



Article

The Role and Importance of Risk Management in Construction Projects Financed From Centralized Sources

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Abstract: This article analyzes the risks arising during construction financed by centralized sources (the state budget and equivalent sources, such as state target funds and loans from international financial institutions). Financial, organizational, technical, and legal risks are classified, and their impact on construction efficiency is demonstrated. The strategic importance of risk management in improving construction efficiency is scientifically substantiated. Institutional and regulatory proposals for construction projects implemented through centralized financing in Uzbekistan are developed.

Keywords: Centralized resources, state budget, risk management, construction efficiency, risks.

1. Introduction

The construction sector is one of the most important branches of the economy, and its efficiency directly affects the socio-economic development of the country. In particular, construction projects financed from centralized sources-through the state budget and budget-equivalent funds (state target funds, loans from international financial institutions)-are of great importance[1].

Such projects carry a high probability of financial, organizational, technical, and legal risks. Effective risk management ensures the timely and high-quality execution of construction works, the stability of the financing process, and the rational use of state funds. Therefore, risk management is a crucial condition for increasing efficiency in construction projects carried out based on centralized financing[2].

The relevance of the topic lies in the fact that in Uzbekistan, the construction of large-scale infrastructure and social sector facilities is primarily carried out using funds from the state budget and loans from international financial institutions. This requires the improvement of mechanisms for identifying, assessing, and mitigating risks. The effectiveness of risk management can be enhanced through the introduction of international standards, modern management methods, and digital technologies[3].

For example, in Andijan region in 2024, construction works worth 40 billion UZS for the "Construction of a Universal Sports Complex in Andijan City" and 9.5 billion UZS for the "Reconstruction of existing buildings and facilities of the Andijan Football Academy in Shurbuloq MFY of Andijan City (including a 120-bed dormitory and a 70x110-meter artificial turf stadium)" were carried out [1]. During this process, a decision was made to

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involve entrepreneurs on an outsourcing basis to provide technical supervision services for construction projects financed from the state budget [4].

2. Materials and Methods

According to the Budget Code of the Republic of Uzbekistan, “The State Budget of the Republic of Uzbekistan (State Budget) is a centralized fund intended to financially support the state’s duties and functions”. The Code also takes into account the financing expenditures of centralized investments ordered by the ministries and agencies of the republic [5].

The Urban Planning Code of the Republic of Uzbekistan stipulates that “mandatory insurance of construction risks shall be carried out for construction projects financed from the State Budget of the Republic of Uzbekistan and loans guaranteed by the government”. Furthermore, the Code provides that “the financing of urban planning activities is also envisaged from the funds of the budget system” [6].

In the Decree No. PF-6119 of the President of the Republic of Uzbekistan dated November 27, 2020, “On the approval of the strategy for modernization and rapid and innovative development of the construction sector of the Republic of Uzbekistan for 2021–2025,” it was stated that “in order to improve the quality and safety of urban planning activities, the principles of insuring risks in design-survey and construction activities should be introduced based on the study of international experience” [7].

According to Table 1. official data from the State Committee of the Republic of Uzbekistan on Statistics, over the past five years, the volume of construction works has increased by an average of 108% per year.

Table 1. Annual volume of construction works (billion UZS)

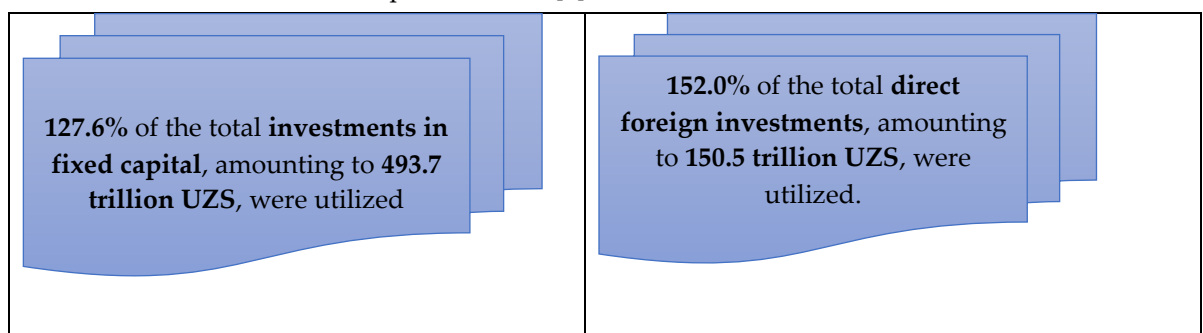
Region	2020	2021	2022	2023	2024
Republic of Uzbekistan	88,130.3	107,492.7	130,790.9	222,935.8	259,654.3
including: Andijan region	4,673	5,657.8	6,864.1	10,931	12,782.8

In Table 2. Andijan region, this indicator averaged 107% per year. The value of construction in 2024 was 259,654.3 billion UZS nationwide, and 12,782.8 billion UZS in Andijan region [8].

Table 2. Annual volume of construction works (percentage)

Region	2020	2021	2022	2023	2024
Republic of Uzbekistan	109.5	106.8	106.6	107.2	110
including: Andijan region	109.5	108.7	109.2	100	107.6

In Figure 1. January–December 2024, a total of 493.7 trillion UZS was utilized from all financing sources in Uzbekistan for the development of economic and social sectors, which is 127.6% compared to 2023 [9].



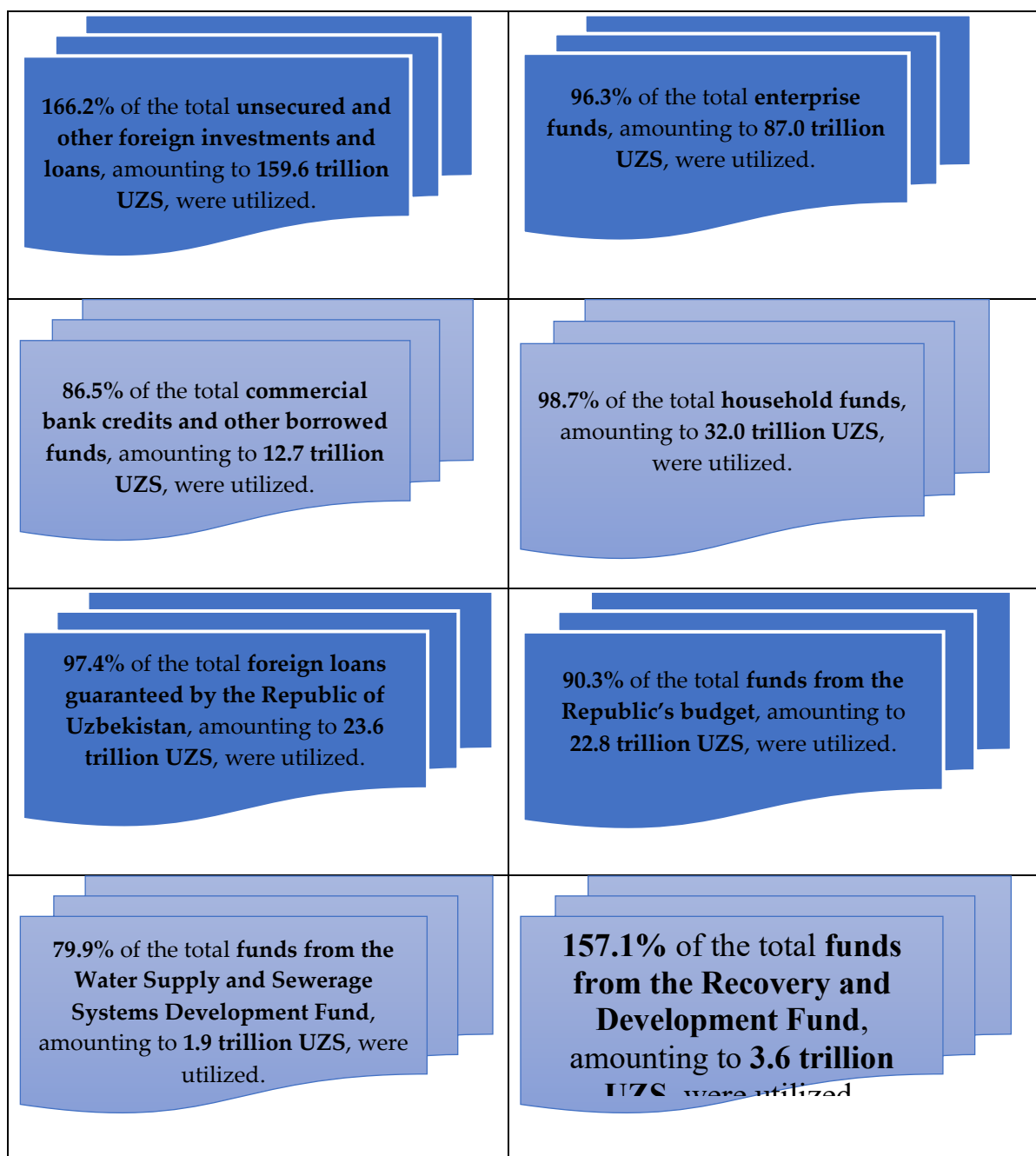
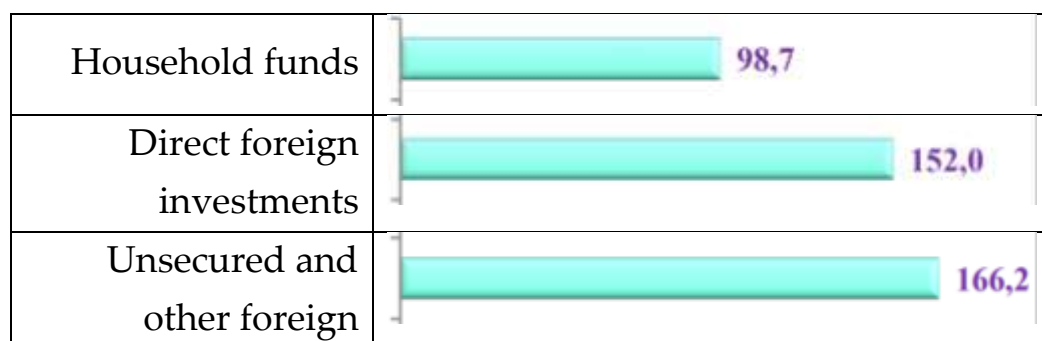


Figure 1. Volume and growth rate of fixed capital investments by financing sources (January-December 2024)

The Figure 2. highest volume and growth rate of utilized investments in fixed capital by financing sources corresponded to unsecured and other foreign investments and loans, amounting to 166.2% compared to 2023 [10].



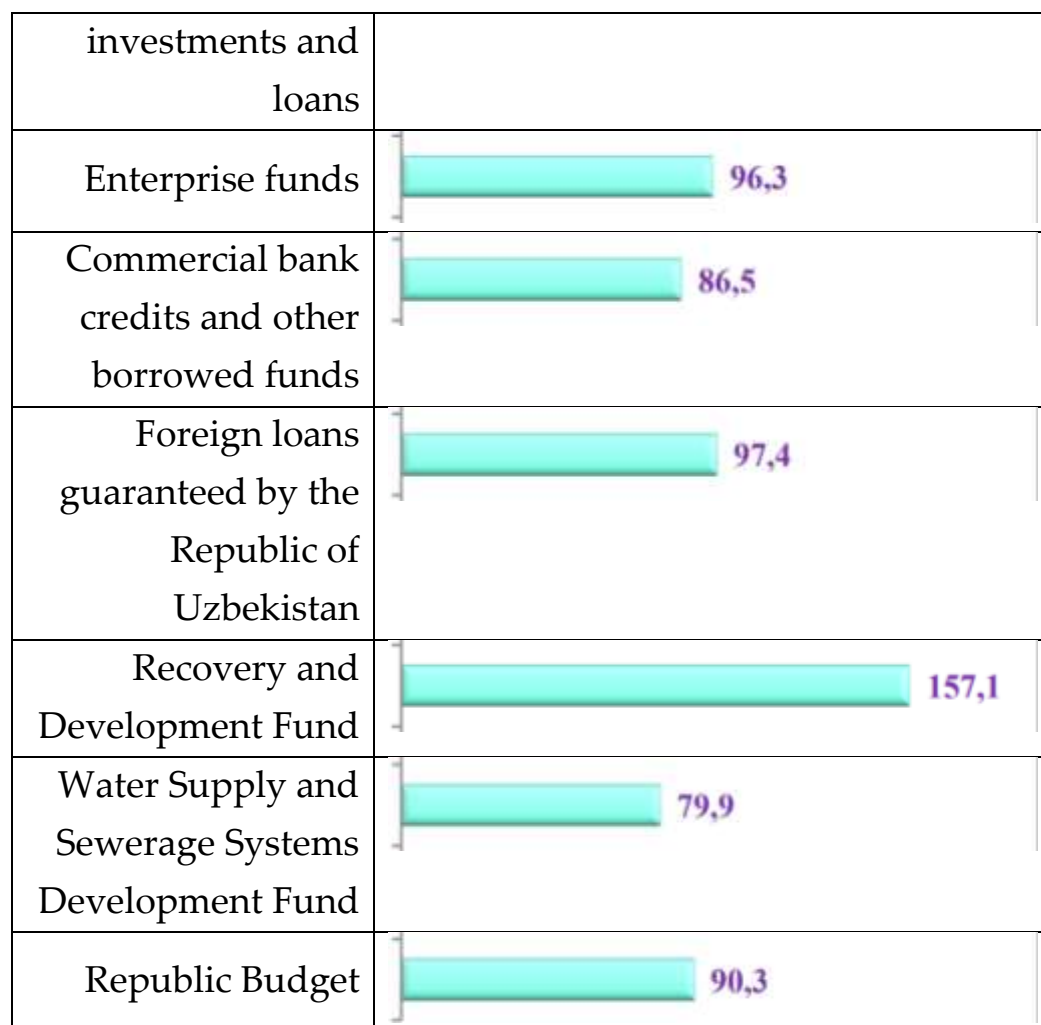


Figure 2. Growth rates of investments in fixed capital by financing sources (January–December 2024, %)

Investments in fixed capital refer to the total expenditures directed towards the acquisition of new fixed assets and reproduction of existing ones. The Figure 3. dynamics of investments in fixed capital over the past five years show that their volume has almost increased 2.3 times, demonstrating a clear growth trend [11].

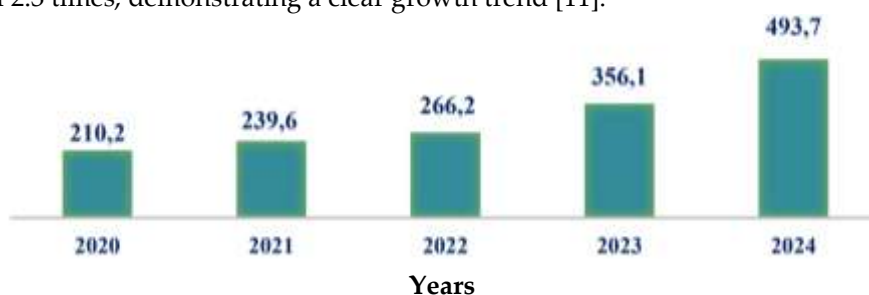


Figure 3. Dynamics of the volume of investments in fixed capital (January–December, trillion UZS)

In the Figure 4. structure of investments in fixed capital, 75.9% (or 374.7 trillion UZS) of the investments were financed from attracted funds, including the Republic Budget, targeted funds, foreign investments and loans, and credits from local banks and other borrowed funds, while 24.1% (or 119.0 trillion UZS) were financed from the organizations' and households' own funds [12].

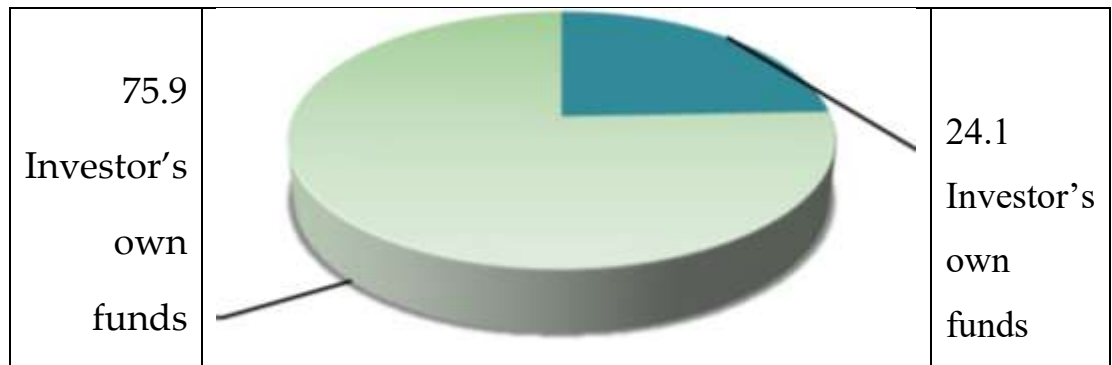


Figure 4. Distribution of investments in fixed capital by financing sources (January–December 2024, %)

For the Figure 5. purposes of statistical analysis, investments in fixed capital are formed according to the following main categories: types of fixed assets, technological and reproduction structures, types of economic activity, and financing sources. Looking at the last five years, it can be observed that the share of fixed capital investments financed from centralized financing sources has been gradually decreasing [13].

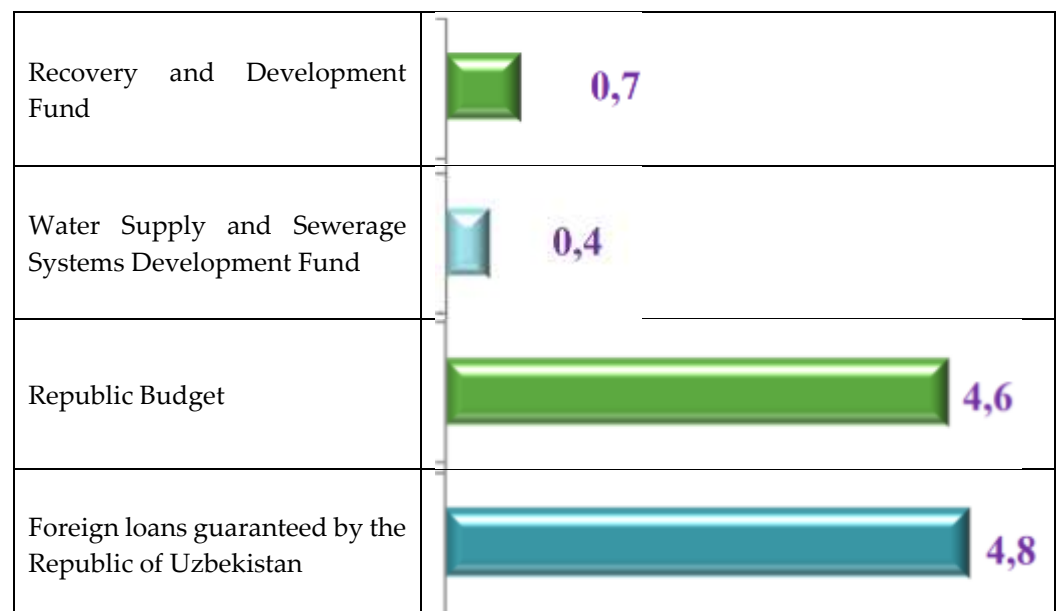


Figure 5. Structure of investments in fixed capital from centralized financing sources (January–December 2024, %)

In Figure 6. January-December 2024, investments amounting to 23.6 trillion UZS were utilized from foreign loans guaranteed by the Republic of Uzbekistan, representing 97.4% compared to 2023. Their share in the total volume of investments was recorded at 4.8% [14].

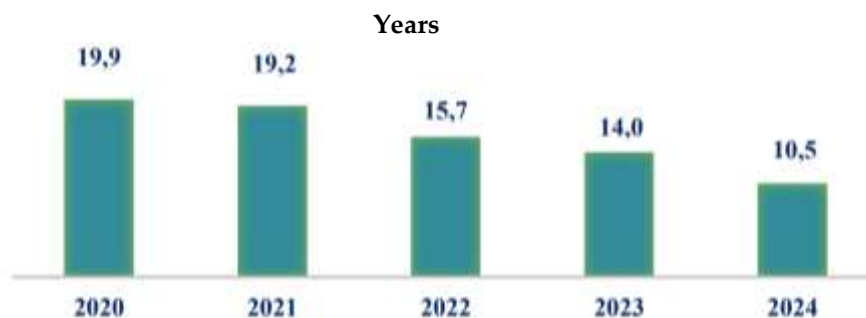


Figure 6. Dynamics of shares of investments in fixed capital from centralized financing sources (January–December, %)

In January–June 2023, a total of 6.8 trillion UZS in investments in fixed capital was utilized in Andijan region. Of this amount, 50.1% was allocated to new construction, 39.2% to expansion, reconstruction, modernization, and technical re-equipment, and 10.7% to other expenditures [15].

Nevertheless, cases of misappropriation occur in the construction sector, especially in projects financed from centralized sources. In Andijan region, during 2019 and the first half of 2020, 8 billion UZS were misappropriated in the construction sector, approximately 53 thousand USD in bribes were paid to resolve various construction-related issues, and 48 individuals were held criminally responsible for legal violations in the construction sector over these two years. Human factors are, of course, one of the main causes of such violations.

However, a deeper analysis suggests that such legal violations are primarily caused by construction companies and organizations not properly organizing and managing construction activities. Like other sectors, construction projects are not free from various risks and hazards. Therefore, understanding and accounting for risks is essential for the sustainable development of the construction sector.

International experience shows that risk-related issues have been studied in works such as N.I. Babenko's *"Organizing Integrated Risk Management in Industrial Holdings"*, D.B. Pomelov's *"Theoretical and Information Support Aspects of Risk Management in Organizations"*, and N.N. Skriban's *"Risk Management as a Specialized Interdisciplinary Discipline"*. In economics, the concept of risk has existed even before the formal establishment of the economy; although previously overlooked, its significance has not diminished. This concept is referred to as "risk".

Globally, while attention to risk has been increasing, in Uzbekistan, national producers and economic entities have largely ignored it, sometimes even hindering the emergence of large enterprises and corporations. To address this issue, the following questions need answers: What is "risk"? How does it affect activities? Where does it originate? Is it possible to avoid it or mitigate its impact? E. Holmes' research on *"Risk Management"* and other studies highlight various perspectives and paradigms on risk, such as risk loss, risk possibility, and risk avoidance, which underpin corporate risk management.

According to Russian scholar V.T. Sevruck, "Risk is a measure of the probability of loss or missed opportunity." Professor V.M. Usoskin explains that "Risk always arises from uncertainty and is ultimately associated with events that cannot be predicted in advance." Summarizing definitions in the literature, risk can be understood as an economic category representing situations in socio-economic development, industrial production, and other processes where outcomes are uncertain, and the potential for quantitative and qualitative losses exists.

Risk indicates the probability of losses in both quantity and quality and is encountered in all spheres of life. In particular, economic, technical, and technological activities involve unresolved problems, and attention to risk is increasing year by year. In Uzbekistan, there are currently no standards for risk management or risk analysis, and before applying risk management to national production, it is advisable to consider international standards. This approach clarifies the path forward, as international standards provide comprehensive answers to the aforementioned questions.

In the European Union, state institutions have applied practical risk management skills to address environmental, technological, social, and other issues. At the beginning of the 1990s, international standards in risk management began to take shape. The dissemination of these standards occurred at the national, international, and even sectoral levels. Examples include: national standards in Anglo-Saxon countries (Australia, New Zealand, Japan, the UK, South Africa, Canada), standards developed by the Committee of Sponsoring Organizations of the Treadway Commission (COSO, USA), the European Federation of Risk Management Associations (FERMA), and the ISO 31000:2009 standard for risk management.

Sector-specific risk management standards include those for insurance organizations (Solvency, Solvency II) and banking (Basel I, II, III). Risk management standards aim to unify:

- Terminology used in the field;
- Composition of the risk management process;
- Methods for establishing risk management systems in organizations.

Applying all these standards simultaneously may lead to confusion; therefore, only selected standards are considered here.

For example, the “*Enterprise Risk Management. Integrated Model*” developed by the Committee of Sponsoring Organizations in collaboration with PricewaterhouseCoopers in 2001 provides detailed guidance on the foundations and organization of risk management within companies. The risk management process in this model consists of eight interrelated components:

- Identifying the internal environment;
- Defining objectives;
- Identifying risk events;
- Assessing risk;
- Responding to risk impacts;
- Control mechanisms;
- Information and communication;
- Monitoring.

3. Result

The research results indicate that risk management is a decisive factor in enhancing the efficiency of construction projects financed from centralized sources.

Financial risks — such as budget deficits and credit repayment issues — can slow down the construction process. Financial literacy, defined as the ability of individuals and organizations to make sound financial decisions, manage funds efficiently, and mitigate risks, is a key competency. Lack of financial literacy leads to various hazards: credit risks, investment risks, budget risks, legal risks, and social risks.

Organizational risks — including tender processes and project delays — negatively affect efficiency. These risks arise during planning, organizing, and managing construction activities. They are more closely linked to management and administrative effectiveness than to financial or technical factors. Delays in project schedules, problems with tender and contract processes, lack of skilled personnel and management resources, coordination issues during work execution, and insufficient monitoring and control all represent organizational risks.

Technical risks — such as errors in cost estimates or poor-quality materials — reduce construction outcomes. These risks are associated with technologies, materials, and engineering solutions during construction. They primarily arise from errors in estimates, project documentation, or work execution, including deficiencies in materials and equipment, flaws in engineering solutions, technological process issues, and inadequate quality control.

Legal risks — such as contract disputes and insufficient regulatory frameworks — complicate projects. Legal risks stem from non-compliance with legislation, contracts, and regulatory documents during construction. They include legal shortcomings in financing, tender procedures, and project management, contract disputes, lack of transparency in tenders, insufficient regulatory frameworks, licensing and permit issues, and non-compliance with financing terms.

Implementing risk management models based on international standards, as well as utilizing digital technologies such as Big Data, has proven effective in identifying and monitoring risks. Risk management ensures the timely and quality completion of construction projects. In construction projects financed from centralized sources, risk management has strategic importance. In the context of Uzbekistan, developing institutional and regulatory proposals is necessary to improve risk management.

Examining risk assessment shows that its emergence in various activity areas has a relatively short history of approximately 40 years. Over the past 40 years, four main directions of risk assessment can be identified:

1. **Sensitivity analysis** — assessing the impact of external factor changes using scenario methods.
2. **Volatility analysis** — studying the measure of deviation of expected values relative to overall indicators.
3. **Negative analysis** — applied in addition to other risk assessment methods.
4. **Relative analysis** — comparing risk against benchmarks.

Over the last 25 years, revolutionary changes have occurred in risk management: risk management has expanded beyond financial corporations to other sectors of the economy. The new paradigm in risk management emphasizes a transition from narrowly focused approaches to complex management, addressing risks across companies, holdings, and entire economic sectors with precise operations and activity-specific measures.

In the construction sector, risk involves identifying, assessing, and mitigating potential hazards during project execution. Effective risk management is crucial for improving efficiency and ensuring the rational use of state funds. The main stages of risk discussion can be summarized as follows:

1. Risk identification

- Consideration of budget deficits and credit repayment issues;
- Delays and transparency problems in tender processes;
- Errors in cost estimates and poor-quality materials;
- Contract disputes and insufficient regulatory frameworks.

2. Risk assessment

- Estimating the probability of each risk occurring;
- Determining the impact of risks on construction efficiency;
- Calculating financial and social consequences.

3. Risk mitigation measures

- Planning financing from multiple sources;
- Ensuring transparent tender procedures and training qualified personnel;
- Implementing monitoring using Big Data;
- Drafting clear and transparent contracts and improving regulatory frameworks.

4. Monitoring and re-evaluation

- Continuous risk control throughout the project;

Re-assessing and taking measures in response to newly emerged risks.

4. Conclusion

The purpose of risk management is to increase the likelihood of achieving organizational objectives, identify potential hazards, and allocate resources efficiently for risk management. Based on the scientific opinions and analyses presented above, the following conclusions can be drawn:

- Risk plays a vital role in ensuring economic and legal security within enterprises and organizations and in adapting to market conditions;
- Developing national risk standards aimed at enhancing safety and stability in construction activities is advisable for Uzbekistan.

Effective use of the key elements of risk standards, studying advanced practices in developed foreign countries, and adapting them to national interests contribute to the development of construction enterprises, strengthen their economic stability, and improve the efficiency of construction projects financed from centralized sources.

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