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Improving the Investment Activity of Olmaliq Mining and Metallurgical Combine JSC by Reducing Harmful Labor Determinants

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Abstract: This paper discusses the transformation of production into a safer environment through the creation of "green spaces" within Olmaliq Mining and Metallurgical Combine JSC (Olmaliq KMK JSC). It analyzes the harmful labor conditions observed at every stage of production activities and proposes mechanisms to reduce these detrimental determinants. The paper also suggests methods to prevent harmful working conditions.

Keywords: mining industry enterprises, "green economy," harmful working conditions, occupational diseases, control, harmful labor determinants, dust, noise, vibration, vibration sensors.

Today, the focus on "green economy" and renewable energy sources is steadily increasing worldwide, with the electrical engineering industry rapidly developing. As a result, it is expected that by 2030, the demand for copper products will increase by at least 40 percent. This indicates that the international demand for products from "Olmaliq Mining and Metallurgical Combine" JSC will remain high for many years to come.

From 2012 to 2022, there has been a trend of increasing processed ore volumes, with a ¼ fold increase in 2022 compared to previous years. Although the volume of copper increased by 1.7 times in 2016 compared to 2012, it has not significantly changed during the period from 2016 to 2022.

This situation, in turn, highlights the increasing exposure of Olmaliq Mining and Metallurgical Combine JSC's workers to harmful labor conditions. Specifically, during the processing and production stages, each step of the industrial process exposes employees to serious occupational health risks that can significantly impair their ability to work effectively. The most prevalent hazardous factors include excessive noise, high temperatures, and dust inhalation. For instance, prolonged exposure to noise can desensitize the nervous system by overloading brain activity, dust can lead to severe lung dysfunction, and continuous exposure to vibrations may result in the body adapting to such tremors, causing damage to the nervous system. These conditions often lead to the development of chronic occupational diseases, which gradually erode the professional health and well-being of the workforce.

At Olmaliq Mining and Metallurgical Combine JSC, harmful working conditions are prevalent at every stage of the production process, yet the company actively seeks to ensure the well-being of its workers. Despite a significant increase in the workforce since 2018, a corresponding rise in occupational diseases has also been observed. In 2018 alone, the Medical Labor Expert Commission (TMEK) recorded 45 cases of serious occupational diseases among employees.

TMEK monitors the health of each worker by conducting medical examinations twice a year and issuing medical conclusions. Based on these results, the company provides additional compensation ranging from 15% to 45% of the employee's monthly salary, depending on the severity and type of illness. Higher percentages reflect more serious or irreversible conditions. Each year, workers

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diagnosed with severe illnesses receive financial support from the company. This includes a one-time payment of 100 million UZS and an annual voucher for a health retreat. Moreover, all medical expenses, including specialized equipment for rehabilitation, are fully covered by the company.

Once an employee reaches the age of 50, they receive 45% of their monthly salary as part of their pension benefits. If they are diagnosed with an occupational illness, this compensation continues until they transition to regular retirement benefits. (see Table 1).

Workers diagnosed with occupational illnesses are granted an annual social assistance payment equivalent to 10 times the minimum monthly wage. To prevent noise-induced illnesses, the Medical Labor Expert Commission (TMEK) ensures that noise levels do not exceed 80 hertz. If this threshold is breached, TMEK initiates further medical examinations to reassess the workers' health, particularly in cases of unexpected occupational diseases. The same monitoring applies to vibrations exceeding 109 hertz and dust concentrations surpassing 2 milligrams per cubic meter[3].

Transforming the production process into a safer environment through the creation of "green spaces" has become one of the most pressing issues of the day. It also holds great importance in attracting "green investments" and "green assets," which are of growing interest to investors[4]. On average, 44 workers annually face severe health conditions due to harmful working environments, and many are deemed "unfit for work," reaching disability status. For example, workers affected by noise exposure, which has detrimental effects on the nervous system, receive the highest allowable percentage of compensation based on their monthly wage and are also provided with special disability benefits[5]. Although workers are entitled to annual payments for health retreats, this form of social support and protection alone does not enable them to fully integrate into the green economic system as active participants.

In analyzing the information presented in Table 1, it becomes evident that the emergence of harmful working conditions leads to a deterioration in the health of the enterprise's workers and their ability to perform labor activities. The negative impact is reflected not only in human factors but also in the detrimental effects on the living conditions and lifestyle of both the employees and the surrounding population, which can be expressed in monetary terms.

Furthermore, in light of current developments, the generalization of such social assessments emphasizes the necessity of implementing the aforementioned green economic system in production.

In the context of "Olmaliq Mining and Metallurgical Combine" JSC, an analysis of the impact of harmful labor determinants on human capital from 2018 to 2022 reveals that in 2018, there was one recorded case of severe occupational disease among every 716 employees, corresponding to an annual incidence rate of 0.02 percent of the workforce.

In 2019, the statistic showed that one worker was diagnosed with a severe occupational disease for every 697 employees, while in 2020, this figure changed to one case among every 832 workers, resulting in a total of 38 affected employees.

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In 2020, among 38 affected employees, 8 were reported with noise-related illnesses, 13 with vibration-related conditions, and 17 with dust-related diseases. In 2021, one out of every 813 employees suffered from an occupational disease due to harmful working conditions, with 9 cases linked to noise, 15 to vibration, and 19 to dust exposure. In 2022, 14 employees experienced noise-related conditions, 15 suffered from vibration-related illnesses, and 11 were affected by dust-related diseases, resulting in a total of 40 affected individuals, which constitutes 0.25 percent of the workforce at the enterprise level[6].

According to the mechanism presented in Figure 1, the framework for reducing harmful labor determinants at "Olmaliq Mining and Metallurgical Combine" JSC is designed to improve the production and processing processes, starting from mineral extraction to the sale of a specific product. This mechanism is aimed at minimizing the negative health impacts of noise and vibration.

Table 1.The Impact of Harmful Labor Determinants on Human Capital at "Olmaliq Mining and Metallurgical Combine"

Years	Average Monthly Salary (mln. soum)	Number of Employees in the Enterprise (thousand)shi	Average Annual Number of Employees with Severe Illnesses	Social Protection for Illnesses Due to Harmful Labor Conditions			Types of Illnesses Due to Harmful Working Conditions, Number of Affected Employees, and Monthly Compensation Percentage for Health Recovery							Amount Allocated by "Olmaliq KMK" JSC for Harmful Labor Conditions (Total, mln. soum)
				One-Time Payment for Illness Prevention (mln. soum)	Material Assistance (10 times the minimum wage, mln. soum)	Average Amount for One-Time Vacation Voucher (mln. so‘ m) (mln. soum)	**Noise (80 dB) Negative Impact on the Nervous System due to Hearing Loss (45%, mln. soum)**	**Number of Employees with Noise-Related Illnesses**	**Vibration (109 Hz) Negative Impact on Musculoskeletal System (45%, mln. soum)**	**Number of Employees with Vibration-Related Illnesses**	**Dust (2 mg/m³) Poisoning of Lungs and Respiratory System (45%, mln. soum)**	**Number of Employees with Dust-Related Illnesses (45%, mln. soum)**	**Special Pension Allocation for Affected Employees Due to Harmful Working Conditions (45%, mln. soum)**	
2018	10,55	32,226	45	90	82,935	2,3	56,970	12	80,707	17	75,960	16	474,75	5474,822
2019	11,78	32,779	47	90	95,283	2,44	74,214	14	74,214	14	100,71	19	553,66	5812,770
2020	12,45	33,156	38	100	84,740	2,55	44,82	8	72,832	13	95,242	17	473,1	4767,635
2021	13,00	34,972	43	100	129,00	2,7	52,65	9	87,750	15	111,15	19	559,0	5455,650
2022	13,00	35,540	40	100	132,00	2,86	81,9	14	87,750	15	643,5	11	520,0	5100,400

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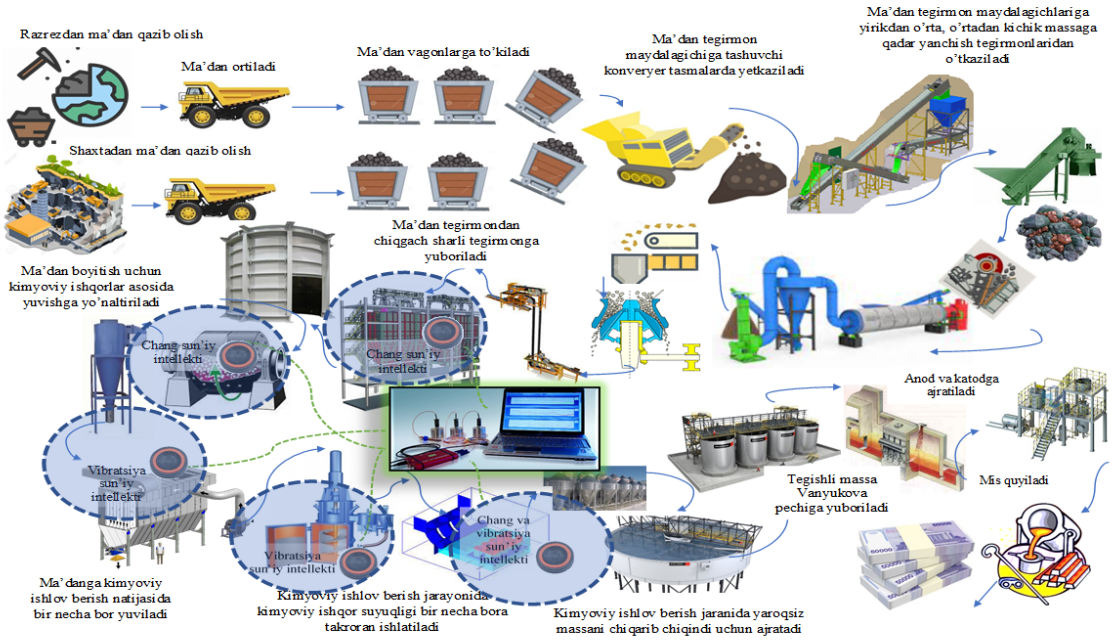

Figure 1: Mechanism for Reducing Harmful Labor Determinants at "Olmaliq Mining and Metallurgical Combine" JSC

Understanding the factors that define economic growth is essential as a conceptual foundation for comprehending how an economy develops and progresses. Economic growth is typically defined as the stable increase in a country's standard of living and occurs when the economy can expand its production of goods and services. Thus, it is evident that the primary focus of economic policy worldwide is growth, encompassing various economic determinants. The main function of economic determinants lies in the collective array of factors that ensure economic growth and their implementation.

Among the harmful labor determinants, the reduction of lung function and the overall functional characteristics of the eyes is considered one of the most significant aspects. Accordingly, the implementation of specialized technological measures to limit and monitor harmful working conditions is deemed necessary, particularly through the installation of vibration sensors in specific industrial enterprises. Their primary function is to serve as alternative monitoring devices based on laser sensors that operate when dust levels exceed set thresholds.

These vibration sensors are extensively used in modern mining industry enterprises during the processes of ore enrichment and chemical treatment, which involves directing the ore for washing with chemical agents. They also play a crucial role in checking the alkaline liquid during the sequential washing process and ensuring the reapplication of chemical treatments to the ore.

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