

M. Boichenko,
PhD (Economics),
National Mining University, Dnipro

SOCIAL AND ECONOMIC ASPECT OF OCCUPATIONAL RISKS MANAGEMENT AT MINING ENTERPRISES

Problem setting. The majority of leading countries pay much attention to social aspects of human life, importance growth of relations between workers and employers, and the need of mutually profitable conditions for their cooperation. First of all it relates to working conditions, duration and types of relaxation, and conditions when the labor force could be effectively restored through provision of appropriate safe labor conditions and reduction of occupational risks level. Industrial safety is one of the basic factors of strong and stable economy as well as the ability for self-development and progress in any country. Coal mining industry due to its complicated mining, geologic and technologic conditions is the most dangerous one for on-the-job injury rate and occupational diseases while a coalmine is a unique and sophisticated enterprise with specific natural and production hazards conditioning the high level of incident rate in the course of machines and mechanisms operation and increasing dangerous situations occurrence during mining works. The basis for potential appearance of such hazards that is occupational risk occurrence is often in incorrect actions of a miner resulting in his personal injuries, incidents with a whole team or great incidents with catastrophic consequences resulting not only in serious economic losses of an enterprise but those with human potential.

Thus, a low state of labor safety is not only the reason for occupational risks appearance but a substantial social and economic factor with its negative influence on effective functioning of a mining enterprise, in particular on the stable development of the enterprise as a whole.

Numerous works deal with the issues of occupational safety and its social-economic aspects. Among them one should mention those by O. Amosha [1, 2], O. Vagonova [3], A. Nagorna [4], O. Novikova [1, 5], I. Sapytska [6], and V. Serdiuk [7].

The possibility to manage occupational risks taking into account a social component would allow not only reduction of their destructive influence upon workers' life and health but the growth of their creative forces, as well as the interest in work. Besides, it would improve labor discipline that, in its turn, leads to reduction of occupational risks level and number of incidents with production injuries.

The purpose of this article is to specify the importance of social and economic aspects in the system of occupational risks management at mining enterprises.

Statement of the main material of the study. Analysis of breakdowns and accidents at mining enterprises demonstrates that the reason of breakdowns is not only the low level of technical labor conditions (including the reduction of coal seams degassing volumes, uti-

lization of worn-out mining equipment, and unreasonable reconstruction of mine ventilation systems) but inadequate level of educational and professional training, non-execution of safety regulations and professional instructions, and low standards of labor and technologic discipline when a victim deliberately violates labor and technologic discipline in order to spare his strength and time. Besides, the reason for production injuries can become psychological and physiological factors like inattention, underestimation and/or disregard of hazards, low life standards, lack of conditions for quality relaxation, and poor health status of miners.

Sociologic surveys of coal industry workers show that their wage level is an important factor making people to work at coalmines however the second position belongs to labor conditions and safety [8].

The social importance of effective management of occupational risks depends upon continuous improvement and amelioration of labor conditions, increase of its safety level, reduction of on-the-job injury rate and occupational diseases, and in particular, upon:

the growth of labor productivity as the consequence of the increase of working days resource due to reduction or elimination of temporarily disability caused by industrial injuries, occupational and general diseases, and prevention of untimely tiredness caused by unfavorable labor conditions;

preservation of labor resources and growth of their professional activity as the consequence of workers' health status advance with the extension of their average life-span due to improvement of labor conditions;

higher professional level through qualification rise, opportunities for use of great practical experience and professional knowledge of age-retired persons and disabled workers involved in suitable works.

Improvement of components of the abovementioned data would allow not only enterprises' productivity progress but the growth of national output aggregate.

In the period from 2001 to 2016 the work in the sphere of labor protection and industrial safety was conducted in accordance with national five-year programs adopted by correspondent decrees by Cabinet of Ministers of Ukraine. The program for labor safety improvement at coal mining and mining construction enterprises in the period from 2011 to 2015 adopted on 18.05.2011 by the Decree No. 521 of Cabinet of Ministers of Ukraine and the similar program for the year of 2016 that was adopted on 04.01.2016 by Order No. 1 of Ministry of Power Generation and Coal Industry of Ukraine included measures to be taken in labor protection in industrial safety in the following basic directions:

development of the system for labor protection management;

safety provision for technologic processes;
enhancement of mine ventilation and degassing systems, prevention of gas and dust explosions;
elimination of gas-dynamic phenomena occurrence like spontaneous outbursts of coal and gas;
provision of safe operation of machines and equipment of technologic complexes;
development of fire prevention protection of coalmines;
introduction of advanced methods of breakdowns elimination, and scientific technologic maintenance;
preventive and search-and-rescue operations;
improvement of miners' working conditions.

It was due to those programs that coal industry made good progress in the sphere of some problems solution in labor protection. However one of the oldest and probably systematic problems of the coal mining industry is the lack of regulation in labor protection financing that is executed on the ground of the leftover principle. Unfortunately, there were corresponding results. Analysis of the state of industrial safety at mining enterprises and tendencies of changes with on-the-job injury rate allowed the following conclusion that "regardless of reduction of both general and lethal on-the-job injury rate in Ukraine as a whole, and in particular at mining enterprises (except in 2007 when a great accident took place at O.F. Zasiadko Mine PJSC) it is still extraordinarily high thus increasing data of European countries, and in the 1st quarter of 2016 it became even higher than in the same period of 2015"[9, p. 26].

In this connection the question arises in what way the number of accidents and injuries at mining enterprises could be reduced through the increase of the role of social-economic aspect of occupational risks management.

In the first turn one should be more thorough with professional selection for employment, to conduct medical examinations in the course of labor activity in accordance with legal requirements on labor protection, and Safety Regulations.

The important prerequisite for safe labor at mining enterprises is normalization of sanitary and hygienic conditions of work, provision of optimal practice, personnel meals and rest, sanitary and personal services as well as availability of means for individual and team protection.

The low level of educational and professional training at mining enterprises became the reason for the majority of breakdowns and accidents, so attention should be paid to the training process in labor safety. We need an urgent and cardinal reconstruction of educational and training centers. In the world practice there is an experience in innovative pedagogic technologies for training. For example, there is module technology with its principle feature in arrangement of training process based on individual programs on the ground of students' level of knowledge and previous education. The process of training is to be conducted in the tempo suitable for any student. Such technology uses didactic material in the form of separate didactic booklets developed for comprehensive mastering specific knowledge or special

labor skills. The booklets are called training elements and they must contain as follows: distinct objects of training addressed to students; list and description of main equipment, materials and devices; instructive pages with text that could look better with pictures. Besides, the text is required for knowledge checking on the given didactic booklet. To develop training elements on labor protection and safety is of great importance for miners as the existing normative documents contain a large volume of information, practically have no illustrations, for example, on behavior of workers in emergency situations when they must use self-rescue breathing apparatuses or fire-extinguishers. Human thinking is built from images, so a training element is the synthesis of text and pictures forming general students' idea on structure, process and functions described in the training element. Utilization of module technologies in the training process allows consideration of individual and psychological peculiarities of workers.

It is possible to prevent occupational risks and to decrease its negative social impact through systematic monitoring of normative acts observance in labor protection, personal responsibility of each worker, and introduction of route control system.

One should pay special attention to labor safety maintenance with shift orders execution. Today the order system is almost fully built based on disciplinary rights of a supervisor and duties of a worker without any financial support of these rights and duties, the situation contradicts to conditions of market. When a worker eliminates a danger to life and health he is to be additionally paid for the work in especially dangerous conditions. A manager of works or working section that is mining foreman or section foreman shall decide who pays for the work executed. Of course, the best solution would be compensation by a guilty person who committed the breach. In coal mining industry they need fundamental changes in outdated traditions of disclosures and elimination of anonymous violations of safety regulations, and transition to occupational risks management in order to prevent their occurrence as well as granting more powers to a shift mining foreman.

In other words, it would be expedient to transfer from the existing penalties payable by an enterprise for poorly organized labor protection or in case of facts of workers' injuries and occupational diseases, to funds invested in preventive measures to eliminate occupational risks for people's life and health reservation.

However the list of penalty provisions and other economic damages of enterprises includes as follows: fines imposed to an enterprise by official bodies for labor safety control; penalties for each accident or occupational disease at an enterprise; damage compensations, immediate compensations and other payments to victims of production or their family members or dependants of dead persons; costs compensations to hospitals and other medical and health-improving institutions for treatment and rehabilitation of victims, rendering resort services to them, etc.; damages compensation of social maintenance bodies for pensions payment to disabled workers; costs for search-and-rescue opera-

tions during breakdowns and accidents, investigations and expert conclusions on their reasons, funerals of dead persons, development of sanitary and hygienic characteristics of a working place of a person who got occupational disease, etc.. The list covers substantial values of financial damages of an enterprise. Besides, sums for benefits and compensations specified by the existing legislation and collective agreements for heavy and harmful labor conditions may be considerable.

One should emphasize that the major developments of new legal and normative acts for labor protection as well as various scientific and laboratory works were conducted by leading branch institutes: Government Makiivka Research Institute of Labor Safety in Mining Industry and "Respirator" Research Institute of Mine Rescue. In 2014 these institutions appeared on the territory that is beyond the control of Ukrainian authorities so the work with multiple normative and legal acts got slowed down. Nevertheless, there exist drafts of the documents under development in their first version, and now an ad hoc working group finalizes them.

At mining enterprises the system of labor protection management based on the risk-oriented approach is under gradual introduction. In 2017 Ministry of Power Generation and Coal Industry of Ukraine plans to allocate funds for the development of the new branch standard "The system of labor protection management in coal mining industry" in accordance with OHSAS 18001 provisions. It will be introduced at all enterprises of coal industry.

Conclusions. Presence of economic, social and labor problems combined with deterioration of mining conditions associated with natural, technical and organization causes, high level of on-the-job injury rate and occupational diseases rate take lives and health of working people and put obstacles in personnel renewal.

First of all experts in coal mining issues and those who work at coal mining enterprises associate accidents and on-the-job injury rate with the human factor. Thus proposals they express are mainly connected with the system improvement for control and management of safety status and labor protection, and introduction of the system for occupational risks management. So the system of occupational risks management shall necessarily consider the influence of social and economic aspect with the corresponding measures inclusion designed for grading of its negative manifestations.

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Бойченко М.В. Соціально-економічний аспект управління професійними ризиками на гірничодобувних підприємствах

В статті визначено вплив соціально-економічного чинника на промислову безпеку гірничодобувних підприємств, обґрунтовано доцільність попередження професійних ризиків, запропоновано відповідні заходи щодо зниження їх негативного соціального значення.

Ключові слова: професійні ризики, промислова безпека, соціально-економічний аспект, управління, гірничодобувні підприємства.

Бойченко Н.В. Социально-экономический аспект управления профессиональными рисками на горнодобывающих предприятиях

В статье установлено влияние социально-экономического фактора на промышленную безопасность горнодобывающих предприятий, обоснована целесообразность упреждения профессиональных рисков, предложены соответствующие меры для снижения их негативного социального значения.

Ключевые слова: профессиональные риски, промышленная безопасность, социально-экономический аспект, управление, горнодобывающие предприятия.

Boichenko M. Social and economic aspect of occupational risks management at mining enterprises

The article determines influence of social and economic factor upon industrial safety of mining enterprises, importance is grounded for occupational risks prevention, and corresponding measures are proposed to reduce their negative social impact.

Keywords: occupational risks, industrial safety, social and economic aspect, management, mining enterprises.

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