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Simulation on the system to improve labour conditions at railway enterprises by international standards introduction

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Abstract

The article explores the ways and means of refining and improving the conditions of labour protection through the example of the railway transport enterprises by the implementation of international standards in the field of labour and environmental protection. The incentive system for labour protection at the enterprises has been assessed. The economic and social aspects of improving labour conditions and protection have been researched. Also, the relevance of the implementation of international management system standards has been presented.

Key words: LABOUR PROTECTION, IMPROVEMENT OF WORKING CONDITIONS, LABOUR PROTECTION MANAGEMENT, RAILWAY TRANSPORT, CERTIFICATION, ISO 9000 STANDARD, OHSAS-18001 STANDARD.

Target setting. Studying and solving the problems related to the maintenance of healthy and safe conditions, in which human labour takes place is one of the most important tasks in the development of new technologies and production systems. Research and identification of the possible causes of incidents, occupational diseases, industrial accidents, explosions, fires, as well as the development of measures and

requirements to eliminate these causes allows creating safe and favourable conditions for human labour. Comfortable and safe working conditions are one of the main factors that affect productivity and labour safety, and the health of workers.

The research objective is to determine the right approach to the organization of the labour protection system at the railway transport enterprises and to

analyse the possible ways and means of improving the conditions of labour protection by the head of an enterprise.

The statement of basic materials. The importance of a systematic solution of issues in the field of labour protection is objectively determined by the general low level of labour safety in Ukraine. A prerequisite for solving the issues is the effective integrated management of labour protection and industrial safety.

In recent years, labour protection has been at the stage of fundamental changes. Many enterprises have an interest in using the model of labour protection management, which includes mutual social and economic responsibility of the management and the employees in the process of ensuring safe working conditions in order to enhance the role of social partnership in creating a healthy psychological climate at the enterprise and maximise the welfare of both the individual employee and the organization in general.

Under Article 1 of the Law of Ukraine “On Labour Protection” from October 14, 1992, № 2694-XII, as amended on January 1, 2015, labour protection is a system of legal, socio-economic, organizational and technical, sanitary and hygienic, and medical and preventive measures and means aimed at protecting the life, health and the capacity for work of a person in the course of employment.

The state, regional and sectoral labour protection management, numerous supervisory and control inspections cannot ensure work safety unless it becomes a major common task and a moral duty for all without exception – employers, managers, engineering and technical staff, every single employee. To solve all problems in the field of labour protection, one needs a systematic approach to create an effective system of labour protection management (LPMS) at every enterprise, institution, and organization, regardless of ownership and size [1, p. 142].

The management of labour protection at the enterprise is a set of actions of the officials, carried out on the basis of continuous analysis of the information on labour protection state at all workplaces to improve and maintain it at a certain level in accordance with the legislative and regulatory acts [2, p. 108].

The studies indicate that at the enterprises there are considerably more expenses for the benefits and compensations related to dangerous and harmful working conditions than for the occupational safety, workplace injuries and diseases preventive measures and normalization of the working conditions. The ratio of the expenses for improving conditions and labour protection to the expenses for adverse working conditions pays, preferential pensions and additional leaves is 1:10, and sometimes more [3, p. 35].

Unsatisfactory state of labour protection at the enterprise leads to hindrance of economic and social progress of the country in whole. Experts from the International Labour Organization calculate that losses from the occupational incidents and occupational diseases account for 4% of the global gross domestic product (GDP). Thus, the improvement of the labour protection system is one of the pressing issues at the level of both the state and a separate enterprise.

The head of the enterprise is obliged at their own expense to provide financing and organize the screening (during recruitment) and regular (during working life) medical examinations of the employees engaged in physically demanding work, work with harmful or dangerous working conditions, or where there is a need for occupational selection, as well as the annual mandatory medical examination of persons under the age of 21 years. Based on the results of the regular medical examinations, if necessary, the employer must ensure that appropriate health measures are taken. Medical examinations are carried out by the competent health care institutions, the employees of which are responsible in accordance with the legislation for the conformity of the medical report with the actual state of health of the employee. The procedure for the conduct of the medical examinations is determined by the specially authorized central executive body in the field of health care.

Compliance with the rules of safety and occupational sanitation depends not only on the head's performance of their duties, but also on the extent to which every employee knows these rules and complies with them during work. Therefore, all employees at the railway transport enterprises at the time of recruitment and during working life are briefed for labour protection, delivery of preliminary medical care to the victims of incidents, accident procedures in accordance with the Model Regulations on Education on Railway Transport Labour Protection.

Labour protection stimulation is integral to prevention of occupational injuries and diseases. At the domestic level, the labour protection stimulation is regulated by legislative acts and primarily by the Law on Labour Protection, which covers this matter in Section IV, and the Law of Ukraine “On Compulsory State Social Insurance against Occupational Incident and Occupational Disease that Caused Disability” [4, p. 310]. These laws determine that a discount can be set when calculating the amount of the insurance premium rate for every enterprise, provided that the labour protection is in due condition, the level of injuries and occupational diseases is reduced or absent due to the implementation of the appropriate preventive

measures by the employer. For a high level of injuries and occupational diseases, and improper state of labour protection, an extra charge is added to the amount of the insurance premium.

One of the main tasks of the economic assessment for measures to improve labour conditions and protection is determining the expenses for implementing measures, which include capital investment and operating costs [2, p. 108].

The capital investment includes one-time and staged expenses for:

- establishment or renewal of the capital assets for labour protection purposes;
- refinement of manufacturing processes and technology in order to improve the labour conditions and protection.

The current (operating) costs for the maintenance of equipment with the labour protection function ensure its operation in the required mode [3, p. 35].

Skilled personnel are needed to ensure safe work in the workplaces, along with a responsible and committed attitude towards the exercise of constitutional rights of the employees, both by the employers and the managers across the whole administration. The low quality of workplaces has a negative impact on the functioning of the labour market and leads to a high labour turnover in works that involve physically demanding work, work with harmful or dangerous working conditions; the loss of regular labour force due to industrial injuries and occupational diseases. Resulting from the significant social and economic losses caused by the industrial injuries and occupational diseases, there is an increase of importance of in-depth study, evaluation and development of new management mechanisms and methods of influencing the working conditions and occupational risks [3, p. 35].

Methods of labour protection management:

- organizational and administrative:
 - a) performance by the employees of their labour protection duties;
 - b) issuing and execution of orders, instructions, regulations, decisions;
- social and psychological:
 - a) awareness-raising work;
 - b) labour protection education and promotion;
 - c) personal example from the heads of the departments in observing the rules and standards of labour protection;
 - d) establishment of control and mutual control, improvement of industrial discipline;
 - e) moral stimulation;

- economical:

- a) bonus payment for the absence of injuries and occupational diseases;
- b) material and moral encouragement for a high level of labour protection;
- c) encouragement for active participation and initiative in implementing measures to improve safety and working conditions [5].

The economic mechanism of the labour protection management should provide a system of incentives for those employees, who conscientiously follow the requirements of labour protection, do not allow violations of the rules and standards of personal and collective safety, take active and creative part in the implementation of measures that increase the level of labour protection at the enterprise. A collective contract (agreement) should establish various moral and material incentives for such workers: remuneration of labour, bonuses (including a special incentive bonus for the achievement of a high level of labour protection), rewards for invention and innovative offers on labour protection matters. It is productive to give bonuses to the workers of teams, divisions, and shops for the long-term work without violations of the labour protection rules, without injuries and accidents. In case of hazardous and harmful occupational factors that are constantly threatening the health of the employee, it is advised to pay them an extra payment for the increased caution. In addition to the material encouragement, moral stimulation, which at the time was used in our country and is successfully used by foreign companies, is also of great importance. Forms of the moral stimulation can vary from the expression of gratitude to the arranging of recreational evenings, excursions for the teams that have achieved the best results in labour protection [6].

Among the important problems of labour economics is the improvement of the socio-economic and production conditions of labour, the reinforcement of its creative nature, the reduction of manual, low-skilled and hard rough labour; a more complete combination of material and moral incentives, the increase of their influence on the efficiency of production [7, p.105].

Considering the labour protection within a market economy, special attention should be paid to the economic aspects of labour protection. The implementation of measures to improve labour conditions and protection has a stimulating effect on both economic and social outputs.

The positive economic results of the working conditions effect upon an employee include an increase in the labour productivity, and a rational use of the main productive assets. Favourable conditions provide

an increase in the labour productivity through both intensive changes (reducing the work time expenditures per unit of production) and extensive changes (increasing the efficiency of working hours use as a result of reduced day-long losses due to temporary disability and occupational injuries).

It should be noted that the positive economic results are closely related both to the personal factors (active capacity, working capacity) and to the social impact. The increase in the labour productivity occurs due to the reduction of day-long expenses of working time caused by temporary disability, increased use of working hours and the extension of the period of active labour activity.

Unfavourable conditions lead to the reverse results: various forms and degrees of the employee fatigue, functional stress of the organism. The negative economic results include short-received additional product, delay in the establishment of new funds, non-productive consumption of labour power, reduction of labour productivity.

Furthermore, attention should be paid to the social impact of working conditions on the employees. The positive social results include: the degree of favourable influence of the labour process on human health and the development of their personality, health condition, attitude to work, social activity; maximum satisfaction of one of the most important human needs – the need for favourable conditions of work and the need, directly related to this, in the purposeful, creative, highly-productive work; health promotion.

In order to evaluate the results of measures to improve labour conditions and protection according to the methodology, four groups of indicators have been offered:

- change in the state of labour conditions and protection;
- social indicators;
- socio-economic indicators;
- economic indicators.

The change in the state of labour conditions and protection is characterized by an increase in the level of labour safety, improvement of sanitary and hygienic, psychophysiological, and aesthetic indicators.

The improvement of the sanitary and hygienic indicators is characterized by a decrease in the content of harmful substances in the air, improvement of the microclimate, reduction in noise and vibration level, lighting intensification.

The increase of the psychophysiological indicators is determined by the reduction of physical and psychological stresses, including the routine work.

The improvement of the aesthetic indicators is characterized by a rational arrangement of workplaces

and machines, improvement of premises and territory, combination of colour hues, etc.

The changes in the state of the working environment by factors are estimated by the difference in the absolute values before and after the implementation of the measures, as well as by comparing the relative ratio that characterizes the degree of compliance of the certain factors with maximum permissible concentrations, maximum permissible levels or given levels. A comprehensive assessment of the change in the state of working conditions is carried out on the basis of increase in the number of jobs, where working conditions are brought into conformity with the regulatory requirements.

Social results of the measures of improving labour conditions and protection are determined by the following indicators:

- increase in the number of jobs that meet the regulatory requirements, and reduction in the number of the employees dissatisfied with working conditions;
- reduction of occupational injuries;
- reduction of the number of occupational disease cases attributable to unsatisfactory working conditions;
- reduction of the number of invalidity cases due to injuries or occupational disease;
- reduction of the employee turnover due to unsatisfactory working conditions.

Other indicators can be used to assess the social results, i.e., the degree of satisfaction with the work and its prestige, etc. The indicators of the social and socio-economic efficiency are calculated as a ratio of the social or socio-economic results to the costs necessary for their implementation.

The economic results of measures to improve labour conditions and protection are expressed in the loss saving from accidents, incidents and occupational diseases both in the economy as a whole, and at every enterprise [8, p. 54-61].

Another way of improvement of the labour protection state at the railway enterprises is the introduction of international standards of the ISO 9000 series (Quality Management Systems), and the ISO 14000 series (Environmental Management Systems), as well as the international standard OHSAS-18001 (International Standard for Labour Protection Management System).

In 2001, the State Standards of Ukraine DSTU ISO 9000-2001 “Quality Management Systems: Requirements” and DSTU ISO 14000-97 “Environmental Management Systems” came into force; these standards are identical to the corresponding international standards of the ISO 9000 and ISO 14000 series.

At present, the enterprises in Ukraine are being certified to meet the requirements of these standards, which are harmonized with the corresponding international standards. The certification of the labour protection management systems of the railway transport enterprises in accordance with the Law “On Labour Protection” and the OHSAS-18001-99 International Standard will allow to take the labour protection to a qualitatively new level, as the experience of the Western countries enterprises in the establishment of labour protection policy, management systems and certification of the enterprises in accordance with the national and international standards can be of help for our enterprises [9, p. 101].

Western countries are currently working on implementing international standards of the labour protection management system known as OHSAS-18001 standards, on the basis of which national standards are developed. For example, the standards of occupational safety systems, based on the OHSAS-18001 standard, have been implemented in Poland. In particular, the Polish standard PN-N-18001 (Safety and Health Management Systems: Requirements) has been developed [9, p. 102].

In accordance with this standard, a model of safety and health management system has been developed and suggested (Figure 1):

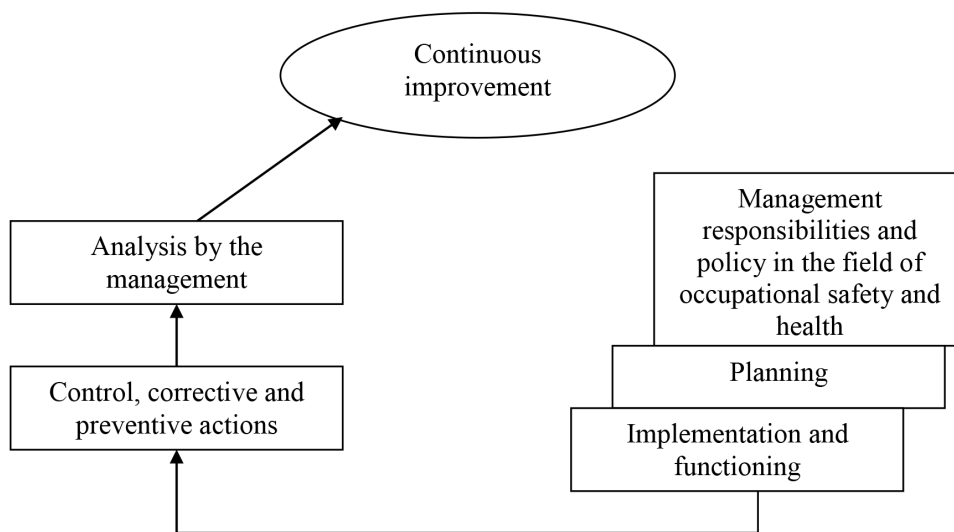


Figure 1. The model of safety and health management system (by the Polish PN-N-18001 standard)

Conclusions. Labour protection is a multi-faceted concept; it should be understood not only as insurance of the safety of employees in the performance of their official duties, in fact, it covers various measures. For example, prevention of occupational diseases, organization of a proper rest and nutrition of the employees during work breaks, providing them with the necessary clothing and hygiene means and even the performance of the social payments and guarantees. Thus, the correct approach to the organization of labour protection at the enterprise, the competent use of various non-material ways of stimulating the employees give the latter an essential sense of security, stability, and that the management is invested in their employees. The head of the enterprise must as well follow all the instructions and requirements of the legislation on labour protection and be responsible for their violation. The head should enhance the control over the state of production and technological discipline and the work permit

of employees according to the records and medical condition based on the results of medical examination; they are obliged to periodically instruct employees. Hence, with a well-organized labour protection, the employee turnover decreases, this in turn is beneficial to the stability of the whole enterprise. In summary, in view of the harmonization of Ukraine’s regulatory acts with the requirements of international standards, the “Labour Protection Management Systems” state standard of Ukraine DSTU should also be harmonized with the corresponding international standard.

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