



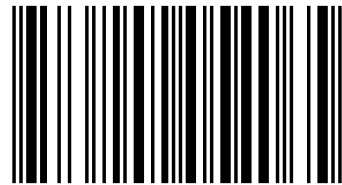
Motivation of Coal Mine Workers

The book considers modern methods of stimulating the work of employees in general and employees of coal mines, in particular. The basis of sociological surveys is a list of incentives that motivate the work of these categories of miners. It is shown how to stimulate the work efficiency of not only the workers of the scum, but also a new method of stimulating the activities of the leaders of the working brigades. This technique has been tested on three coal mines of the Donbas. The efficiency of the technique is statistically proved, since after its application, the effectiveness of the production of brigades has increased significantly.

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Igor Pistunov

Mechanism of Motivation of Labor at Extraction Sites of Coal Mines

Postgraduate student of departments and economics of enterprises of the State Higher Educational Institution "National Mining University". The field of scientific interests is the development of a system of remuneration and bonus of workers and managers working in the mining of coal mines. The work is done together with Professor Igor Pistunov.



978-620-2-05406-5

Ponomarenko, Pistunov

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Imprint

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Cover image: www.ingimage.com

Publisher:

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International Book Market Service Ltd., member of OmniScriptum Publishing Group

17 Meldrum Street, Beau Bassin 71504, Mauritius

Printed at: see last page

ISBN: 978-620-2-05406-5

Zugl. / Approved by: Ukraine, Zaporizzia, Economical University, Diss. 2017

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LIST OF CONDITIONAL TERMS AND ABBREVIATIONS

WTO – World Trade Organization

PPP – Percentage of bonus on the indicator (percentage of bonus)

RWP – level of implementation of the plan for coal production

PPD – percentage reduction;

RH – Ash content of coal extracted

ZPRK – magnitude of bonus discount managers

RP – average rating of needs groups

OTT – Inter-Shaft Transport

VCT – sections of conveyor transport

KTU – coefficient of labor participation

KTV – coefficient of creative contribution

KYP – coefficient of labor quality

INTRODUCTION

Ensuring Ukraine's energy security depends on the state and development of the country's fuel and energy complex, where coal mining enterprises are the main ones. The deterioration of mining and geological conditions, the outdated mine fund, and the significant closure of coal enterprises with low technical and economic indicators have led to a significant decrease in the volumes of mining of these minerals for energy, metallurgy, communal sector and other sectors of the national economy. To improve the technical and economic performance of extractive industries and mines in general, it is necessary to introduce new approaches and methods of managing production activities. Such an attitude is based on the active stimulation of managers and workers who produce coal.

The disadvantages of the existing system of labor remuneration, which is based mainly on the material component, is a consequence of the lack of development of the methodological principles of motivation of labor as a conscious and purposeful incentive of the employee to work through constant influence on his needs, interests and goals, which should be a guarantee of initiative and highly effective work. However, today the problem of substantiation of the mechanism of active motivation, the creation of long motives for labor in a person, which is associated with complicated, difficult conditions for its implementation in underground mining of coal, is unresolved.

We can name a lot of names of famous scientists who worked on the theoretical definition of the original concept of motivation and the economic essence of incentives for effective work. However, modern studies do not adequately cover the economic aspects of improving the mechanism of motivation for employees who carry out production processes at a coal mine at a mining site, which is a key element of the production activity of the enterprise. Need more in-depth research factors, principles, incentives motives and value orientations of the employee on his behavior.

Therefore, the theoretical generalization and the new solution of the scientific problem connected with the formation of the system of motivation of labor at the enterprises of the coal industry, is an actual task, which determined the choice of the topic of research, its purpose and objectives.

The aim of the study is to improve theoretical, methodological and practical approaches to the formation of a system of motivation of labor at enterprises of the coal industry, which will increase the efficiency of personnel.

To achieve this goal, the following tasks are set:

- to study the theoretical basis of labor motivation at industrial enterprises;
- to develop a conceptual model for the formation of a system of labor motivation at extraction sites of coal mines;
- to develop a mechanism of motivation of labor at extraction sites of coal mines;
- to construct a method of using the toolkit of the wage structure of workers at mining coal mines;
- to develop a method for identifying and justifying the structure of the needs of personnel at mining sites of coal mines;
- to propose organizational mechanisms for stimulating work of workers at extraction sites of coal mines.

Because of the writing of the monograph, the following theoretical results were obtained:

Improved:

- a conceptual model for the formation of a system of labor motivation at extraction sites of coal mines, which, unlike existing ones, is based on a combination of financial and organizational methods and mechanisms that can increase the efficiency of work of workers due to their complex operation;
- a mechanism for motivating labor at extraction sites of coal mines, which, unlike existing ones, is based on an interactive system that takes into account the achievements of certain levels, namely: satisfaction of needs according to the rating and ranking of employees; Pay for a ball assessment of positions of mining professions; Payment of premiums for the execution of the assignment; Providing incentives for employees to trouble-free transportation of coal to the day-to-day surface; Creation of values and moral and psychological climate at the district, which allows to realize the motivation of labor, based on the changing environment and the need for an operative adjustment of the situational reaction of various components of the mechanism of motivation;
- method of using the tool structure of wages of employees at extraction sites of coal mines, which, unlike existing ones, is determined by the ratio of its permanent and variable components, where the first is paid to the employee individually according to his grade (the value of the post and its influence on the result of the work of the site) , And the second - according to the size of the premium for execution and overfulfilment of the section of the planned task, which is established by the connection of two fractures at three intervals of execution of the plan, which makes it possible for this system to enhance motivation and stimulating social functions;

Has developed further:

- method of identifying and justifying the structure of the needs of the personnel of mining coal mining stations based on the sequence of implementation of the stages of distribution of needs for such groups: existence, social, recognition and self-realization, where each group is integrated into five needs that are most characteristic of workers of mining Professions, which makes it possible to specify content and quantify each group of needs and every need in the middle of the group;

- organizational mechanisms for stimulating the trouble-free work of employees servicing technological processes that provide for their bonus in the case of a task to produce products, which determines the premium personnel of the enterprise, which is not part of the integrated brigade, which promotes the activation of the mechanism of motivation of labor at extraction sites Coal mines due to the reduction of accidents in the technological process.

Methodical recommendations for improvement of the mechanism of motivation of labor at the enterprise were adopted for implementation at SE "Selidivugollya", as well as tested at the extraction site No.2 of OP "Kurakhovskaya Mine" of SE "Selidovugollya".

The methodology for determining the factors of labor motivation and their quantitative evaluation is adopted and used in the study of the needs of workers at the mines "Ukraine", "No.1-3 Novogrodovska", "Kurakhovskaya". In addition, the methodology of ranking of managers and working mining sites, ranking of needs is first used for questioning at the courses on the training of managers of coal mines in Ukraine under the program "School of the Minister".

Chapter 1

THEORETICAL BASES OF FORMATION OF APPROACHES TO MOTIVATION OF LABOR ON ENTERPRISES OF THE COAL INDUSTRY

1.1 Theoretical and methodological foundations of motivation of labor at the enterprise

Effective personnel management, a motivational approach to work with full success and high performance is one of the decisive factors for improving the competitiveness of enterprises and organizations in a market economy. In developed economies, motivation has become a norm, since it is an elemental component of the enterprise management system. With the change in the economic paradigm and in Ukraine, the best domestic enterprises and organizations move from stimulation to motivation [1].

Ukraine became a member of the WTO, but many of our enterprises are still in the initial stage of the process, when it is necessary to switch to its management from the establishment of the existence of the motivation of labor and the understanding of the prospects of its impact on the economic performance indicators [2].

In the developed countries of the world for a long time and constantly cultivate the motivational ideology in the process of production, they have developed a theory of motivation and methodological approaches to its management. Despite the urgency and practical significance of the process of transition from stimulation to motivation, and then to motivational management, today among the various specialists there is no unambiguous interpretation of the concept of "motivation". Moreover, many of them do not distinguish between motivation and stimulation. Even in scientific literature it often appears that motivation can exist only on the basis of

stimulation. Therefore, some of the authors to improve the performance of enterprises recommend managers to stimulate labor motivation, that is, incentives are viewed not as one of the factors of motivation, but as stimulation by managers and managers of the system of motivation of labor itself.

In an economic sense, motivation is an activity whose purpose is to intensify the people working in the organization and to encourage them to effectively perform their tasks.

However, as can be seen from the definitions discussed, different experts invest in this concept a different economic meaning.

The analysis of the above definitions of "motivation" allows to distinguish three different variants.

In the first version in the interpretation of motivation lies the external or internal aspects of the economic entity to enhance the effective implementation of the organization of tasks. Thus, here the basis of the motivation of an economic entity is the fulfillment of the tasks of the organization. At the same time, the incentive to work is not perceived by man as a means of satisfying it, and therefore not concentrated on achieving the goal.

In the second variant, under the motivation understand the psychological forces of man, aimed at increasing the level of effort, perseverance in dealing with difficulties in specific situations.

According to the authors, when motivating the use of psychological forces, the efforts and perseverance of a person must be constant, not episodic, for example, when difficulties arise. In addition, this definition of motivation does not explain the incentive forces of man to work, because the motive of the inner impulses of the person should not be satisfied with those or other needs of man.

In the third variant, under the motivation understand the psychological state, the desire and the person's drive to a certain work activity, so that it

can meet their needs. Psychologists, observing people, have determined that their needs are a motive for action, and therefore the creation of conditions managers to meet the needs of employees will contribute to the achievement of certain goals by the organization.

Thus, in none of the above definitions there is no sufficiently complete explanation of the concept of "motivation". Therefore, in order to eliminate the ambiguity of the interpretation of this concept, we suggest improving and defining the concept of "motivation of labor" by creating long-term motives for work in a person, which, unlike the existing ones, is understood as a system for managing the process of external and internal induction of oneself and other economic actors for certain activities To achieve the ultimate goal through their work activities, which allows sufficiently fully reflect the essence of motivation and generalized content of this issue.

In practice, the main incentive schemes relate to the level of remuneration, which is the volume of output. Therefore, contract wages are most often used, that is, when a simple and direct link between production and promotion is provided. Workers who produce a large volume of production receive an appropriate remuneration. In addition to the volume of production, for example, coal mining at the mine, other incentive criteria that link pay with job performance (quality of products, profits, qualifications of an employee, etc.) can also be used. So, while reducing the quality of products (increasing the ash content of coal), workers of the mine are not awarded. In other cases, contract payments usually assume that only units that meet quality standards are paid.

In addition to positive stimulation, negative is also used. For example, with an increase in the ash content (quality reduction) of coal up to 36%, the amount of coal produced for each percentage of the excess of ash is reduced by a count of 2.5%. In the work under the active stimulation understood the rationale and development of new forms and effective external and internal

incentives for workers to improve the results of labor in order to achieve the goals of the enterprise.

The main advantage of material incentives lies in the fact that the high rates of production should be encouraged. Therefore, positive stimulation is more effective for motivating employees, because material incentives promote equity, since those who achieve the best score receive more rewards. Although this often does not exclude the use of negative incentives. Therefore, we can say that stimulation of labor can be considered as a means of remuneration for an employee in the labor process, which is built on the comparison of labor efficiency and technological characteristics.

Thus, motivation and stimulation are economic terms based on the economic incentive of a person.

Motivation should directly depend on the implementation of strategic tasks. There is such a concept - "performance", which includes the effectiveness of activity, quality of activity, activity, etc. It is directly related to performance motivation. To conduct this assessment, you need to imagine what goals the whole team and each link in particular. It is necessary to use the cascading principle of planning - from the top to the bottom, that is, firstly determine the positions of managers, then middle managers, then - ordinary employees. The whole system of motivation is focused on the achievement of specific goals, specific indicators - both quantitative and qualitative, as well as payments, rewards in a different form, which directly depend on these indicators.

Stimulation is a challenge for a certain response to a stimulus (the neuropathologist knows where to knock his hammer and knows what reaction he waits for). Therefore, stimulation determines the tactics of solving the problem and is one of the methods of achieving the goal. And the purpose of stimulation is not generally the desire of man to work, but the desire to do even better is due to labor relations.

In practice, there are many approaches to how a manager must organize a system of motivation to direct himself and others to effective activities to achieve the goals and objectives of the organization. These approaches are based on many theories and practical studies of motivation, in which attempts are made to obtain the appropriate ratios of employee behavior and its outcomes.

For example, Neralin Cornelius explains that theory of motivation has been developing over the past 100 years and has led some of the authors of these theories: F. Taylor (1911), A. Maslow (1954), F. Herzberg, J. Adams (1965), J. Jacques (1961), L. Porter and E. Laurel (1968), V. Vroom (1964), A. Litam and E. Locke (1979) [21, p. 220].

Most researchers believe that the theory of motivation can be divided into two components of the category: content and procedural. In the first category, the theory focuses on the internal factors of the individual. They provide new direction and support for the staff behavior system. This allows us to identify the specific needs of people who motivate them. In the second category, the theory itself describes and analyzes how behavior gets action, is directed, supported and stopped.

Since these theories are important for managers who by reason of the nature of their work have included the motivation process in the system, let us dwell on some of the characteristics of widely used motivation theories and analysis of their critical shortcomings.

One of the most well-known theories of motivation is the model of the hierarchy of Abraham Maslow's needs. Unlike the supporters of one of the directions of behavioral psychology in American psychology, he was one of the first to point out the complexity and multidimensionality of human needs and the corresponding influence on the system of motivation. Maslow believed that a person should have many different needs, but these needs can be divided into five main categories [22]:

Physiological needs, namely food, shelter and medical care.

Security needs, including protection from physical and psychological hazards, protection against environmental threats.

Social needs - a concept that includes a sense of belonging, a sense of social interaction, commitment and support.

The needs of self-affirmation and independence from others.

The needs of self-expression are the needs that are aimed at realizing its potential and its growth as an individual.

A. Maslow also believed that it is people who must first satisfy the lower needs (physiological). After that, they pass to meet the following needs, which are higher in the pyramid. Thus, the needs of a person arise from small to greater, that is, hierarchical needs have a fixed order. However, in my opinion, this hierarchy should not be so "rigid". Therefore, in Maslow's pyramid, the need that stands above can not necessarily be met only after satisfying the lower needs.

It can not be accepted that a satisfying need is an incentive. Therefore, we can assume that this theory will not be sufficiently correct for explanation on an individual level. However, Maslow's theory of human needs is the basis of other theories of motivation and can be used in determining the needs of workers in the mining site, taking into account the observations that I have shown above.

These theories should include ERG - the theory of Alderfer, where the needs are classified into three main categories - existence, affinity and growth-according to the initial letters [7, p. 135]:

- existence – needs that are satisfied by such factors as food, air, water, salary and working conditions;

- relatedness – needs that are satisfied by significant social and interpersonal relationships;

- growth – needs that are satisfied by the personal creative or productive contribution of the individual.

As noted above, Maslow believed that dissatisfied needs were dominant and that each higher level of need was not taken until the needs of the lower order were met. In contradiction to this, K. Alderfer states that the complement to the progressive-sequential ascension of Maslow is the possibility of a regressive process. For example, if a person is constantly failing to meet the needs of growth, then there is again a need for affinity as the main motivational factor, that is, it forces a person to achieve achievement in a lower category [7, c.136].

Today it should be noted that ERG - the theory was little used in research. Despite the evolution of its character, it was not considered in practice by an empirical test, which reduces its value. Taking into account that in this theory of satisfaction of needs can be directed both from the bottom upwards and from top to bottom, this theory can be used in determining the requirements for the dissertation, but it is necessary to take into account the quantitative assessment and priority needs that were not taken into account in the theories and A. Maslow, And K. Alderfer.

Significant contribution to the theory of acquired motivation needs was made by David McClelland. He acknowledged that, unlike biological and other "basic" needs, procedural theories, D. McClelland tried to identify the most important among the so-called "secondary needs." He also believes that many human needs arise from the corresponding culture of society. Three of these needs are the need for achievement, the need for affiliation and the need for power. The author of the theory argues that there is a fourth of the three needs, that is, the need to avoid troubles, obstacles or, for example, situations that have prevented success, the possibility of depriving a person of power or group recognition [23]. The author of the dissertation thinks that on the example of big business in Ukraine this theory has been confirmed.

From his experience McClelland has revealed such a feature as the need for power, defined in the desire to influence other people, to control

their behavior, and also to be ready to be responsible for others. This is especially true for executives. Therefore, it is necessary to select the people who have found the need for the authorities at the management positions. Therefore, this theory is used by the dissertation in further work.

McClelland has established three types of executives:

- managers are institutional, with a high level of self-control and for which there is a more characteristic need for power than belonging to a group;

- Managers who overcome the need for power over the need for affiliation are more open and socially active than institutional managers;

- managers in whom the need for affiliation prevails over the need of the authorities, they are also open and socially active.

To prove the importance of his theory, McClelland developed special tests. Despite the fact that this theory has not gained complete empirical evidence, many executives use it to select managers for different positions of enterprises and organizations. Therefore, those needs that are highlighted by McClelland need to be used in identifying needs.

At the heart of one of the most common procedural theories lies the two-syllable theory of F. Herzberg. It was published abroad in the second half of the 1950s, and only in 2007 it came out in Russian [24].

Together with the staff, F. Herzberg developed another model based on needs. They conducted a survey of 200 engineers and office workers of a large paint and varnish firm, who had to answer the following questions: "Can you describe in detail when after performing the duties you felt particularly well?" And "Can you describe in detail when After performing official duties felt particularly bad? "

According to F. Herzberg, the answers can be divided into two categories, which he called "hygiene factors" and "motivation".

Hygienic factors are related to the environment in which the work is carried out, and the motivation – with the very nature and essence of the work.

"The essence of hygiene is to eliminate the potential danger to human health from the environment. It does not include therapeutic functions, but is rather a prophylaxis.

Modern technologies of garbage disposal, water purification and air pollution control do not cure diseases, but without them the disease would be many times greater. Similarly, when in the context of work there are adverse factors, they serve as the reason for the emergence of a negative attitude to work "[24, p. 186].

Despite the fact that F. Herzberg himself believes that "the motivational-hygienic theory meets several requirements that apply to all theories capable of performing practical functions ..." [24, p.21], many authors do not share this passion, with What can you agree with.

For example, DL Gibson, D. Ivantsevich and D.H. Donelli mole Believe that the most important of all existing content theories is the theory of F. Herzberg. "This is explained by several reasons. First, the theory from the outset was based on the study of groups composed of accountants and engineers. Critics doubt that the result obtained on such a small research base can be extrapolated to other professional groups ... Secondly, some researchers believe that in the work of F. Herzberg roughly simplifies the nature of satisfaction with work. This, of course, is an incorrect statement taking into account the complexity and difficulties of the process of satisfaction with work within the labor process "[7, p.139].

In addition, F. Herzberg does not give any explanation why various external and internal factors of work should influence its implementation. In addition, with the help of two-factor theory, one can not explain the comparative importance of various factors of work. But the dissertation thinks that hygiene factors should be taken into account when developing the

needs of workers in coal mines, because their work is associated with increased danger, high temperature, dustiness, humidity and gas pollution.

An analysis of each of the above and some other substantive theories explains human needs and behavior with minor differences. Neither of them is used by managers as a single theory to explain motivation. Therefore, we can assume that each of these theories gives managers a certain understanding of human behavior and its activities, which allows us to conclude on the evolution of their nature.

Among the most well-known procedural theories of motivation include theories that analyze how people distribute their efforts to achieve different goals and how to choose a particular type of behavior [26]. Unlike meaningful theories, procedural theories do not deny the existence of needs, but believe that the behavior of people is determined by the behavior of the individual, perceptions, expectations and possible consequences of their chosen behavior.

One of the most popular motivations is the theory of Victor Vruma's hope. The concept of this theory is based on the position that the presence of active need is not the only necessary condition for motivating a person to achieve a certain goal. It is believed that a person must be satisfied with the type of behavior he chooses, which will lead to satisfaction or acquisition of the desired one.

Hope is estimated by the probability of the event. It should be understood that the perceived probability of determining action will be a certain result. For example, most people count on the fact that when they graduate from a higher education institution and with full dedication to work in the corresponding position, they can move on to a career service.

In the analysis of labor motivation, the theory of hope pays special attention to the importance of three interconnections: labor costs - results; Result - rewards; Valence (satisfaction with reward) [26]. However, in the theory of Vruma almost does not consider the motivational mechanism itself

and its components. Therefore, in the dissertation, it is necessary to improve the motivational mechanism on the extraction sites of coal mines.

One of the prevalent theories of motivation for labor is "D. X. Y. - Theory" by D. McGregor. This concept includes two opposing theories - the theory "X" and the theory "Y".

The author of the theory of "KhY" believes that the "average" employee is lazy and seeks to avoid work. He is afraid of responsibility and wants to be in control. In order to achieve the goal, the enterprise should force these people to work by applying sanctions, but it is necessary to not forget about the reward too. Therefore, such leaders confess the strict style and methods of management, prevailing negative motivation of subordinates, based on the fear of punishment.

The theory of "Y" is an addition to the theory of "X", based on its opposite. In this theory, it is considered that the innate quality of the worker is not the desire to work, but the result of poor working conditions that suppress the innate love of work.

Therefore, under favorable conditions, workers will strive to assume responsibility. For this purpose, the organization is a reward and personality development. This allows employees to develop such qualities as self-discipline and self-control. It is assumed that the labor potential of employees is higher than it is customary to consider.

In general, among modern experts it is believed that the theory of D. McGregor should dominate the concept of "Y". However, in practice often happens not so. Used a variety of primary concepts, expressed by the policy of "whip and stick".

On the basis of the analysis of the theory of D. McGregor in the dissertation in identifying needs and developing a motivational mechanism, it is necessary to apply, first of all, the theory of "X", for example, such needs of workers as "recognition" and "application in the area of moral and psychological climate."

The theory of the validity of motivation was first developed by a psychologist - researcher J. Adams in the company "General Electric." The essence of this theory is to compare their efforts and rewards with the efforts and rewards of other people who are in similar working situations. Here to a certain extent the theory evolved evolutionary way. The theory of justice is based on the assumption that people who work for a reward received from an organization are motivated by the desire to receive a fair reward.

This theory uses four important terms [7, p.175]:

Personality - a person who perceives justice and injustice.

The benchmark for comparison any person or group of people uses the personality that is the standard when considering the relation of contributions and outcomes.

Contributions - characteristics of the person, put her into the case. They can be achieved (like, for example, skills, experience, knowledge) or simply assigned (for example, age, gender, nationality).

The results are what the person received by doing the job (for example, recognition, share in the company's profit, salary).

Researchers from this theory have noticed that wage increases should be paid more attention than the distribution of work. Thus, they make it clear that the explanation of motivation through the theory of justice is very limited and not complete [26].

Not revolutionary, but evolutionary, unlike the theory of "Y", one can consider the theory of human relations, which was developed by scientists E. Mayo, F. Rothlitzberg, and others in the 30s and 40s of the last century. It was later considered in Europe. Their development formed the basis of the development of the theory of humanization of labor.

The basis of the theory of human relations is:

- organization of social norms, and not physiological and material incentives in labor motivation;

- satisfaction with labor, which implies a good payment, the possibility of career growth, orientation of managers to employees, progressive methods of organization of work;

- social security and care of each employee about the life of the organization.

The theory of human relations is widespread and needs to be taken into account in the system of motivation.

Most of the theoretical provisions above were developed in the United States, and then, with refinements and improvements, they were used in Western Europe. However, in Japan more attention is paid to the ideas of human relations, especially in the practice of collective motivation. On the basis of sources [27-30], the experience of the main systems of labor motivation in Japan was analyzed.

To confirm this theory, his report at a scientific conference [30] cited a quote by R. Wayne Mondy, Robert M. Nou and Shane R. Premo: "It is people who create the difference between success and failure of the company ..." [31, p.17].

Despite the fact that the population of Japan is only 2% of the world's population, there are virtually no raw materials on its territory, but it has a leading position in the world in many industries. This is largely due to the peculiarities of the Japanese style of personnel management, the simplicity and thoughtfulness of the motivation of work.

At this time, when practically all corporations, enterprises and organizations have access to the same technologies and technology, it is impossible to deny the fact that the real difference in the achievement of the goals set by the organization is created at the expense of human resources [31]. In this regard, we consider the Japanese experience of labor motivation, which is very different from the western systems of motivational management of labor activity.

It is clear that there can not be and can not be the only recipe for using Japanese experience in motivating work, since there is no single system of motivation for labor due to significant differences in professional activity, organization of production and corporate culture of enterprises and organizations. And yet, there are common, most typical components of the motivational activity of Japanese enterprises, which attract the attention of foreign scientists and practitioners who are trying to introduce Japanese experience in other countries.

One of the main features of the Japanese experience of employee management is that Japanese entrepreneurs, unlike the western ones, consider not only one person as a person but a group of people. At Japanese enterprises, they work in groups, jointly and in support of each other. In this case, a strong motivating factor is the corporate firm, which means the union of staff with the firm and commitment to its purpose. At the core of the corporate approach lies the psychology of the group, which puts the interests of the group above the personal interests of employees.

An important factor is the national mentality, according to which in Japan there is a tradition of subordination to the elderly, whose position is endorsed by the group.

An important component of the Japanese system of motivation, which forces professionals to work effectively for the benefit of the firm, is the "life-long hiring" system, which covers up to 30% of the total number of hired workers at both private and public enterprises [27]. The basis of this system is as follows. Accordingly, at the end of the school year, firms fill vacancies by graduates of schools and universities, which, after their adaptation and training, begin to directly perform their duties. Enterprises guarantee their employees employment not only before retirement, but also in the event of a decline in production in the enterprise and the emergence of other contingencies [32].

With this system, the promotion of a worker and his salary are constructed in such a way as to tie him firmly with the future firm. Career growth of the employee is determined by horizontal rotation and internally branded training, and the amount of wages directly depends on the continuous work experience.

It should be noted that wages are the main reason for the material component of the motivation of a Japanese worker. Structural components of the salary are the basic salary, additional incentive allowances and special payments for social needs. The base rate (salary), as a rule, does not depend on the total performance of an individual employee or group. It is approximately the same for all permanent workers of one age and education level and periodically increases with an increase in length of service. Numerous allowances have an individual character and serve to stimulate personal and collective labor. These include excess pay for improving productivity and quality of work, for liability, annual and semi-annual bonuses (bonuses), as well as one-time assistance when retiring [28].

An essential component of motivation is the quality management, in the creation of which involves all staff.

In all spheres of the economy there are quality circles - voluntary associations of workers led by a foreman or a master. In these circles, the workers are developing proposals for improving technological processes, improving the organization of work, modernizing equipment, improving quality, reducing the shortage and costs of production.

Under such a system of motivation, entrepreneurs get loyal and loyal workers willing to work for the company with full dedication, and workers in turn feel a deep satisfaction from the fact that they have recognized their abilities, education and level of training, and therefore feel themselves debtors of the firm. That is why the system of lifelong hiring should be considered as a powerful means of motivational action.

The experience of motivation in Japan is widely studied and used in the light of the mentality of people in this country. However, one should note the considerable experience of Ukrainian and Russian scientists in the study of various types of motivation, their improvement and the study of new approaches to motivational management of labor.

The most expedient motivational theories are meaningful (A. Maslow, C. Alderfer, D. McClelland, F. Herzberg) and procedural (V. Vrum, D. MacGregor, J. Adams, E. Mayo, F. Rothlizberg). The elements of these theories, which are discussed above, should be used in chapters 2 and 3, as well as in the formation of a motivational mechanism.

The analysis of modern theories of motivation is not exhausted by the examples discussed above. A large number of studies are due to the complexity of this problem. This is largely due to the fact that psychologists, philosophers and sociologists initially studied this issue. Until recently, the motives of activity and, first of all, labor motivation have not been the subject of systematic economic research. In most of the proposed theories there is no analysis of the general provisions of labor motivation, the list and structure of the needs of people based on their labor and industries are not substantiated

1.2 Research of modern approach of motivation of labor at the enterprises of the coal industry

The theoretical basis of motivational activity of the employee at the enterprise has developed historically, evolutionarily and is sufficiently worked out. At the same time, it should be noted that the motivation of labor is the desire to meet the needs of man with the help of work in the current economic activity of the enterprise, as well as taking into account the level of socio-economic and cultural development of society.

Aspect, the point of view from which any phenomenon is considered, the concept [20, p. 81]. Therefore, in this section of the dissertation an attempt was made to consider such theoretical aspects of labor motivation at coal mines taking into account the features of the main motivational theories, terms of motivation and stimulation of labor, remuneration of labor, human needs, motivational mechanism and others, which are investigated in work on motivation of labor in mining- Mining industry.

Motivation as a general category is treated by a set of motives, evidence for justification, something motivating [33 p. 691]. In the economic literature is given a significant number of concepts of "motivation". For example, in an economic dictionary, a reference to motivation means "a conscious and purposeful inducement of an employee to work through a stable influence and his needs, interests and goals [34 p. 309].

In the philosophical encyclopedic dictionary several definitions of such categories as "motives", "needs", "interests", "goals", which reveal the concept of "motivation" are given. Yes, the motives in psychology, what induces human activity, for which it occurs [35, p. 389].

"Proof in logic, process (method) of establishing truth, justification of the truth of judgment. The term "evidence" admits a number of understandings that differ in degrees of community "[35, p. 173].

"Needs - a lack or lack of anything necessary to support the life of the organism, human person, social group, society as a whole; Internal stimulus of activity "[35, p. 518].

"Interest (from lat. Interest - meaning, important) is a social, real cause of social actions, events, achievements, which are behind direct motives - motives, thoughts, ideas, etc. - involved in these actions of individuals, social groups, classes "[35, p. 213].

In his work Karbivnichy IV Believes that in the general sense, the goal - one of the elements of the behavior of conscious human activity, which characterizes the prediction in thinking of the result of activity and the way

of its implementation with the help of certain means [36].

Thus, the above categories are collections of the general notion of "motivation". At the same time, the essence of this concept is complicated by the fact that it is used in various industries, including mining.

We will analyze and evaluate the motivation of labor in the conditions of the economic activity of coal enterprises.

It was established that the main causes of the imperfection of the motivation of workers in coal mines are the instability of the political and economic situation in the country and the general crisis of labor motivation at the enterprises of the industry. Political and economic situation worsened considerably by military actions in the Donbass, and labor motivation - the deterioration of mining and geological conditions and the economic activity of mines.

The general crisis of labor motivation can be estimated as follows:

1) the level of prestige of miner's labor has deteriorated considerably in recent years;

2) relatively small level of wages of miners in comparison with employees of other industries;

3) the majority of the mines use the tariff system of wages, the principle of which was laid in the years of the existence of the planning and distribution system and does not meet the current conditions of management. This system does not provide opportunities for the promotion of specific workers and motivation for quality work, but does not realize fully stimulating and social wage functions;

4) in the extractive sections of coal mines, the operating partly bonus system is not efficient enough, the system of "whip and stick" is used to a large extent;

5) considerable dissatisfaction with the working conditions of miners;

6) does not take into account the needs of miners and the specifics of their work;

7) there are no methods of differential accounting of quantitative assessment and priority of factors of motivation of labor;

8) insufficiently effective methods of non-material motivation that can

encourage employees to work and high-yielding labor;

9) the corporate culture of the enterprise is not being developed and implemented at most mines;

10) most mines have incentives for workers and the introduction of individual elements of labor motivation and is not a comprehensive motivational mechanism as an interactive system that prevents the effective implementation of the motivation of labor in the enterprise;

11) many executives at mining enterprises use autocratic and voluntarist methods, which reduces satisfaction in work and does not motivate subordinates.

Due to the fact that coal is the main energy source in Ukraine, the reserves of this minerals are significant, the domestic coal industry remains one of the strategic sectors of the state [37, 38]. At the same time, in today's conditions, the volume of domestic coal for energy and for the metallurgical industry is clearly not enough. This led to the need for Ukraine to purchase significant volumes of coal abroad.

Therefore, most scientists point to the onset of the crisis in coal mining enterprises with the constant deterioration of mining and geological conditions, insufficient state funding and the instability of the Ukrainian economy. At the same time, it should be noted that to date, the possibility of an effective use of human resources on the basis of improving the motivation of labor at coal mining enterprises has not been explored.

Let's briefly consider in what mining-geological and economic conditions the coal mines of Ukraine work and how it affects the motivation of miners.

The main factors of the complexity of mining-geological conditions are: large depths of development, insufficient power of coal seams, their high saturation with methane, etc. Yes, the famous scientist-economist O.I. Akmayev together with VN Belozertsevym noted that "an important feature of the economic activity of coal mining enterprises is that, unlike enterprises

of other industries, they, in principle, can not simply provide a reproduction of fixed assets on the basis of depreciation deductions, even in the ideal economy. This is due to the fact that with each subsequent period, coal is extracted from the deeper horizons, in the worst mining and geological conditions, and this requires additional capital investments "[39, p. 26].

The development of thin and very thin layers with shrinkage of lateral rocks leads to a significant reduction in the production of coal and its quality due to the increase in ash content. As a result, the cost price of minerals increases and the profit of the mine is reduced [40]. In this regard, in the dissertation it is necessary to theoretically substantiate the size of bonus remuneration, depending on the level of achievement of the planned value of the indicator of coal production. Also, in this work it is necessary to theoretically substantiate the dependence of the size of the premium on the level of implementation of the planned norm of ash content. This will stimulate extraction workers to increase the volume of coal production and its quality. All this will improve the motivation of people both at the mining site and throughout the mine.

Successful conduct of the economic activity of coal mines is greatly complicated by the injuries of workers as a result of the collapse of unstable breeds, as well as endogenous and exogenous fires. In the event of fire and self-ignition layers in mines, special measures are carried out. At the emergency section of the reservoir itself, in the mining operations, concrete bridges are being reduced in mine work, and the extinguishing of the fire leads to huge economic costs of specific mines, and in some cases, the stop of the entire mine [41]. Therefore, to improve the motivation of miners' work at the mine, it is necessary to ensure safe working conditions. Satisfaction of human desires and needs is directly related to the motivation in the conditions of economic activity of coal mines.

The peculiarities of Ukraine's economic activity in the context of the transformation of the economy are the untimely renewal of the mine stock,

the reduction of labor productivity and the reduction of coal production, which leads to a significant increase in the cost price of minerals. Moreover, one of the main reasons for reducing the technical and economic indicators of the industry is the poor state of the entire mine fund. Every third mine has been in operation for more than 50 years, less than a third of the mines have been reconstructed, more than a quarter of the main stationary equipment has completely exhausted its normative resource [42, 43, 44]. Since motivation is an important factor in the productive work of the enterprise, the work of such outdated mines reduces the motivatedness of miners and the prestige of mining labor. Therefore, it is necessary to carry out construction of new and reconstruction of old mines at the state level. This will not only improve the country's supply of the main energy content of this mineral, but also substantially improve the motivation of labor in coal mines.

In Ukraine, the maximum volume of coal production was reached in 1975 (218.2 million tons), after which it was observed decrease. In 1991, only 135.6 million tons of mines were extracted from Ukraine, since 1994 coal production decreased to 100 million tons, and from 2003 to 2010 - up to 80 million tons, and in 2013 alone it was 83 , 7 million tons (Fig. 1.1). In 2014, as a result of hostilities in eastern Ukraine, coal output declined to a record low.

In the course of the restructuring of the coal industry in Ukraine, significant miscalculations in its preparation appeared due to the lack of elaboration of the regulatory framework and measures for the social protection of released workers, approved technical and economic substantiations, and mine closure projects [45, 46]. Restructuring of the industry did not achieve its goals. The cost of coal as a whole in the industry, despite the mass closure of more than 90 mines, has not decreased, and competitiveness has not increased in the country and abroad. The hasty mass closure of mines was carried out in the absence of a single effective methodology for diagnosing the technical and economic condition of mines,

which would take into account the dynamics of the development of coal enterprises, which would allow to make managerial decisions on the structural restructuring of associations and the industry as a whole and the inadequate development of the closure of mines [45-52]]

In addition, mines were closed not only with extremely complex mining and geological conditions, small reserves of minerals and low technical and economic indicators, but also those within mining districts of which the remaining coal reserves were sufficient for relatively long exploitation of mines. As noted in [53], the possibility of recovery of coal production in closed mines or those in the process of closure is currently being considered. There are many examples in the Donbass, where coal mines are successfully produced by non-state structures that are closed or closed, which does not require subsidies from the state budget [51]. This will create new jobs, reduce social tensions in the mining regions and, in part, increase the motivation of the miners.

As stated in the papers [54-59], the liquidation of a coal-mining enterprise should be carried out only when the mining of industrial reserves of minerals is completed. In all other cases, a careful analysis is needed regarding the need to close the mine, since the liquidation of the coal company leads to the dismissal of a large number of workers in the enterprise. Therefore, recently the closure of mines has been discontinued, and a moratorium has been temporarily imposed in violation of the bankruptcy procedure concerning loss-making mines [55]. All of this allowed us to improve the motivation of the workers, namely their need for existence as a wage, a guarantee of stable income, a permanent job (employment), etc.

As the well-known Ukrainian economist VM Heyets writes: "During this time there were processes of deepening of contradictions, a decline in production, a financial crisis" [60]. This was also characteristic of the Ukrainian coal industry.

In today's conditions, such crisis phenomena such as insufficient attention to social problems, social values, substitution of real value of money, reduction of motivation to high-yielding labor, and differentiation of income of workers of mines in comparison with some enterprises of other industries have become especially acute on coal mines. Such phenomena have become characteristic of the current formation of market relations in Ukraine not only for coal but also other industries. This is evidenced by the results of research by such Ukrainian scientists as OI Amosha [61], D.P. Goddess [62], IP Buleev [63], O. L. Yeskov [64], AM Kolot [65], E.M. Libanova [66, 67], O.F. Novikova [68, 69], G.L. Haith [70], et al.

For example, the average wage in Ukraine in 2013 was \$ 408.5. At the same time, it was lower compared to many countries of the Baltic and CIS: 3.08 times lower than in Estonia; In 2.32 times lower than in Latvia; In 2.29 times lower than in Russia; In 2,14 times lower than in Lithuania; In 1,74 times lower than in Kazakhstan; In 1,41 times lower than in Belarus. In 2014-2015 this figure has become even lower.

For November, 2013, among wage earners, the first place among all types of economic activity was taken by workers of the coal industry - 5502 UAH. The second place - employees of financial institutions - 4975 UAH. The workers of the metallurgical complex are 4373 UAH, scientists - 4274 UAH, employees of enterprises producing coke and oil products - 4244 UAH, transport - 3921 UAH, enterprises producing and distributing electric power, gas and water - 3890 UAH, Extraction of non-energy minerals - 3699 UAH. [71].

It should be noted that the main organization of remuneration in Ukraine is a tariff system that includes tariff grids, tariff rates, salary schemes and tariff-qualified characteristics (guides) [72].

The disadvantages of the tariff system can be attributed [73]:

□ the differentiation of wages under the tariff system is carried out mainly on the basis of formal indicators, which may be more or less likely

to indicate a high quality work of a particular worker, but not enough to reflect actual achievements and quality of work;

- Low opportunities for the promotion of specific workers and motivation for quality work are created;

- There is practically no possibility of creating at the expense of wages a system of incentive motives for mass improvement of working conditions of working mining precincts and, accordingly, heads of districts, deputies, assistants, mining masters;

- low rate of tariff rates (salaries);

- there is a weak possibility of formulating within the framework of the tariff system any criteria that would allow to assess and reflect the real complexity of miners' labor;

- insufficient degree of encouragement for the executives and ITRs of the extractive sections of complex and responsible works.

These disadvantages reduce workers' motivation.

In recent years, the grading system of wages began to be used in Ukraine and abroad, including some mines. The motivation of employees is achieved by the existence of a fair remuneration structure, the objectivity of the differences that it imposes on it, which affects the attitude of employees to the work, their behavior, the efficiency of their work, and, consequently, the success of the enterprise, organization, company. To date, one of the best, justified and recommended in practice, is the system of remuneration for the calculation of salaries on the basis of the b-factor method and matrix-mathematical models. This system is based on the Hay Guide Chart Profile Method [74]. The author of this method assumed the basis for the factor rating system [75]. Edward Hey has developed a system of levels where each profession is assigned a certain number of points and, depending on the points, the position has a certain level (grade).

Grading - classification, sorting, sorting. Grading is the positioning of positions, ie, their distribution in the hierarchical structure of the enterprise

in accordance with the importance of this position for the enterprise. This method of remuneration is one of the most universal, which takes into account the interests of both the employer and employee [76].

In 1943, Hay founded a consulting company HayGroup (Hay Group). Now this international consulting company has 88 offices in 47 countries around the world. Its services are used by more than 7000 clients from all over the world. The company helps business executives implement their business strategy, increase the efficiency of organizations, motivate employees to work with maximum dedication. This company also works in Ukraine. Its strategy was used by such well-known Ukrainian enterprises as Azovstal, Northern and Central Mining and Processing Units, mining and ore division of Metinvest, Kyivstar, and Interpipe. Among the clients of Hay Group companies are banks, private, state and non-profit organizations representing almost all branches of the economy. Therefore, the grading system is one of the effective components of the motivation of labor [77].

At the same time, the relatively high salary of miners is explained not by the high productivity of labor, but, in my opinion, the following. Coal is the basis of Ukraine's energy security, and its price exceeds its cost, then the state dates the difference between the price of coal and its cost.

The outturn of the growth rate of labor productivity in comparison with the growth rate of wages ensures a reduction in the cost price of products, increase profitability and increase the efficiency of production. Therefore, each enterprise must adhere to the principle of preventing the growth of labor productivity in the planning of labor indicators.

It should be noted that recently, not only Ukraine but many other countries has faced the problem of slowing down the rate of productivity growth. According to the latest estimates by the Conference Board in 2012, for the second consecutive year, the world economy is experiencing a decline in labor productivity growth (measured as the average change in output per employee) to 101.8% compared with 102.3% in 2011 And 103.6% in 2010.

The level of this indicator, except for the crisis of 2008-2009, was last observed in 2001-2002. The decline was observed in almost all countries. For example, in the United States, the growth rate of labor productivity in 2012 showed a sharp decline to 0.2% per year from 0.8% in 2011. In the Euro zone, productivity growth declined from 1.2% in 2011 to 0.6% in 2012. The growth rate in China is significantly higher than in other countries, but there was a decrease from 8.8% in 2011 to 7.4% in 2012. In Russia, the decline in productivity growth was 0.4%: from 3.8% in 2011 to 3.4% in 2012 [78].

With regard to the assessment of one of these key factors in the motivation of labor in mining coal mines, as noted above, the wage system does not fully implement its incentive and social function.

In the dissertation, the activation of the stimulating function of the current wage system is substantiated in sections 2.2 and 3.2.

Given the current state and peculiarities of the economic activity of coal mines in Ukraine, it should be noted that their further path is due to the implementation of the strategy of the development of the coal industry. As you know, this strategy is based on criteria of economic efficiency of the main and priority directions, the purpose of which is to activate coal-mining enterprises and increase self-sufficiency [79].

It should be noted that in the immediate and medium term prospects are foreseen: the primary implementation of measures that do not require significant investments and can be realized through intra-industry reserves in the short term. A significant increase in the volume of capital investments at the expense of the state budget is foreseen in support and technical re-equipment of production machines and mechanisms. It is planned to reduce the volume of unfinished construction by concentrating capital investments on the completion of the construction of new mines, which were started earlier, and the reconstruction of existing ones. Pre-term closure of loss-making coal mines will be suspended without a detailed justification of the

expediency of their work, based on the priority of general economic interests and the independent examination of the social consequences of their closure and its impact on Ukraine's energy security [79].

The scenario of the strategic program assumed that about 80% of state funds in 2006-2010, about 90% in 2011-2020 and about 92% of the state funds should be used for the construction of mines of coal mining enterprises, reconstruction and maintenance of the operating equipment of mines. - in 2021-2030, and it was also planned that non-state sources of coal mine investments should gradually increase. Their average annual volume based on the basic development of the industry should have increased from 30 million UAH. In 2002 up to UAH 1.2 bln. In 2030 without state support in the current financial situation and military operations in Ukraine, the timing of the implementation of this program is not fulfilled.

Practice shows that the business does not invest in the construction and modernization of mines. The mechanism of investment in coal mining enterprises in Ukraine is associated with significant risks due to political and economic instability, as well as the fact that most of the mines remaining on the balance sheet of the Ministry of Energy and Coal Industry of Ukraine are extremely unattractive. And, perhaps, the most important thing is the role and place of coal in the fuel and energy balance of the state, which, unfortunately, do not promise any prospects for the investor [80]. In this regard, one of the actual internal reserves of operating mines to improve the technical and economic performance of their work is the effective use of human resources based on the motivation of labor. But, as practice shows, in the coal mines, the mechanism of motivation of labor as a system is practically not used, but at extraction sites absolutely absent.

Therefore, the conceptual model of the formation of the system of motivation of labor at the enterprise is developed in subsection 1.3.

1.3 Conceptual model for the formation of a system of labor motivation at extraction sites of coal mines in Ukraine

The construction of the whole system of personnel motivation and its development largely depends on many factors, namely, increasing the level of business activity of the personnel. The analysis of the conducted research allowed to reveal the following reasons for low business and social activity of the personnel of enterprises in modern conditions:

- low internal labor motivation of the personnel;
- low efficiency of the system of material incentives;
- low efficiency of organization of work on raising the professional qualification level of personnel;
- Invalid placement of personnel;
- complex socio-psychological component in the enterprise;
- mismatch of the official requirements and psychophysiological characteristics of the employee.

Therefore, on the basis of the theoretical research the conceptual model of the formation of the system of motivation of labor at the enterprise is proposed, which is presented in Fig. 1.2, which is based on the use of the principles of system analysis and allows to ensure the formation of a system of motivation of the personnel of the enterprise for effective work and includes:

1. The mechanism of motivation of labor is implemented by an integrated multilevel motivational mechanism based on an interactive system that takes into account the achievements of certain levels, namely: satisfaction of needs according to the rating and ranking of employees; Pay for a ball assessment of positions of mining professions; Payment of premiums for the execution of the assignment; Provision of incentives for employees of trouble-free transportation of coal to the day-to-day surface; Creation of values and moral and psychological climate at the district.

2. The method of using the tool structure of wages of employees of the enterprise, which unlike the existing ones, is determined by the ratio of its permanent and variable components, where the first component is paid to the employee individually in relation to his grade (the value of the position and its influence on the result of the work of the site), and the second - According to the size of the bonus for execution and overfulfilment of the plot of the planned task, which is established by the connection of two fractures at three intervals of the plan implementation.

3. The method of identifying and substantiating the structure of the needs of personnel of enterprises based on the sequence of implementation of the stages of the distribution of needs for such groups: existence, social, recognition and self-realization, where each group integrates into five needs that are most characteristic of workers in the mining professions.

For management of personnel activity, the method of identification and substantiation of the structure of the needs of the personnel of enterprises is proposed on the basis of the sequence of implementation of the stages of distribution of needs for such groups: existence, social, recognition and self-realization, where each group integrates according to the five needs most characteristic for Workers of mining professions and organizational mechanisms of labor stimulation of workers, who serve technological processes for their trouble-free work and provide for the bonus of these jobs In the case of a task.

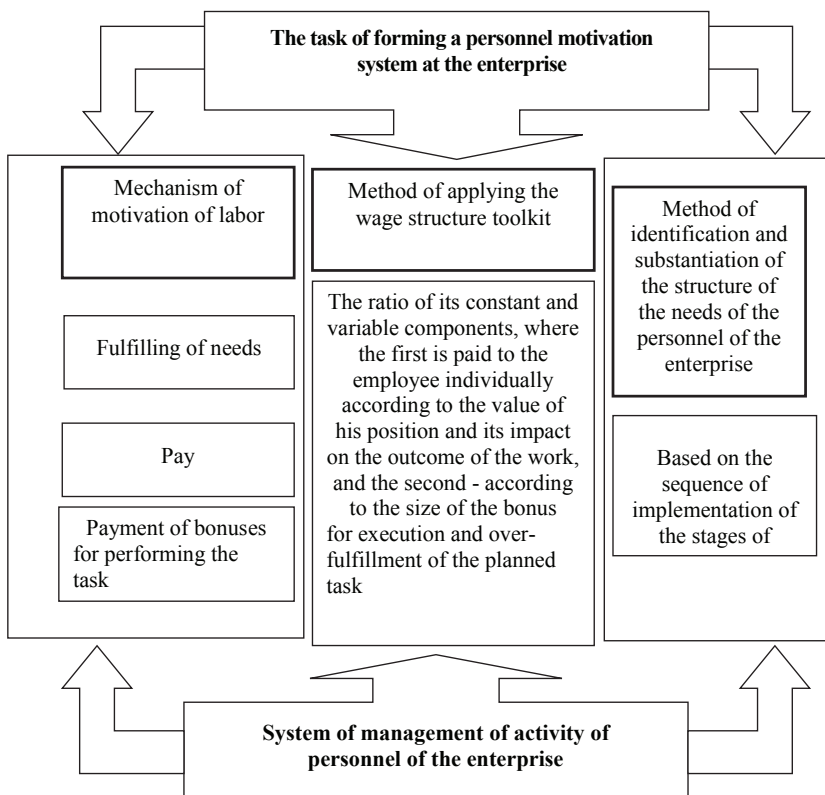


Fig. 1.1. Conceptual model for the formation of a system of labor motivation at extraction sites of coal mines in Ukraine

It includes:

1. Formation of an expert group (experts are the experts of management of the organization).
2. Analysis of the professional qualifications of employees.
3. The choice of the method of processing expert data (ranking, direct evaluation method, nonparametric methods).

4. Formation of clusters by enterprise, structural unit, individual worker (reference characteristics are calculated using average values and result ranks).

5. Processing and analysis of the results of the questionnaire (based on the results obtained, it is possible to build a ranking of departments, managers and employees, identify problems of the existing system of personnel management and formulate goals and objectives of enterprise personnel development).

The approach to these researches is the methods of expert analysis and methods of statistical processing of evaluations. With the help of the results obtained, the company's management receives information on how active the employee is, how effective the motivation is, and how it meets the requirements of the staff category.

Such an assessment can also be considered as the level of professional and business activity of the company's staff.

The mechanism of personnel development of an enterprise involves the choice of the most rational management decisions to increase the business activity of the personnel of the company in accordance with internal and external factors.

The adoption of managerial decisions consists in the combination of extensive and intensive areas of development of the personnel of the enterprise, which allows maintaining the professional qualities of the personnel at the appropriate level.

The mechanism of personnel development of an enterprise includes the following stages:

1. Formation of goals and tasks of motivation of the personnel of the enterprise.

2. Development of models of motivation of the personnel of the enterprise.

3. Assessment of the effectiveness of the system of motivation of the personnel of the enterprise.

Today, the characteristic of this mechanism is that two directions are realized simultaneously:

The first - related to the assessment of human resources and capabilities of its development, ie, takes into account vocational training;

The second one - is connected directly with the system of training of the personnel of the enterprise. The use of the proposed mechanism of personnel development at the enterprises will allow to form a more perfect system of training and retraining of personnel at the enterprise, optimize the expenses for its training and increase the efficiency of personal management.

The system of motivation takes into account the moral and material incentives of the personnel of the enterprise, which includes the system of motivation and is one of the essential elements of the internal budget of the enterprise. Establishing and maintaining an adequate level of motivation systems is an urgent task, since motivation varies depending on the employee, tasks and time.

The conducted theoretical study has shown that the application of different methods of motivation of staff (economic and social) allows to build a table of compliance of the needs of employees and choose an effective method of stimulation (Table 1.1). Depending on the type of employee's needs, one can determine the most effective methods of motivating him.

Table 1.1

Compliance with staffing and incentive methods

Number of Requirement	Requirement	Method of stimulation
1.	Improving the efficiency of work	The system of motivation

Number of Requirement	Requirement	Method of stimulation
2.	Increased production efficiency and performance of the production program.	System of additional remuneration and personnel motivation
3.	Increase of additional profit	Participation in increase of profit of the enterprise
4.	Aspiration for high results of work	Motivation for goals
5.	The desire of the employee to be useful for the enterprise	Recognition is personal and public

Traditionally, work on the formation of systems of moral and material incentives is based on the following: the company already has a certain system of remuneration, where management feels the need for its change. However, the decision on the necessary system of moral and material motivation is more often based on a reflective idea of the real labor motives of the staff.

First of all, it should be noted that any changes in the system of remuneration, including wage increases, become important to the staff already after a certain period of time after the introduction, because it works exactly the effect of accustoming to income. Therefore, firstly, to resolve wage increases, it is necessary to clearly examine the motivational orientation of employees. Personally, this relates to managers, precisely because for this level of enterprise management there is a situation where an additional system of motivation that is spent can both increase motivation and weaken it.

It is also necessary to correctly determine the value of changes in wages. The corresponding theory of labor economics is based on the

postulate: workers tend to work less, risk, carry less responsibility and receive more rewards. There is also a category of workers where the material sensitivity to stimulation is important. Thus, an action is perceived by the worker as meaningful when it is aimed at achieving a certain goal. To do this, this goal for the employee becomes effective and it should be for him to become meaningful.

The value of the threshold of material sensitivity to motivation affects the following components:

1. Total employee income. At a significantly lower level of total income, the threshold value is expressed as a percentage of the total profit. Therefore, more than at high levels of total income motivation has an impact on the employee. Motivation, for example, at 1%, does not seem attractive at a low income level.

Accordingly, when moving to a higher value of income, the replacement effect begins to operate. That is, an employee begins to reduce (not use) the use of his working time, namely, he can work more with the increase of wages. The main component is the lack of an employee's opportunity, when he does not agree to work according to the normative or weekend for an additional or even temporary salary.

2. The employee's responsibility for personal risk, which must be borne for additional motivation. In this case, the worker usually requires the distribution of motivation, or the removal of the corresponding responsibility.

To construct an effective system of moral and material incentives it is necessary to determine the system of motivation in accordance with the organizational-staff structure of the enterprise; To correctly determine the value of changes in wages and to determine the limits of material sensitivity to stimulation. Particularly important is the accounting of the motivational structure of executives, since it is precisely they who are to become the

leaders of the changes in the system of moral and material incentives for labor.

Thus, the conceptual model of the formation of the system of motivation of work at the enterprise, which is based on the social and professional activities of the personnel, is proposed. Increasing business activity as a norm of activity should be based on positive changes in the staff's motivation field, an effective system of development, and an orientation to achieve high results in the work.

Chapter 2

ANALYSIS OF THE MOTIVATION STATE ON EXPORTERS OF UKRAINIAN COAL MACHINES

2.1 Analysis of scientific and practical decisions on labor motivation at the enterprises of the coal industry

One of the most important publications, where this issue was considered, is an article in the magazine "Strategy of Economic Development of Ukraine" [2].

The European Economic Community Regulation provided state financial support to the coal industry of Ukraine by 2010, and in 2007 it was necessary to determine the appropriateness of further subsidies by the state [81]. In these conditions, the main objective of coal mines is to increase the efficiency, efficiency and quality of minerals without paying subsidies or subsidies from the state.

For the Ukrainian coal industry the only document approved by the Cabinet of Ministers is the Energy Strategy of Ukraine until 2030, which was developed taking into account the Concept for the development of the coal industry. If this strategy is implemented, coal production by 2030 will increase by 1.7 times compared to 2005 (from 78 to 130.2 million tons), the production capacity of mines will reach 144 million tons per year, and The coefficient of their use will be 90% [82].

In order to achieve these indicators, significant funding is needed to build new and renovate old coal mines. This will be possible only with a significant improvement in the economic situation of the country. At the same time, it should be borne in mind that today coal production will continue to continue in difficult geological conditions, although the financial situation of the country does not allow to improve the condition of the mine

fund in the short term and purchase new equipment and introduce a progressive technology for the development of coal seams. In this regard, the real internal reserve of mines in improving the technical and economic performance of their work and improving the competitiveness of products is the effective use of human resources. This implies the introduction of progressive wage systems, non-material forms of promotion, raising the educational level and qualifications of employees, their responsibility in carrying out production tasks, as well as other elements that include the concept of "labor motivation". In this regard, it would be appropriate to quote the words of one of Sony's founders, Akio Morita, "in the long run business and its future are in the hands of the people hired by the employer" [32].

As noted above, in Ukraine, more and more enterprises and organizations move from stimulating labor to its motivational management. However, in the coal industry, this process is at an initial stage of development, when it is necessary to proceed from the establishment of the fact of the existence of the motivation of labor and understanding the prospects of its impact on the economic performance of a mining enterprise to create a system of motivation and to manage it in the mines and in their structural subdivisions.

It is clear that creating a well thought-out and efficiently functioning system of labor motivation is not easy, since there is no universal recipe for its creation and can not be due to the fact that each enterprise has its own specifics, traditions and, as is now commonly said, a corporate culture. Therefore, the creation and implementation of such a system at the mine, taking into account the specific features of the work of workers in various structural units, will take a long time. However, nothing prevents the management of mines to begin to create and implement a system of motivation or, at first, its individual elements in various structural divisions of the enterprise (sections, workshops, departments, etc.).

According to the authors of the article "Motivation of labor as a component of the strategy for the development of the coal industry in Ukraine" [2], the creation of such a system must begin at extraction sites. There are several reasons, namely:

- first, in such a multi-faceted production complex as the mine, extractive sections are the main production unit of the enterprise;
- secondly, the efficient work of the extractive industries at the decisive stage determines the successful work of the entire mine (today, almost in 47 mines from 154, that is, practically every third mine has only one lava [83]);

thirdly, the experience of coal mining by the complex-mechanized brigades of communist labor (brigades - "thousandths") has not been forgotten at the mines. If we reject the ideological "raid," then it must be recognized that in the majority of such brigades, the spirit of collectivism, mutual reciprocity, the ability to substitute one another, responsibility, selfless work and careful attitude to material and natural resources, that is, those elements that came to us later West as a brigade-command form of labor organization.

To begin to create a motivational system, as suggested by the authors, it is necessary to study the needs of managers (chiefs) of extractive industries based on the following considerations:

- firstly, the heads of the polling stations are the direct organizers of the work on the extraction of coal in the treatment faces;
- secondly, because the needs are caused by the worker's desire for their satisfaction, the district leaders should create conditions that allow the workers to understand that they can meet their needs in such an attitude to work that would contribute to the achievement of the goal set before the team Extraction area;
- thirdly, for steady and purposeful motivation, managers should take into account the advantages and needs of not only employees of the district,

but also their own. Only in such an approach of the heads of these units to the organization of motivational management can encourage their subordinates to effective activities to achieve their personal goals and goals.

For this, managers of mining sites as direct managers of employees in their subdivisions need to provide normal working conditions, to create in the workforce appropriate moral and psychological climate, to implement in practice, other elements of material and non-material motivation. Only in such conditions, employees will be satisfied with their work and work efficiently. Therefore, the person of the direct manager and his role in creating a practical motivation system of labor is difficult to overestimate. Very valuable in this regard are the results of the survey and interviews of 80,000 executives conducted over the course of 25 years by the Gallup Institute. These studies found that the main factor determining satisfaction with the place of work is not the salary, not the privilege, not the charisma of the general director of the company, but the person of the direct manager [84].

Despite the fact that the coal industry is one of the strategic sectors of Ukraine, motivation is still at the initial stage of development. Confirmation may be that scholarly publications contain a small amount of research material on labor motivation, both in coal mining and in other mining industries.

One of the reasons is that the prestige of mining labor has fallen sharply in recent years. Miners work in conditions that are very different from work in other industries. Heavy physical work, limited conditions, high depth, high temperature, presence of dust, moisture and gas in the atmosphere makes this profession unattractive. In such conditions, even modern mining equipment can not work at full capacity in the absence of appropriate motivation of labor from the workers who use it. The consequence of this is the unpopularity of the mining profession in young people, the high percentage of pensioners, especially among the workers in

the main occupations and engineering workers, the high turnover of personnel and low technical and economic indicators of the work of coal mines and the industry as a whole. Therefore, effective personnel management, having a motivational approach to using it with full and high-responsibility work is one of the decisive factors for improving the competitiveness of mines and coal products in a market economy [85].

The paper [86] analyzes the state and perspectives of training staff in the coal industry. Author of this work MG Schezer notes that the current problem of providing workers with mines is extremely important. The flow of personnel is a characteristic feature of the coal industry of the leading countries of Europe and the USA. This phenomenon is connected mainly with reduction of production, closure of mines and the dismissal of workers at the initiative of enterprises.

Unemployment was a new negative phenomenon caused by the transformational processes in the mines and in the whole economy of Ukraine. The author of the paper [64] notes that in the public consciousness of unemployment obviously affected from the second half of 1991, was associated mainly in the confrontation of labor and capital in the western countries. And even the first workers' dismissals, which took place in all countries of the former Soviet Union, were not perceived by a large part of the population. Most believed that this was a temporary phenomenon.

During the restructuring of the coal industry more than 90 mines were closed. The workers of these mines have been transferred to other mines, or released. According to the forecasts of the World Bank in the medium-term, the coal industry can leave 300-400 thousand people. None of the branches of European countries knew such a mass dismissal [87, p. 192]. This led to an increase in the unemployment rate in Ukraine, both official and hidden, and certainly contributed to a further reduction in labor motivation.

"Unemployment is an inevitable companion of a market-based economic system, emphasizing O. Libanov and O. Paliy. And even in the

conditions of perfect management, it can not be eliminated ... In Ukraine, its hidden form is dominant. An extremely negative sign is the continuous increase in the duration and increase of unemployed persons who do not have a long period of employment "[88, p. 78]. An important factor in the labor motivation of workers in the coal industry, which negatively affects the productivity of miners' labor, was the non-payment of wages.

The scientific literature describes many approaches to the system of remuneration in accordance with the specifics of the enterprise and its corporate culture. The largest number of publications have to assess the factors that stimulate the increase in the size of wages. In domestic practice, stimulation was carried out using various coefficients, such as the coefficient of labor participation (KTU), the coefficient of creative contribution (KTV), the coefficient of quality of labor (KYP) [89], and the R-theory [90] described earlier.

The main disadvantages of these methods and approaches are the subjective character of the definition of these coefficients. In addition, all authors note an important incentive function of wages in the system of motivation of workers, but in these and other jobs there is no information on the quantitative assessment of this factor and its place in the ranking of other factors of motivation. Therefore, we have made an attempt to partially eliminate this problem, and why the works are devoted [91-93].

Today, mines with different forms of ownership (state, private, leasing) operate in Ukraine. In this regard, and sources of funds for remuneration in these enterprises are different. Thus, the source of funds for labor remuneration of employees is part of the income and other funds received as a result of their economic activity, and citizens' associations pay wage earners from funds that are formed in accordance with their charters. Therefore, the magnitude of the wages of workers in extractive industries will be considered from the point of improving its stimulating function, regardless of the ownership of coal mines.

The right to work and its regular payment is guaranteed by the Constitution of Ukraine, Labor Code of Ukraine, Laws of Ukraine "On Labor Remuneration" and "On Collective Contracts and Agreements" [72, 94 - 96]. International labor standards, such as Convention No. 95, "Wage Protection", interpret wages as any remuneration or earnings, which is calculated in the money paid by the entrepreneur for the work that has been or has been performed, or for services that Either rendered or to be rendered. In accordance with the Law of Ukraine "On Remuneration", the nature of wages is treated as remuneration, calculated, as a rule, in the monetary equivalent that the owner or state enterprise provides to the worker for the work performed by him.

Ukrainian and foreign scholars have made a significant contribution to the theory of wages, development and improvement of its applied aspects, in which some of the actual issues of this problem are considered. It should be noted that among Western researchers there is the idea that wages, though important factor driving highly productive work, should not be overestimated in developing a system of motivated labor at the enterprise. For example, one of the founders and leaders of the world's largest transnational corporation, Sony, Akio Morita, exploring the driving force behind Japanese entrepreneurship, writes: "... in Japan, we are at risk, promising people constant employment, and then forced to stimulate them all the time. Still, I consider the misconception that money is the only way to reward people for their work "[32, p. 171].

Without diminishing the role of the non-material component of labor motivation, we note that in economically developed countries, the standard of living of the population is much higher than in Ukraine. Therefore, it is not surprising that, according to socio-economic studies, the indicator of the needs of workers in these countries in decent wages is not in the first place among others. However, Friderik Herzberg, one of the most famous scientists involved in this problem, and without reference to which there is

no training course related to the motivation of labor, summarizing the results of their research in American enterprises, as well as the results of research by other authors, writes : "The size of wages is often at the top of the list of factors contained in the answers to the question:" What do you most like in your work? "And appear in the research of the moral climate. Among the answers to the question: "What would you like from your work?", They are within the list [24, p.191]. Such a difference in responses can be explained by the established difference between the factors on which work satisfaction is based and on which dissatisfaction with it is grounded.

In our country wages are considered as a hygienic need, whose dissatisfaction weakens or even annuls the action of motivating factors. And if people do not receive the money they own for their work, they will not have the motivation to work efficiently.

Secondly, if an employee of a company is not socially protected, wages are not paid, then he will seek additional earnings, often to the detriment of the interests of the enterprise and the state, referring to various forms of unregulated employment, which contributes to the development of the "shadow" economy and the criminalization of society.

Thirdly, with the release of the Law of Ukraine "On Social Insurance", the anti-stimulating factor of labor motivation is the fact that for periods during which wages were not paid, insurance premiums were not charged. In this regard, such periods are not taken into account in determining the employee's period of insurance, which reduces the amount of his pension accordingly and confidence in the provided old age.

Fourthly, the impunity of managers of enterprises and firms for delaying payment of wages and the absence of well-known factors of their involvement in liability created possibilities, especially in newly formed business structures, not to pay salaries to employees for the work performed or to pay it with regular delays for 3-5 months , Which negatively affects the social security of workers and their motivation to work.

Fifth, the amount of compensation provided by law in connection with the loss of part of the wage in violation of the timing of its payment, are not adequate to the material and moral damage that is actually inflicted on the employee and his family "[16 p. 68-69].

For these reasons, one can conclude that if wages are not paid in a timely manner, then talk about the motivation of work can not even be carried out, because in such harsh social realities, labor motivation in individual mines will turn into a motivation for survival, which is far from always correlated with the motivation of highly effective Work Therefore, in the coal industry, it is necessary to ensure the manageability of the transformation of the labor mentality and the development of an effective model of the mechanism of motivation of labor, adapted to the current stage of development of market relations.

Particular attention should be paid to the work of miners in small mines, the so-called "copán", many of which operate unofficially.

The distribution of unofficial wages, which comes from the tax area, has spread to such mines. Also, practically nonestablished occupational safety, education, social services, career development. All of this negatively affects the motivational component of employee labor behavior, reduces their interest in achieving higher end-result activities, improving the efficiency of production [16].

Today, one of the most important needs of people is decent wages, as one of the forms of labor stimulation. So, going ahead, we present the results of the survey of workers at coal mines in Ukraine, conducted by the dissertation in order to identify their needs. For example, among such needs of existence as wages, a guarantee of stable income, a permanent job, the opportunity to work after retirement and the creation of safe working conditions, the main thing for the managers of extractive industries is the need for decent wages. 66% of respondents put it in first place. Consequently, 95% of managers believe that for workers in extractive

industries the main need is, first of all, wages. Therefore, one of the main motives for increasing the prestige and attractiveness of the mining profession is decent wages [97].

Thus, the widespread view among part of the researchers of labor motivation, especially foreign, that material incentives, although important, but not the main factor of motivated labor, the results of our study was not confirmed. And the heads of the districts and, in their opinion, the workers led by their collectives in the first place motivated work put material interest. On the one hand, this is explained by the fact that earlier employees of the coal industry by the level of salaries among other branches were in the first place, and now at the seventeenth. On the other hand, the main elements of the tariff system operating in the coal industry have practically not changed since the 80s of the last century and do not correspond to modern business conditions. Therefore, along with other motivational factors, the priority must be given to the system of material remuneration, which should be transparent and understandable to each employee. The introduction of a fair payment structure, the impartiality of the wage differences that it imposes on it will have a positive effect on the employees of the extractive sections in the work, their behavior, the efficiency of the work of the extractive sections, and, consequently, on the successful work of the whole collective of the mine. It should be noted that today the wages of coal miners are higher than in the whole industry. However, not reducing the role of money in meeting the needs of miners, in enhancing the prestige and attractiveness of miner's work, let us note that money itself does not yet motivate. Practice shows that if a higher salary is offered to a worker at a neighboring shaft or in another enterprise or in an organization, then on other equal terms, he will change his place of employment. And if in former times the transition of workers and employees at their own will from one mine to another within the framework of one production association or holding company was complicated, then with the advent in the coal industry of independent

enterprises with different forms of ownership, to manage administrative methods in solving this issue in In most cases it became virtually impossible. There are many examples in the coal industry where talented employees have moved into commercial structures or enterprises of other industries. According to the Minister of Coal Industry, "every year the coal industry loses its staff: last year 8,000 people stopped working at the mines. And in recent years, the number of employees of the coal industry has decreased from 870 to 270 thousand people) "[85]. Therefore, wages should rather not motivate but short-term stimulating action. In connection with this, in the dissertation it is necessary to make an analysis of the modern system of remuneration of workers of mining sites and to improve its stimulating essence.

In work SB Dowbney points out that "the structure of wages should be sufficiently flexible to ensure a correlation between the size of the material incentive and the results achieved in a separate period. The structure of wages is determined, mainly, by the ratio of constant (tariff earnings, salary) and variable parts. In developed countries, the importance of a constant part of pay is growing recently. Such an approach is more suitable for stable functioning enterprises that are in the stage of maturity. In Ukraine, the ratio of constant and variable parts in the structure of remuneration for various enterprises, units and categories of workers will vary significantly depending on their specifics "[98, p. 203]. This characteristic is characteristic for workers of coal mines and, in particular, at extractive mines. Such a sufficiently flexible payroll system at the mines of PJSC Pavlogradugol, in contrast to the previously existing tariff, was grazing (Table 2.1). This pay is hourly. Each job represents a decent salary, and bonuses are paid in accordance with the bonus provisions.

Table 2.1

The differences between the wage and salary system were found [99]

Tariff system	Grading system
Built on the basis of professional knowledge, skills and seniority.	A broader range of criteria is envisaged, including indicators such as management, communication, responsibility, complexity of work, independence, price of error, etc
Positions built on the growing principle	Гр Grading involves the intersection of two parts of the adjoining gradations. As a result, this worker or master of the lower grade, due to his professionalism, may have a higher salary than, for example, a labor protection specialist who is next to a higher-ranking degree
The hierarchical structure of the tariff grid is based on the minimum wage multiplied by the coefficients (inter-sectoral, inter-sectoral, inter-institutional and interqualification).	Структ The structure of the Grades is based only on the importance of the position, which is calculated in points
All positions are arranged for strict vertical growth (from worker to manager)	Post offices are placed only on the principle of importance for the company

Thus, the first part of the salary is a basic salary, which includes a kind of analogue of the tariff system, since the tariff-and-net grid and gradations are a hierarchical structure of positions when the salary system is built on a

growing principle. However, there are significant differences (Table 2.1).

In addition, this system is convenient for large and medium-sized enterprises, because, unlike the principle of vertical construction of a career, it allows you to build a career horizontally, within your own level. For example, the professional development of workers, their education will affect the level of wages, as the weight of the factor of knowledge will increase. And the salary will increase, despite the fact that the employee will remain in his position.

The second part - a bonus, the size of which will depend on the productivity and efficiency of each employee.

Today, in Ukraine, several variants of the system of grades are used depending on degree of complexity.

To the first degree of complexity should include the ranking system of posts in terms of complexity. When using such a system it is not necessary to conduct mathematical calculations. Therefore, it is often used by managers of small businesses and small business companies after their prior training.

To the second degree of complexity can be attributed, based on a simplified system of Grades, modified Ha-factor method. It is used in firms with a small state.

The third and fourth degrees of complexity include the original original systems of grades. They are used in large enterprises and firms with a staff of 500 and more employees. These systems are based not only on the factorial method, but also on mathematical calculations of weight, step, on matrices, tables and charts, and most importantly - on the precise and consistent observance of the stages of the methodology. Since these methods are labor-intensive, their implementation extends from six months to a year. In this case, it is necessary to pre-prepare a considerable amount of necessary documentation and to develop recommendations regarding the specifics of the work of a particular enterprise.

For example, on a coal mine, the profession of a miner is very

complicated, in connection with which it is impossible for non-professionals to take into account and foresee all the nuances and all kinds of works that have to be performed in underground conditions. Even at one extraction site there are several posts, professions and types of work. Therefore, in order to introduce the remuneration of the Hay method, it is advisable to use the services of consultants, as well as specialists of the relevant departments of this mine.

The introduction of a new system of remuneration at Pavlogradugol PJSC is one of the most important and ambitious projects of DTEK based on the system of hedging of Hay Group. A description of all positions was carried out at the mines, a corresponding grade was created and a certain level of remuneration for work was created. This is exactly the job, and not the person who performs it.

Analyze the principles on which the system of remuneration is based:

- justice - the remuneration (salary) corresponds to the importance of the position and increases depending on the efficiency of work and the growth of the value of the position;

- Motivation (stimulation) - the prospects for increasing the remuneration that an employee can influence;

- Competitiveness - the remuneration will be competitive (attractive) for employees and potential candidates, provided one of the factors of the prestige of mining work;

- simplicity and transparency - simple and understandable for employees;

- Flexibility - allows you to solve organizational issues both now and in the future.

One of the main features of the Hay Group Grading system is that it is more transparent and fair. It allows you to evaluate each position according to market standards. Therefore, when implementing the system of grades first, it is necessary to describe the posts, evaluate them by a specially created

committee, and then form the posters of the tariff and make the link of employees to the grades.

Description of the post is a document used to evaluate the position, that is, where the purpose of the post is described, the main areas of responsibility, the main results and the framework in which the activity is carried out, qualification requirements. Unlike the job description, where a set of actions is considered for the accomplishment of tasks, the position description should reflect the degree of responsibility and the impact of each position on the goals of the enterprise.

All positions and professions regardless of the impact on the final result of the enterprise are divided into two groups:

- individual (managerial) positions;
- model (executive) positions.

Individual posts provide freedom of action when setting goals and selecting means for their achievement, planning in the medium to long term, seeking solutions, optimizing means and processes.

Model (executive) positions cover the leading occupations of the entry-level level (district chiefs, masters, leading specialists, and so on) and working professions. For these posts (professions) characterized by repetitive work, the presence of procedures and instructions in work, setting objectives "from above", limiting the possibilities of choosing means to achieve results prevails.

Thus, all the posts of extraction workers from managers to their deputies, mechanics, assistants of mechanics, mining masters and workers belong to one group - model (executive) positions.

Periodic evaluation of positions at the mine is carried out once a year. Evaluates the professional and personal qualities of the employee directly the head, at the mining site - the head (head) of the site. He fills in the forms on each subordinate according to the criteria of assessment. For example, for masters, evaluation criteria are: orientation to the result; Organization and

planning of works; Development of subordinates; Desire for professional development; Labor discipline and labor safety.

Each employee's answer is rated by a leader on a 6-point scale. In this form, he also notes what knowledge and skills you need to get the worker to achieve the goal in the next evaluation period. This increases the motivation of the worker's work.

After periodic evaluation of the personnel's knowledge, rating lists of employees are created according to the points put by the head (section) of the site. This is carried out by a staff member of the Personnel Assessment Unit by determining the percentage of the employee employed by the amount of points and the maximum possible amount determined by criteria based on their weight. The total weight of the criteria (factors) is 100%. The importance of each criterion for all employees is given in (Table 2.2).

Table 2.2

Results of assessment of the competence of the employees

Professional group (its competence)	Workers,%	Administrative staff,%	Specialists and engineers,%	Masters,%	Managers,%
Result Orientation	35	20	30	30	30
Focus on quality	20	-	-	-	-
Customer orientation	-	35	-	-	-
Initiative and autonomy	-	-	20	-	-
Organization and planning of labor	-	-	-	20	-
Striving for professional development	20	-	20	15	20
Professional knowledge	-	25	20	-	-

Professional group (its competence)	Workers,%	Administrative staff,%	Specialists and engineers,%	Masters,%	Managers,%
and skills					
The development of subordinates	-	-	-	15	20
Leadership	-	-	-	-	10
Directions to standards and norms	-	20	10	-	-
Labor discipline and labor safety	25	-	-	20	-
Labor discipline and work safety of the subordinates	-	-	-	-	20
Total weight	100	100	100	100	100

As can be seen from the analysis of this table, the competence of the workers of the extraction area (specialists, craftsmen and workers) is different in their weight.

Depending on the ranking, employees are divided into three groups of ranking:

- group "A" – 20% of the number of employees with the maximum percentage;
- Group "B" – 60% of the number of employees with average percentage ratios;
- Group "C" – 20% of the number of employees with a minimum percentage.

The result of the ranking is determined by the alleged increase in employee salary. Affiliation to each group includes the following principles

for employee development and increase their wages:

- group "A" – a stable high level of professional and personal qualities, as well as employee performance in the course of a long period (one year) is the basis for significant increase of official salaries and are considered as candidates for inclusion in the personnel reserve of PJSC Pavlogradugol;

- Group B – For employees of this group it is envisaged the possibility of raising salaries;

- group "C" – no increase in wages is foreseen.

Despite the widespread use of the grading system of wages in Ukraine and abroad, it, like other systems, is not ideal. Therefore, consider it as a panacea for all the misfortunes you can.

The disadvantages of the grading system include the following:

1. At each enterprise, different units (sections, departments, services, etc.) in their own way are unique and this is the complexity of the system. Therefore, it is necessary to take into account the production moments that are characteristic of each structural subdivision. It is almost impossible to create unified recommendations. At the same time, it is possible to develop a joint algorithm for each even a very large enterprise.

2. In the process of creating such a system, it is recommended to connect various consulting firms, research institutes, etc. to the development, whose services can be quite expensive.

3. The development of this system should involve a large number of specialists of a specific company, who know all the details of production, as well as representatives of the trade union organization.

4. Deferment of the impact of the performance of human performance on salaries only once a year when evaluating and assigning him a new grade. Only once a year can be paid a bonus on the results of the entire company. Such a delay reduces the employee's motivation for the entire reporting period.

5. Every employee of an enterprise should know everything about his

and his degree. Otherwise, his motivation will be low.

6. The risk of a subjective approach to the development and initial assessment of the respective grades.

7. The issue of remuneration of part-time workers, operational increase of wages for attracting and retaining highly skilled specialists, as well as raising the market level of wages for a particular position is not solved.

8. One of the main disadvantages of the grading system of labor remuneration at extraction sites of coal mines in Ukraine is that this system provides for only the main (fixed) part of the wage and does not take into account an additional (floating) part.

In all operating mines of Ukraine, the additional part of the salary depends on the level of achievement of scheduled coal production and its quality (ash content). Both indicators of the prize are approved by the director of the mine on the basis of the provision on the prize, which is developed at the annual meeting of the labor collective and the administration (collective agreement). These bonus rates are different and scientifically unworkable. Therefore, in the dissertation it is necessary to scientifically substantiate the size of the bonus remuneration depending on the level of achievement of the planned value of the indicator of coal production and on the level of implementation of the planned norm of ash content. Thus, this approach to remuneration will be more comprehensive and well-grounded. Given that the bulk of the salary depends on the position of the employee in one degree or another, and the additional one - from the bonus (bonus), then this system can be considered a post-bonus.

In the monographs [81, 98, 100], in articles [65, 80, 101-104] and in other papers of domestic scientists, it is indicated the need to ensure that the growth rates of labor productivity increase over the growth rates of wages of workers. With this approach, it stimulates the work of the staff. At the same time, the entire coal industry in Ukraine is unprofitable. However, since coal

is the main energy source and the basis of the country's energy security, the state dates coal mines to the difference between the price and the cost of one ton of coal. This has become particularly characteristic of difficult economic and political conditions and in the nearest future it is impossible to achieve the necessary positive correlation between the growth of labor productivity and wages.

In order to increase the final results of coal mine activities, it is necessary to create appropriate conditions and conditions, that is, deliberately and purposefully manage the process of labor motivation. Since the effect of motivating factors depends on both external and internal conditions, the formation of labor motivation should be promoted at all levels of management: industry, mine, production unit (division, shop, department, service, etc.).

Managing labor motivation at the macro level is, first of all, the formation of a state policy to strengthen the motivation of high-yielding labor, fundamental transformations in the economy, and the creation of a legislative framework for the regulation of economic activity. To the key events in this direction O.L. Yeskov refers to the improvement of the financial and credit system, the improvement of the tax system, the reform of the mechanism of remuneration to strengthen its incentive function, regulation of the labor market, ensuring employment and combating unemployment, increasing social protection of workers and the population, promoting entrepreneurship, as well as strategy and Practical measures for the reduction of the economy [16].

To this should be added that the headquarters of the branch and the association should create the necessary preconditions for the effective work of labor collectives of coal mines in conditions of market relations.

In today's conditions of profound changes in the external environment, one of the most important tasks is to manage the labor motivation at the micro level. According to O.A. Grishova, this task is extremely complex and

requires extraordinary decisions. "The existing motivational mechanism in the workplace is obsolete and ineffective, does not meet the needs of the present, impedes the increase of competitiveness in the workplace. The development of a new, effective motivational mechanism that would increase the competitiveness of workers and the economy, is one of the priorities of domestic economic science and practice "[105, p. 213].

Regarding the management of labor motivation at the micro level, in particular at the extraction sites of coal mines in Ukraine, we will conduct an analysis of research on the motivation of labor in the mining industry.

First of all, we turn again to the work of MG Schetser [86], where the author examines separately the experience of training staff in certain mines of the industry, since it is the training of professional growth of mine workers to become the cornerstone of the motivation of labor in mining enterprises. The article suggests that in a number of enterprises there is a positive experience in providing production with labor. Thus, at the mine "Krasnolimanskaya" the provisions of the "Human Resources Worker-Miner" and "Personnel Collectives" were developed and started to be implemented.

As the staff grows, the mines, brigades, sections, called "personnel" are created on this mine. Such teams will be instructed to carry out responsible work, provide them with the first to provide new equipment, equipment and materials. Provision of benefits for a staff member at the expense of company profits.

Thus, on the example of this mine, elements of material and non-material motivation of motivational management are realized.

Prior to the restructuring of the coal industry, the workforce for mines was replenished through a network of vocational schools and training centers (NCCs). These educational institutions trained specialists in accordance with the contract of mines, which determined the necessary quantitative and qualitative composition of the workers, their level of training (taking into

account the material base, workplaces for the practice, mentors). The consolidation of workers by enterprises reached 80%. However, since 1996, the number of trained workers in the Donetsk region has decreased from 2.5 thousand to 800 people. This led to a significant increase in the average age (up to 42 years) of employees, with the staffing of staff was 78%. The analysis revealed that for the region it is necessary to prepare 17 thousand workers a year. Almost 80% of workers are trained in the NCC for 3-5 months (taking into account the passing of the practice) [86]. A similar situation has developed in other coal regions of Ukraine.

The second source of replenishment of the coal industry staff is the system of professional technical education. The management of mines should be interested in the training of skilled workers, since in such vocational schools workers receive full training than at the training points of the mine, where they study without interruption from production. An example is the positive experience of the state-owned enterprise Dobropillyugol. Here they conclude contracts with students of vocational schools about the payment of scholarships, and later on employment in mines.

In the process of discussing the article "The state and perspectives of the training of workers in the coal industry" [86], it is proposed to provide young workers on the ground to provide them with the "For Sustainability" Award, as well as to provide other incentive measures. For example, to allocate a quota for the allocation of places for studying in mining universities and colleges for able-bodied workers with secondary education. It is also proposed to set the percentage of allowances for pensioners for the "Shakhtar Glory" and "Miner's Valor" of the three stages, to legitimize the payment of cash aid once a year while granting a leave to a coal industry employee for health improvement.

In separate work on motivation, the results of researches connected with increase of productivity of passers-by are resulted. So, in the work of

Yu.I. Kyyashko et al Conclusion is concluded: "The main motive for passersby will be the realization that they receive high wages for heavy physical labor, which is spent for a long time." One of the unresolved scientific problems, the authors of this work consider the definition of the exact amount of remuneration for the work of the transducer, which during the change involved in several operations, when their design for quality implementation requires taking into account different tensions of work, the characteristics of the passerby as individuals and units as a small social group. To this end, they recommend to base the calculation of a differentiated rate of hourly rate, taking into account the level of tension that is changing [106, p. 19-20]. This approach is one of the positive aspects of labor motivation at a coal mine. However, the method of calculating wages for passers-by, based on the use of inflexible tariff rates and the duration of their work during the change taking into account various types of surcharges, requires further improvement, since it does not take into account the level of labor intensity of the worker in various labor-intensive operations.

Scientists who are investigating the problems of motivation of labor, pay attention to its various motives in brigades, which differ in age of workers, the qualifications and complexity of their work. As in the mining industry, as well as in other industries there is a tendency: as the age increases, the qualifications of the workers increase and the complexity of the work performed by them increases. Moreover, the differences in the motivation of labor in different social groups, for example, workers and administrative and managerial staff, are also manifested.

In the work of Yan Sukhun [107], the complexity of the work performed is divided into the following age groups: up to 30 years, 30 to 40 years, 40 to 50 years and over 50 years. This grouping is explained by the following.

Until 30 years old, this is usually unmarried workers (in China, young people marry after 30 years).

From 30 to 40 years old - workers who already have work experience and are usually married.

From 40 to 50 years old, these are the most skilled and experienced workers of the retirement age.

After 50 years, employees of the coal industry are retiring.

The needs of workers in different groups are different.

The author of work [107] gives a map of the rating of employees according to the age structure and categories of complexity of the performed work. Each category of work is carried out by appropriate qualifications by the workers (from the first to the fourth digits).

The results of the research were tested in industrial conditions at one of the non-state mines in China when installing the attachment during mining operations by two brigades in the same mining and geological conditions.

At the same time, one of the brigades was staffed with workers, taking into account age, qualifications and their abilities. Timekeeping observations have established that the brigade's performance, formed on the basis of the system of motivation, is higher than the traditional brigade by 32.8%. Thus, due to the use of the rating card of the elements of the system of motivation of labor in the formation of labor collectives, it is possible to increase their productivity by almost a third.

The results of these studies can allow the administration of enterprises to better form the composition of both enterprises and brigades, taking into account age, complexity of work performed, skills of workers and labor motivation.

The paper [108] proposes a methodical approach to the formation of a system of labor stimulation in mining enterprises, which allows setting the sizes of guaranteed and bonus wages.

The first part of the methodology allows to determine the size of the guaranteed salary of an employee of the mining company, which takes into account: the number of disabled family members of the employee; The

average living wage and the location of the mining company; Rate of education; Rate of work, surcharges and allowances.

The second part of the methodology allows you to determine the bonus amount of employee wages. To do this, firstly, it is necessary to make a comprehensive assessment of the performance of the individual worker on the basis of determining the professional and personal qualities, the complexity of the work performed, the results. Then he will comprehensively evaluate the results of his work and business qualities. Subsequently, justify the labor contribution to the activity of the individual company's work on the basis of management of its labor performance.

The proposed methodological approach to calculating guaranteed and bonus wage rates can be used to stimulate staff in mining companies, since it is based on a balanced combination of individual and group systems of material incentives. At the same time, in our opinion, such a technique is quite complicated for both ordinary employees and managers in the assessment of staff performance. For example, when considering labor indicators, errors may also occur. The consequence of this may be either the error of the scale used, or the image of the subjectivity of the person who makes the evaluation interview, for example, a qualitative assessment of the worker.

Another approach to stimulating labor at mining enterprises is considered in the paper [109]. The authors believe that increasing labor productivity and accelerating the pace of scientific and technological progress should proceed from the internal motives of workers. According to the authors, the main role in stimulation is played by material factors such as salary and various types of bonuses. Salary in modern conditions is an important means of managing production and contributes to increasing the level of motivation of labor. One can agree that this will allow more efficient use of labor stimulation at the mines.

Concerning the concept of improving the policy of motivation in

management, it is considered by the authors of work [110], for example, the mining and chemical enterprise PAO "Apatite". It is based on approaches to the organization and standardization of labor as an integral part of the internal policy of the company, aimed at increasing the stability and self-regulation of production processes. Fundamentally new in this policy is that it is not limited to wages, but partly raises questions of participation in profitability, the formation of a new corporate value (capital), and the rationalization of the number of staff. The dissertation believes that such an approach takes into account the interests of employees who go out and are already in retirement through the system of social support.

In [111], the authors distinguish the major changes in processes that are subject to reengineering restructuring: several works are united in one; Decisions are made by the employees themselves; The stages of the process are carried out in a natural way; Processes can have many options; Work is done where it can be done most effectively; The volume of inspections and control is reduced; Minimizes the need for coordination; Situational manager makes a single contact with the external environment; Dominated by mixed centralized and decentralized operations.

As the authors note, such a revolutionary restructuring in the organization puts radically new demands not only on structures that will not work by themselves [111]. There is a rethinking of the requirements for training and placement of staff, remuneration and incentives. In this regard, the dissertation thinks that the proposed approach is conceptual and requires additional detailed elaboration. Therefore, certain principles of reengineering can be used at this stage only by such highly profitable lucrative mines as Krasnoarmeyskaya-Zakhidna, Komsomolets Donbassa, Krasnolimanskaya, and others.

Special attention in our work is given to the dissertation papers devoted to the analysis of the motivation of labor. So, for example, one of the important factors in motivating work is the training of personnel. The

paper [112] states that the performance of enterprises depends to a large extent on the readiness of the personnel of all professions, specialties and different levels of qualifications employed by any enterprise. For this reason, the formation of a system for providing educational services is an important prerequisite for a highly productive work of the personnel of the enterprise. The author of this paper points out that the provision of educational services is an integral part of the personnel policy, the basis for the innovative development of enterprises and the economy as a whole.

In this paper, the concept of cooperation between enterprises and higher educational establishments as the basis for creating a system of education services provision in the personnel policy of production, consisting of two subsystems: personnel policy and retraining of personnel, defined the mission of this system, which is, firstly, in Providing a person with a professionally-oriented component of knowledge that forms it as a specialist with a certain educational qualification level, and secondly, in re-shaping a person previously received in corporate culture, professions and specialties And its refinement in accordance with the conditions of the customer, and thirdly, in harmonizing the training and retraining of personnel of different specialties on the basis of specialties of corporate culture [112, p.4].

For example, in the National Mining University, the Donetsk coal-fired power company (DTEK) and other companies of the coal industry are undergoing advanced training in the field of day-time distance and combined training.

In dissertation work GI Pisarevskaya proposed "the sequence of stages of the formation of a management system human resources, which is a continuous process and includes the setting of goals management of human resources, assessment of its level, the definition of personnel strategy, adaptation of the management system human resources and its control. The peculiarity of the proposed approach is to determine the necessary and

admissible target criteria for all employees, which are calculated in accordance with the specific practical conditions and specificity of the project "[113, p.10].

According to GI Pisarevskaya, it contributes to the achievement of the goals of the enterprise, as well as the effective management of its personnel potential, a separate project. The disadvantage of this work is, in my opinion, that in the management of human resources, factor such as motivation of labor is not taken into account. This may in some way testify to the fact that a significant number of enterprises in the machine-building industry where this work was carried out is used very slowly. This is also true for most mines of the coal industry, which reduces the efficiency of management of the personnel potential of the enterprise.

In dissertation work [114] Balayeva N.A. The practice of forming the motivation of engineering work in coal mining organizations is analyzed. Since engineers have higher education and are specialists and managers in different departments of the coal industry, they must be more motivated and motivate their subordinates. Therefore, in our dissertation it is necessary to determine the needs of both the managers themselves and the units of the units they head and determine the structure and priority of these needs.

The efficiency of personnel management of enterprises can be attributed to the dissertation work of IV Brill "Strategy of Intellectual Capital Management of Enterprises [115]. The paper shows that "in economic science and practice much more attention is paid to the study and management of concrete forms of labor, goods sold in their material and material form, and capital is still valued predominantly by its financial and financial component. However, in the production and production of the IV-VI technological forms in the value of the goods an increasingly important role is played by the abstract form of labor, the intellectual component of which is generalized by the notion of "intellectual capital". At some modern enterprises, in their total value, the share of intellectual capital reaches 50-

70%, which determines the interest of scientists and specialists in the intellectual capital of enterprises. The author of the paper believes that "the substantiation of methodical approaches to the implementation of corporate and individual motivation for the formation and development of intellectual capital in the current and long-term periods when developing the strategy of intellectual capital management of the enterprise" [115, p.4]. Therefore, in my opinion, the use of corporate and individual motivation will contribute to the development of intellectual capital of the enterprise, which will provide opportunities for raising the level of enterprise management, qualifications of employees and their motivation.

In work [116] the dissertation O.O. Khandiy noted that a special role in achieving the efficiency of enterprises belongs to the methods of personnel management, which ensure the rational use and development of labor potential, performance of production tasks. For this purpose, implementation of the improvement of the organization of remuneration, mechanisms of stimulating self-development and interaction of the personnel is necessary, which necessitates further scientific research of this direction. Therefore, the improvement of the organization of wages and the promotion of self-development of personnel of enterprises requires further development in the present.

In doctoral dissertations IA Fesenko [45] and VM Shapoval [117] also considered the need to improve one of these important aspects of labor motivation, such as pay.

In [45], the author, considering the resource potential of a coal-mining enterprise, considers it necessary to use as profit, the level of wages of workers, working conditions, the image of the enterprise, etc.

In work IA Fesenko showed that "as domestic practice shows, operating in the industrial enterprises of the system of remuneration is ineffective, they do not contribute to the creation of a motivational mechanism, an increase in the quantitative and qualitative indicators of

activity that requires restructuring, the organization of wages and new approaches to the formation of wage and remuneration policy For work at enterprise level [45, p. 12].

The dissertation [117], which studies social responsibility in the system of entrepreneurial activity, improves the assessment of socially responsible behavior in the context of the basic parameters of the basic level of responsibility, in particular, it is proved that the increase in the number of personnel under certain conditions leads to an increase in sales revenue from sales, an increase in the average wage The fees can positively affect the level of productivity in the business organization, which in turn helps to improve the market performance of business es organization and timely payment of wages, a gradual increase in its effect on the dynamics of incomes of local budgets [117, p. 6]. In this regard, the definition of social, material and non-material needs of workers is one of the main aspects of social responsibility in the system of both private and public mines. Therefore, these aspects need to be addressed for the effective use of labor motivation at coal mines and extractive sections.

Agreeing with these and other approaches, we consider that in the dissertation it is necessary to improve the salary and the motivational mechanism at the extraction sites of coal mines in Ukraine.

In the work of Yu.S. Zaloznov special attention is paid to the labor protection of coal mine personnel. Tom's author improved methodological approaches to the management of material and moral incentives for workers of coal mines. In the creation and maintenance of life and safety of work and improvement of their management, which helps to prevent and minimize social risks, increase interest in the preservation of life and health of the personnel of the enterprise. Therefore, the need to protect the labor of managers and workers from extractive industries should be taken into account when studying the motivation of labor.

The author of this work points to the need to increase the prestige of

miner's work. Adoption of the legislation of Ukraine on increasing the prestige of miner's labor is evidence of the unsatisfactory state of the staffing of coal enterprises, which the parliament of Ukraine reacted under the pressure of trade unions by adopting this law. But there were no significant changes with its adoption, because it is impossible to increase the prestige of any work artificially, but it is impossible and not humane to provoke a positive motivation to dangerous miner's labor that takes health and life of workers of coal mines [118, c .1]. Therefore, the problem of the prestige of miner's work must be taken into account when studying the motivation of labor in coal mines.

In dissertation work O.V. Zolotareva analyzed the range and significance of motivational tools, based on the results of the survey of industrial enterprises. "It allowed to concretize and reorganize the material instruments of motivation by the degree of influence on the efficiency of economic activity of employees, namely: the main - wages, bonuses, participation in profits, participation in equity capital; Additional Food subsidies, transportation charges, company discounts, medical services, life insurance, extra days off, assistance in paying for education, scholarship programs, legal advisory services, vehicle utilization, organization and holding of holiday events. The most effective among the non-material tools of motivation in the enterprise in modern conditions was: career advancement, flexible employment schedule, partizipativeness "[119, p.11, 12].

These tools of motivation, in our opinion, vary greatly, especially in terms of the impact on the efficiency of the economic activity of employees. In addition, there is no consensus among experts on the ranking of material instruments.

The author of this work "substantiates the cynarchical nature of the links between the components of the mechanism of motivation of the economic activity of hired workers: exogenous (state, market and social

motivation - macroeconomic level, motivation to the nanoeconomic level). Such a character implies the pluralism of the ways of influencing these components on the activities of employees in a single direction, the important prevalence of certain types of motivation (state, market, social motivation in the enterprise, self-motivation). "

But which of the levels given by the author is a priority and how to use them practically when motivating work at the enterprise is not entirely clear.

The self-motivation of employees at an enterprise should be evaluated and monitored. Who, how, in what term - this mechanism has no explanation.

In addition, when changing the situation in such a mechanism does not provide for its adjustment. Therefore, when improving the motivational mechanism, it is necessary to justify the achievement of the necessary result on the basis of information exchange of different levels of the interactive system in the process of their refinement and adjustment of situational development in a changing environment.

In the dissertation GS Atamchuk ", the mechanism of realization of the system of motivation for combining and simultaneous use of the principles of the sequence of satisfaction of the primary (physiological) and higher (social) needs of the individual and groups and parallel satisfaction of the primary and higher needs in the conditions of low efficiency of production and incomes, high intellectualization of the labor force, characteristic for Domestic enterprises ". Moreover, in this paper the further development of the definition of the system of motivation of labor, which should be understood as an organic combination of the internal needs of the individual with the stimulating potential of the subject of economic activity, providing them with vectorial orientation and focusing on the combination of long-term and short-term goals based on the priorities of the enterprise strategy [120, p.4].

Therefore, the implementation of the motivation of labor at the enterprise should seek to unidirectional needs of employees and the goals of the enterprise.

The concepts of motivation and stimulation, their distinctive features are shown above and published by me in the paper [121].

In the dissertation D.M. Yadransky [122]. The problem of motivation of labor was considered on the example of mining enterprises Kryvbas. An attempt was made to substantiate the mechanism of determining the cost of personnel in the system of motivational measures. This is done on the basis of the developed proposals to increase the level of technical feasibility of labor standards as an effective motivation lever and to improve the processes of determining the amount of remuneration of staff for work. For this purpose, it is recommended to use scientifically grounded methods of standardizing the number of workers. To allocate the results of work and increase the material level of the staff by determining the amount of remuneration for labor, a tariff system for remuneration for workers is offered. Managers of the shop (mines) and senior managers may also be included in the single tariff grid, but it is considered that the pay for the contract is more rational for these workers [122]. These approaches may be separate elements of the motivational mechanism, and not the entire mechanism. According to the author himself, the motivation of labor in the system of strategic development of enterprises in the mining industry is being implemented very slowly and needs to be improved.

The concept of a motivational mechanism in the theoretical plan requires careful study in each particular case. This is explained by the fact that there are no identical universal methods that influence the achievement of various goals. In this regard, it is difficult for the district leader to get a ready-made package of recommendations, faced with a problem that has already taken place. Therefore, when acting on their subordinates in a similar

situation, even within a single polling station, the existing problem requires a reassessment of the situation, taking into account changed factors.

If to precisely characterize the notion of "mechanism", then this is a system of bodies intended to transform one or more bodies into the necessary motions of other solids [20, p. 797]. Proceeding from this, the concept of "mechanism" was first applied in mechanics - to the science of the mechanical motion of material bodies (ie, the change over time of the mutual position of bodies or their parts in space and interactions between them). Then the concept of "mechanism" began to be used literally began to be used in the theory and practice of other sciences, for example, such as "mechanism" as: the mechanism of the state, the mechanism of people's power, the mechanism of legal regulation, the mechanism of memory, the mechanism of action of antibiotics, the mechanism of enterprise management and many others.

Recently, economic literature describes such different motivational mechanisms as personnel management, corporate culture, modern management, etc. For example, in the works of O. V. Usatenko and OG Groshelevoy [123, 124], the mechanism of management personnel is substantiated, in P.V. Khvostenko [125] - a mechanism for implementing the organization's strategy, in the work of SV Nesvytov [126] - management of business structures, in the work of N.Yu. Kruglovaya [127], - the mechanism of economic law.

In these and other works it is suggested to use various mechanisms in the form of tree targets. In the work of B.A. Rayzberg, L.Sh. Lozovsky, O. B. Starodubtseva "purpose tree" is a structured, hierarchical principle (distributed by levels, ranked) of a set of goals of the economic system, program, plan, in which the general purpose ("the top of the tree") is allocated; Subject to it under the goal of the first, second and subsequent levels ("branches of the tree") [6].

This method is widely used to predict possible directions of development of science, technology, technology, as well as for the formulation of personal and professional goals, the purpose of any company (enterprise). The so-called tree of goals closely links prospective goals and specific tasks at each level of the hierarchy. At the same time, the goal of the higher level corresponds to the top of the tree, and below the several tiers are local goals (tasks), which help achieve the goals of the upper level [6].

However, it should be noted that graphic construction of a tree of goals is a technique of one or another mechanism. It is a tool that facilitates work, but does not always give a qualitative picture, because it depends to a great extent on the qualifications of a specialist who is a tree of goals.

As a result of the analysis of approaches to the formation of a motivational mechanism of work, one can draw the following conclusions: however, in most cases it represents a rigid (mechanical) structure in the form of schemes, algorithms, or target trees. Often, it is not a system that includes a number of separate mechanisms, including those that are specific to a branch enterprise. As for the motivational mechanism at the extraction sites of coal mines, it is absent in the literature.

Thus, the analysis of these approaches will help to improve the motivation mechanism at the enterprises of the coal industry.

2.2 Analysis of the comparative assessment of the needs of managers and workers at coal mines in Ukraine

The professional staff of the main employees for each is different, and therefore, has its own specifics for each enterprise. Thus, at the mining coal mines, the following categories of personnel are involved: workers, managers (district leader, deputy and assistant chief of the district, mining masters) and mechanic specialist (Appendix D). Mining masters manage the

working changes, the mechanic - repair teams, and not only electric locksmiths, but also workers of the GRV repair change. Therefore, this specialist can be conditionally attributed to the heads of the district.

Since the district leaders are the direct organizers of coal mining operations, they should take into account the various needs of their subordinates in order to increase their motivation for labor. In doing so, they themselves must be motivated. In this regard, the rating and ranking of the needs of the data managers of the structural units of the mines is of considerable interest.

The study of the needs structure was conducted on the basis of a written questionnaire survey of 64 managers of mining coal mines, who were trained at the "School of the Minister" courses. Questionnaires were developed questionnaires, taking into account the materials contained in the works [128, 129]. The identification system and the need structure are discussed below.

According to the content of the written questionnaires, respondents were required to evaluate each of the four groups needs by a four-point system in order of their significance. Opposite the most important for the leaders of the polling stations of the needs group it was necessary to put the number 1. Opposite the second on the importance of the needs group - the number 2, etc. At the same time, it is not allowed to set zeros, dashes or not to respond. Similarly, a written questionnaire was conducted among 64 managers and 342 working miners in coal mines. Examples of questionnaires for managers and workers are given in annexes E1 and E2.

A quantitative assessment of the priority of needs according to the questionnaire was carried out using the NMU matrix [130, 131, 132]. The results of the questionnaire are given in the dissertation [133] and are presented in Table. 2.1 and 2.2. The need to fill the NMU matrix by the number of respondents, or rather the number of questionnaires accepted for processing, is due in part to the fact that numerical data (Table 2.2) are more

convenient for the analysis of trends than the number of respondents surveyed (of course, with a representative sample).

It was established that in the study of the structure of needs by the method of written questioning, there was no questionnaire, in which the elements of randomness would not be present in one way or another. Therefore, to determine the required number of respondents, in order to scientifically substantiate these or other conclusions, expert assessment methods should be used. Therefore, in this subsection, a survey of the consistency of opinion of respondents [134, 135, 136] was conducted.

The calculations were carried out according to the results of a survey of fifteen executives and twenty extraction workers (annexes Z1 and Z2). Respondents evaluated the importance of different levels of needs: existence, social, recognition and self-realization. Each respondent (expert) has still prioritized the need for these levels. As a result, a matrix was developed for assessing the needs ranks:

$$R = \begin{bmatrix} r_{11} \dots r_{1n} \\ \dots \dots \dots \\ r_{m1} \dots r_{mn} \end{bmatrix}, \quad (2.1)$$

Where n – the number of estimated needs (in this case, $n = 4$);

m – the number of respondents ($m = 15$ for managers, $m = 20$ for workers).

A quantified priority assessment of needs for each sample of fifteen executives and twenty workers is based on the total number of 64 questionnaire executives and 342 employees.

Each need can also be assessed on a score scale: the highest score takes a more significant need, the smallest score is less significant. Taking into account that the number of evaluated factors $n = 4$, we write:

$$a_{ij} = n + 1 - r_{ij} = 5 - r_{ij}. \quad (2.2)$$

As a result, we obtain a matrix of ballroom assessments, which, taking into account the data of the experts, has the following form:

$$A = \begin{bmatrix} a_{11} & \dots & a_{1n} \\ \dots & \dots & \dots \\ a_{m1} & \dots & a_{mn} \end{bmatrix}. \quad (2.3)$$

According to the matrix A , one can calculate the vector of the generalized needs assessment and the vector of competence coefficients of the respondents (experts).

To do this, according to the paper [134]:

- we calculate the auxiliary matrices B and C :

$$B = A' \cdot A, \quad (2.4)$$

$$C = A \cdot A', \quad (2.5)$$

and we find our own vector X of the matrix B corresponding to the maximal eigenvalue of the matrix λ_B :

$$B \cdot X = \lambda_B \cdot X, \quad (2.6)$$

Next we calculate the vector Y according to the following formulas:

$$Y = \begin{bmatrix} \sqrt[n]{b_{11}b_{12}\dots b_{1n}} \\ \sqrt[n]{b_{21}b_{22}\dots b_{2n}} \\ \dots \\ \sqrt[n]{b_{n1}b_{n2}\dots b_{nn}} \end{bmatrix}. \quad (2.7)$$

That own vector X :

$$X = \begin{bmatrix} Y_1 / \sum Y_j \\ Y_2 / \sum Y_j \\ \dots \\ Y_n / \sum Y_j \end{bmatrix}, \quad (2.8)$$

Which is a vector of a generalized needs assessment, while

$$\sum_{j=1}^n X_j = 1. \quad (2.9)$$

Find the proper vector K of the matrix C , which corresponds to the maximal eigenvalue of the matrix λ_c :

$$C \cdot K = \lambda_c \cdot K. \quad (2.10)$$

Next, we calculate the following vector for Z :

$$Z = \begin{bmatrix} \sqrt[m]{c_{11}c_{12}\dots c_{1m}} \\ \sqrt[m]{c_{21}c_{22}\dots c_{2m}} \\ \dots \\ \sqrt[m]{c_{m1}c_{m2}\dots c_{mm}} \end{bmatrix}, \quad (2.11)$$

And its own vector K :

$$K = \begin{bmatrix} Z_1 / \sum Z_i \\ Z_2 / \sum Z_i \\ \dots \\ Z_m / \sum Z_i \end{bmatrix}, \quad (2.12)$$

Which is a vector of competence of respondents,

$$\sum_{i=1}^m k_i = 1. \quad (2.13)$$

To confirm the correctness of the results we use, taking into account the competence of experts, the coefficient of their concordance W [135], which is calculated using the following formula:

$$W = \frac{12 \sum_{j=1}^n d_j}{n \cdot (n^2 - 1)}, \quad (2.14)$$

where

$$d_j = \sum_{i=1}^m k_i a_{ij} - \frac{\sum_{j=1}^n \sum_{i=1}^m k_i a_{ij}}{n}, \quad (2.15)$$

The condition under which the coefficient of concordance W acquires a value in the range $0 \leq W \leq 1$. If all experts evaluated the variants identically, then $W = 1$, if there is no correlation between experts' evaluations, then $W = 0$. For the consistency of respondents' opinions regarding the use of intermediate values of the concordance coefficient, the method of checking statistical hypotheses is used. Therefore, to test the significance of the coefficient W , we apply the Pearson criterion

$$X^2 = m \cdot (n - 1) \cdot W. \quad (2.16)$$

We set the level of significance α (Usually $\alpha = 0,05$) and with degrees of freedom $\nu = n - 1$ according to the law of distribution of Pearson we find a critical value X_{crit}^2 .

If $X^2 \geq X_{\text{crit}}^2$, Then with a given probability one can consider the coefficient of concordance to be significant, that is, the opinions of respondents are consistent with the confidence probability:

$$P_{\text{dos}} = 1 - \alpha = 1 - 0,05 = 0,95. \quad (2.17)$$

If $X^2 < X_{\text{krum}}^2$, Then the opposite hypothesis is accepted – the opinions of the respondents are not coordinated.

We will analyze the results of respondents' survey regarding the importance of the allocated needs.

The first group of respondents is the district leaders. The sample size $m = 15$. As a result of the calculation, we obtain a vector of the form

$$X_{k.o.} = \begin{bmatrix} 0,3723 \\ 0,2434 \\ 0,1949 \\ 0,1894 \end{bmatrix}. \quad (2.18)$$

From this it follows that the most important need for value levels is the need for existence (its general assessment is 37.23%), the following levels of need are of lesser importance, with the levels of recognition and self-actualization having approximately the same weight rating of around 19%. As we see, the assessments of these levels of needs are practically the same as the data of their rating, obtained by the formula (2.1), and are presented in the table of the modified matrix of NMU.

The vector of competency experts for the first group of respondents is graphically plotted in Fig. 2.1, from which it is evident that the level of competence of all experts (respondents) is approximately the same (the coefficients of competence are in the range of 0,062 ... 0,068) and only one respondent (with a twelfth ordinal number) has a lower coefficient of competence, that is, 0,56.

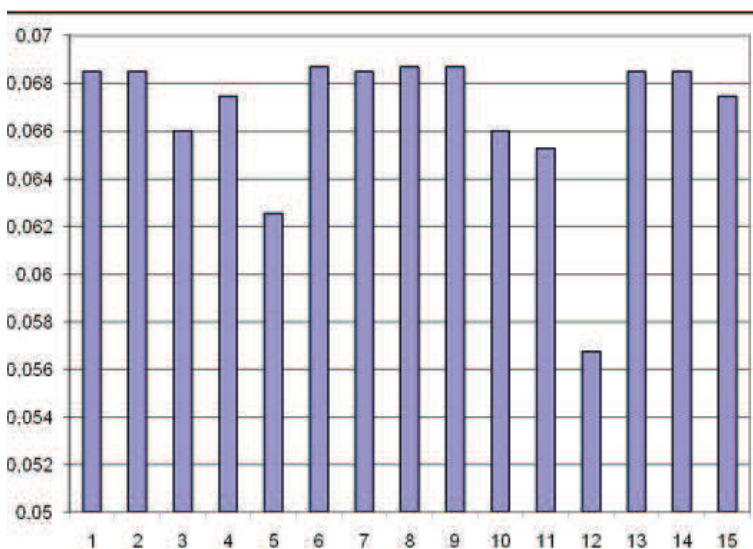


Fig. 2.1. Histogram of the coefficients of competency of the heads of the polls (respondents)

Using the matrix of ball scores and the vector of competency coefficients, we determine the coefficient of concordance. Since $W = 0.4434$, this indicates a satisfactory consensus among the respondents. Pearson Criterion $X^2 = 21.3$, critical value at $\alpha = 0,05$ and $v = n - 1 = 3$ $\chi_{krit}^2 = 7,82$, as well as that $X^2 \geq \chi_{krit}^2$. Then the opinion of the respondents can be considered consistent with the probability of probability 0,95.

The second group of respondents - working mining sites. The sample size $m = 20$. As a result of the calculation, we obtain a vector of the form

$$X_{k.o.} = \begin{bmatrix} 0,3681 \\ 0,2418 \\ 0,2094 \\ 0,1801 \end{bmatrix}, \quad (2.19)$$

which can be filed (Figure 2.2).

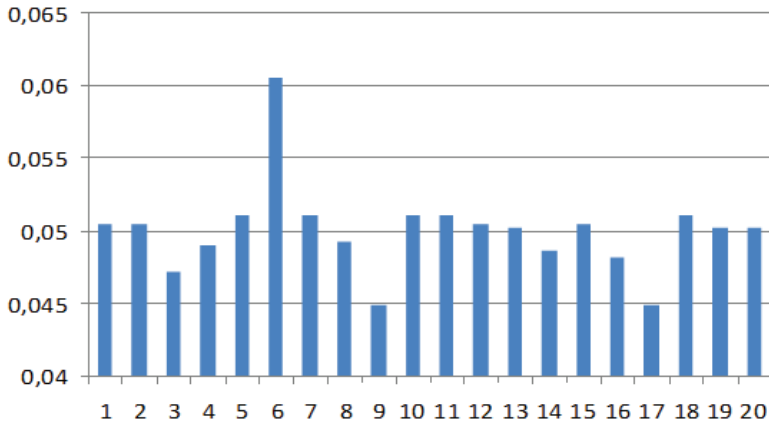


Fig. 2.2. Histogram of the coefficients of competence of workplaces (respondents)

As we see from the figure, the level of competence of all respondents is approximately the same (the coefficient of competence is within the limits of 0,047 ... 0,051). One respondent has a significantly higher competency (0.0605), and two others it is lower than the value of 0.045.

The coefficient of concordance for the second group of respondents was 0.4502, which suggests a satisfactory consistency of their thoughts. Because the Pearson criterion is $\chi^2 = 27,01$, $\chi^2_{krit} = 7,82$ in accordance $\chi^2 \geq \chi^2_{kpum}$, Then the opinions of respondents can be considered coordinated with a probability of probability of 0.95.

Thus, generalized assessments of needs groups were found and they are shown to be approximately the same as for district leaders and workers. The consensus of the respondents with high probability of confidence is proved, which allows to implement the results obtained in the teams of polling stations where the research was conducted.

In this regard, in the future, the determination of the ranking and ranking of the needs of the employees of the extractive sections is carried out

on the basis of methodological approaches, which are considered in the second section of the dissertation.

The numerical data are tabl. 2.3 are still used in determining the rating of needs levels, which will be shown below. The analysis of table data (Table 2.4) allows to state the following. In the first place, 81% of respondents set needs needs, the second place - social needs (56%). The third place in priority sets the need for self-realization (41%). And in the last place - the need for recognition. In the fourth place, this group of needs was set by 44% of respondents.

It should be noted that the NMU matrix is very convenient for graphical interpretation of tabular data vertically (Figure 2.3) and horizontal (Figure 2.4). The method of graphical interpretation of the quantitative assessment of the priority of groups of needs in the study example is presented in [137], and the results of research are in works [138, 139,133].

The share of each of the groups of needs analyzed (Fig. 2.2) allows us to judge the "scale of values" of the factors of motivation for the managers of mining sites. 81% of respondents put the need for existence first. Only 13% of respondents put the need for self-realization on this place. An even smaller number of district leaders put the need for recognition and social needs at the first place (4% and 2% respectively).

Table 2.3

Numerical data of the quantitative assessment of the priority of groups of needs (by the number of respondents)

In total, respondents were interviewed, people.	Group of needs	Priority of place, people			
		First	Second	Third	Fourth
64	I – needs of existence	52	7	4	1
64	II – social needs	1	36	13	14
64	III – requirements for recognition	3	12	21	28
64	IV – needs for self-realization	8	9	26	21
Together:		64	64	64	64

Table 2.4

Numerical data of the quantitative assessment of the priority of groups of managers needs

In total, respondents were interviewed, people.	Group of needs	Priority of place, people			
		First	Second	Third	Fourth
100	I – needs of existence	81	11	6	2
100	II – social needs	2	56	20	22
100	III – requirements for recognition	4	19	33	44
100	IV – needs for self-realization	13	14	41	32
Together:		100	100	100	100

Similarly, one can judge the "scale of values" of other needs.

If we analyze in detail the main needs of the heads of localities for the needs of existence (Figure 2.3), then we can conclude that 81% of the respondents put this group in first place, and 11% - in the second and only

8% of district leaders do not need to exist Of paramount importance (to the third place it was put by 6%, and in the fourth - 2% of respondents).

Table and graphic data are convenient for analyzing the priority of places and other needs groups. For example, only 13% of respondents in the first place have the need for self-realization, the second - 14%, and 41% and 32% respectively - in the third and fourth places. This suggests that for three of the four district leaders, the need for self-realization is not important. The factor is very insatiable, because due to its underestimation it is impossible to become a true leader and to manage the collective of the mining site as the only united team capable of solving the goals that are facing it.

In spite of all the informative nature of the table data of the NMU matrix and the graphic presentation of the above, they do not allow to fully explore the needs groups without their ranking and ranking. To prove this assertion, we turn to the data in Table. 2.2 and rice. 2.4, considering needs groups III and IV.

As the group of needs for self-realization placed first place by 13% of district leaders, while the group needs recognition of only 4%, this does not yet indicate the clarity of the higher rating of group IV needs compared with group III, because the first and second places in the amount They were roughly equal to the number of respondents (27 and 23% respectively), and in the third and fourth places - respectively 73 and 77%. This oddity is explained, in our opinion, by the fact that it is necessary to take into account not only the number of first places but also the specific weight of each place (taking into account the number of respondents).

In this regard, the ranking and ranking of needs groups were determined with the help of a modified matrix, which is given in the horde. 2.2.2 (Table 2.3). The methodology for determining the ranking of factors of labor motivation, which is used in this dissertation, was previously discussed in [1].

The ranking of the needs of district leaders is determined by the

formula (2.1).

So, the rating of the first group needs

$$P_1 = \frac{(4 \cdot 52) + (3 \cdot 7) + (2 \cdot 4) + (1 \cdot 1)}{64 \cdot (4 + 3 + 2 + 1)} \cdot 100\% = 37,19\% \quad (2.20)$$

They also count on the rating of the second, third and fourth groups of needs. Then the resulting values are reduced to an integer and made into a modified NMU matrix (Table 2.5).

Graphic interpretation of rating data (Table 2.5) is presented in the form of a histogram characterizing the ranking of the studied groups of needs (Figure 2.5) [139, 140, 141].

Table 2.5

Numerical data of indicators of the rating of groups of needs by the number of respondents

In total, respondents were interviewed, people.	Group of needs	Priority of place, people				Rating %
		First	Second	Third	Fourth	
64	I	52	7	4	1	37
64	II	1	36	13	14	24
64	III	3	12	21	28	18
64	IV	8	9	26	21	21

The analysis of numerical and graphical data (Table 2.5) makes it possible to state that the highest rating in the heads of extractive industries has a need for existence (37%).

Secondly, there are social needs (24%). At the same time, the requirements for self-realization and recognition needs are 1.8 and 2 times lower than the requirements for living standards.

Similarly, but on a five-point scale, district leaders assessed their needs within each group of needs. If the results of researches were compared with each group according to the algorithm described above, they would be placed in 15 tables for district leaders and the same for workers.

Requirements for self-realization: the ability to have an independent area of work and the implementation of organizational capabilities (goal setting, control over their achievements, focus on the result, etc.); The opportunity to take independent organizational and technical decisions, to prove their significance and importance of their workplace, the opportunity to participate in solving those issues in which competent, relative freedom of action; Influence on other people, control over their behavior, readiness to be responsible for others, creation of a team of like-minded people and friendly relations in the team. The results of the questionnaire for this group are shown in the table. 2.6.

Table 2.6

Results of prioritization of self-realization needs

Requirements for self-realization	Number of priority, %				
	1	2	3	4	5
1 – самостійна робоча зона	19	31	11	30	9
2 – прийняття незалежних рішень	52	27	19	1	1
3 – вільність дій	4	11	11	33	41
4 – вплив на інших людей	3	11	25	25	36
5 – створення команди	19	20	32	16	13

Of the five types of needs included in this group, the most important for district leaders was the need to make independent decisions (52%).

Thus, 19% of respondents in the first place have demanded an independent area of work and the creation of a team. But the need for freedom of action and influence on other people were put in the first place by 4% and 3%, respectively. In the second place these needs were also put

by a small number of respondents (11%). This may indicate that these kinds of needs for district managers are not significant.

The share of each of these needs allows us to judge the "scale of values" of the needs of this group.

A detailed analysis of the main needs of the group for the district leaders - the need for independent decision making (Figure 2.6) suggests that 52% of respondents put this need in first place, 27% - in the second, 19% - in the third, 1% - On the fourth and 1% on the fifth place.

The ranking and ranking of self-realization needs can be further determined using the modified NMU matrix.

In the study of groups of needs of the heads of mining sites, it has been established that in order to increase the effectiveness of labor motivation at polling stations, these managers need to know not only their needs, but also take into account the different needs of their subordinates. This enables the worker to become more receptive to attempts by the manager to motivate his attitude towards the work performed.

In the paper [91] it is noted that the heads of the polling stations do not always assess and know the needs of their subordinates. Therefore, at first quantitative assessment of their needs and their priority was made in the first questionnaire for students of the "School of Minister" courses. The second questionnaire contained similar questions, but district leaders were asked to answer the following question: Which of the needs, in their opinion, are most significant for their workers? It was confirmed that the district leaders did not always know and appreciate the needs of their subordinates. Therefore, there was a need for a study of needs based on a questionnaire directly from the workers. A written questionnaire was conducted among 342 working clearing faces at several coal mines. Moreover, the questionnaires for the workers included questions from the questionnaires of district leaders, clarified in connection with the specifics of the work itself [91].

The study was conducted in the same way as described above.

A quantitative assessment of the priority needs was carried out using the NMU matrix. In the first place, 85% of respondents demanded existence (Table 2.7), the second place - social needs (78%). At the third and fourth places, priority was given to the need for self-realization and recognition (56%) [91, 92].

Table 2.7

Results of prioritizing groups of needs of working mining sites

Total respondents polled,%	Needs group	Number of priority,%			
		1	2	3	4
100	I - iexistence	85	10	5	-
100	II - social	2	78	7	13
100	III - in recognition	7	5	56	32
100	IV - in self-realization	2	7	35	56

Regarding the importance for working needs of existence, 95% of respondents placed them at the first and second place. At the same time, the needs of the social, the needs for recognition and the need for self-realization in the first and second place were put together by 80, 12 and 9% of respondents respectively.

The priority of the needs of working mining coal mining stations can be judged by the specific weight of each of the groups of needs identified during the questionnaire survey from the first to the fourth place, depending on their significance for the respondents.

So, the first group of needs (needs of existence) was put in the first place by 85% of the polls. In the second place this group of needs set 10%, the third - 5%, and in the fourth place - did not put any person.

The second group of needs (social needs) was given by only 2% of respondents, but 78% of respondents were second only to this group. At the

third and fourth places, this group of needs was set by 7% and 13% of respondents, respectively.

In the first and second place the third group of needs (recognition needs) was set by only 12% of respondents. Therefore, we can conclude that the leadership does not pay enough attention to respect, recognition, material and moral rewards, etc.

Need for self-realization is even less priority (fourth group). On the first and second place it was put only 9% of workers. This indicates that the miners are not aimed at achieving high results in the work of the mining site, do not pay enough attention to colleagues, and not always willing to help the head of the district, the brigadier, the team, are ready to create friendly relations in the team.

The share of each of the groups of needs analyzed (Fig. 2.9) allows us to judge the "scale of values" of the factors of labor motivation for workers in extractive sections.

It should be noted that in the third and fourth places 56 and 32% of respondents identified the need for recognition, and the need for self-realization - respectively 35 and 56%, that is, these needs for the third and fourth places together put 88 and 91% of miners respectively. Therefore, we can conclude that the managers of mining sites do not pay due attention to the workers on their needs for recognition and self-fulfillment. Also, many executives do not fully know the real needs and desires of their subordinates. And without it, it's very difficult to create an effective system of labor motivation at extraction sites.

In the first place, 85% of the respondents identified the need for existence. Only 7% of respondents put this place in recognition. An even smaller number of respondents put social needs and self-actualization in the first place (2%). However, as expected, 78% of workers were in the second place, while the need for self-realization at the same place was 7%, ie the

first and second place of social needs was 80%, and the need for self-realization was only 9% of respondents.

Despite all informative data numerical data. 2.7 and visualization of graphic materials (Figures 2.8 and 2.9), they do not allow to fully investigate the needs without their ranking and ranking, since this does not take into account the specific gravity of each priority place, taking into account the number of respondents who have assigned this group needs for one or another place.

Therefore, according to the considered methodology, which eliminates these shortcomings, the rating and ranking of the needs groups, which were analyzed according to the results of the questionnaire, were determined.

Below is a histogram that describes the ranking of the groups studied by the results of their ranking.

The analysis showed that the highest rating in working mining sites has a need for existence (38%). The second place is social needs (27%). The third place is the need for recognition (19%), and the fourth - the need for self-realization (16%). Thus, the social needs rating is 1.4 times less than the rating of the needs of existence, and the rating of needs for recognition and self-actualization is 2 and 2.37 times, respectively. Knowing the rating of the needs of workers in each group, district managers can better take into account the performance of their subordinates, which will affect the motivation and efficiency of their work.

In [2, 91], the authors suggest starting a system of motivation for studying the needs of the chiefs (managers) of extraction sites based on the following considerations:

- firstly, the district chiefs are the direct organizers of the work on coal mining in the treatment faces;
- secondly, since the needs themselves are caused by the worker's desire to meet them, then district leaders should create an environment that

would allow them to understand that they can contribute to their goal of attaining their attitude;

□ thirdly, for the purpose of reliable and targeted motivation of labor, district leaders should take into account the advantages and disadvantages of the respective types of needs, but also their own. Only in such an approach of the heads of these units to the organization of motivational management can encourage their subordinates to effective activities to achieve their personal goals and goals of the team.

For this, chiefs of the extractive sections as direct managers of workers in their units need to provide normal working conditions, to create in the workforce appropriate moral and psychological climate, to implement in practice, other elements of material and non-material labor motivation. Only in such conditions, employees will be satisfied with their work and work efficiently. Therefore, the person of the direct leader and his role in creating a practical motivation system of labor can not be overestimated. In this regard, for the creation of an effective system of labor motivation at extractive sites, a comparative analysis of groups of needs of managers and workers of these polling stations was conducted.

Such a written questionnaire was conducted among the miners of the treatment faces at several coal mines. Moreover, the questionnaires for workers were asked questions from questionnaires for district leaders, which were specified in connection with the specifics of the work of the miners of the treatment faces. A comparative assessment of the needs of district and employee leaders was conducted as a whole in groups (existence, social, recognition, self-realization), and within each of these groups. The results of these studies are partly presented in such works [2, 85, 91 - 93, 142, 143]. In tabl. 2.8 shows the data of four groups of needs of district and workers' managers [91]. The analysis of this table makes it possible to state that in the first place, 81% of district leaders and 85% of workers set the needs of existence.

Table 2.8.

Results of prioritization of groups of needs of managers and workers

Needs group	Number of priority, %			
	1	2	3	4
Quantitative assessment of the priority needs of the heads of the polling groups				
1	2	3	4	5
I – needs of existence	81	11	6	2
II – social needs	2	56	20	22
III – requirements for recognition	4	19	33	44
IV - the need for self-realization	13	14	41	32
Quantitative assessment of groups of priority groups of needs of workers				
I – needs of existence	85	10	5	-
II – social needs	2	78	7	13
III – requirements for recognition	7	5	56	32
IV - the need for self-realization	2	7	35	56

The group of social needs in the first place was put by 2% of managers and workers. However, in this second group, this group of needs put 1.4 times more workers than managers (78 and 56% respectively). Since this group includes such needs as life and health insurance, medical care (including regression, prophylaxis, prevention); Paid paid vacation; The opportunity to retire before the age of 50; Provision of decent housing; Possibility of rest in sanatoriums and recreation centers of workers and their families on privileged visas, then heads of mines and polling stations should take more into account and accordingly create conditions that would satisfy these kinds of needs.

At the first and second place, the third group of needs (recognition needs) was set by only 12% of workers. This group included such needs as respect in the team; Recognition by management; Professional (career) growth, including Obtaining adjacent specialties, studying at the high school

(technical school) at the expense of the enterprise; Material remuneration (bonus, salary supplements, valuable gift, etc.). Perhaps some district leaders do not always express their gratitude, for example, as verbal encouragement, praise, announcement of gratitude to the team, etc. From this we can draw the conclusion that managers pay little attention to respect, recognition, material and moral remuneration of employees.

This, in our opinion, can be explained by the fact that the heads of the polling stations themselves do not always receive appreciation from the management of the mines. This is evidenced by the fact that in the first place the group of needs for recognition was set by only 4% of district leaders. On the other hand, district leaders do not fully understand the actual needs and desires of their subordinates.

On the first place, only 2% of self-actualization requirements, and the second - 7% of workers. The consequence of this may be that the workers are not focused on achieving great results during coal mining, paying insufficient attention to their colleagues, not always willing to provide assistance to the district leader, the brigadier, the team, and the creation of friendly relations in the team.

On the contrary, it is worth noting that the needs for recognition and self-realization in the last third and fourth places together put respectively 88 and 91% of workers. Therefore, we can conclude that the heads of extractive industries do not pay due attention to the workers, their needs for recognition and self-fulfillment. Most likely, many executives do not fully understand the real needs and desires of their subordinates. This is evidenced by the data groups of needs of both workers and managers themselves.

Below are the results of a study of one of the groups of needs of workers - the need for recognition (Table 2.9).

Table 2.9

Results of the assessment by the workers of the priority of the group in the recognition needs (in the opinion of the managers and the workers themselves)

Requirements for recognition	Number of priority, %				
	1	2	3	4	5
Quantitative assessment of the priority of the needs of workers (according to the heads of the polls)					
Honor in the team	30	29	27	16	-
Professional (career) growth	6	23	38	29	4
Professional (career) growth	-	7	7	27	59
Material reward	64	19	14	3	-
Moral reward	-	25	12	28	35
Quantitative assessment of the priority needs of workers (in the opinion of the workplaces themselves)					
Honor in the team	52	24	14	7	3
Professional (career) growth	8	27	27	20	12
Professional (career) growth	14	25	14	30	17
Material reward	26	16	25	23	10
Moral reward	2	2	18	18	60

For example, district managers believe that the need to respect the collective in the first place would be put every third employee (30%). In the opinion of the workers themselves, in the first place, this need was set by 52%, that is, every second miner cleaning faces.

Workers believe that recognition by management is clearly insufficient. In the first place it was put only 8% of workers. Moreover, the leaders themselves confirm that they pay little attention to their subordinates. Therefore, they placed the first place even less - 6%.

The analysis of data in this table has revealed that many executives are not yet fully aware of the needs and desires of their subordinates. Only 7%

of managers put the need for workers to their professional growth in second place. None of them put this need in first place. On the contrary, this need was placed in the first place by 7% of workers and 25% - on the second, that is, more than 30% consider their professional growth necessary. Therefore, to increase the motivation of labor, job managers should be encouraged and encouraged to study at courses, technical schools and higher institutions.

The heads of the polls believe that for most workers there is a need for material remuneration, bonuses, salary increases, a valuable gift, and others. Is the main need for the first place, according to the heads of the polling stations, supply 64% of workers. In fact, in the first place, only 26% of workers put it. This may indicate that material remuneration for creative attitude to work and personal effectiveness is still rarely applied to workers. It is possible that workers are not aware of such incentives in all areas. As noted, the need for honor in the team is one of the priorities for the workers. Therefore, it is unclear why the first and second places need only a moral award of only 25% of managers (and, 25% - on the second and none - on the first). And only 2% of this need for the first and second place put the workers. Apparently, at some polls, such forms of moral support as presentation to the award, honorary title, gratitude, board of honor and just public recognition of merit, the work leader does not pay enough attention. This indicates a low corporate culture in individual mines.

Below (Table 2.10), the results of the quantitative assessment of the priority of needs in comparison of managers and workplaces according to their questionnaire are given [85].

Table 2.10

Results of evaluation by managers and workers of the polling stations in the recognition needs

Requirements for recognition	Number of priority, %				
	1	2	3	4	5
Quantitative assessment of priority needs of district leaders					
Honor in the team	57	25	13	4	1
Professional (career) growth	9	41	26	20	4
Professional (career) growth	23	14	22	30	11
Material reward	7	11	36	33	13
Moral reward	3	9	3	15	70
Quantitative assessment of the priority needs of workplaces					
Honor in the team	52	24	14	7	3
Professional (career) growth	8	27	27	20	12
Professional (career) growth	14	25	14	30	17
Material reward	26	16	25	23	10
Moral reward	2	2	18	18	60

Analysis of tabular data makes it possible to state the following, that for heads of the polls the most important of the needs of recognition is respect in the team. In the first place, this demand was put by 57% of the polled, and on the first and second place in the amount of 82%. Despite the fact that only 9% of the polled put the demand for recognition from the side of the leadership, it should also be considered prestigious for district leaders. At the first and second places in total, this demand was set by 50% of respondents, that is, every second district leader considers this need very important for himself. This suggests that this kind of need for mining managers is more attractive. Therefore, both the management of mines and the industry as a whole should pay close attention to this aspect of non-material motivation.

There is a need for professional (career) growth for managers of

extractive sections. In the first place, this demand was put by 23% of respondents, and on the second - by 14%. This is quite natural, since for district leaders this is essentially the first independent post, and they already want to know about the career opportunities that are attractive to them. In connection with this, the management of mines needs to motivate the district chiefs with the prospect of their career growth, both in terms of advancement in service levels and in terms of increasing their competence.

But the need for material remuneration, judging by the responses of district leaders, is not important to them. Only 7% of respondents placed it in the first place, while in the third and fourth places, respectively, 36 and 33% respectively. In our opinion, this can be explained by two reasons.

First, the district leaders attribute their material well-being to the prospect of professional growth and give at this stage the preference for career growth and advancement on official levels, rather than material rewards.

Secondly, despite the fact that the questionnaire indicated that the material remuneration is not a salary, but a bonus, a personal allowance, that is, the remuneration for personal results, in the majority of respondents the material remuneration seems to be traditionally associated with wages, and Not with a factor motivating their effective work.

Even less important for district leaders is the need for moral rewards. Only 3% of respondents put it in first place, and the fifth - 70%. This suggests that many of the district leaders still do not directly associate the moral rewards with the recognition of their merits by management and colleagues, which again confirms the relevance of teaching leaders of this rank methods and techniques of motivation for their use in practice.

Comparison of the needs assessment in the recognition group of managers and working mining sites (Figure 2.11) shows that workers experience a much greater need for material remuneration (29%) than district managers (18%). As you can see, the system of material remuneration for

labor extraction units does not take into account the effectiveness of the personal contribution of each employee to the general results of the work of the team, and therefore this system should be improved in the direction of greater motivation of each employee.

The need for recognition of managers and workers at extraction sites is approximately the same (22 and 20% respectively), while the need for professional growth in the workforce is 1.7 times lower than that of district leaders (11 and 19% respectively). This may be due to the fact that the acquisition of related occupations by workers, raising the level of qualification, education, participation in innovative work - still do not serve as motivational factors of labor at extraction sites.

The need for moral remuneration has a low rating both among executives (13%) and in work mining (15%). The reason for such a low rating of this need is, most likely, that mines do not pay due attention to this aspect of non-material labor motivation.

Now compare the social needs of managers and workplaces. Social needs consist of the following types:

- life and health insurance, medical care (including regression, prophylaxis, prevention);
- prolonged paid leave;
- possibility to retire before age 50;
- provision of decent housing;
- possibility of rest in sanatoriums and recreation centers, in children's camps, tourist trips of workers and members of their families on privileged visas.

With the help of the modified NMU matrix, a rating and ranking of social needs are established (Figure 2.12).

The first three places in the ranking of social needs of district leaders cover the need for life and health insurance (25%), decent housing (23%) and the possibility of healing (19%). Further places in this category of

respondents take on the need for long paid leave (18%) and the possibility of retirement up to 50 years (15%).

Approximately the same rating of social needs and working mining sites. However, in contrast to the district leaders, the highest rating in the workforce requires a long paid leave (24%). But the need for life and health insurance, the possibility of retirement up to 50 years and in decent housing have the same rating (20%), and the need for rest - 16%.

Comparison of rating assessments can lead to the conclusion that for district leaders, the most priority social need is life and health insurance, and for workers - long paid leave.

Similarly, a comparison has been made of the types of needs of managers and working extraction sites in all other groups (Annexes E1 and E2). Comparison of these types of needs allows to improve the system of motivation of labor, taking into account the human factor.

The results of the conducted research allow us to make that the coal mines in Ukraine and, in particular, at extraction sites do not pay due attention to the motivation of labor. The introduction of the motivation system at the mines and the mechanisms for meeting the needs of the heads of structural units, workers will contribute to creating a decent moral and psychological climate in the team, in which employees will feel comfortable at the enterprise and will be satisfied with their role in this unit. All this together with the realization in practice of other factors of motivation of labor will contribute to increasing the attractiveness and prestige of the mining profession.

2.3 Analysis of the use of material and non-material labor motivation

Subdivisions 1.1-1.2 and 2.1-2.2 of this thesis substantiate the necessity of improving wages and realizing its stimulating function in practice. This should be done taking into account the objective trends that have developed in the coal industry of Ukraine, with the borrowing of advanced domestic and foreign experience in the coal and other industries.

Particular attention paid to wages is paid to the advantages and disadvantages of the grading system at the mines of Pavlogradugol PJSC.

With the improvement of the remuneration system that can be distributed to other private and public mines, the dissertation proceeds from the fact that "the wages of workers in extractive industries should be focused primarily on stimulating the intensification of production by achieving and maintaining high loads on the clearing pits. This is especially true in connection with the fact that at a high specific weight of constant costs of increasing the volume of extraction and production of finished coal products of the mine receive more profit, which can be a real source of increase in labor remuneration "[93].

On this basis, the existence of a fair remuneration structure, the objectivity of the differences imposed on it affects the attitude of employees to the work, their behavior, the efficiency of work, and hence the success of the company "[144, p. 27]. The author of this work Elena Vetluzhskiy draws attention to the fact that internal justice in the system of remuneration is achieved through the development or adjustment of the permanent (basic) part of the wage, taking into account the importance of the position and its impact on the result of the company. The higher the value of a post, the more constant the part of wages.

So, in relation to the extraction area, the value of the post of the district chief is higher than the position of deputy and assistant to the head of the

district. The value of the combine trade profession is higher than the value of the GPU professions, the electrician and the like. In this case, the value of each post must be objective, and therefore it must be evaluated expert way.

For example, Pavlogradugol PJSC has only 18 grades (levels). So, the head of the mining area is in the sixteenth grade, and the mining master is in the thirteenth, the miner of the clearing face of the fifth grade - in the eleventh grade, and the fourth in the tenth. Such a motivational approach stimulates the work of a miner with a clearing face of the fourth level, in order to increase his qualification, perform more complex operations and move from the tenth grade to the eleventh.

Similarly, the deputy and assistant chief of the district will strive to "grow" in the position of the chief (leader) of the district.

When building a policy of basic remuneration when forming a tariff, each post is considered on the basis of market analysis, that is, the real salary of this post in the coal industry of Ukraine. After such an objective assessment, tariffs and "forks" of salaries were formed - the range of values of the basic remuneration determined for this post from the minimum to the maximum value. Staff salaries are corrected in relation to the assigned grade. Salaries less than the lower value of the fork gradation are increased to a minimum of a grade (but no more than 30%), salaries within the limits of the grade increase by 12%, and those exceeding the maximum of the grade - by 3%.

Such a new system is based solely on an objective assessment of the significance of a particular activity. Firstly, it motivates employees, and secondly, it is more socially oriented, since a fixed (permanent) part of the salary is guaranteed. Moreover, it stimulates the work of employees not only at extractive mines, but also in subsidiary units of the mine, for example, employees who serve technological chains, workers of interstate transport, and others.

In this system of remuneration, the approaches that are formulated in

such works as [144-151] and some others are implemented. It:

- objectivity - the employee's remuneration should be determined on the basis of an objective assessment of the results of his work;

- predictability - the worker must know what remuneration he will receive depending on the results of his work;

- adequacy - the remuneration should be adequate to the labor contribution of each employee as a result of the activities of the whole team, his experience and level of qualification;

- timeliness - the remuneration should follow the achievement of the result as soon as possible (if not in the form of direct remuneration, then at least in the form of consideration for further remuneration);

- significance - the remuneration should be significant for the employee;

- fairness - the rules for determining the remuneration should be clear from the point of view of the employee of the organization.

If we consider the widespread distribution of a similar system of remuneration in the coal industry, then it should be adapted to each enterprise individually, since each enterprise has its own specificity and background of payment. One of them will give more points for professionalism and skills, on the other - for leadership, on the third - under conditions of work. These nuances should be taken into account in the process of developing a new system of remuneration. The analysis of the implementation of the pay system by the Hay method allows us to state that it is especially convenient for large and medium-sized enterprises, because unlike the vertical construction of a career, it allows you to build a career within your own level. Thus, the increase in working skills and education will affect the level of remuneration, as the weight of the knowledge factor will increase and salary will increase, despite the fact that the employee will remain in his position.

The first experience of introducing this system in Pavlogradugol PJSC confirmed that it motivates employees of mines and, in particular, extractive

sections. For example, record coal mining and, accordingly, salaries were recorded at the extraction site No.3 of the blagotovannaya mine - 82 thousand tons of coal, and at the polling station number 3 of the mine "Pavlogradskaya" - about 74 thousand tons of coal per month. Earnings of the miner at these polling stations amounted to 11.5 thousand UAH. Per month, the advance of the slaughter line at these sites - respectively 193 and 152 m / month [152].

In order to efficiently pay for the Haye Grading System (constant part), the thesis proposes to improve and bonus employees, depending on the level of achievement of scheduled coal production and its ash content (variable part).

Table 2.11

The amount of bonus remuneration depending on the level of achievement of the planned value of the indicator of coal production

Level of plan implementati on,%	Percent age of bonus on indicat or	Level of plan implementati on,%	Percent age of bonus on indicat or	Level of plan implementati on,%	Percent age of bonus on indicat or
80	30	91	55	101	101
81	32	92	60	102	102
82	34	93	65	103	103
83	36	94	70	104	104
84	38	95	75	105	105
85	40	96	80	106	106
86	42	97	85	107	107
87	44	98	90	108	108
88	46	99	95	109	109

Level of plan implementation, %	Percent age of bonus on indicator	Level of plan implementation, %	Percent age of bonus on indicator	Level of plan implementation, %	Percent age of bonus on indicator
89	48	100	100	110	110
90	50				

Unlike the provision of bonuses for operating mines, if the extraction site does not comply with the coal mining plan, then the workers will not receive a bonus. This does not stimulate their work, because the failure to implement the coal mining plan may depend not only on the work of the workers, but also, for example, on the deterioration of the mining and geological conditions (violation of the reservoir gypsometry, pivism breakthrough, waterlogging of the lava, etc.). Therefore, in a new approach to bonuses - the size of the bonus is determined on the basis of the accepted plan commitments (Table 2.11). Below is scientifically substantiated the dependence of the size of the premium on the level of implementation of the plan for coal production.

If, according to this table, we construct a graph (Figure 2.13), then we see that it has two spells that are determined by the levels of the plan, %: 80-90, 90-100, and 100-110.

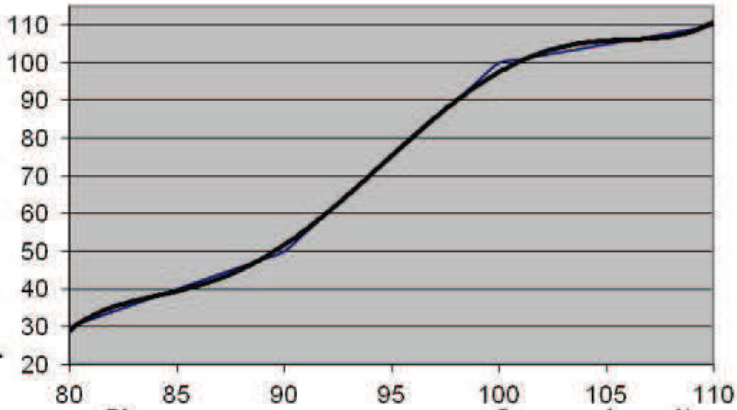


Fig. 2.13. The graph of the size of the bonus depends on the level of execution of the planned task

For the convenience of further calculations, such a graph should be approximated by a single formula. In this case, it can be used to determine the levels of plan implementation beyond the specified limits. In this connection, the fifth order polynomial was chosen [153].

$$y = 6E - 0,5x^2 - 0,0287x^4 + 5,4317x^3 - 510,98x^2 + 23930x - 446391. \quad (2.21)$$

On the basis of equation (2.21) and the value of the level of execution of the plan for (Table 2.11), you can determine the percentage of accrual of the premium.

$$PPP = 0,00006RVP^5 - 0,0287RVP^4 + 5,4317RVP^3 - 510,98RVP^2 + 23930RVP - 446391, \quad (2.22)$$

$$R^2 = 0,999,$$

Where PPP is the percentage of bonus on the indicator (percentage of bonus),%

RVP – level of implementation of the plan for coal production,%.

The value of R^2 makes it possible to assert that the average error of approximation does not exceed 0.1%, and therefore it is quite acceptable.

Based on the analysis of tabular data intervals (Table 2.13) and two fractures on the graph (Figure 2.13), the level of execution of the plan can be determined by the following formulas:

In the range of 80 to 90%

$$PPP = 2RVP\% - 130\%. \quad (2.23)$$

In the range of 90 to 100%

$$PPP = 5RVP\% - 400\%. \quad (2.24)$$

In the range of 100 to 110%

$$PPP = RVP\%. \quad (2.25)$$

Thus, equations (2.22) - (2.25) allow us to describe the process of encouraging employees to increase coal production over the plan, but does not ensure the level of its quality, which is expressed in ash content.

In case of non-fulfillment of the planned norm of ash content, the amount of the premium decreases (Table 2.12).

Table 2.12

Data on the value of the bonus on the level of implementation of the planned (established) norm of ash content

Ash content, %	Bonus on ash content? %
45	63
44	66
43	69
42	72
41	75
40	78
39	81

Ash content, %	Bonus on ash content? %
38	84
37	87
36	90
35	110
34	115
33	120
32	125
31	130
30	135

Dependence of the percentage reduction of the premium on the level of ash, shows that it is impossible to approximate the straight line.

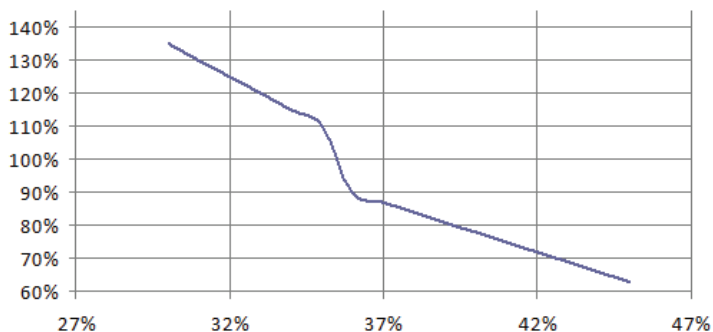


Fig. 2.14. Chart of the dependence of the percentage reduction of the premium on the level of ash content on the extraction sites of coal mines in Ukraine

The use of the piecewise-linear approximation method, which gives rise to an analytical form of dependence for the tables, will be explicit. 2.14 in the following form [160]:

$$RZP = \begin{cases} 0, & \text{if } RH > 45\% \\ -3RH + 1,98, & \text{if } 45\% \geq RH > 37\% \\ -20RH + 8,1, & \text{if } 37\% \geq RH > 36\% \\ -5RH + 2,85, & \text{if } 35\% \geq RH \end{cases} \quad (2.26)$$

$$R^2 = 1$$

Where RZP – percentage reduction of the prize; RH – the level of ash content of coal mined.

Such an evil on the schedule due to the fact that the established norm of ash content is 35%. According to tabl. 2.14, workers should be motivated to produce coal with an ash content lower than 35%, since then the premium will increase. Conversely, the premium will be reduced at an ash content rate higher than 35% [154].

Thus, the new approach to the bonus of labor at extractive industries determines the dependence of the amount of bonus on the level of execution of the coal production plan and its quality in the form of obtained economic and mathematical models (2.22) and (2.26) [155].

Finally, the level of the variable part of the salary (bonus) accrued with respect to the main part of the salary (grade) of the employee, can be defined as

$$RNP_j = PPP \cdot RZP, \quad (2.27)$$

Where j is the category of staff ($j = 1$ – managers, $j = 2$ – workers).

Consequently, the developed methodology will be fair only to the workers involved in the direct extraction of coal. For managers who must encourage workers to raise the level of quality of work, knowledge of the level of needs and aspirations of their subordinates is extremely important. Therefore, in case of divergence between the assessments of the levels of aspirations by the leaders and the workers themselves, it is necessary to reduce the size of the bonus allowance and the heads by the amount

proportional to this discrepancy.

To do this, you need to know not only the types of needs of employees, but also the district as a whole, on which depends its members' ability to work. These types of needs are expressed in the continuous and unceasing increase in profits, and in relation to the extraction area, then in increasing the production of high-quality coal.

This argument allows us to put forward the hypothesis that the first group of needs - "Necessities of existence" fully coincides with the needs of the enterprise. This group of needs is the most important for both the workers and the management of the enterprise. It was because of the superiority of this group over others and the bonus scale and premium discounts scale for non-compliance with the quality of coal were developed.

Obviously, this group of needs drives workers into more and more high-quality work. This means that the livelihood needs to be strengthened. The more workers will prefer this group of needs, the more high-quality products they produce. This hypothesis calls for material stimulation, which is achieved by adjusting the premium for the corresponding working unit in the direction of increasing the quality of coal.

For this purpose, 15 managers of different levels were interviewed. They were asked about the percentage reduction in bonus when increasing the level of coal ash above the planned norm. To averaging the results of the survey, the correlation coefficient of the Kendall ranks was used, which compares the ranks for all pairs of units of the population that are pre-subordinated to the value of the x -sign [143].

The calculation gave the value of a factor of 0.83, which fully meets the needs of this study. Then the maximum bonus discount for the mining site should be 7.84%. We denote this value as a CLP, where k is the number of the mining site.

Consider the table. 2.13. In her social need is in second place. Obviously, these needs are almost directly related to the needs of existence.

The other two categories of needs are relatively less than the previous two. Consequently, the development of these categories of needs and will lead to an increase in output.

To determine the importance of these categories, 15 managers were interviewed on the importance of the needs of workers in extractive industries. The Kendall Concordance Coefficient was 0.93, indicating a high level of unanimity among the respondents. The priority of groups of needs and their rating is considered on the basis of the results of the survey of 342 workers (Table 2.13).

The average results of respondents are given in (Table 2.13). As a result of the comparison of data (tables 2.13 and 2.14), we see that the opinions of the workers themselves and their leaders regarding the groups of needs are very different. Obviously, management better understands the goals and needs of the enterprise as a whole, and therefore one can put forward the following hypothesis: the more the division of needs of workers coincides with the distribution of needs determined by their managers, the less should be the percentage reduction in the value of the premium. With the full coincidence of the opinions of the workers and managers, the percentage reduction in the value of the prize should be zero.

Table 2.13

Value of generalized indices of groups of needs of workers

A total of respondents were interviewed, people.	Groups of needs	Number of priority, people.				Rating %
		1	2	3	4	
342	I – existence	291	34	17	0	38
342	II – social	7	267	24	44	27

A total of respondents were interviewed, people.	Groups of needs	Number of priority, people.				Rating %
		1	2	3	4	
342	III – in recognition	24	17	192	109	19
342	IV – in self-realization	7	24	120	191	16

Table 2.14

Averaged values of the importance of groups of needs of workers in the opinion of managers

Group of needs	Average value of needs groups for enterprise, %
I – needs of existence	37,5
II – social needs	24,5
III – requirements for recognition	18,5

Then, the size of the bonus reduction for the k-th unit can be calculated by the formula

$$ZPR_k = KZPR_k \sqrt[4]{\prod_{i=1}^4 [1 - |VP_i - RP_{ik}|]}, \quad (2.28)$$

Where ZPR_k – percentage reduction of bonus for k-th unit; VP_i – the importance of the needs of the workforce in the opinion of managers;

RP_{ik} – the rating of i -th needs of the workers of the k -th unit. The sign "modulo", delivered in case of excess of RP_{ik} over VP_i .

Managers, in order to get a zero percentage reduction in the value of the prize, need to question the questionnaire, as they imagine their needs, to respond the same as their subordinates (employees). And employees, in order not to be observed decrease in the value of the prize, must be answered in the same way as managers.

Then, taking into account the expressions (3.22, 3.26, 3.27, 3.28), the value of the premium for workers should be determined by the following formula

$$PNP_2 = \left[\begin{array}{l} 0,00006RVP^5 - 0,0287RVP^4 + 5,4317RVP^3 - \\ -510,98RVP^2 + 23930RVP - 446391 \end{array} \right]. \quad (2.29)$$

Let's return now to the motivation of the leaders. Their task is to provide such conditions of work that subordinates can achieve the best results in their work. In this regard, we will put forward such a hypothesis if the ratings of the needs of the workers, they themselves, coincide with the ratings of groups of needs, composed leaders, then we can assume that the leadership is carried out the best, because managers are fully aware of the needs of their subordinates. In the case of non-matching groups of needs, the percentage of the premium should be reduced by the weighted average of this difference.

Then the size of the difference in the ratings of groups of needs should be considered from the standpoint of their importance to production and according to the table. 2.15 write:

$$ZPRK = \frac{\sum_{i=1}^4 (5-i)VP_i |RK_i - FP_i|}{\sum_{i=1}^4 (5-i)VP_i}, \quad (2.30)$$

Where $ZPRK$ – the amount of bonus discount managers in the case of non-conformity of estimates of groups of needs of workers; FP_i - the average rating of the groups of needs defined by the workers themselves.

Taking into account the above, the general formula for calculating the amount of the premium managers will be as follows:

$$RNP_I = [0,00006 RVP^5 - 0,0287 RVP^4 + 5,4317 RVP^3 - 510,98 RVP^2 + 2393 RVP - 446391] \cdot \left[190 - RZ + \frac{\sum_{i=1}^4 (5-i)VP_i |RK_i - FP_i|}{\sum_{i=1}^4 (5-i)VP_i} \right]. \quad (2.31)$$

Calculate according to the data of the table. 2.15. The amount of discount on which the premium will decrease. The reduction in the premium will amount to 1.4%, which may seem insignificant, but on a grand scale the company will either save the salary fund or increase the output.

Thus, the algorithm for calculating the value of the bonus is as follows:

1. Conduct a survey of managers and workers in order to identify their needs groups.
2. Instruct managers to assess their needs.
3. Determine the percentage of overfulfilment of the plan and the level of ash content of coal extracted.
4. According to formula (2.29) calculate the size of the workers bonus.
5. Using the formula (2.31) to calculate the size of the prize of managers.

Table 2.15

Results of comparative analysis of assessments of groups of needs of managers and workers in the opinion of managers

Needs group	Priority of place,%				Rating%
	1	2	3	4	
Quantitative assessment of the needs of district leaders					
Necessities of existence	81	11	6	2	37
The needs are social	2	56	20	22	24
Requirements for recognition	4	19	33	44	18
Requirements for self-realization	13	14	41	32	21
Quantitative assessment of the needs of workers					
Necessities of existence	85	10	5	0	38
The needs are social	2	78	7	13	27
Requirements for recognition	7	5	56	32	19
Requirements for self-realization	2	7	35	56	16

Thus, a unique model for calculating the value of a premium, which takes into account not only the production figures, but also the types of needs of employees of the enterprise, has been created. The following hypotheses have also been put forward: in order to increase the labor productivity of workers, the needs for existence should be increased, and for managers to improve the efficiency of work, the ratings of the needs of workers and managers should coincide. If, after the implementation of the algorithm, the production performance of the enterprise increases, it will mean that the hypotheses put forward are correct.

In the future, when calculating the bonus, it is also possible to take into account the provision of moral and psychological climate on the site and other levels of the motivational mechanism, which are shown in subsection 3.3.

Consequently, it can be concluded that such a figure as a bonus can be applied not only when calculating the paycheck for the Hay system, but also for tariff or other pay systems at extraction sites.

One of the main factors of labor motivation at extraction sites is the achievement of the ultimate goal of this unit and the satisfaction of personal needs of employees through labor activity. Typically, the main goal of labor collectives is to fulfill the monthly task of coal mining. Satisfaction with the personal needs of workers depends not only on their internal but also on external factors. Achievement of the set goal and satisfaction of personal needs of workers is largely due to the uninterrupted work of cleaning faces. At the same time, an analysis of the work of the treatment faces at individual mines shows that there are significant reserves in the coal mining industry for increasing the volume of coal production at a decrease in the frequency and duration of downtime of the treatment faces. Moreover, simple cleaning faces occur both for technical and technological reasons of the faces themselves, and for external reasons, independent from the workers of the extractive sections. In this regard, the topic of analysis of the reasons for the downtime of the treatment faces and the associated reduction in coal production, and, accordingly, the magnitude of the bonuses of the workers of these faces and the entire mine is very relevant, since it directly affects the negative moral state of workers.

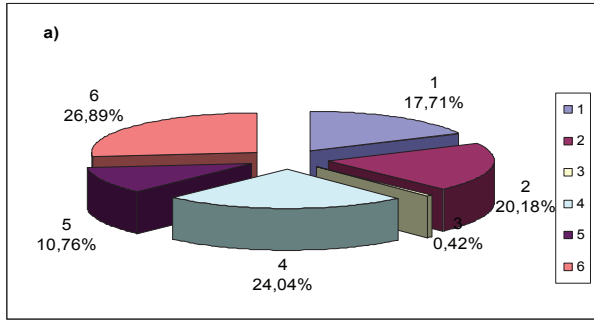
In the process of processing the statistics of dispatching services it was established that at the mines of SE "Selidovugollya" for six years there were 18,746 cases of downtime of cleaning faces with a total duration of 75005

hours. Losses from coal production amounted to 4.1 million tons. The average duration of one idle is more than four Hours The accounted losses from coal mining per hour of a simple sewage treatment were 60 tons (Fig. 2.15).

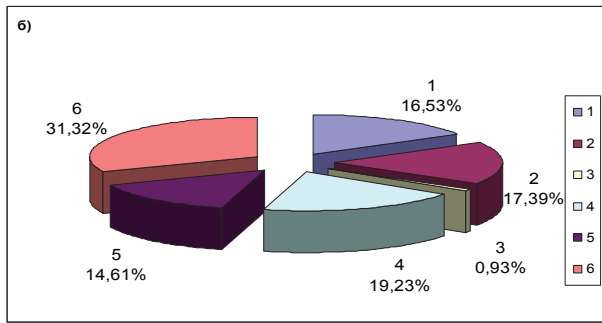
More than a quarter of all downtime (26.89%) are due to the so-called "other simple" (fig. 2.15, a), which include: stopping of the main ventilation fan, gas pollution, flooding, insecurity of the forging forest, etc. The total duration of such downtime (Figure 2.15, b) was 23495 hours (31.32% of all downtime in six years), and losses from coal production for this reason (Figure 2.15, c) - 1162531 t (27.71% of all Downtime for six years). Approximately the same number of downtime is caused by the failure of the equipment in the mine-transport transport (UHT) (4506 ordinary or 24.04%), the total duration of which amounted to 14422 hours (19.23%), and coal production losses - 779969 tons.

More than 17% of losses from coal mining comes from mining operation reasons and refusals of mining equipment GHO. In quantitative terms, losses from coal mining over six years for these reasons amounted to almost 1.5 million tons.

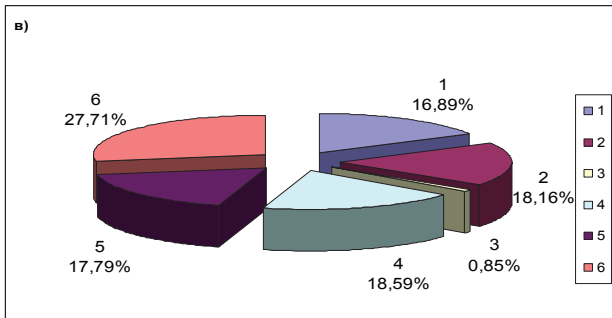
These losses can be significantly reduced if the motivated workers in the trouble-free work of technological chains improve the usefulness of minerals from the cleaning face to the surface. For example, in the event of an accident of the main conveyor, the main trunk or the inside of the mine transport, which are part of the technological chains, coal mining in the treatment faces is stopped.



a)



б)



в)

Fig. 2.15. Diagram of the main reasons for downtime: 1 - mining operation; 2 - refusal of GSO; 3 - crashes on main lifting installations; 4 - refusal of the Supreme Court; 5 - stops GTI and VTB; 6 - other quasi-quantitative (a), their total duration (b) and loss of production (c) for six years

Employees servicing technological chains are rewarded for the implementation of the coal mine plan as a whole, regardless of the quality of the main work. This is confirmed by the fact that drivers of underground electric locomotives, which are not secured by brigades of cleaning faces, underground electric engineers, engaged in repair of equipment in the repair-preparatory change of the section of the mine shipment (UHT), underground workers, who are engaged in repair of equipment in the repair-preparatory section change Conveyor transport (VCT), and underground workers who repair trunks and underground machines in a repair-preparatory section change, that is, workers serving the technological chains for the implementation of a plan for mining in a coal mine premiyuyutsya 15%.

For each percentage of the overfulfilment of the coal mine shale plan, the amount of the premium is also increased by a percentage. The maximum bonus for these employees does not exceed 30%.

If the operating norm of ash content is exceeded or if the coal mine plan is not implemented, the bonus is not charged to these employees.

In this regard, it is necessary to review the size of the salaries of employees of technological chains in order to fulfill both reproductive (social) and motivational functions. This will allow not only to reduce the number of downtime for cleaning faces, reduce losses of coal and significantly increase the interest of employees in good faith and high-quality work, but will also directly contribute to increasing the motivatedness of the workers of extractive sections [156].

Included in the pay system, key indicators will allow you to control all aspects of the work of workers. With this approach there is an opportunity to eliminate such injustice as the impossibility of assessing the personal contribution of the employee to the overall result that was observed before. The worker could work very well, carry out and overtake the plan, and do not get the full bonus, because when it was calculated and paid, first of all

the group indicators of the mine were taken into account, and then his personal contribution.

As discussed earlier, this is important for workers who serve technological chains. If there is an accident on the technological chain, due to which the idle purge is eroded, then the volume of coal production is reduced as a separate section, as well as in the whole mine.

Another example. The service staff of the technological chain (for example, the belt conveyor) performs its work in good faith and in full. In this case, the coal is transported from the treatment faces in full according to the plan. The employees of these extraction sites receive the appropriate amount of the prize. However, workers servicing this technological chain may not receive a bonus if the coal mining activity in the mine as a whole is not fulfilled. Therefore, the size of the wages of these workers does not fully assess their real work for the current period. Therefore, the salary of staff serving the technological chain should be evaluated both on the basis of their grade, and taking into account the new approach of the second part of the salary - a bonus that has, like gradias, to stimulate employees.

For example, the salary of the electric locomotive of the section of the conveyor transport (VCT) of the IV grade in the tenth grade may amount to 3060 - 6184 UAH, and in the eleventh grade - respectively 3351 - 6772 UAH. The electric locksmith of the third grade can get only in the ninth grade with the basic salary from 2822 to 5060 UAH.

Thus, the work of electric locksmiths of the 3rd and 4th grades will be stimulated so that they will fall into the tenth or eleventh grades upon re-certification, as a result of which their wages will increase. At the same time, they should improve their qualifications, perform more complex operations, make innovative proposals for the improvement of technological processes, equipment and work organization in their chain. This will increase the level of payment not only of their work, but also of the workers of the cleaning faces, if there are no accidents on the technological chain [163].

To increase the level of stimulation of the work of the workers serving the technological chains, it is also proposed to reward them for the trouble-free work of chains, as well as for the workers of the extraction area, which are not part of the integrated brigade (creep-drivers, motorists, electric locksmiths, underground workers, drivers of underground installations) .

The aforesaid above allows to state that the payment of workers by the ball system of evaluation of positions and professions E. Hay and bonuses for the implementation of the plan, taking into account the quality of coal, as well as the stimulation of the fail-safe operation of technological chains from the extraction site to the surface can be one of the main factors of the mechanism of motivation Labor at extraction sites.

It is established that the size of wages depends to a large extent on the prestige of labor. The more prestigious the industry and profession, the higher will be the level of motivation among workers who would like to get such a profession and work on this specialty in the organization (enterprise).

The basis of this unit is the article published by the author in the magazine "Coal of Ukraine" [85]. The article came out on the eve of the draft law "On the prestige of miner's labor" [160]. This is due to the fact that in recent years the prestige of mining work has fallen significantly, which is partly mentioned in the first section of this dissertation paper.

[85] noted that the needs of people, as well as labor motives, can be both material and intangible, as they try to satisfy many of their work-related needs. Therefore, it would be wrong to say that only material motivation affects the increase of the level of efficiency and prestige of the miner's labor. On the contrary, our research has found that 81% of the 64 managers of mining units from different coal regions of Ukraine from the four groups of needs (existence, social, recognition and self-realization) have placed the group of living needs in the first place [133]. According to the managers and workers of these polling stations, the main need of this group is the need for proper wages. Therefore, one of the main motives for increasing the prestige

and attractiveness of miner's work is proper wages [97], which in our country is considered a hygienic factor [158].

To confirm the above, please note. Immediately after the release of the Donbass from the Nazi invaders in the shortest time it was necessary to restore 345 destroyed and flooded mines. For this purpose, the military servicemen who worked before the war on mines were demobilized from the army. At enterprises, the brutal demands and military discipline have been raised. Almost the only stimulus was an increase in the rate of issue of food products by cards compared with other segments of the population. This enabled already in 1946 to provide coal mining in the amount of 76.2 million tons, which was already 49.2% of extraction in 1940.

However, the further development of the coal industry by the method of "military communism" was impossible. Therefore, a number of decrees passed by the Supreme Soviet of the USSR and the decrees of the Council of Ministers of the USSR, aimed at raising wages, material and moral incentives for miners. As a result, in 1950 coal production amounted to 96.1% of the pre-war level, and in 1960 it exceeded 2.26 times. The coal industry has become a strategic base of the country, and the work of miners is honorary.

However, miners' wages are lower than in some industries, banks, firms, etc. Many mine specialists switched to other companies offering higher wages [85].

Without diminishing the role of money in meeting the needs of miners, in enhancing the prestige and attractiveness of miner's work, the post-graduate student emphasizes that money alone does not motivate. Therefore, wages should rather not motivate but short-term stimulating action.

In the basis of non-material motivation, in the opinion of the dissertation, are moral and psychological climate in the team, non-material rewards, recognition of employees, their satisfaction from work, and others.

All this at extraction sites is an integral part of corporate culture of the whole enterprise (mines).

In general, under corporate culture, the set of behavior patterns acquired by the organization in the process of adaptation to the external environment and internal integration, has shown its effectiveness, shared by the majority of members of the organization. In modern literature, there are many definitions of the notion of "corporate culture". Like many others, it does not have the only true interpretation. At the same time, most authors agree that the corporate culture of the enterprise is the psychological working climate existing at the enterprise. With the notion of corporate culture are closely related issues subordination relations, labor discipline, control of the goals set by the leadership, the satisfaction of employees with their work and those adopted by members of the group or organization as a whole.

The notion of immaterial motivation is very successful, in the opinion of the author, formulated in the work of Yu.A. Lukash: "The essence of non-material ways of motivation is directly and directly conditioned on the answer to the question of why the employee works exactly at this firm, when what else companies pay the same amount? This happens because there is something necessary for the employee, which can not be bought for money "[8, p. 40]. At the core of non-material motivation, according to the author, lie morally-psychological climate in the team, non-material remuneration, recognition of employees and their satisfaction from work, etc.

Therefore, the provision of normal working conditions, the creation of an appropriate moral and psychological climate in the workforce, the realization in practice of other aspects of non-material incentives depends, above all, on the head of the district, shop, service, department.

As the studies of the Gallup Institute's scientists have shown (see v. 1.3), the main determinant of satisfaction with the place of work is not the salary, the privilege, the charisma of the general director of the company, but the person of the direct leader [84].

Intuitively, the majority of the respondents, including the managers of the extractive industries, believe that job satisfaction has a positive correlation with the performance indicators, that is, employees who are more satisfied with their work, achieve more results than those who are less satisfied. This is evidenced by the data identifying the needs of workers and working mining sites, which are listed in the hide. 3.1 At the same time, it should be noted that non-material motivation plays the same role as material, which will be discussed in the hideout. 3.3, in which a mechanism for the motivation of labor at extractive sections was developed. Already, one can see that the formation of the mechanism of the moral and psychological climate at the district will be clarified and adjusted depending on the change of situational reaction needs.

For example, among groups of needs for recognition, there are such needs of non-material motivation as collective respect, leadership recognition, career growth, moral rewards, and among groups of social needs - such as life and health insurance, medical care, long Paid leave, provision of decent housing, health improvement on privileged trips, etc.

Among the groups of needs for self-realization are the needs of non-material motivation, such as the creation of a team and friendly relationships in the team, the willingness to answer for others, and among the groups of living needs - a permanent job (employment), the ability to work after retirement, creating safe working conditions and Other [159].

It should be noted that in practice many more executives in mining enterprises, especially young ones, use autocratic and voluntarist methods to achieve higher output and raise labor standards, which reduces the satisfaction of their subordinates. The desire to raise the level of productivity in any way, ignoring the needs and desires of the person himself, leads, as a rule, to his dismissal. Instead, district managers and other mine units should inspire workers to make additional efforts so that they then see the fruits of their labor, while at the same time enjoying satisfaction at work. In this

connection, the training of the middle managers of the general concept of the theory of motivation of labor, the formation of the moral and psychological climate in the district, the basic factors on which it is based, methods and techniques, by means of which they can be applied in practice, becomes very relevant.

The formation of a certain moral and psychological climate is influenced by the many methods that encourage workers to work and high-performing labor. For example, this is:

1. The style of leadership of the leader, on which depends formation of a certain moral and psychological climate on the site, the effectiveness of the joint activity and personal satisfaction of everyone.

2. Working conditions. When taking a person to work, you must enter her into a team, get acquainted with all aspects of work, provide everything necessary for the work, inspire confidence in her that she can cope with the work. It is necessary to acquaint with the peculiarities of corporate culture at the mine and the moral and psychological climate at the district.

3. Rally of the collective of the district, the brigade, the link. This is a relatively stable psychological mood of its members, which is manifested in all the various forms of their activities, such as the attitude of the members of the team to each other, to work and to the enterprise (mine) on the basis of individual, individual-value orientations. This should be manifested in mutual understanding, mutual acceptance, sympathy, empathy of members of the team to each other.

4. Psychological compatibility of employees. It is necessary to complete the sections, of which the brigade (section) is formed, taking into account the psychological compatibility of the workers. Depending on the purpose of the team, people with a different culture of behavior should be united. If only individuals who are waiting for instructions and can not show initiative or amateur lovers only to command, then such workers act

depressingly, reduce the work mood in the team, lead to industrial and moral losses.

5. Ways to improve the business and personal qualities of employees. It is necessary to accelerate the development of the key qualities of the employee, to increase continuous innovation activities when introducing new equipment and technology at the site, to teach to operate in extreme situations at great depths, to continually improve qualifications, to combine professional and humanitarian culture.

6. Business valuation of personnel. This is a purposeful process of establishing conformity of the qualitative characteristics of the personnel (abilities, motivation and properties) to the requirements of the position or the workplace. It is recommended that each year evaluate the business qualities of the employees in accordance with the Hay-based factor-system.

7. The use of incentive and punishment scales. It is recommended to make wider use of such positive incentive measures as encouragement for success in the work in favor of the development of creative initiative and activity, awarding awards, announcing gratitude in a solemn atmosphere, a board of honor; Oral appreciation during the conduct of ordinances, meetings, meetings, etc.

8. Successful progress of the production process. Applies to the execution of planned tasks and the achievement of the goals set by the management and employees of the site.

9. Satisfaction of the managers of the work of the workers. The objectives are achieved by management and the needs of employees are realized.

Depending on the changes in the situational situation in the specific conditions, the forms and techniques existing in the district are adjusted and specified.

These and other actions on non-material labor motivation will help to create a positive moral and psychological climate at the mining sites,

increase the prestige of mining work and develop a mechanism for motivation of labor.

Chapter 3

IMPROVING THE LABOR MOTIVATION SYSTEM IN THE CORPORATE BUSINESS ENTREPRENEURSHIP

3.1 Methodological substantiation of identification of needs and their structure for the staff of extractive sections

A modern enterprise is not only a separate production site with different technological processes, a diverse and rather complex mining equipment, but also an environment where a large number of people work. The operation of this multi-faceted production complex can be effective only with the close interaction of all its elements and parts. In this regard, it is of special importance to acquire scientifically based managerial decisions, which should be based on the motivation of labor. Therefore, one of the main elements of the effective work of the mine team can and should become a labor motivation.

At the same time, it should be noted that in such a multi-faceted production complex as the mine, the main link is coal mining (extraction sites). Therefore, the motivated work of the leaders (heads) and workers of these sections is very relevant to them and the entire mine [137].

Most modern theories of motivation (McClelland, Maslow, F. Herzberg) [23, 161, 162] are based on the definition of the list and structure of the needs of people, which are most often used to motivate the work of workers. Needs - a conscious lack of anything that prompts action [4]. If these needs are met, the employee becomes more fit for the manager's attempts to motivate his attitude towards the work performed. However, the needs can not be observed or measured. Talk about their existence can only be based on the behavior of people. Therefore, psychologists determine that the needs serve as a motive for action.

However, there is no single system of identification of needs among scientists and practitioners, which ultimately reduces the effectiveness of the motive to action. This is explained by the essential difference in the structure of the needs of different people, and the specifics of the concept of motivation in people of different professions. In connection with this, the task of this work is to identify the needs and justify their structure for managers and workers of mining coal mines.

The heads of the polling stations are the organizers of work related to direct coal mining. In order to increase their productivity, they must create an atmosphere of motivation for all employees of the team managed by them. At the same time, managers must take into account the advantages and needs of not only employees of the district, but also their own for a stable and purposeful motivation. Only in such an approach to motivation can we urge ourselves and our subordinates to work effectively in order to achieve both personal goals and the polls headed by them.

Consider the concept of "identification". In the paper [163] identification (from the Latin *identifico*) means identification, assimilation, and the establishment of a coincidence - the in-depth need of a person to be assimilated to the search for a worship object that is difficult to satisfy.

To determine the identification of needs and the justification of their structure, we used the following methodological approach. The list of needs was first considered by the heads of the coal mines located in different coal regions of Ukraine.

Identification of needs was taken into account in accordance with the main provisions of the theory of motivation, taking into account general and specific motivation. Concerning the definitions of Reiner Nirmier and Manuel Seifert, they are generally motivated to understand "the desire to do something, to achieve something. This desire, expressed in various degrees, is peculiar to any person "[4, p.16]. "Specific motivation - the reason that a person stubbornly strives for some specific purpose. Specific motivation is

stipulated by the subjective meaning that this objective has for a person. The same determines the duration of the effort, and the expense of forces to achieve this goal "[4, p.17]. These authors make a special emphasis on the fact that "the question of how important a particular motivation for a given person is incredibly important, because it depends on which energy he will take for performing a professional task" [4, p.17].

The final result of the identification of needs was obtained after discussing with the students the courses of advanced training of managers, which were organized on the initiative of the Ministry of Coal Industry, entitled "School of the Minister" [159, 138].

Students of a school of 64 people, who are in reserve for directors and chief engineers of mines, were thoroughly selected at the mines and state enterprises (formerly industrial associations), and then at the Ministry of Coal Industry. They occupy positions - from deputies of district chiefs to deputy technical director of a production association. Moreover, practically all the students who took the position of deputy director of the mine of production, acting Chief engineer of the mine and others, worked in the past district chiefs. The experience of listeners in the coal industry ranged from 3.5 to 18 years and averaged 9.5 years. Since these listeners are the closest reserve of the first managers of the mines, they are particularly characterized by a specific motivation for labor, and from the extent to which they are motivated at the present time, the motivated workers of the mines that they head will depend on in the future.

In addition to the general and specific motivation for identification and formation of the needs list, account was also taken of such specific features of the work of the workers in the coal industry, as difficult working conditions, high level of injury, retirement of workers before the age of 50 years, long leave, remuneration for service Years, the presence of social assets on the balance of mines, etc.

The primary list of requirements contained forty points. This list of needs was distributed to the students of the "School of the Minister" with a request to mark those twenty needs that they consider to be significant in their lives. In this case, the measure of significance was not indicated. Opposite the need, which was significant, it was necessary to put a plus, and insignificant - a minus. Having analyzed the results of the survey, those twenty needs, which scored the least votes, were thrown away: in comfort (pleasant surroundings), pedanticity (in order, in purity), ambition, pleasure, in entertainment, in accumulation (acquisition), in exercising unselfish actions, in knowing, In the competition, to be in the center of attention, to put above all their own interests, in intercession, avoidance of punishment, creative attitude to work, in reverence, in novelty, in beauty and harmony, in compassion, in affection, in luxury. A new list of the twenty most significant needs was united by us structurally in four groups. Each group integrates the five needs that are most characteristic of the mining profession.

Thus, the identification of needs was grounded in accordance with the basic theories of motivation, as well as taking into account the specific motivation of the work of the heads of extractive sections and the features of the coal industry.

The structuring of needs was performed in four groups [139, 140]:

- needs of existence;
- social needs;
- needs for recognition;
- needs for self-realization.

Each group consists of five types of needs, which, according to district leaders, are the most important for them. The structure of each of the groups of needs is given below.

Existence needs:

- decent wages;
- Guarantee of stable income;

- permanent job (employment);
- ability to work after retirement;
- ensuring safe working conditions.

Social Needs:

- life and health insurance, medical care (including regression, preventive examination, preventive care);
- prolonged paid leave;
- possibility to retire before age 50;
- provision of decent housing;
- possibility of rest in sanatoriums, houses and recreation centers, children's camps, tourist trips of workers and members of their families on preferential trips.

Requirements for recognition:

- respect in the team;
- recognition by the management;
- professional (career) growth, including Advanced training, obtaining related professions, studying at the university at the expense of the enterprise;
- material remuneration (bonus, salary increment, valuable gift, etc.);
- moral reward (presentation to the award, honorary title, gratitude, board of honor, public recognition of merit, etc.).

Requirements for self-realization:

- an opportunity to have an independent area of work and the implementation of organizational skills (goal setting, control over their achievements, focus on the result, etc.);
- the ability to make independent organizational and technical decisions, to prove their significance, as well as the importance of their workplace, as well as to participate in solving those issues in which you are competent and competent;

- relative freedom of action;

impact on other people, control over their behavior, readiness to be responsible for others;

Creating a team of like-minded people and friendly relationships in the team.

The grouping of needs in the group is justified in order to make a comparison between identical needs within each group. Because, in our opinion, it is illogical to compare among themselves the needs, for example, respect in the team, life insurance and material remuneration.

These groups of needs were contained in the first questionnaire during the survey of the heads of mining sites.

The second questionnaire contained similar questions, but district managers were asked to answer the questions about which of the needs, in their opinion, were most significant for the work of their polling stations.

As a result of our study, it was found that district managers do not always understand the needs of workers. Therefore, we developed the structure of the needs of the workers of the sections based on the improvement of the previously developed structure of the needs of district leaders [139, 140].

Taking into account the aforementioned, structuring was also performed in four groups [141]:

- needs of existence;
- social needs;
- needs for recognition;
- the need for self-realization.

Each of the groups included five needs, which, according to district leaders, are the most important for them and working mining sites. The structure of each of the groups of needs is considered below.

Existence needs:

- decent wages;
- Guarantee of stable income;

- permanent job (employment);
- ability to work after retirement;
- ensuring safe working conditions.

Social Needs:

- life and health insurance, medical care (including regression, prophylaxis, prevention);
- prolonged paid leave;
- possibility to retire before age 50;
- providing decent housing;
- the possibility to improve in sanatoria, houses and recreation centers, children's camps, tourist trips of workers and members of their families on preferential trips.

Requirements for recognition:

- respect in the team;
- recognition by the management;
- professional (career) growth, including Advanced training, obtaining related professions, studying at the university at the expense of the enterprise;
- material remuneration (a bonus, a bonus for professions, a valuable gift, etc.);
- moral reward (presentation to the award, honorary title, gratitude, board of honor, public recognition of merit, etc.).

Requirements for self-realization:

- the possibility of being the best in his profession, performing joint professions, focusing on the result, etc. ;
- the ability to make independent organizational and technical decisions within the framework of the work performed, to prove their significance, as well as the importance of their workplace, as well as to

participate in solving those issues in which you are competent and competent;

- relative freedom of action;

- impact on work colleagues, willingness to help them;

- willingness to assist the district leader, the brigadier, the team in creating a team of like-minded people and friendly relationships in the team.

The conducted research of the structure of the needs of workers and managers of mining sites at the mines in different regions of Ukraine will allow managers to better take into account the needs of workers, which will encourage both the workers themselves and the leaders themselves to work effectively in order to achieve, respectively, the personal goals and objectives of the headings they lead.

The method of identifying needs includes the following steps:

- 1) identified needs based on motivational theories;

- 2) identification of needs in interviews with managers and working mining sites;

- 3) the elimination of those needs that are not important;

- 4) grouping needs in groups by the same amount of needs in each group.

This method is the basis for identifying needs.

Thus, the decision support system is an important element in the system for building, launching and investing an Internet project. Computer modeling of decision-making processes today becomes a key focus [72] on automating the decision maker's (ODA) activity. Thus, the developed decision support system provides a solution to the strategic, tactical and operational tasks of managing the Internet project.

3.2 Improvement of approaches to assessing factors of labor motivation

The first chapter justifies the need to create leaders of the motivational workplaces in order to motivate members of the labor team to work effectively to achieve both the personal goal and the purpose of the organization.

One of the motivated management systems of the organization, based on the human factor and employee needs, is the "motivational ladder" of McKinsey, which is a kind of program for managers in motivational labor management at the enterprise. Decisive factor in the success of the implementation of the program of motivation is the understanding that the process of motivational-multi-stage, in connection with which the isolated use of its individual components does not lead to success.

At the heart of the "motivational ladder" are four levels of motivation [1, 130].

At the first stage of this "ladder" the manager must ensure that each employee identifies himself with the enterprise and its purpose. To do this, he himself should be an example of such identification. Each employee should feel involved with the affairs of the firm, the purpose of the employer must be his own.

The second stage according to this concept is identification of the employee with specific tasks. If the task is "imposed from above", then the results are unlikely to turn out to be good. In this case, the employee will not feel their importance and spend most of their time on persuading the manager to fail or unrealistic. In order to address this disadvantage, the joint development of an intermediate goal, which should meet such requirements as importance and urgency for all, concreteness and simplicity of measurement, availability with available resources, is suggested; An intermediate goal should lead to success in a few weeks and find recognition among all employees.

The third step is that each employee must be confident in his ability to solve the task. The first prerequisite for the emergence of such confidence is the recognition of the goal of the staff in terms of its quantitative indicators. At this stage, you need to manage and monitor the progress of the work.

The last stage of the "motivational ladder" (fourth stage) is that the employee must feel successful. Success is one of the needs that motivates a person, so it is very important to give her the opportunity to feel successful, affiliated with and recognition of her merits by management.

Widely used motivational management using the "motivational ladder" McKinney contributed to increasing the motivated work of employees, taking into account the human factor, resulting in an increase in the contribution of each employee in the final results of the enterprise. At the same time, this system is not devoid of certain disadvantages, the main of which is the complexity of quantitative assessment of factors affecting the final result, and their ranking on the level of significance.

In contrast to McKinsey's matrix of other types of portfolio analysis, for example, the matrixes of the Boston Consultative Group and others [146-148], which quantitatively assess the dynamics of changing the key indicators of market attractiveness, McKinsey's "motivational stack" gives only a qualitative picture of each motivational Steps and does not allow to quantify the priority of motivation.

In teaching further material related to the study of this problem, the dissertation relies on the work of the scientists of the State University of Educational Sciences "NSU" [107, 137, 145], which, for quantitative assessment of the motivation level, McKinsey developed the matrix of motivation of the workers of the enterprise, called the "Matrix of the NSU" (Just a NMU matrix), which uses a combination of two indicators - the degree of motivation of McKinsey (from I to IV) vertically and the degree of their priority (from 1 to 4) horizontally.

In [137], it was proved that the priority of the steps of McKinsey is established on the basis of their quantitative evaluation on the matrix of NMU. To do this, the priority of the steps of McKinseys can be set on the matrix of NMU, using their quantitative assessment. To do this, the following method has been used. Employee companies are given questionnaires, where they have to give priority to the four steps of the McKinsey Matrix from 1st to 4th place. At the same time, the most significant for the employee, the degree of motivation will rank first in the list of priorities, and the least significant - the fourth. The processed results of the written questionnaire are entered in the matrix [107]. Since each level of motivation takes any place from the first to the fourth in each questionnaire (zeroing or dashing is not allowed), the total figure in the columns vertically and horizontally will be the same everywhere, that is equal to the number of processed questionnaires [137].

Practical use of this technique is considered on the example of the mine "Anthracite", which, suppose, employs 1000 people. In total, 150 questionnaires (15%) were distributed, of which 120 questionnaires (12%) were correctly filled out of the total number of working mines. The results of the questionnaire are summarized in Table. 3.1.

On the first place, 86 respondents (72%) put the fourth stage of McKinsey's "motivation ladder", that is, the employee's sense of involvement in the success of the company. This indicates that this part of the employees is pleased with the work done, experiencing a sense of their own competence, self-esteem, is satisfied with the material stimulation of their work.

Almost the same number of employees preferred the third degree - the confidence in their abilities to solve the tasks. This may be an indication that the management of the employees, the control over the progress of the work are at this mine at the proper level, and the targets set before the workers can be estimated quantitative indicators.

Table 3.1

The value of indicators for assessing the priority of labor motivation at the mine "Anthracite"

In total, respondents were interviewed, people (%)	Degree of motivation of work	Priority of the place, taking into account workers, people (%)			
		1	2	3	4
1	2	3	4	5	6
120(100)	I	6(5)	7(6)	68(56)	39(33)
120(100)	II	18(15)	16(13)	19(16)	67(56)
120(100)	III	10(8)	84(70)	21(18)	5(4)
120(100)	IV	86(72)	13(11)	12(10)	9(7)
Усього		120(100)	120(100)	120(100)	120(100)

According to tabl. 3.1 determines the quantitative assessment and priority of the steps of the "ladder".

Thus, with the help of the NMU matrix, it is possible to quantitatively determine one or another motivational aspect of the work activity, for example, the needs of employees. In this regard, the graphic interpretation of tabular data is of considerable interest, on the basis of which the specific gravity of the levels of motivation at different levels of their significance is determined (Fig. 3.1) and the structure of the motivational steps according to the specific weight of the priority places (Fig. 3.2).

The methodology of quantitative assessment and priority of motivation of employees according to NMU matrix and graphical interpretation of tabular data is similarly determined.

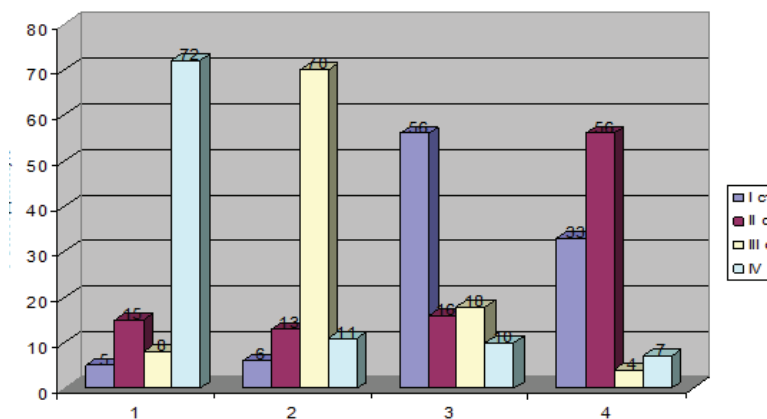


Fig. 3.1. Diagram of changes in the specific gravity of the indicators of labor motivation at different levels of significance

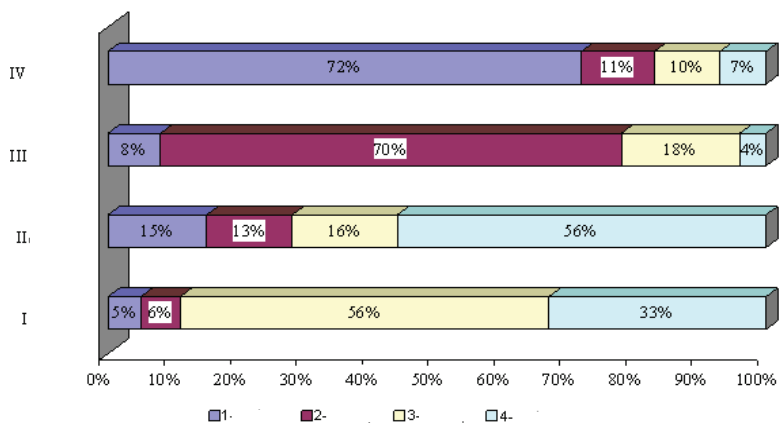


Fig. 3.2. The structure of demand for the share of priority places

Since in this dissertation the quantitative assessment and priority of the needs of the workers and managers of the extractive sections is determined, then in the NMU matrix instead of the steps of motivation of the work of the Mackinac motivation ladder in the second column are indicated

groups of needs. The structure of needs is presented in subsection 2.1. If groups need more, for example, seven, then the priority places will be seven.

The practical use of the NMU matrix is given in the following paragraphs of the monograph.

Establishing a rating and ranking the needs of employees

It should be noted that the issue of quantitative assessment of labor motivation is one of the most complex in the theory of motivation and requires the carrying out of special scientific research. The largest number of publications on the estimation of factors of motivation belongs to wages. In domestic practice, labor stimulation was carried out on the basis of various coefficients, for example, such as the coefficient of labor participation (KTU), the coefficient of creative contribution (KTV), the coefficient of quality of labor (Nuclear Power Plant) [148]. The main drawbacks of such a technique are the subjective character of the determination of these coefficients.

In our opinion, this approach is reduced to a more differentiated wage distribution and can not properly influence the increase of its stimulating function. In addition, due to the subjective evaluation of these factors, the ranking of factors of labor motivation was not conducted because it is difficult to determine their relative priority and the degree of influence on the final result.

This can be attributed, to a certain extent, to attempting to quantify wages with the help of R-theory of risk-taking motivation when making economic decisions [90]. The author of this work proposes to set the size of the basic wage on the basis of demand and supply in the labor market, and additional (bonuses, bonuses) - taking into account the effectiveness of the approval of managers of management decisions.

In order to determine the size of the surcharge or charge for decisions made in connection with economic risk, it is proposed to use the two matrices developed by the author. The first matrix is to determine the coefficients that

will be used to recover if the risk decisions that have been taken have led to losses. The second is to determine the coefficients that will be used to encourage if the risk decisions made have a positive result. However, as the author himself points out, the lack of proposed matrices is a certain subjectivity in determining the amount of additional payment to the employee for the adoption of risk management decisions.

In this regard, significant progress is found in the new methodological approach to determining the remuneration described in the paper [149]. The authors of this work propose to determine the amount of wages to calculate using the coefficient of quality performance of this work (KIAWR) using the method of pair qualitative comparisons and quantitative determination of relative priorities.

The essence of the method for determining the relative priorities of employees is that on the basis of their paired qualitative comparisons among themselves, taking into account the various factors influencing the outcome of work, their quantitative assessment is made, which can be used for further economic analysis.

The size of the CIAW in the application of this method is determined on the basis of expert information obtained as a result of the filling of specially developed questionnaires by the enterprise's employees, which allow to perform qualitative pair comparisons in different directions (or factors) of work with the use of ratings "better", "better" or the same " "Equally", "worse or equally", "worse".

To the positive of this technique it should be attributed that expert assessments take into account the attitude of employees themselves to the value of certain factors of labor. But, despite the fact that expert assessments play a significant role in system analysis, and that experts largely reduce the amount of quantitative information regarding elements of the system, prioritizing evaluations using such assessments as "better", "worse" and others, in our opinion, is more qualitative rather than quantitative. In

addition, wage increases are, albeit very important, but not the only factor that affects labor motivation. Therefore, the described methods are difficult to use to quantify other factors of labor motivation. As for the ranking of these factors and the definition of their rating, they were not conducted in the above-mentioned works in studying the size of wages.

The conducted research by the dissertation revealed that significant progress in the quantitative assessment of labor motivation was achieved with the help of the NMU matrix. However, after its improvement, it can be used to rank and rank factors of motivation.

The method of applying this matrix is described in [1].

The results of the questionnaire are entered in the NMU matrix or are presented in tabular form by the number of employees of the enterprise, which filled in the questionnaires (respondents) and in percentages (Table 3.1).

Despite the informativeness of tabular and graphic materials presented above, they, as found by the dissertation, do not allow to fully investigate the factors of motivation without their ranking and ranking. This was first defined in theoretical papers [1], and later it was confirmed during a practical study [133, 139].

The following algorithm is based on the method of ranking the structure of the needs of labor motivation [133]:

1. The data of the questionnaire, with the respondents identifying the priority of the places of each factor of motivation, are transferred from the NMU matrix (Table 3.1) to the modified NMU matrix (Table 3.2), which differs from the previous one by the fact that it should be calculated for the rating of each of the needs.

2. Determine the total score of each factor. To do this, follow:

- A) the value of each cell in a row multiplied by the price of priority;

- B) estimate the priority of the place by the number of points:

- the first place - 4 points;

- the second place - 3 points;
- the third place - 2 points;
- the fourth place - 1 point, etc.

3. Calculate the rating of each factor in percentage. To do this, the total score of the line (total score of the factor) is divided into the product of the number of processed questionnaires (with respondents' responses) and the amount of prices per place, that is

$$R_i = \frac{\sum_{j=1}^K Ts_j \cdot n_{ij}}{N \cdot \sum_{j=1}^K Ts_j} \cdot 100\%, \quad (3.1)$$

Where R_i is the rating of the i -th group of needs;

K - number of groups of needs ($1 < I < K$);

Ts_j –the price of the j -th place ($Ts_j = K + 1 - j$);

n_{ij} - the number of respondents who placed the i -th group on the j -th place;

N - number of completed questionnaires.

1. According to the ratings of factors of labor motivation, they conduct their ranking and build a schedule.

Let's consider this technique on the example of the mine "Anthracite".

Rating of the first group:

$$P_1 = \frac{(4 \cdot 6) + (3 \cdot 7) + (2 \cdot 68) + (1 \cdot 39)}{120 \cdot (4 + 3 + 2 + 1)} \cdot 100\% = 18,33\%. \quad (3.2)$$

Similarly, we will calculate the rating of the second, third and fourth factors of motivation and reduce the obtained values to integers, which then we will substitute in the modified NMU matrix (Table 3.2).

Graphic interpretation of rating data table. 3.4 is presented by a histogram characterizing the ranking of the studied factors of labor motivation (Fig. 3.3).

Table 3.2

**Results of the rating of factors of motivation of work
according to the priority of places with the account of working
people.**

In total, respondents were interviewed, people.	Needs group	Priority (place), people.				Rating%
		1	2	3	4	
120	I-existence	6	7	68	39	18
120	II - social	18	16	19	67	19
120	III - in recognition	10	84	21	5	28
120	IV - in self- realization	86	13	12	9	35
Total		120	120	120	120	100

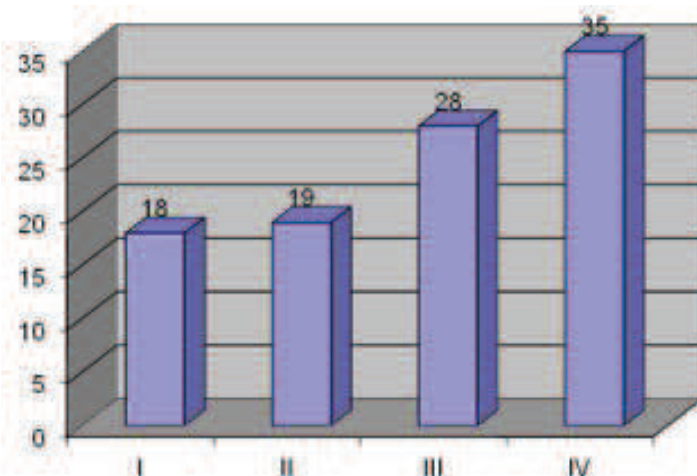


Fig. 3.3. Histogram of the ranking of needs groups

One of the main ways of improving the efficiency of the industry is the introduction of an effective system of remuneration in the coal mines as one of the main components of labor motivation at coal mines. Despite the fact that many issues of wages as a material component of the system of motivation of labor are devoted to many works of domestic and foreign researchers, quantitative assessment of the role, importance and, most importantly, the place of salary in the system of motivation of labor, is not sufficiently studied. Partial removal of this problem is one of the tasks of this work.

It is interesting to note that in Poland, which is part of the EU, and in which the standard of living of the population is higher than in Ukraine, wages stand in the first place among other factors of motivation of work [93].

Therefore, the structure of wages should be the basis for incentives and rewards for employees of the motivational system of work. As an example, consider the existing wage structure of the working faces of the work from the position of performing its stimulating function.

Due to the large number of concepts used by both domestic and

foreign experts, wages are understood as cash payments that reimburse expenses in accordance with labor legislation in the form of monetary compensation payments (total cash) - the total amount of compensations), Wages, consisting of fixed and variable parts, in cash.

Monetary Compensation Payments include:

- a permanent part of the salary (salary and basic rate paid to the employee for the work performed in accordance with their official duties);
- variable part of the salary, which is paid depending on the performance of the employees [156].

Let us now dwell on the specifics of labor remuneration for miners in extractive coal mines, which is due to the peculiarities of their work, namely [93]:

- constant movement of the workplace in time and space;
 - the location of mining sites at a considerable depth of the mine, which causes high mountain pressure and the collapse of roof rocks into the working space;
- a considerable distance of the extractive sections from the trenches of the mine;
 - Limited labor conditions, resulting in significant injury to workers;
 - high temperature;
 - presence in the atmosphere of the working space of high content of dust, moisture and harmful gases;
 - four-shift mode of work with one general and one variable weekly in the week (I change - from 8.00 to 14.00, II change - from 14.00 to 20.00, III change - from 20.00 to 2.00, IV change - from 2.00 to 8.00).

Work in the night shift, as well as regular alternation of changes (every week, miners work in a new shift) violate the biological rhythm and rest of the miners, causing them physical and moral discomfort and, ultimately, leads to a decrease in labor productivity and, consequently, to Reduction in the amount of wages.

The payment of the labor of the extraction workers, as well as to other working people of the country, is carried out in accordance with the Law of Ukraine "On Labor Remuneration" [95].

According to Article 1 of this Law, wages are a reward, calculated, as a rule, in monetary terms under an employment contract, paid by the owner or an authorized body to an employee for the work performed by him.

The size of the wage depends on the complexity and conditions of the work performed, the professional and business qualities of the employee, the results of his work and the economic activity of the enterprise.

The second article of this Law stipulates that the basic salary is the remuneration for the work performed in accordance with the established norms of labor (time standards, production, service, duties). It is established in the form of tariff rates (salaries) and contract prices for employees and salaries of employees.

Additional wages are a reward for overcoming established norms, labor successes and ingenuity, as well as for special working conditions. It includes surcharges, allowances, guarantee and compensatory payments provided for by applicable law, and bonuses related to the fulfillment of production tasks and functions.

Incentive and compensatory payments include payments in the form of remuneration based on the results of work for the year, bonuses for special systems and provisions, compensatory and other monetary and material payments, which are not provided for by the current legislation or which are carried out beyond the established norms specified by the acts.

Extractive laborers receive wages in accordance with the current legislation, as well as the charter and regulations on the payment of labor for coal mines.

The organization and payment of labor in the mines of Ukraine is based on the experience of the work of coal mines of the former Soviet Union. Extraction of coal in the treatment faces (lavas) is carried out by

complex mechanized brigades. Each complex brigade consists of four mining units (workers' and brigade units). With each link in the bench, the entire shift is a mining master who carries out a technical inspection. Under the supervision of the mining master, the workers perform basic and other types. In addition to working complex brigade, a repair crew is in the district, which carries out repairs and prepares the mining equipment for the uninterrupted operation of the coal mining station in the remaining three changes. In each link, besides miners, there is a combiner and his assistant, as well as an electric locksmith. Workers' repair teams go to work always in the first shift, and work units according to the schedule - shifts. Workers of each link, which operates in the first shift (from 8.00 to 14.00), first inspect the equipment together with the repairers and only then begin to perform the main.

Workers of the second, third and fourth changes make coal mining in accordance with the performance of these works and the planned task for change. Uniforms are replaced by the head of the district or his deputy, or the assistant of the district chief.

At each extraction site there is a brigade of a complex brigade. It works, as a rule, in the first change, and if necessary, in other changes along with the work of other changes. In addition to the head of the district, his deputy, assistant and mining masters, there is a mechanic at each station. He gives the cost to electric locksmiths and is responsible for repairs.

At the extraction site, there are other workers who are not part of the team, whose activities are not directly related to coal mining (for example, repositioning workings, extracting fastenings, extinguishing lava workings, etc.).

The payment of labor to the employees of the integrated brigade of extractive sections is related to the implementation of the established plan (volume) of coal mining per month in accordance with the tariff rate of each employee and the number of days worked in a month. In case of

overfulfilling of the established plan (volume) of coal production and not exceeding the norm of ash content, the workers of the integrated brigade receive a premium, accordingly it is charged to the heads of the polling stations in accordance with the indicators of the work of the given brigade.

The average daily workload on a cleaning blow (extraction site) is determined by dividing the monthly volume of coal extracted by the shank by the calendar number of working days of work, excluding holidays. Average daily load is determined for the mode of operation of the slaughter in three changes of six hours plus one change - repair.

The differentiated scale of standards for sectoral loads on cleaning faces to determine the size of premiums is given in Table. 3.3.

Table 3.3

Scale of the values of the normative sector indicators of loads on the cleaning faces

Capacity of the reservoir (withdrawn), m	Coal production volume norm according to bonus groups, t / day		
	I	II	III
until 0,85	До 320	320 – 440	Вище 440
0,86 – 0,89	До 350	350 – 480	Вище 480
0,90 – 0,99	До 380	380 – 520	Вище 520
1,00 – 1,09	До 420	420 – 580	Вище 580
1,10 and high	До 470	470 – 650	Вище 650

In the faces, where the load exceeds the scale of standards for Group III, increases 1.3 times or more.

In the presence of an unstable roof of the layer, the correction factors for the scale of the standards of sectoral loads on the clearing stands are used (Table 3.4).

Table 3.4

Values of correction coefficients for layers with different unstable roof

Relative length of lava with unstable roof to total lava length, %	Correction factor
до 25	0,96
26 – 50	0,92
51 – 75	0,88
76 – 100	0,85

In the event of significant saturation of the clearing face or ground with water, the following correction factors for the scale of standards are also used (Table 3.5).

Table 3.5

The value of the correction coefficients of watering the clearing face

Waterfall of a clearing hole.	Capacity of the reservoir, m	
	until 1,0	1,01 and high
With a significant allocation of water from the soil	0,9	0,95
With a strong booty on the worker	0,85	0,9
When water is removed from the roof by continuous jets	0,8	0,85

Thus, the bonus of the workers' mining brigade is carried out in accordance with the results of the brigade's work as a whole when the coalition's coal production plan is being executed and exceeded, as well as if the indicator of the operating charts of the ash content of the coal is not exceeded.

The size of the bonuses of the workers of the complex-extraction brigades (machinists of harvesting combines (MIC), mining and working clearing faces (GRV) and electric locksmiths) are determined according to Table. 3.6.

In the cases where the load exceeds the scale of standards for the III group in 1,3 times or more, the value of the bonus is:

□ for the implementation of the coal production plan by the district (brigade) - 35%;

- for each 1 percent of the excess coal production plan by the district (the crew) - 1,5%. The maximum bonus is 50%. In case of an increase in the operational ash content of the extracted coal there is no premium.

Table 3.6

The size of the bonuses of the workers of the complex mining brigades

The size of the bonus MVK, GRV and electric locksmiths,%	Bonus group		
	I	II	III
For the implementation of the plan for coal mining in the district (brigade)	15	20	25
For every 1% of the overfulfilment of the coal production plan by the district (the brigade)	1,5	1,5	1,5
Maximum bonus size	30	35	40

For worker faces that are not part of a complex brigade or not engaged in work performed outside the cleaning face, the value of the premium is:

□ for the implementation of the plan for coal production in the district (brigade) - 15%;

- for each 1% of the overfulfilment of the coal production plan by the

district (brigade) - 1%. The maximum bonus is 30%.

In the cases where the load exceeds the scale of standards for the III group in 1,3 times or more, the value of the bonus is:

□ for the implementation of the plan for coal production in the district (brigade) - 25%;

- for each 1 percent of the excess coal production plan by the district (brigade) - 1%. The maximum bonus size is 40%. In case of an increase in the operational ash content of the extracted coal there is no premium.

According to the results of the analysis of wages at coal mines extraction sites, it can be concluded that the actual part-bonus system of labor remuneration at mines in general and, in particular, at extractive sites is not sufficiently effective. One can admit that here the system of "whip" and "carrot" is used to a large extent.

For example, the size of tariff rates (salaries) and the size of employee bonuses depend on the implementation of the coal mining plan by the district (brigade), and compliance with the value of the operating ash content of the extracted coal. This is a stimulating factor for employees, that is, a kind of "carrot". A depriving, in whole or in part, of premium employees who exceeded the ash content of coal, violated the rules of internal regulations, safety rules, plundered the property of the enterprise, carried out absenteeism without a valid reason, went earlier from the workplace, appeared to work in a drunken state, and the like, is a sort of "whip".

This is evidence of a clearly insufficient incentive for workers in extractive industries.

It does not contribute to the implementation of the stimulating function and wages both in the industry and in the country as a whole; there is no clear definition of the procedure for revising wages in connection with inflation. As practice has shown, the periodic increase of rates and salaries, which is carried out on the basis of the sectoral tariff agreement, which is adopted approximately once every two years, lags behind rising prices for food,

consumer goods and services. This forces managers of mines to resort to artificial regulation of wages by reducing the rules of fictitious surcharges, which weakens incentives for work and does not provide for the growth of real wages.

In addition, an additional variable part of the wage is formed at the expense of premiums for the execution and overfulfilment of the coal mining plan (task), if the operating norm of the ash content of the coal extracted by the district does not correspond to the real differentiation of earnings by qualifying gradation (in terms of grades, positions). In it, the factors of complexity, severity, harmfulness, danger and unattractiveness of miner's labor are insufficiently taken into account. Practically no account is taken of such personal characteristics of employees as liability, etc.

Compensation payments for work during holidays and night (evening) time, in hours of overtime work, payment of rewards for seniority, as well as additional payments for the standard time of movement of workers in the mine before the change from the trunk to the workplace and back after the change is absolutely Justified, but they are not a factor in stimulating high-yielding work. For the bonus, these payments do not apply.

The part-bonus system of labor remuneration, which operates at mining sites, is "depleted" and does not correspond to modern conditions of production and management. It is, in essence, modified by the "progressive", which continues to operate from the 30-ies of the last century. It is characterized by sharp variations in earnings, depending on the implementation of norms and planned tasks. It is used in the development of steep and steep-sloping layers in the treatment faces, in which the smelting of coal is carried out by each worker using pneumatic hammer. Therefore, this system is to some extent justified. In dense layers, where most of the minerals in the industry are mined, this system is largely archaic. High-efficiency and expensive equipment (a complex of machines and mechanisms) is used in the cleaning faces for the development of flat layers. Therefore, the emphasis in

stimulating labor must be shifted from the intensification of labor to intensify production [93, p. 221]. Taking into account the shortcomings of the contract remuneration system discussed above, it should also be noted that the existing system of labor remuneration at extractive industries focuses more on quantitative rather than qualitative indicators. Accordingly, in pursuit of quantity quality coal is "sacrificed". In addition, with this system it is impossible to assess the personal contribution of the employee in the overall result. A person can work very well, carry out and overfulfill the plan, but in the end do not receive the full bonus, since when it is calculated and paid, the group's indicators of the mine are first and foremost reflected in its personal effectiveness. Therefore, the needs and motivation of a particular worker are practically not studied and are not realized to increase the efficiency of motivation of work in the treatment faces.

Therefore, improvement of the system of remuneration of miners at mining sites and the realization of its stimulating function in practice should be carried out taking into account the objective trends that have developed in the coal industry of Ukraine, with the borrowing of advanced domestic and foreign experience of motivation and remuneration at other enterprises in the light of modern conditions. Production and management. This task can not be solved without reforming the system of remuneration in the whole industry. This requires changes in the forms and systems of wages that take into account modern production conditions and the realities of a market economy, the formation of wage funds at the enterprises of the industry, depending on the final economic results of their economic activity. For example, one of the effective systems of remuneration is the factorial method, in particular, the method of American professor Hay. This method evaluates the factors expressed in points based on weights and levels. It is important to note that this method is used to form only a constant part of the wage. Therefore, the classic Hay method, which is used in banks, organizations and some enterprises, can not be applied directly to coal mines

and their sub-units with specific features. In addition, this method does not use the variable part of wages. This is a disadvantage for the coal industry and especially for coal mines. Therefore, this system of remuneration should be improved in relation to extractive sections, taking into account the part-bonus form of payment.

As a result of interviews with the heads of mining sites, it was found that one of the main reasons for the inefficient operation of extractive mines and mines in general was that, in their opinion, separate clearing faces should be distinguished not by the fault of the extraction workers, especially employees servicing technological sewage treatment chains Transportation of coal from the clearing face to the surface. The analysis of the causes of downtime for cleaning faces, non-motivated employees of technological circuits and the non-stimulation of their work is discussed in the next section.

In connection with this, it is necessary to revise the salaries of employees of technological chains to perform both reproductive (social) and motivational functions. This will allow not only to reduce simple cleaning faces, reduce coal losses, but also significantly increase the interest of miners in good faith and high-quality work, that is, directly increase their motivation.

Thus, it can be stated that in order to improve the efficiency of work at coal mines extraction sites, four factors need to be taken into account: meeting the needs of district employees, improving the wage system at the mining site, the moral and psychological climate, and stimulating the efficiency of work of technological chains workers.

The transition to a market economy and the independent functioning of mines with different forms of ownership became the cause of decentralization of labor remuneration at mining sites of coal enterprises. Establishing on some advanced companies and mines of Ukraine the strict dependence of the payment system on the results of labor, the refusal of its artificial regulation, guarantee of earnings, targeted stimulation of the intensification of production, ensuring a consistent and solid basis of

incentives and remuneration of employees in accordance with the scale of their position and role, personal effectiveness and The contribution to the general case, the participation of employees in the process of distribution of bonuses allowed in practice to implement a stimulating function of wages. Therefore, to study, synthesize and disseminate this experience - one of the main tasks of the coal industry.

3.3 Assessment of the economic efficiency of the system of labor motivation at the extraction sites of coal mines

Concerning the work motivation studied in this work, the motivational mechanism is considered as one of the components of interest in achieving maximum economic results of management. Famous American scientists JM George and G.R. Jones [5] believes that the motivational mechanism gives both managers and employees the knowledge of the essence of organizational behavior, so it helps the organization to achieve its goals. At the same time, the authors of this book pay particular attention to the following: "Do not confuse the motivation with the indicators of work. Motivation is just one of the factors that affects the results "[5, p. 82].

In section 1.2. The author made an analysis of several definitions of the concept of "motivation" of various specialists and tried to give its definition of this concept. It is complex and includes the achievement of the goals of the organization and the needs of economic actors through labor activities in the process of external and internal management of their desires. At the same time, I realize that the term motivation is multifaceted, multifaceted and requires further refinement and clarification [121]. The paper also notes that under the motivation of work, one can understand the combination of factors, mechanism and processes that motivate people to achieve vital goals.

Moreover, as practice shows, such a desire involves activity in a changing environment and requires situational reaction. In the process of situational development of motivation, an opportunity is assessed and a way of achieving the desired result is determined. Proceeding from the above, we can assume that the motivational mechanism can be regarded as an ordered set of motives to achieve a difficult goal [121].

At the same time, the motive is understood mainly by the vital inner motivation of the person to a certain behavior aimed at satisfying one or another of its needs.

Proceeding from the variability of the environment and the need for operative adjustment of the situational reaction of various components of the motivational mechanism, it should be regarded as an interactive system, in which the goal is achieved by exchanging information about the elements of this system, if necessary, to clarify and correct them [164].

It should be noted that the term "interactive" comes from the English "interact" - mutual, "act" - act, and the term "interactivity" also comes from the English "interaction", which in translation means "interaction". Interactivity - a concept that reveals the nature and extent of interaction between objects. This concept is currently used in such fields as information theory, computer science and programming, telecommunications system, sociology, industrial design, etc.

It should be noted that among data specialists and other areas there is no specific definition of this term. However, interactivity can be considered as the principle of organizing a system in which the goal is achieved by the exchange of information elements of this system [164, 165].

Based on the substantiated approaches, the motivational mechanism should be considered as an ordered set of motives to achieve a difficult goal - productive motivation. In this case, the complex motivational mechanism is a multi-level, multi-purpose system, which includes a number of specific mechanisms. In the works [1, 91- 93, 140, 142, 156, 159], the analysis of the

general experience of motivation of labor at the enterprises of the mining industry, including the experience of specific labor motivation of the extraction workers and the features of the coal industry, is generalized.

In these works, the author developed such separate specific mechanisms of motivation of labor at extractive industries as types of needs of workers, remuneration of labor, stimulation of work of workers, serving technological chains, moral and psychological climate at districts, etc.

At the same time, each of these levels has its own goal and specific

Based on valid approaches, we propose to consider the motivational mechanism as an ordered set of motives for achieving a complex goal - productive motivation. Therefore, a comprehensive motivational mechanism is a multi-purpose system that includes a number of specific mechanisms. Moreover, these separate mechanisms do not represent the exact sequence of stages, but are the levels of a complex multi-purpose system of the entire motivational mechanism. For example, the purpose of the mechanism of needs is to create conditions for meeting the needs of the workers of the mining site. To achieve the goal of this level, it is necessary to implement sublevels such as identifying the needs of the employees of the district.

In order to establish the ranking and ranking of these needs, a written survey should be conducted, and then developed and implemented at the mining site conditions to meet the basic needs of employees.

The advantage of such a motivational mechanism is the operational adjustment of the sublevels and the levels itself, depending on the situational reaction at both the mining site and the mine.

For example, the level of payroll mechanism consists of two sublevels: constant and variable part of wages. On the one hand, on the majority of coal mines and, in particular, at extractive sites, the tariff system of wages is used. It has both advantages and disadvantages. Therefore, it needs to be improved, since the bulk of the salary depends on the volume of coal production and the tariff rate of the employee.

On the other hand, the author offers a new system of remuneration, which is based on the factorial system of assessment of occupations and professions, depending on the number of points of a certain grade [76].

The new system of remuneration for the system of grading is based solely on an objective assessment of a particular type of activity. It motivates employees and is more socially objective, since a fixed part of the salary is guaranteed. Under such a system, the bulk of the wage depends on the volume of coal produced by the entire district, as well as on the degree in which the employee is located, that is, it stimulates his individual work.

The variable part of the wages of the employees of the complex brigades of the extraction sites is charged for the implementation and overfulfilment of the coal production plan, depending on the level of achievement of the planned value of this indicator, as well as with the non-exceeding of the norms of ash content of the coal extracted by the polling station. When using such a motivational mechanism, depending on the situational situation, the size of the variable part of the wages of workers is adjusted taking into account the level of achievement of the planned indicator of the volume of production and the rates of ash content of coal. These indicators can be set in the position on bonuses at the meeting of the labor collective of the enterprise.

Similar operational clarification and adjustment of other levels and sublevels can be made on the basis of a change in the situational reaction of various components, taking into account information exchange mechanisms of this interactive system.

Implementation of the motivational mechanism at the mining site should be entrusted to the first manager - the district chief. For this the boss must:

1. To study the methodological provisions for improving the motivational mechanism at the extraction sites of coal mines.

2. Conduct a seminar with executives and workers on the need to

introduce a motivation mechanism at the site. Explain to employees the purpose and objectives of this implementation.

3. Familiarize all district employees with methodological recommendations that should be understood by each worker.

4. To develop measures on the implementation of levels and elements of labor motivation in accordance with the mechanism of motivation of labor at extraction sites.

5. Once a year, based on the objectivity of the results of the work, evaluate the professional and personal quality of the workers and managers.

6. Take into account the participation of each of the workers in the implementation of the system of motivation of labor when viewing grades or digits.

7. To insert the index of participation of managers in the implementation of the motivation mechanism in the job description and is carried out on a royalty-free basis.

8. To appoint responsible for implementation of the system of motivation of labor in the person of Deputy Chief of the district.

In this paper, the economic effectiveness of the introduction of a motivational mechanism or its individual elements should be evaluated on the basis of comparison of the real technical and economic indicators of the work of the site, obtained before and after the introduction of motivation.

Under economic efficiency often refers to the relationship between the results of economic activity and the cost of living and materialized labor, resources [168].

One of the main problems arising in the calculation of the economic effect and economic efficiency in applying the method of motivation is the assessment of such a criterion as socio-economic efficiency, in particular, a quantitative assessment of satisfaction of the needs of workers and the creation of a morally-psychological climate on the site.

To solve such a complex problem, such as the assessment of technical

and economic indicators of human activity in motivating labor, the methodology used mathematical statistics and expert assessments that are effective, and in some cases, and the only methods.

For example, one of the methods for determining the effectiveness of the use of a system of motivation in a mining site can be a comparative analysis of technical and economic indicators obtained for the same periods of time before and after its introduction. This indicator may be the amount of coal mining. This and other technical and economic indicators of the work of the site should be analyzed according to the statistics of the economic service of the mine. The following shows how the scientific and practical outputs are processed by the method of mathematical statistics. For this purpose in the dissertation the influence of labor motivation on the volume of coal production is studied. The average daily production volumes of coal for the week are compared without taking into account the motivation of labor. The analysis selected 25 weeks of 2012 (extraction without motivation) and 25 weeks

2013 (extraction with motivation) according to the economic data of the OP "Kurakhovskaya Mine" (division # 2). Initial data for analysis are shown in Table. 1 (Annex C).

Denote X - daily average volumes of coal mining without taking into account the motivation of labor; U - daily average volumes of coal mining taking into account the motivation of labor. We keep the following samples:

$$X_{mid} = 440,27 \frac{t}{day} \text{ i } y_{mid} = 494,25 \frac{t}{day}.$$

The difference of 54 t / d shows the benefits of work based on the motivation of work. However, this positive growth can be obtained not only due to the effect of the impact of labor motivation, but also due to the accidental coincidence of circumstances (which is often the case in statistical studies). Therefore, to validate the data we use the methods of checking statistical hypotheses [152].

We assume that the samples X and Y are independent and obtained from the general population, under the normal distribution law with parameters μ_x, σ_x and μ_y, σ_y .

Hypothesis $H_0: \mu_x = \mu_y$, That is, the factor of motivation does not affect the volumes of coal production.

An alternative hypothesis $H_1: \mu_x \neq \mu_y$, That is, the factor of motivation affects the volumes of coal production.

Let's have two independent samples X and Y объемами n_1 и n_2 кожна.

We calculate sample characteristics:

□ average value

$$X_{mid} = \frac{\sum X_i}{n_1}, \quad Y_{mid} = \frac{\sum Y_i}{n_2}, \quad (3.2)$$

□ dispersion

$$S_x^2 = \frac{\sum X_i^2}{n_1} - X_{mid}^2, \quad S_y^2 = \frac{\sum Y_i^2}{n_2} - Y_{mid}^2, \quad (3.3)$$

We use the F-criterion to test the hypothesis of equality of dispersions: $F = \frac{S_1^2}{S_2^2}$, where S_1^2 Bigger than dispersion S_x^2 or S_y^2 ; S_2^2 – less of these dispersions.

F-criterion is compared with the critical value F_{krit} provided that $\nu_1 = n_1 - 1, \nu_2 = n_2 - 1$. If $F \geq F_{krit}$, then variances differ significantly, if $F < F_{krit}$, then they are equal.

We calculate the Student's criterion according to the formula

$$t = \frac{|X_{mid} - Y_{mid}|}{S_{X_{mid} - Y_{mid}}}, \quad (3.4)$$

and the resulting value of t is compared with the critical one t_{krit} at a given level of significance and degrees of freedom. If $t \geq t_{krit}$, Then the

sample meanings are significantly different. Otherwise, the difference is statistically insignificant.

$$\begin{aligned} \text{In our case } n_1 &= n_2 = n = 25 \\ X_{mid} &= 440,27; \quad S_x^2 = 5129,5; \\ Y_{mid} &= 494,29; \quad S_y^2 = 6342,6. \end{aligned}$$

We test the hypothesis of the equality of dispersions.

$$F = 6342,6 / 5129,5 = 1,23$$

Critical value is two-way F-criterion $F_{krit}(0,02; 24; 24) = 2,7$.

Because $F < F_{krit}$, then we assume the equality of the general sets of variances ($\sigma_x^2 = \sigma_y^2$).

- Then, with equal dispersions and equal volumes of samples:
- The number of degrees of freedom $\nu = 2n - 2 = 48$;

□ mean square deviation of the difference between mean values

$$S_{X_{cp}-Y_{cp}} = \sqrt{\frac{S_x^2 + S_y^2}{n}} = \sqrt{\frac{5129,5 + 6342,6}{25}} = 21,42, \quad (3.5)$$

Student Criterion

$$t = \frac{|440,27 - 494,29|}{21,42} = 2,52, \quad (3.6)$$

but a critical value of the Student's criterion $t_{крит}$ with degrees of freedom $\nu=48$ and levels of significance $\alpha = 0,05$ will be equal to 2,01.

And because $t > t_{крит}$, then we accept an alternative hypothesis H_1 .

Thus, it has been proved that labor motivation ensures, on average, an increase in the volume of coal mining.

With this indicator, and taking into account coal production volumes, number of working days and working days, it is easy to determine an economic indicator such as labor productivity. Similarly, other indicators can be obtained.

At the same time, it has been proved that levels of motivational mechanism, for example, such as groups of needs or the degree of moral and psychological climate at the polls, are objectively evaluated in points or in percentages difficult. The author proposes to evaluate the economic efficiency of the system of motivation of labor workers of the mining site by an expert method with the help of technical and economic indicators in percentage terms.

This may be the Delphi method, which is based on a multi-level questionnaire procedure with the processing and reporting of the results of each round to experts working independently of each other.

It is in the rational organization of the analysis by the experts of the quantitative assessment and processing of the results. In the first round, experts were asked questions to which they gave answers without arguments. The obtained data were then processed to determine the mean and extreme values of the estimates. The results of the first round were reported to the experts. If the expert score was very different from the average, then they had to argue their opinion or change the score.

The results of the second round were processed and reported to the experts. The results of the second round will contain new mean and extreme estimates if the first round of the first round was corrected. In this case, there is a significant deviation, experts should argue or change their decision.

The third round is held in the same way. As a result, the responses become more characteristic and do not require any changes.

The results of the evaluation of technical and economic indicators in

percentage terms of the results of the third round are as follows: coal production (20%), labor productivity (15%), coal ash content (7%), wages (12%), wage fund (12%), Decrease in the number of employees (10%), prime cost of coal (6%), increase in the price of coal (8%), decrease in downtime (10%).

This approach allows theoretically to determine the impact of the system of motivation on the technical and economic performance of the mining site. It is possible to determine the level of motivation of work practically on the basis of statistical data of the department of the economic service of the mine.

Indicators obtained from approbation of the elements of the motivational mechanism at the extraction site # 2 of the OP "Kurakhovskaya Mine" (before the implementation - from 01.08.12 to December 31, 12, and after implementation - from 01.01.13 to 31.05.13 years), according to Statistical data of the department of economics, planning and pricing, which are given in Table. 3.7. The main indicators of the division number 2: the length of the lava - 230 m; The thickness of the coal seam - 0,7 m; Shear capacity of the formation - 1.15 m; Ash content of the rock mass - 57,4%; Clearing Mechanized Complex - KD-90; Combine 1K-101Y; Number of working sections - 154 people, including GRV - 102 people .; Planned load on the whip - 400 tons / day; Coal grade - ДГ-0-200мм.

Table 3.7

**Economic efficiency of labor motivation on the basis of technical
and economic indicators of the mining site
№ 2 OP "Kurakhovskaya Mine"**

Technical and economic indicators	Before introducing motivation	After introducing motivation	Absolute difference	%
The volume of coal mining,	13,08	14,67	1,59	12,2
Thousand tons / month.	436,0	489,0	53	12,2
Average daily production of coal, t / day	102	101	1	1
Number of GRV, people	128,23	145,26	17,03	13,28
Productivity at 1 GOV, t / month.	154	134	20	13
Number of workers in the district (including GOV), people.	57,4	54	3,4	6
Coal tar,%	537,3	509,50	27,8	5,2
Cost of 1 ton of coal, UAH	379,74	412,02	32,28	8,5
Price 1 t of ordinary coal (ДГ-0-200ММ), UAH	11	10	1	9

Since the best mines in Ukraine were privatized, the state mines remained unprofitable. Thus, the effectiveness of the system of labor motivation at mining sites can be estimated on the basis of individual indicators, for example, with the help of an integrated multilevel

motivational mechanism as an interactive system. It allows to achieve the goals of information exchange at different levels. To compare levels of the mechanism of motivation, Delphi's method is used. According to many experts, the magnitude of the coefficients corresponding to the mechanism of needs and remuneration of workers in the district $K = 0.35$ (35%). The magnitude of the coefficients of stimulating the labor of technological chains workers and the moral and psychological climate, respectively, $K = 0,1$ (10%) and $K = 0,2$ (20%). When using additional levels of the motivational mechanism, the values of these coefficients should be specified and adjusted.

The developed mechanism of labor motivation at extraction sites of coal mines was adopted for implementation at SE "Selidivugollya" [171].

The method of quantitative assessment and priority of factors of motivation of labor is used in studying the needs of workers at the mines "Ukraine", "Russia", "No.1-3 Novogradovska", "Kurakhovskaya" (Annexes B1-B4). The methodology of ranking and ranking the types of needs of managers and workers in extractive sections is used in conducting a written questionnaire at the courses of advanced training of managers of mines in Ukraine "School of the Minister".

In the future, the use of a motivational mechanism will result in the synergy of management at the mining site as a result of combining the creative potential of managers and employees of the polling stations. This effect will manifest itself in improving the efficiency of the district's employees, the quality and competitiveness of coal production, the efficiency and flexibility of production.

CONCLUSIONS

In the presented work, the actual scientific and practical task, connected with the improvement of theoretical, methodological and practical approaches to the formation of the system of labor motivation at extractive sections, is set and solved. The most important scientific and practical results, conclusions and recommendations are as follows:

1. Summarized and carried out research on the theoretical basis of labor motivation at extractive sections, the main differences in approaches are described. It is determined that the process of motivation is the formation of complex conditions for making influence, directed on production actions with maximum efficiency.

2. A conceptual model for forming a system of labor motivation at mining sites is developed, which is based on a set of financial and organizational methods and mechanisms that enable to increase the efficiency of work of employees due to their complex action taking into account the needs of the enterprise and the activation of the personnel.

3. The mechanism of motivation of labor at extraction sites of coal mines of Ukraine is developed, which is based on an interactive system, which takes into account the following levels: satisfaction of needs according to the rating and ranking of employees; Pay for a ball assessment of positions of mining professions; Payment of premiums for the execution of the assignment; Providing incentives for employees to trouble-free transportation of coal to the day-to-day surface; Creation of values and moral and psychological climate at the district, which enables to realize the motivation of labor, based on the changing environment and the need for an operative adjustment of the situational reaction of various components of the mechanism of motivation.

4. The method of using the tool structure of wages of employees at extraction sites is constructed, which makes it possible to determine the

motivational components by the ratio of its constant and variable, where the first is paid to the employee individually according to his grade (the value of the position and its influence on the result of the work of the section), and the second - in accordance with the size of the premium for the execution and overfulfilment of the plot of the planned task, which is established by the connection of two fractures at three intervals of the plan, which enables the system to both stimulate the stimulating and social functions.

5. A method for identifying and justifying the structure of the needs of staff at extractive sections has been developed based on the sequence of implementation of the stages of the distribution of needs for such groups: existence, social, recognition and self-realization, where each group is integrated into five needs that are most characteristic for employees Mining professions, which makes it possible to specify content and quantify each group of needs and every need in the middle of the group, and, based on the results of economic activity, carry out economic motives Tion.

6. Organizational mechanisms of stimulation to the trouble-free work of the employees who serve technological processes providing for their bonuses in case of performance of the task of production of production are offered and taking into account the estimations on which the staff bonus at the extraction sites that are not part of the complex brigade, which contributes Activation of the mechanism of motivation of labor at the enterprise due to reduction of accidents in the technological process.

The economic efficiency of the proposed system of personnel motivation is determined in the real conditions of the extraction section No. 2 of the OP "Kurakhovskaya" State Enterprise "Selidivugollya" by increasing the volume of coal production by 12.5%, reducing the cost of 1 ton of coal by 5.2%, increasing the price of 1 t of ordinary Coal by 8.5%, decrease in the level of coal ash by 3.4%, increase in the productivity of working clearing slaughter by 15%, and a 9% decrease in the number of downtimes for the treatment slaughter on the basis of statistical data of the

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