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# DEVELOPMENT AUTOMATED INFORMATION-MEASURING SYSTEM MONITORING AND FORECASTING OF OCCUPATIONAL RISKS AT THE NETWORK OF AGRICULTURAL ENTERPRISES

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Among the logistical factors of productivity growth occupies a special place scientific and technological progress, which is the basis for an intensification of social production. However, the scientific and technical progress (STP) creates the preconditions for improving working conditions, raising the technical and cultural level of workers. All the so-called "nomenclature event" OSH [1,3] suggest the growth of labor productivity due to increased efficiency, reduction of labor intensity, improve the efficiency of use of the equipment, reduce the loss of temporary disability. All types of prevention (payments in connection with accidents and occupational diseases, costs of benefits and compensation for work in adverse working conditions, the costs associated with labor turnover, loss of marriage, etc.) Is also "working on productivity."

Thus, NTP, which is based on the growth of labor productivity, is a leading factor in the level of occupational risk, and therefore it can be used to effectively manage these risks.

The purpose of research - development of automated information measurement system of monitoring and forecasting of occupational risks at the network facilities of agro-industrial complex.

Materials and methods issledovaniy.Dlya selection priorities in the fight against professional risks, it is advisable to assess the effectiveness of individual faktorov.Prakticheski it is very difficult to do, since the experiments of the state of the economy of scale impossible, and direct evidence for this, too, does not exist.

[4] At the same time, direct and indirect evidence, we were able to build exemplary graphs of the risk factors for the two most tangible actions: using new techniques and technologies and upgrade their. These graphs are plotted for cases of maximum effect and are presented in Fig. 1.

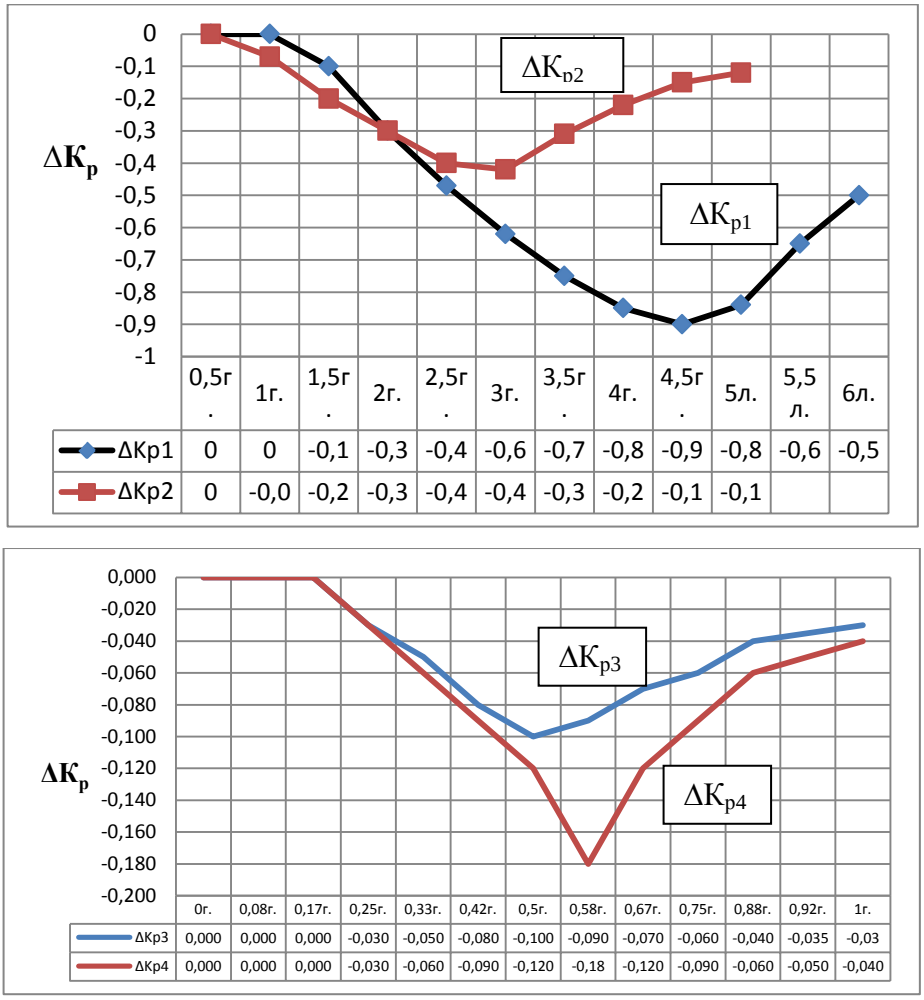


**Figure 1 graphs reduce risk factors by using new techniques and technologies (ΔKr1), the modernization of equipment and technologies (ΔKr2) at training (ΔKr3) and certification of workplaces (ΔKr4)**

Commenting on the graphics shown in Figure 1, it should be noted that the major events affecting the reduction of occupational risks are those that determine technical progress: the use of new high-performance equipment and technologies. Other widely advertised the event as an attestation of employment, training and promotion, and have little short-term effect to the extent to which they impact on productivity. Therefore, the main focus of public policy in terms of reducing the

level of professional risks is accelerated upgrade of existing production equipment and technology. Naturally, this will increase the cost of society, but this problem can be solved not only through capital investment and depreciation and switching to ensure the replacement of machinery and equipment to be disposed of, as well as through the use of the funds to improve working conditions [4].

Results issledovaniy.Dlya to new equipment and technology efficiently reflect changes in working conditions, it is important to solve the twofold problem. First, change the process of the formation of working conditions at the stage of design and development of new technology, because it is here defined conditions. Second, change the approach to the assessment of new machinery and equipment, manufacturing processes and the whole scientific and technological progress. It must be assessed not only in terms of pure economic performance, as is done at present, but also taking into account the social impact, including qualitative changes in working conditions. Practice shows that in developed countries, all of these costs pay for themselves through increased productivity, reduction of working time losses caused by occupational injuries and disease, reduce turnover, reduce costs to pay the consequences of poor working conditions, etc.

The object of control in the system is an occupational hazard that is born and formed in the industrial sector and its level is determined by the degree of perfection of engineering and technology, professional workers, the level of comfort working conditions, ie, figures forming a certain level of labor productivity (Fig. 2).

**Fig.2. Functional diagram of the professional risk management at the federal level**

The sensors, which form the input into the system, is the information which allows to analyze the dynamics of occupational risks, the calculation of the predicted levels of occupational risks, ensure the growth of labor productivity, the calculation of the costs and time required to achieve a predetermined value of professional risk.

Regulatory link in SuPR is the budget allocated to ministries and departments to implement their development programs, some of which are being implemented to reduce the level of occupational risks. [2]

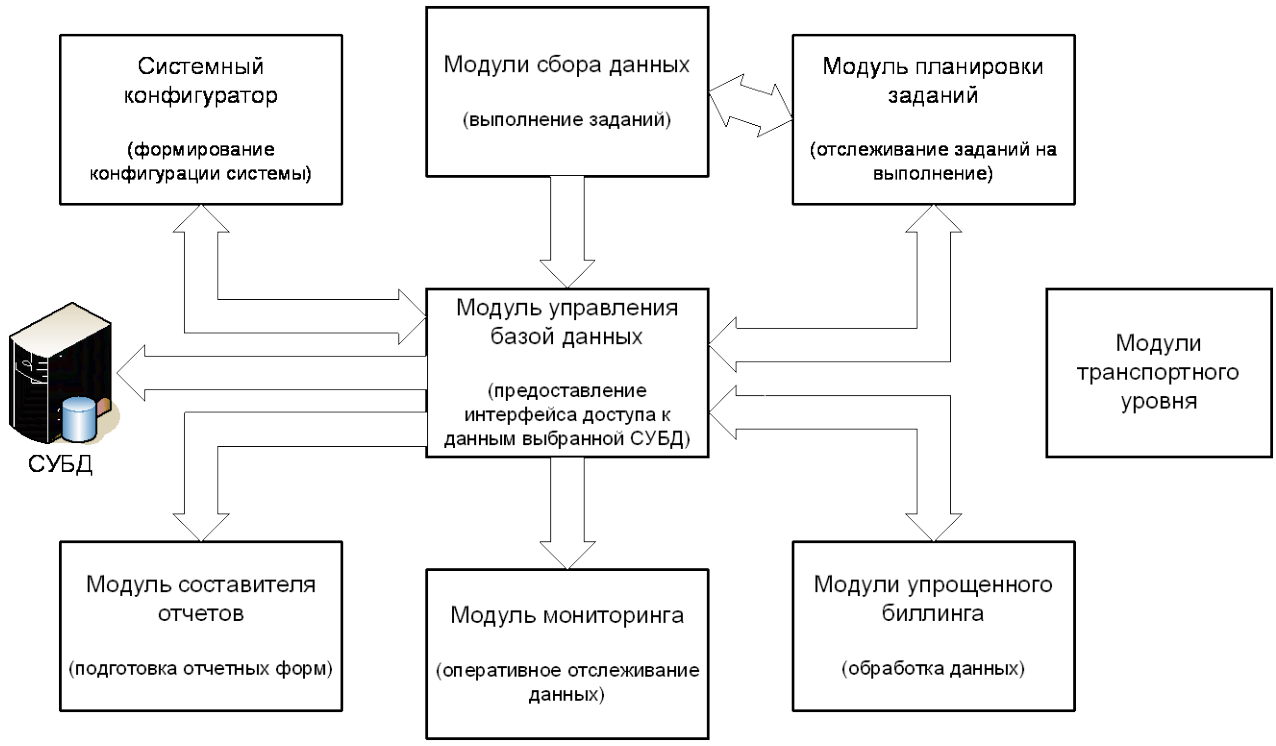


**Fig. 3. Automated system for collecting information**

The automated system can significantly simplify and speed up the implementation of a number of high-quality time-consuming tasks, such as:

- Development of feasibility of measures laid down in the regional and municipal programs to reduce injuries, to attract investors;

- The development of investment projects for the measures laid down in the regional and municipal programs to reduce injuries;

- Attraction to cooperation of different companies to participate in activities to reduce injuries.

As part of an automated system can be (Figure 3):

- To collect data automated or manually, and provide it in a formalized manner (graphs and charts);

- To provide a given statements to predict occupational risks, organize data on different parameters;

- To put and to delegate tasks to the lower level.

The system is designed to provide monitoring and forecasting of occupational risks in the power grid enterprises of agriculture for the purpose of commercial calculations (Fig. 4). [2]

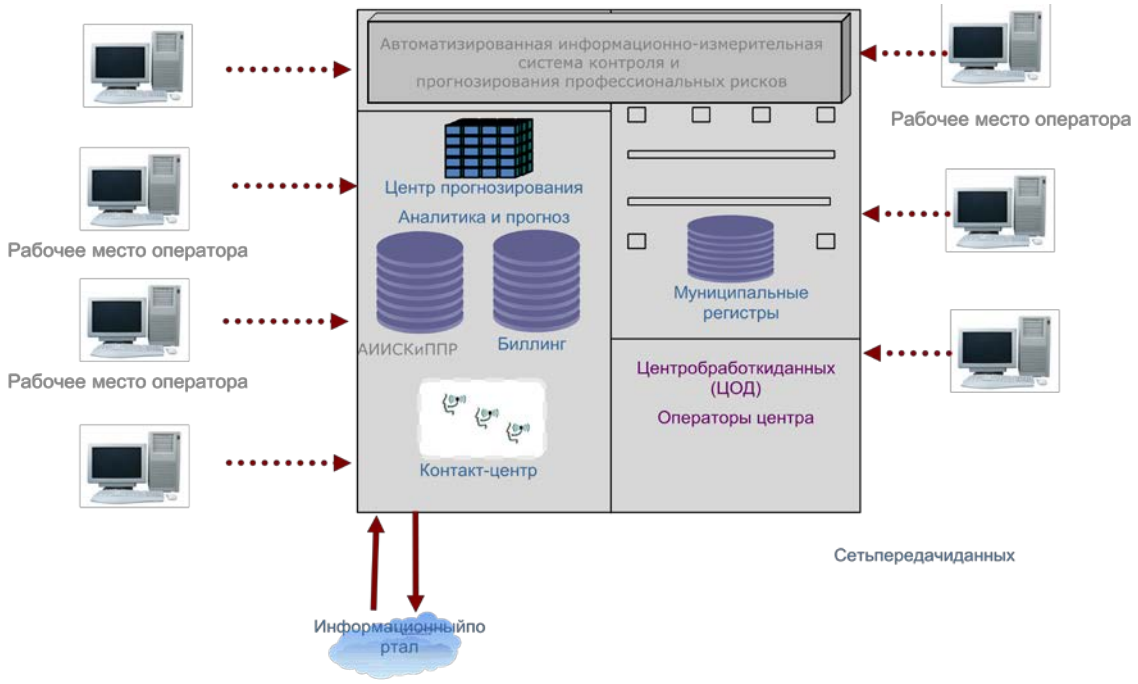


**Fig. 4. The automated information system for monitoring and forecasting of occupational risks**

Functions of the system:

- Measurement of the occupational risks at a given interval of integration;

- The collection and transfer of information into the database of current parameters of occupational risks, the controllers; storing initial information about their level of at least 45 days;

- Formation of the user's request operational reporting occupational hazards

in real time, of accounting documents in the form of graphs and tables, display monitor, and print the event log;

- Time synchronization of all components of the international coordinated time satellite system GPS;

- Health monitoring communication channels, unauthorized access to the system, the unity of time in the system, turn off and restore power system devices;

- Automatic check failures and failures of system components, time off and re-establish communication with each subscriber channels and power system devices;

- Protection against unauthorized access;

- Preservation of information in case of emergencies;

- The transfer of commercial information in the control of the organization and related entities.

## Conclutions

The automated system is geographically distributed multi-level information-measuring centralized real-time system and is designed for monitoring and control of occupational risks at the network facilities of agro-industrial complex.

ACS will perform statistical functions, ie collection and processing of information for certain time periods, which are made on the basis of analysis and calculations.

ACS can perform operational and measurement functions, ie, in the mode of an approximate to the real-time tracking indicators of occupational risks.