditions in coal mines. There are high accident rates in this sector of economy including the general and fatal accidents. According to the data delivered by State Mining Authority there were 2809 accidents in Polish mining including 2196 accidents in coal mining in 2012 [8]. Having analysed the years 2007-2012, a significant drop of the number of general accidents from 2010 to 2012 was observed (fig. 12).

There were 710 accidents fewer in Polish mining sector in 2012 than in 2009. The general accidents at work frequency rate in the coal mining sector per 1000 people hired in years 2007-2009 went up from 18,8 to 25,1 points and achieved the improvement in the following years 2010-2012 and eventually reached 16 points. (fig. 13) [10].

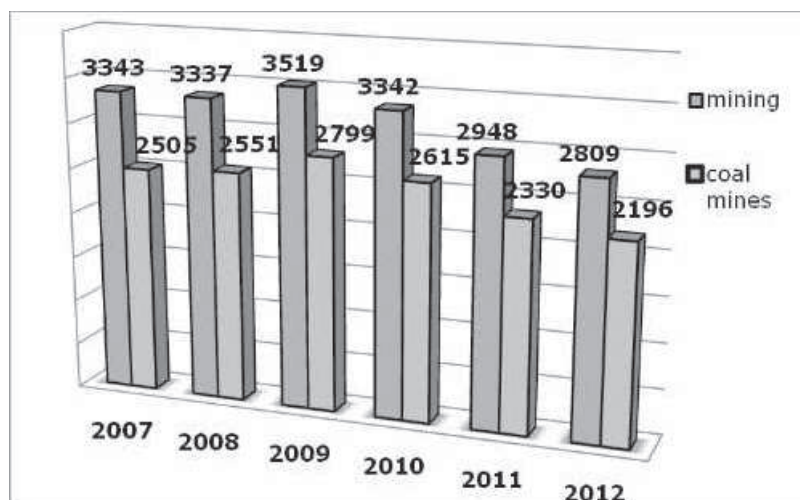


Fig. 12. Victims of accidents at work in Polish mining sector and coal mines (including service companies) in years 2007–2012

Rys. 12. Poszkodowani w wypadkach przy pracy ogółem w polskim górnictwie oraz kopalniach węgla kamiennego (z uwzględnieniem firm usługowych) w latach 2007–2012

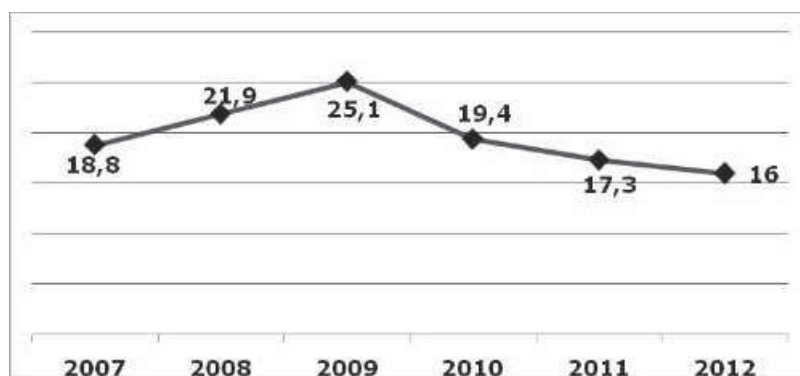


Fig. 13. Frequency rate of accidents at work per 1000 people employed in years 2007-2012 in coal mines (including service companies)

Rys. 13. Wskaźnik częstości wypadków przy pracy na 1000 zatrudnionych w latach 2007-2012 w kopalniach węgla kamiennego (z uwzględnieniem firm usługowych)

The number of fatal accidents in the Polish mining sector and Polish economy in general is really disturbing. There were 172 fatal accidents in the years 2007-2012 and 133 of which occurred in coal mines (fig. 14) [8,9]. In the analysed period fatal accidents occurred in 2009 which was related to the tragedy that happened on 18<sup>th</sup> of September 2009 in KWK Wujek coal mine in Katowice Ruch Śląsk, where 20 coal miners lost their lives and 25 coal miners had severe personal injuries, 9 of whom were temporarily unable to work due to the inflammation and explosion of methane. The high level

offatal accidents frequency rate per 100 000 people hired in coal mines is caused mostly by the mining disasters and it is difficult to indicate the clear tendency creating the fluctuations of this indicator (fig. 15) [10]. The noticeable decrease of the general accidents frequency rate from 2010 in Polish coal mines creates the expectable positive tendency of occupational safety improvement. However, the general accidents frequency rate and the fatal accidents rate are still several times higher than the state average and EU standards. This is the reason for further use of safety strategies in Polish coal mining sector to be continued by mining entrepreneurs and the mining supervision as well.

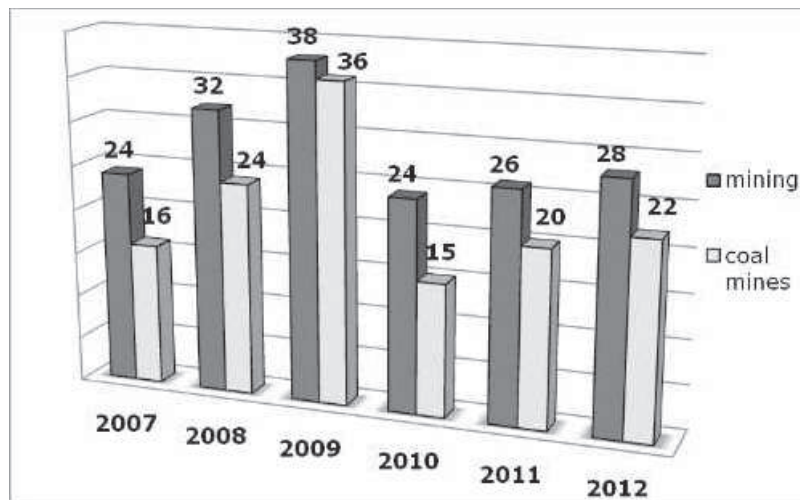


Fig. 14. Victims of fatal accidents at work in Polish mining sector with coal mines included (including service companies) in years 2007–2012

Rys. 14. Wypadki śmiertelne w polskim górnictwie w tym w kopalniach węgla kamiennego (z uwzględnieniem firm usługowych) w latach 2007–2012

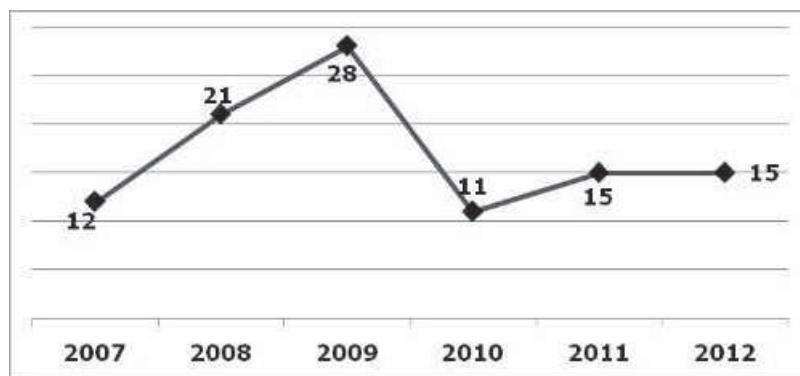


Fig. 15. Fatal accidents at work rate per 100 000 people employed in coal mines (including service companies) in years 2007-2012

Rys. 15. Wskaźnik częstości wypadków śmiertelnych na 100 000 zatrudnionych w kopalniach węgla kamiennego (z uwzględnieniem firm usługowych) w latach 2007-2012

## 6. Summary and conclusions

Lack of significant tendencies regarding the general accident rates and the number of fatal accidents in the years 2007-2012 compared to the leading EU countries is still dissatisfying and the goal of EU Strategy in order to improve occupational safety and health in Poland concerning the decrease of general accidents at work frequency rate by 25% per 100 000 professionally active people has not been reached. It indicates the need of further extended realisation of the postulates included in the 3<sup>rd</sup> part of the „Improvement of safety and working conditions” programme for years 2014-2016.

Due to the structure of the economy, in which 98% of all companies are small and medium size companies, the great significant improvement of occupational safety and working conditions could be achieved by implementing:

- the additional financial instruments, that would lower the added value tax, in cases of total or major reduction of accidents at work and vocational diseases (reduction of the obligatory accident insurance premium in a measurable way refers mostly to the big companies);
- public subsidies for the modernization of existing posts and creating new posts using the modern technical solutions presenting the high standards of occupational safety and ergonomics as well as the clear rules of allocating them;
- the obligatory premium to civil liability of employees in case of not following the rules and principles of occupational safety and health and work statutes.

The need of the extended business education for entrepreneurs in the management of occupational safety and health has to be emphasized as well as staff training that would increase the awareness of ongoing hazards in the particular company and encourage to apply the necessary prophylaxis reducing the level of the occupational risk.

The knowledge of the costs and benefits of work environment hazards prevention is still very low in Poland. The employer has to understand that the investment in the active occupational safety and health policy brings measurable economic and social benefits. The benefits resulting from the cost reduction of accidents at work, sick leaves and also from the reduction of stagnations and the quantity of flawed products and services [2]. The participation of employees in every level of the corporate ladder has to be increased to create the safe and friendly work environment, which is impossible without the support of the employer.

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