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## Aspects of Occupational Morbidity in The Mining Sector

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### Abstract

Health and safety of workers have a special importance for the quality of working life even in the current situation of austerity and financial instability. In the general framework of the social determinants of health - the occupation leaves its mark on the employees' state, and occupational risk assessment aims to prevent and make the employee to be aware of the possible dangers, forming a culture of the work safety. Given the complexity of underground work system, the accidents at work and occupational diseases are dysfunctions that reduce the efficiency, productivity and profitability. Also, these dysfunctions have and some other effects - economic (increased costs with personnel and with security and occupational health), social (because they affect one or more workers, their families, and the other members of the organization) and psychological (the reaction towards risk, problems of inadequacy or incompatibility with the old job, the negative impact on the image of the industry). Considering the overall context of health status of the population and the peculiarities of our country, this paper analyzes comparatively the evolution of the main indicators of morbidity statistics that reflect the health of the employees of some organizations in the Romanian mining sector.

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### 1. Introduction

As a finite energy resource (exhaustible by its nature) coal is from many years in the focus of concerns and controversies of researchers from different fields, practitioners, politicians and futurists. Each tries to argue and tip the balance for the future of coal mining or, by contrary, for the end of this field of activity.

Thus for instance, „an assessment of forecasts for coal use indicates that over the next 10 to 15 years (until about 2020), coal production and use in the United States are projected to range from about 25 percent above to about 15 percent below 2004 levels, depending on economic conditions and environmental policies. By 2030, the range of

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projected coal energy use in the United States broadens considerably, from about 70 percent above to 50 percent below current levels.” (NRC, 2007a, p.2).

These controversies are reflected including by the "chaos" of Romanian energy strategies. Thus, coal mining sector role, structure and size have dramatically changed after 1990 – from one prevalent sector becoming one of "Cinderella" type, almost extinct. The number of underground mines for exploiting the hard coal reserves of Romania located in Jiu Valley was reduced to about half until present, being estimated to remain only 4 mines after 2018. But regardless the sector size, underground coal mining involves high risk and hard work conditions.

## 2. Health and safety at work in underground mining

Because of the many disasters that have occurred (Table 1) and latent dangers existing in underground coal mining, the concern for ensuring health and safety at work (OHS) is paramount. Even if improvements of regulatory norms have occurred rather as a result of such events, it is important that they exist and are continually refined to comply with this condition.

Table 1. Underground coal mine disasters, 1990 to 2011

Type	Number of events	Number of fatalities
Explosion	421	10,4192
Fire	35	727
Haulage	21	145
Ground fall/Bump	14	92
Inundation	7	62
Other	17	199

Source: Brnich & Kowalski-Trakofler (2010), cited by National Research Council, 2013, p.39.

„The Mine Safety and Health Administration define a disaster as an incident with five or more fatalities and classify disasters by cause and number of fatalities. Disasters due to haulage result from failures in the transportation of personnel, material, or equipment. Disasters due to ground fall or bump indicate the fall of roof rock or outward bursting of walls in an underground work area.” (NRC, 2013, p.39)

People are involved in all these events, people who work every day in the depths of the earth. Occupation plays an important role in the general framework of social determinants of health. In order to prevent such events, to maintain the health and well-being of the workers on the one hand, and safe working conditions on the other hand, within the complex system of underground work is necessary a model of prevention on three levels (Figure 1), respectively a risk management process (Figure 2) implemented in a responsible manner. Romanian legislation concerning OHS (Law No. 319 of 2006, updated in 2012, with related amendments and norms) aligns with the international norms in the field and stipulates the risk factors identification and assessment, thus creating a framework for awareness and preventive action.

The incidence of risk factors is commonly associated with increasing occupational morbidity (OM). OM analysis is an integral part of monitoring the health of employees obligatorily, having especial importance in decision-making within work and health systems. Morbidity (M) with temporary incapacity for work (TIW) is a concept generally related to the intensity of disease phenomenon within a collectivity, which allows the study on this phenomenon both as trend of evolution in time in the same collectivity, and between different collectivities.

Analysis of M with TIW aims to identify determinant factors that generated/favoured diseases of the workers, in order to establish technical and organizational measures of work protection, prophylactic health measures and for socio-professional rehabilitation. The basic tool for monitoring and analysis is the sick leave certificate (medical certificate) issued by the institution which provides curative and preventive health care services.

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