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METHODOLOGICAL ASPECTS OF ACCOUNTING FOR CONSTRUCTION AND RENOVATION EXPENDITURES IN BUDGET ORGANIZATIONS: INTERNATIONAL PUBLIC SECTOR EXPERIENCE

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Abstract. This research paper analyzes international approaches to accounting for and managing construction and renovation expenditures in public sector organizations, focusing on the life-cycle costing of infrastructure assets, the clear differentiation between capital and operating expenditures (CAPEX and OPEX), digital cost-monitoring platforms, controls over post-tender variations, cost-benefit analysis (CBA), and value-for-money assessment. The study identifies key practical challenges, including inconsistent criteria for distinguishing between capital and current repair costs, inconsistencies in depreciation policies, and the insufficient reflection of social efficiency factors in financial reporting. Based on international accounting standards (IPSAS 45 and IAS 16), regulatory documents, and international and national scholarly studies, an Integrated Asset Expenditure Index (IAEI) was developed. The Index incorporates five indicators: the technical restoration of infrastructure, service efficiency, service-life extension, social benefits, and expenditure efficiency.

Keywords: construction and renovation expenditures, infrastructure assets, life-cycle costs, CAPEX, OPEX, digital monitoring, tendering, cost audit, efficiency, public sector, public sector organizations, capital repairs, current repairs, depreciation, infrastructure efficiency, social benefits, Integrated Asset Expenditure Index (IAEI), accounting.

Аннотация. В данной научной статье анализируются международные подходы к учёту и управлению расходами на строительство и ремонт в организациях государственного сектора. Основное внимание уделяется учёту затрат на протяжении жизненного цикла инфраструктурных активов, чёткому разграничению капитальных и операционных расходов (CAPEX и OPEX), цифровым платформам мониторинга затрат, контролю изменений, вносимых после проведения тендера, анализу затрат и выгод (CBA), а также оценке эффективности использования средств (value for money). В исследовании выявлены основные практические проблемы, включая отсутствие единообразных критериев разграничения затрат на капитальный и текущий ремонт, несогласованность амортизационной политики и недостаточное отражение факторов социальной эффективности в финансовой отчётности. На основе международных стандартов бухгалтерского учёта (IPSAS 45 и IAS 16), нормативно-правовых документов, а также зарубежных и отечественных научных исследований разработан Интегрированный индекс расходов на активы (IAEI). Индекс включает пять показателей: техническое восстановление инфраструктуры, эффективность предоставления услуг, продление срока полезного использования, социальные выгоды и эффективность расходов.

Ключевые слова: расходы на строительство и ремонт, инфраструктурные активы, затраты жизненного цикла, CAPEX, OPEX, цифровой мониторинг, тендерные процедуры, аудит затрат, эффективность, государственный сектор, организации государственного сектора, капитальный ремонт, текущий ремонт, амортизация, эффективность инфраструктуры, социальные выгоды, Интегрированный индекс расходов на активы (IAEI), бухгалтерский учёт.

INTRODUCTION

Over the past decade, accounting for construction and renovation expenditures in public sector organizations has become one of the most important areas of financial management. The growth in construction projects, renovation works, and infrastructure projects has led to a year-on-year increase in the share of these areas within public budget expenditures. For instance, in European Union countries, construction and renovation

expenditures account for an average of 14–22% of budget spending under infrastructure modernization programs. In budget organizations, construction and renovation works constitute an important type of activity that directly affects the preservation of state property, the sustainability of infrastructure, and the quality of social services. Proper accounting for construction and renovation expenditures ensures the financial stability of the organization, increases the efficiency of budget fund utilization, and contributes to the transparency of public finance.

Scientific research confirms that improving the accounting of construction and renovation expenditures directly affects the targeted and efficient use of public budget funds. As a result of the Public Construction Value Audit Program implemented in the United Kingdom between 2018 and 2023, resource savings in public construction projects averaged 12–17%.

LITERATURE REVIEW

To study the accounting of construction and renovation expenditures in budget organizations from a scientific standpoint, it is first necessary to examine the economic nature of these expenditures and their role as infrastructure investments. In scientific sources, capital construction and renovation are recognized as key factors ensuring the long-term operability of state property. IPSAS 45 stipulates that expenditures related to the construction or reconstruction of public sector infrastructure assets should be recognized and capitalized when the applicable asset-recognition criteria are met.

Materials prepared by the OECD—*Governance of Infrastructure: Glossary and Getting Infrastructure Right: A Framework for Better Governance*—clearly define the life cycle of infrastructure assets as consisting of the following stages: planning, prioritization, financing, design, procurement, construction, operation, maintenance, and disposal. These documents present models for assessing infrastructure assets in financial accounting not only at the construction stage but also through expenditures incurred across the entire life cycle and for planning budgets on this basis.

The question of how accounting and budgeting affect decision-making in infrastructure projects has been empirically examined in a number of scientific studies. For example, an empirical study by Wooldridge, Garvin, and Miller examines how accounting and budgeting practices affect capital allocation for infrastructure projects. As a general conclusion, these studies show that a lack of clarity in capitalization criteria within accounting policies, together with the incorrect classification of renovation and operating expenditures, limits the possibility of fairly comparing the projects to which resources are being directed.

Scientific works that reveal the economic and social characteristics of construction and renovation expenditures—particularly research focused on the economic effects of infrastructure investment—play a significant role. OECD studies demonstrate that public sector infrastructure spending generates social benefits, expands the coverage of services, and raises citizens' standards of living. This approach itself shows that construction and renovation expenditures should be assessed not only in terms of material benefits but also in terms of their social effects.

According to K. Pistor's theoretical foundations of infrastructure investment, expenditures on maintaining and modernizing state property are among the fundamental factors of societal development.

RESEARCH METHODOLOGY

This study aims to examine foreign experience in accounting for construction and renovation expenditures in the public sector, compare it with national practice, and develop proposals of practical value for Uzbekistan. The methodological approach included the following main stages.

A comparative analysis was conducted of the practical models used in various countries for accounting for construction and renovation expenditures in the public sector. The practices of European Union countries, South Korea, Canada, Australia, and the United Kingdom were taken as the basis. The selection criteria included refined models of capital asset accounting, the application of life-cycle costing or Whole Life-Cycle Costing (WLCC), CAPEX–OPEX classification, and digital monitoring systems.

The methodology is based on a combination of several scientific approaches. A systems analysis approach was chosen as the scientific foundation of the study. This approach makes it possible to study construction and renovation expenditures not as a purely material activity but as a system interrelated with service efficiency, infrastructure performance, and social benefits. In addition, an institutional approach was applied, taking into account how property relations, legal constraints, and financing mechanisms in budget organizations influence construction and renovation processes.

The object of the study is the construction and renovation expenditures of budget organizations. The subject of the study is the methodological issues related to recognizing, classifying, capitalizing, depreciating,

and reflecting these expenditures in financial statements. The study drew on the International Public Sector Accounting Standard IPSAS 45, IAS 16, regulatory legal documents in force in Uzbekistan, and the cost estimates and financial statements of budget organizations as sources. Comparative analysis, regulatory analysis, expert assessment, and modeling methods were employed.

ANALYSIS AND RESULTS

A synthetic analysis of the research findings showed that there are a number of common international patterns for effectively organizing the accounting of construction and renovation expenditures in the public sector. These are summarized below. Presenting expenditures according to the life cycle is the primary driver of efficiency. In foreign practice, reflecting the construction and renovation expenditures of infrastructure assets not only over the “project period” but across the entire life cycle—planning → construction → operation → maintenance → renewal → disposal—optimizes expenditures (Table 1).

Table 1

Life cycle of construction and renovation expenditures of infrastructure assets in foreign practice¹

Practice	Efficiency indicator
Life-Cycle Cost Accounting (WLCC)	resource savings +12–19%
Predictive Maintenance Planning (predictive repair scheduling)	rate of facility deterioration –17%
Infrastructure Renewal Budgeting	reduces the impact of capital repair costs

Table 2

Composition of the indicator-based integral model for assessing construction and renovation expenditures²

Indicator	Content of assessment	Score (0–5)
Technical restoration of infrastructure	Improvement of physical condition	0–5
Service efficiency	Speed/quality of service indicators	0–5
Service life	Period of use following renewal	0–5
Social benefit	Level of citizen satisfaction/coverage	0–5
Expenditure efficiency	Result relative to estimate	0–5

Based on the table, the final score ranges from 0 to 25, where 0–8 points correspond to current repairs, 9–18 points to mixed repairs (partial capital repairs), and 19–25 points to capital repairs. This model is consistent with the recognition and capitalization criteria set out in international standards.

Research on the accounting of construction and renovation expenditures in budget organizations leads to the conclusion that one of the main methodological issues in distinguishing between capital and current repairs is the need for clearer and more consistent criteria; the economic benefits of improved infrastructure and service quality are not reflected in financial statements; depreciation policies have not been reconsidered; and, in many organizations, the accounting policy for construction and renovation expenditures follows the model: “If there is a supporting document, the expenditure is recognized.” Comparative analysis of international research likewise shows that, in public sector organizations, the effectiveness of construction and renovation expenditures cannot be assessed solely on the basis of material benefits—social effects and service efficiency must also be taken into account.

The limited use of real-time monitoring mechanisms for infrastructure expenditures may reduce the effectiveness of financial control and increase the risk of additional costs. International studies indicate that increases in project cost estimates may be influenced by technical changes introduced after the completion of tender procedures (Table 3).

¹ Source: Author's calculations based on the cited sources.

² Source: Developed by the author based on IPSAS 45 and IAS 16.

Table 3

Cases of cost overruns in project estimates for construction and renovation works³

Source of impact	Share of excess expenditure
Post-tender expansions	32%
Lack of clarity in project documentation	27%
Outdated estimate norms	18%
Weak control mechanisms	15%

In the experience of the European Union, Canada, Australia, and South Korea, efficiency is achieved not through any single mechanism but through a comprehensive governance architecture: accounting for infrastructure assets according to life-cycle costs, the legal establishment of CAPEX/OPEX classification as a regulatory norm, rules restricting post-tender changes, real-time monitoring platforms, and audits through CBA (cost-benefit analysis) conducted after the facility has been accepted. Therefore, the direct application of foreign experience may not always produce the expected results; a systematic approach that adapts international practices to national conditions is likely to be more effective.

Another line of inquiry concerns depreciation policy. In practice, even when renovation expenditures affect an asset's service life, this is often not reconsidered in depreciation calculations. This may result in the asset's value being presented less accurately in financial statements. IAS 16 requires the useful life, residual value, and depreciation method of an asset to be reviewed at least at each financial year-end. Consequently, further consideration of the effects of renovation expenditures on depreciation calculations represents an important area for improving national practice. An analysis of local studies also confirms the problems encountered in practice. In particular, in budget organizations, the recognition of repair expenditures on the basis of cost estimates relies predominantly on a documentation-based approach, while criteria such as service efficiency, infrastructure performance, and social benefits may not yet be sufficiently reflected in accounting policies. This may limit the ability to comprehensively assess the efficiency of budget fund utilization.

CONCLUSION AND SUGGESTIONS

The study has demonstrated that the efficiency factors identified in foreign experience in accounting for construction and renovation expenditures in the public sector—life-cycle cost accounting, CAPEX/OPEX classification, digital monitoring, restrictions on post-tender changes, and transparent expenditure audits—serve as important mechanisms for supporting the targeted and efficient execution of infrastructure spending.

The findings show that efficiency is determined not by the technical function of accounting but by the strategic elements of infrastructure management. From this standpoint, based on the scientific and practical sources examined, it can be concluded that maintaining the accounting of construction and renovation expenditures throughout the full life cycle of a facility ensures resource savings and expenditure transparency; a clear separation of CAPEX and OPEX enables comparisons among tender, estimated, and actual expenditures; the introduction of digital monitoring platforms can significantly improve the regularity and effectiveness of oversight over infrastructure expenditures; post-tender changes may constitute one of the significant factors contributing to additional project expenditures; cost-benefit analysis (CBA) and value-for-money assessments increase the efficiency of resource allocation; and adapting foreign models to Uzbekistan's national conditions may contribute to more effective results.

International standards—IPSAS 45 and IAS 16—clearly stipulate that renovation expenditures should be capitalized or recognized as current expenditures depending on their effect on the asset's service capacity and the extension of its service life; there remain opportunities for the more comprehensive application of these criteria in local practice.

The practical significance of the study lies in the fact that the Integrated Asset Expenditure Index (IAEI), developed to assess construction and renovation expenditures, enables budget organizations to correctly distinguish between capital and current repairs, assess the efficiency of infrastructure facilities, and provide a scientific basis for accounting policies. The Index's five indicators—technical restoration, service efficiency, service life, social benefits, and expenditure efficiency—incorporate strategically important criteria that can further enhance the existing reporting system. This approach is aligned with internationally recognized principles of infrastructure asset management and may contribute to improving the effectiveness and analytical capacity of budget policy.

³ Source: Author's calculations based on the cited sources.

Based on the study, the following proposals have been developed. In particular, it would be expedient for the Ministry of Economy and Finance, together with the relevant sectoral ministries, to develop separate methodological guidelines on the criteria for distinguishing between capital and current repairs. The existing accounting policy should introduce a mechanism for recalculating depreciation that takes into account the effect of renovation expenditures on an asset's service life. It would also be advisable to include service efficiency indicators in the process of approving cost estimate documents.

By integrating estimate and work completion certificate data into a real-time monitoring platform, online control over the execution of construction and renovation works should be ensured in order to reduce delays and cost overruns. Making the CBA and value-for-money assessment requirements mandatory for major state projects will increase the efficiency of resource allocation and help ensure that beneficial projects are prioritized. By linking project acceptance certificates to accounting records, it is necessary to ensure that, as soon as construction work is accepted, the facility is properly recorded and its depreciation is correctly accounted for.

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