

CURRENT STATUS AND OCCURRENT PROBLEMS OF ACCIDENTS IN PRODUCTION PROCESSES (IN THE EXAMPLE OF THE CONSTRUCTION INDUSTRY)**Norqulov Abbos Chori o'g'li**

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Annotation

The article analyzes the current state of accidents occurring in production processes, in particular in the construction sector, and their causes. Technical, organizational, socio-psychological and technological factors affecting safety at production facilities are identified. Risk factors are assessed using the hierarchical analysis method, and the engineering-technical factor in the "man - technical environment - production environment" system is identified as the most priority source of risk.

The solution to the problem is to reduce the number of accidents by introducing digital monitoring, automated warning systems and mobile management platforms at production facilities.

Keywords

accident, labor protection, industrial safety, risk factors, risk assessment, construction industry, safety management.

Abstract

This article examines the current state of occupational injuries in the construction industry and the main challenges encountered in ensuring industrial safety. Technical, organizational, and human risk factors are identified. Using a hierarchical analysis method, the most significant engineering and technical factor in the "human-technical-production environment" system is identified. The proposed solution is the implementation of digital monitoring and automated notification systems to reduce the incidence of occupational injuries.

Key words

industrial injury, occupational health and safety, industrial safety, risk factors, risk management.

Annotation

The article analyzes the current state of occupational accidents in production processes, particularly in the construction sector. Technical, organizational and human-related risk factors are identified. Using the hierarchical analysis method, the engineering and technical factor in the "human – technical environment – industrial environment" system was determined as the most significant risk factor.

The implementation of digital monitoring and automated warning systems is proposed as an effective solution to reduce occupational accidents.

Key words

occupational accident, labor protection, industrial safety, risk factors, risk management.

Introduction

Today, the issue of ensuring occupational safety in production processes is one of the priorities of economic stability, social protection and preservation of human capital worldwide. The construction industry, which has a particularly high level of risk, is distinguished by the number and severity of accidents in production processes.

According to the International Labor Organization, millions of injuries and thousands of deaths related to production processes are recorded worldwide every year, and the construction industry is recognized as one of the most dangerous industries. This situation further strengthens the need to improve the labor protection system, introduce modern risk management mechanisms and organize production processes safely.

In the Republic of Uzbekistan, the construction industry has also been developing rapidly in recent years. The construction of new industrial zones, multi-storey residential buildings, infrastructure facilities and the implementation of large investment projects have significantly increased the volume of production processes. At the same time, the intensive use of machinery and mechanisms in production areas, working at heights, heavy lifting operations, and the use of electrical and gas equipment also increase the likelihood of accidents.

Although the legal framework for labor relations and labor protection is regulated by the Labor Code of the Republic of Uzbekistan and the Law on Labor Protection, the problem of incomplete compliance with safety requirements in practice remains.

An analysis of the current state of accidents in production processes shows that the problem is not limited to technical failures. Organizational and management shortcomings, insufficiently formed safety culture, lack of regular training of employees, and low responsibility for safety requirements are among the important factors. The weak internal control system for labor protection, especially in small and medium-sized contracting organizations, increases the risk of accidents.

The purpose of this article is to conduct a comprehensive analysis of the current state of accidents occurring in production processes at construction sites, identify key problems, and develop scientifically based proposals for improving labor safety. This approach serves to modernize the production safety management system, protect human life and health, and reduce economic losses.

METHODOLOGY. The methodological basis of this article is a systematic scientific approach aimed at a comprehensive study of accidents occurring in production processes, in particular at construction sites, identifying risk factors and assessing their priority. The methodology is based on a set of theoretical, empirical, statistical and analytical methods and is harmonized with the requirements of current regulatory legal acts in the field of labor protection.

1. Theoretical analysis. At the initial stage of the study, scientific literature, state standards, regulatory and legal documents on labor protection, industrial safety, accident prevention, risk monitoring and assessment models were studied.

This stage allowed for the following:

analysis of existing scientific approaches;

identification of factors affecting the causes of accidents;

formulation of a conceptual model for a comprehensive analysis.

2. Practical analysis of the object

The statistics of accidents in production processes in the territory of the Republic of Uzbekistan were analyzed:

The dynamics of accidents in 2018-2025 were studied;

The distribution by sectors and regions was analyzed;

The statistics of deaths and injuries were assessed.

At this stage, official data from the State Labor Inspectorate, the Federation of Trade Unions, and the State Statistics Committee were used.

3. Analysis of the causes of accidents

During the study, the causes of accidents were analyzed into the following groups:

- technical factors;
- organizational factors;
- human factors;
- external factors.

CURRENT STATUS OF ACCIDENTS IN PRODUCTION PROCESSES

Dynamics of accidents (2018-2025). According to the State Labor Inspectorate of the Republic of Uzbekistan, the number of accidents in production processes has shown the following dynamics in recent years: Dynamics of industrial accidents in 2018-2025

In 2024, 868 accidents related to the labor process occurred in Uzbekistan. Of these, 127 cases were observed in state organizations, and the remaining 741 cases were observed in the private sector.[1]

In 2025, 248 deaths were observed in Uzbekistan due to accidents at work. In 2025, 849 accidents at work occurred in the republic. 248 people died, another 680 were seriously injured. The largest number of cases occurred in the construction sector, criminal measures were taken against 432 officials.

According to the State Labor Inspectorate, the composition of accidents in 2025 is as follows: 50 - group, 583 - with serious consequences, 216 - ended in death.

As a result of the incidents, 961 people were injured. Of these, 680 were seriously injured, 33 were slightly injured, and 248 died.

As a result of the measures taken, criminal cases were initiated against 432 officials, and administrative fines were imposed on 241 [4].

According to official data provided in open sources, in 2024, 868 accidents related to the labor process occurred in Uzbekistan, in which 974 employees were injured and 261 died. Accordingly, the indicators for 2025 compared to 2024 are: number of accidents: 868 → 849 (-19), number of injured: 974 → 961 (-13), number of deaths: 261 → 248 (-13).

Officials emphasize that strict compliance with labor safety requirements should be a priority task in every workplace. [2]

Comprehensive prevention model for accident prevention

Singapore: Workplace Safety and Health 2028 aims to reduce the accident rate to 1.0 per 100,000 workers. Vision Zero concept introduced.

UK: CDM (Construction Design and Management) 2015 regulations require safety planning from the design stages.

US: OSHA's Construction Focus Four (height, electrical, fall, extension) program aims to reduce accidents by 50% [6].

Modern technological solutions

Wearable technologies:

- Exoskeleton clothing (for heavy lifting)
- Smart helmet (fatigue, temperature monitoring)
- GPS and biomonitors systems

Artificial Intelligence and Machine Learning:

- Risk Forecasting Systems
- Real-time Monitoring
- Incident Analysis and Prevention.

Virtual and Augmented Reality (VR/AR):

- Safety Training
- Project Visualization

- Hazard Simulation

Drones and Robotics:

- Hazard Inspection
- Delivery
- Monitoring

Directions for improving the situation in Uzbekistan**Legal**

- Alignment of labor protection legislation with ILO conventions
- Strengthening penalties (criminal liability)
- Improving the insurance system

Technical

- Introduction of modern protective equipment
- Automation and mechanization
- Digital monitoring systems.

Conclusion

The contemporary challenges of accidents in the construction industry are complex and multidimensional. In addition to traditional technical risks, digital transformation, climate change and socio-economic factors require a new safety paradigm.

1. The need for a systems approach: Technical solutions alone are not enough, the interaction of people, technology and the environment must be managed comprehensively.
2. Proactive management: Strategies aimed at preventing incidents, not after they occur.
3. Digital technologies: Technologies such as AI, IoT, VR have the power to transform safety.
4. Cultural change: Safety should not only be a rule, but also a value for every employee.
5. Public cooperation: Safety is a problem without borders, international experience exchange is necessary.

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