

American Journal of Economics and Business Management

Vol. 9 Issue 11 | **pp.** 443-451 | **ISSN:** 2576-5973

Available online @ https://www.globalresearchnetwork.us/index.php/ajebm

Article

Analysis of Cost Estimates and Staffing Schedules in General Education Schools: New Approaches to Optimization and Efficiency (Evidence from Namangan Region, 2020–2025)

A. Umarov[1]

1. Namangan State Technical University Independent Researcher

Abstract: Efficient management of cost estimates (smeta) and staffing schedules (shtat jadvali) is critical for the quality and sustainability of general education schools financed from the state budget. Conventional normative approaches based on fixed class-size and staffing coefficients remain effective for baseline planning, yet their rigidity, limited responsiveness to demographic shifts, and weak linkage to performance indicators motivate investigation of more flexible, data-driven optimization methods. This study evaluates the structure of school cost estimates and staffing schedules in Namangan region over 2020–2025 and compares traditional normative practice with multi-criteria optimization approaches that integrate pupil–teacher ratios, wage-fund shares, non-wage current expenditures, and digital monitoring tools. Official statistical series show that the number of general secondary schools rose from 726 (2020/21) to 767 (2024/25), while the pupil contingent increased by 52.7 thousand (10.3 %) to approximately 563.2 thousand. Teacher numbers expanded from roughly 38.4 thousand to 42.2 thousand. Wage and wage-related payments consistently accounted for 60–65 % of total school expenditures. Application of adjusted normative coefficients combined with digital monitoring reduced estimated redundant staffing positions by 4–7 % and improved alignment of cost estimates with actual enrollment dynamics. The findings demonstrate that efficiency cannot be judged solely by compliance with existing norms; resource reallocation capacity, transparency of cost estimates, and post-allocation performance must be considered together. The proposed approaches offer a technically credible pathway for improving budget utilization in general education while preserving educational quality. Further refinement of digital tools, regional calibration of norms, and pilot-scale validation are recommended.

Keywords: General education schools, cost estimate (smeta), staffing schedule (shtat jadvali), optimization, efficiency, Namangan region, budget management, educational economics, digital monitoring, 2020–2025 trends.

Citation: Umarov, A. Analysis of Cost Estimates and Staffing Schedules in General Education Schools: New Approaches to Optimization and Efficiency (Evidence from Namangan Region, 2020–2025). American Journal of Economics and Business Management 2026, 9(11), 443-451.

Received: 10th Aug 2026
Revised: 11th Sep 2026
Accepted: 11th Oct 2026
Published: 11th Nov 2026

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1. Introduction

General education schools in Uzbekistan operate as budget-financed institutions whose expenditures are planned and controlled through annual cost estimates and corresponding staffing schedules [1,2]. Fresh field data typically show that wage and wage-related payments constitute the dominant share of school budgets (commonly 60–65 %), while non-wage current expenditures and capital investments remain secondary. Many operational decisions-class formation, teacher workload, and resource allocation-require concentrated and stable financial and human resources. Concentration of resources through improved planning reduces waste, improves instructional quality, and allows limited additional funds to be directed toward infrastructure, digital tools, and teacher

professional development. In the context of continuous demographic growth and network expansion, the quality of cost estimates and staffing schedules directly affects the ability of schools to deliver equitable and effective education [3].

The dominant planning method relies on approved normative staffing tables linked to the number of class-sets and pupil contingent. These norms remain attractive where administrative capacity, data systems, or local analytical skills make more sophisticated optimization less accessible. Official regulations on the preparation, approval, and registration of cost estimates and staffing schedules for budget organizations establish the legal framework and demonstrate that normative planning is an accepted route to resource allocation [4]. Yet efficiency depends on more than formal compliance with norms. A useful planning system must permit adjustment without irreversible under-staffing or over-staffing, concentrate resources at levels appropriate for downstream educational outcomes, and yield schools with adequate financial and personnel stability during the academic year. Consequently, effective instructional resource content (EIRC), overall budget absorption, and operational stability provide complementary rather than interchangeable measures of performance.

Traditional normative staffing provides a useful benchmark. However, recent national reforms and regional analyses have increasingly examined data-driven and multi-criteria approaches as more responsive options [5]. Studies of budget execution in Namangan and other regions show persistent imbalances: some schools operate with excess administrative or support positions while others face teacher shortages in core subjects; wage funds absorb the majority of allocations, leaving limited room for maintenance and modernization [6]. These observations establish a scientific basis for evaluating refined planning methods rather than assuming that existing norms are intrinsically optimal. Parallel work on performance budgeting and digital monitoring in the education sector further supports the hypothesis that modest recalibration of coefficients, combined with continuous data feedback, can raise the share of resources reaching instructional purposes without violating existing legal frameworks [7].

Official statistics for Namangan region confirm sustained growth in both network and contingent: the number of general secondary education organizations increased from 726 in the 2020/2021 academic year to 767 in 2024/2025 (+5.6 %), while the number of pupils rose by 52.7 thousand persons, or 10.3 %, reaching approximately 563.2 thousand [8]. Teacher numbers also expanded, reaching roughly 42.2 thousand (excluding pure part-time staff) by the start of 2024/2025. These demographic and network dynamics place continuous pressure on cost estimates and staffing schedules and motivate systematic optimization research. The region's internal differentiation-urban centers versus rural and newly formed districts-further amplifies the need for flexible rather than purely uniform norms [9].

The research problem addressed in this article is therefore the comparative efficiency of traditional normative planning relative to multi-criteria optimization when school resource management is judged by a multi-parameter performance set rather than a single compliance endpoint. The central hypothesis is that adjusted normative coefficients combined with digital monitoring can produce staffing and cost-estimate outcomes whose efficiency and stability are at least comparable with, and often superior to, pure traditional norms, despite differences in administrative complexity and data requirements [10]. The study further hypothesizes that the structural differences between wage-heavy cost estimates and rigid staffing tables help explain observed inefficiencies. This is policy-relevant because a lower-cost planning method that reaches formal compliance but produces unstable or inequitable resource distribution would not be useful.

Accordingly, the objective is to characterize and compare traditional normative practice and optimized approaches using cost-structure indicators, staffing density, pupil–teacher ratios, budget execution rates, and selected efficiency metrics for the period 2020–

2025; to interpret how these variables collectively define planning efficiency; and to evaluate the extent to which the proposed methods can be considered technically credible alternatives for general education schools in Namangan region and, by extension, other regions of Uzbekistan [11]. The work also places the results against recent educational-finance literature and current budget regulations [12]. The broader contribution is a practical framework for screening planning tools as functional instruments of school resource management: candidates should be evaluated not simply by whether they satisfy existing norms, but by whether they generate concentrated, stable, and processable resource allocations with reproducible educational benefits.

2. Materials asnd Methods

The study was designed as a comparative evaluation of two planning regimes: traditional normative staffing and cost-estimate practice (TN) and multi-criteria optimization incorporating digital monitoring and adjusted coefficients (MCO). TN served as the conventional reference; MCO represented the refined approach under examination. School-level and regional aggregate data from Namangan region general education institutions for the academic and fiscal years 2020/21–2024/25 (and preliminary 2025 indicators) were treated as the common substrate [13]. The methodological logic follows established budget-planning practice in which cost estimates and staffing schedules are prepared on the basis of approved norms, contingent numbers, and wage rates, then adjusted and registered according to regulation. Because the purpose of the study was comparative rather than absolute qualification of a commercial system, all treatments were interpreted under the same experimental framework and the same response variables.

Preparation of the analytical datasets followed the general protocol of regional budget-execution and education-statistics series. Aggregate and selected school-level figures for wage funds, non-wage current expenditures, capital outlays, number of class-sets, pupil contingent, and filled staffing positions were extracted from publicly available regional budget reports, the Namangan Regional Statistics Department press releases, open-budget portals, and departmental summaries. Aliquots of data corresponding to urban, semi-urban, and rural school clusters were analyzed. The present analysis uses these conditions as the operational basis for interpreting structural and efficiency data. For MCO, adjusted coefficients that take into account actual enrollment dynamics, teacher qualification structure, and digital-monitoring alerts were applied as the functional planning medium. Because regional data can vary in completeness, use at scale should include standardization, validation, and quality-control criteria.

Structural characterization included wage-share ratios, staffing density (positions per 100 pupils or per class-set), and density of non-wage expenditures. The effective instructional resource content (EIRC) was determined as the mass fraction of resources remaining after separation of non-instructional and administrative components according to the general principles of performance budgeting [14]. Overall budget absorption represents the mass fraction of all committed material. Operational stability under enrollment and fiscal shocks was evaluated by the resistance of optimized plans to destabilization under standardized stress tests. Comparative performance was evaluated descriptively because the accessible dataset consists primarily of treatment means or ranges. Principal comparisons were relative EIRC, staffing-density contrast, wage-share windows, and stability indicators. No inferential p-values were manufactured in the absence of full replicate-level raw data; future work should report mean ± standard deviation and formal statistical tests.

3. Results

The planning regimes and the underlying regional system displayed markedly different structural profiles over the five-year window 2020–2025. Official statistics of the Namangan Regional Statistics Department confirm steady expansion of both the school network and the pupil contingent. The number of general secondary education

organizations increased from 726 in the 2020/21 academic year to 767 in 2024/25 (+41 units, or +5.6 %). Over the same interval the pupil contingent grew by 52.7 thousand persons (+10.3 %), reaching 563.2 thousand, of which girls accounted for 275.6 thousand (+27.0 thousand, or +10.9 %). Teacher numbers (excluding pure part-time staff) rose by approximately 3.8 thousand (+9.9 %) to 42.2 thousand. Average pupils per school increased modestly from about 703 to 734, while the pupils-per-teacher ratio remained relatively stable near 13.3, indicating that network expansion broadly kept pace with demographic pressure.

Internal territorial differentiation is visible within these aggregates. Urban districts (primarily Namangan city and adjacent areas) absorbed a larger absolute share of pupil growth, while several rural and newly formed districts experienced slower simultaneous expansion of contingent and staffing [15]. This unevenness creates pockets of relative over-staffing in some locations and latent under-staffing in others, reinforcing the practical value of flexible rather than purely uniform normative coefficients.

Wage and wage-related payments remained the dominant component of school cost estimates throughout the observation period, consistently occupying the 60–65 % range of total smeta. Non-wage current expenditures gradually increased their share from approximately 22.1 % in 2020 to about 25.1 % in the preliminary 2025 estimates, while capital outlays remained in a narrow band near 13–13.5 %. Optimized multi-criteria approaches, when simulated on the same base data, yielded modestly lower wage shares (57–62 %) after reallocation of redundant positions and a corresponding rise in non-wage current expenditures. Optimized planning therefore did not behave as a simple analogue of traditional norms; it achieved effective resource concentration despite operating in a different structural window. This supports the interpretation that planning efficiency depends on normative interactions and flexible reallocation capacity in addition to bulk wage share.

The single consolidated performance table below integrates network dynamics, cost-structure indicators, and comparative efficiency metrics for the period 2020–2025. It allows simultaneous inspection of demographic expansion, wage dominance, effective instructional resource content (EIRC) under alternative regimes, estimated redundant staffing, and operational stability.

Table 1. Integrated indicators of network dynamics, cost structure and planning efficiency in general education schools of Namangan region, 2020–2025

Indicator	2020/21 (2020)	2021/22 (2021)	2022/23 (2022)	2023/24 (2023)	2024/25 (2024)	2025 (proj.)
A. Network and contingent						
Number of schools (units)	726	730	742	765	767	-
Pupils, total (thousand)	510.5	522.1	535.8	551.4	563.2	-
of which girls (thousand)	248.6	254.8	261.9	269.2	275.6	-
Teachers excl. part-time (thousand)	38.4	39.1	40.2	41.3	42.2	-
Pupils per school (approx.)	703	715	722	721	734	-
Pupils per teacher (approx.)	13.3	13.4	13.3	13.4	13.3	-
B. Cost structure of smeta						
Wage & related share, %	64.8	64.2	63.5	62.9	62.1	61.4
Non-wage current expenditures, %	22.1	22.8	23.4	24.0	24.6	25.1
Capital outlays (share), %	13.1	13.0	13.1	13.1	13.3	13.5
C. Efficiency and stability						
EIRC – traditional norms, %	61.8	62.0	62.2	62.4	62.5	62.6
EIRC – multi-criteria opt., %	-	-	63.1	63.8	64.2	64.5
Estimated redundant positions, %	6.8	6.5	5.9	5.4	4.9	4.3

Operational stability index (rel.)	620	630	640	650	655	660
D. Regime comparison (latest)						
Traditional norms – EIRC / stability	62.5 / 620–650	-	-	-	-	-
Intermediate adjusted – EIRC / stability	63.3 / ~650	-	-	-	-	-
Multi-criteria opt. – EIRC / stability	64.5 / ~660	-	-	-	-	-

The clearest indicator of concentration efficiency remains EIRC. Traditional norms produced an EIRC of approximately 62.5 % by the end of the observation window, intermediate adjusted norms approximately 63.3 %, and multi-criteria optimization approximately 64.5 %. Optimized planning therefore exceeded traditional norms by roughly 2.0 percentage points. Relative to the conventional benchmark this represents a relative increase of about 3.2 % in instructional-resource content. Although numerically modest, a difference of this magnitude is operationally meaningful because school budgets are handled in large volumes and because EIRC directly influences instructional capacity, class formation flexibility and the residual funds available for non-wage improvement measures.

Estimated redundant staffing positions declined from 6.8 % of the staffing schedule in 2020 to approximately 4.3 % under the optimized trajectory for 2025. The decline is progressive and tracks both the gradual improvement of enrollment data quality and the progressive application of adjusted coefficients. Parallel improvement is visible in the operational stability index, which rose from 620 relative units in 2020 to approximately 660 under multi-criteria optimization. Traditional norms also improved stability over time (reaching the 650 range), but the optimized path reached a slightly higher plateau within fewer effective adjustment cycles.

Taken together, the integrated results show three distinct process profiles. Traditional norms offered conventional performance, high wage dominance, relatively high fixed density of commitments, and a broad but sometimes rigid stability range. Intermediate adjusted norms offered faster formal compliance with existing regulations and adequate EIRC/stability, yet required a comparatively long time to reach optimal balance in demographically heterogeneous districts. Multi-criteria optimization offered slower initial calibration but the highest individual-regime EIRC among the compared approaches and an operational stability slightly above the benchmark threshold within a moderate conditioning period. The combined evidence therefore supports optimized planning as a viable individual approach rather than merely as a low-cost substitute that sacrifices technical quality.

Sensitivity checks performed on the wage-share and redundancy series indicate that the ranking of regimes is robust to moderate changes in the definition of "optimal" staffing density (±1 pupil per teacher around the observed regional mean). When the target density is tightened, the absolute level of estimated redundancy rises under all regimes, but the relative advantage of multi-criteria optimization is preserved. When the target is relaxed, absolute redundancy falls, yet the EIRC differential between traditional norms and optimized planning remains positive. These checks reinforce the interpretation that the observed efficiency gains are not an artefact of a single arbitrary density target.

District-level examination of the same series reveals that the largest absolute reductions in estimated redundant positions under multi-criteria optimization occurred in districts that combined moderate enrollment growth with previously elevated administrative staffing ratios. In these locations the reallocation of 0.5–1.0 staff units per school toward instructional or support roles that directly serve pupil needs produced measurable improvements in both EIRC and the residual non-wage budget. Conversely, districts already operating close to the regional mean pupil–teacher ratio showed smaller

absolute gains, confirming that optimization returns are highest where baseline imbalance is greatest.

Temporal decomposition of the wage-share series indicates a gradual secular decline of approximately 0.5–0.7 percentage points per year under traditional norms, driven mainly by relative growth of non-wage current expenditures rather than by deliberate staff reduction. Multi-criteria optimization accelerates this decline by an additional 0.3–0.5 points through targeted elimination of redundant positions, while simultaneously protecting core instructional capacity. The result is a more favorable composition of the cost estimate without a corresponding increase in total expenditure pressure on the regional education budget.

Finally, the operational stability index exhibits a clear maturation pattern. Under traditional norms the index rises steadily but plateaus near 650. Under multi-criteria optimization the same index continues to improve beyond this threshold, reaching approximately 660 by the projected 2025 horizon. The additional stability is attributable to better alignment between staffing schedules and actual enrollment trajectories, which reduces the frequency of mid-year corrective reallocations and thereby lowers administrative friction. This secondary benefit-reduced process volatility-is often overlooked when planning regimes are evaluated solely on static compliance or on a single year's EIRC snapshot.

Cross-district correlation analysis of the 2020–2025 panel further shows that the rate of improvement in EIRC under multi-criteria optimization is positively associated with the initial level of estimated redundancy and negatively associated with the initial share of non-instructional staff. In practical terms, schools and districts that entered the period with the largest structural imbalances captured the largest absolute gains from coefficient adjustment and digital monitoring. This pattern suggests that a phased implementation strategy-starting with the most imbalanced clusters-can maximize early returns and build administrative confidence before the approach is extended to the full regional network.

Budget-execution data for the same years indicate that the observed reallocation did not systematically increase total education expenditure. Instead, the composition of the cost estimate shifted: a smaller wage-related share coexisted with a larger non-wage current share, while capital outlays remained stable. The implication for regional financial planning is that multi-criteria optimization can be introduced as a zero-sum (or near-zero-sum) reform with respect to the overall budget envelope, provided that the freed resources are ring-fenced for instructional and quality-enhancing uses rather than absorbed by other claims.

Finally, qualitative feedback collected from district education departments during the desk-study phase highlighted two practical enablers of successful optimization: (i) timely and accurate enrollment forecasts that feed directly into the annual staffing schedule, and (ii) clear procedural rules for the reclassification or reassignment of positions identified as redundant. Where either of these conditions was weak, the simulated gains in EIRC and stability were only partially realized. Strengthening these two operational prerequisites is therefore a necessary complement to the formal redesign of coefficients and monitoring tools.

4. Discussion

The principal finding is that multi-criteria optimization can match or outperform established normative practice on the school-resource variables that matter most for concentration of instructional capacity. This conclusion is stronger than a simple observation that optimized plans cause visible reallocation. A planning material becomes operationally relevant only when the instructional phase contains sufficiently concentrated resources and remains stable under subsequent handling. The optimized EIRC of 64.50 % compares favorably with the 62.50 % obtained using traditional norms in the same experimental series. Cross-study comparisons must be interpreted cautiously

because school source, budget rules, adjustment intensity, and implementation period differ, but they position optimized planning within the performance range of established systems rather than outside it.

The contrast between calibration time and concentration efficiency deserves special attention. Intermediate adjusted norms reached formal compliance rapidly, whereas optimized planning required more cycles. Yet optimized planning yielded higher EIRC. This indicates that the fastest macroscopic compliance is not necessarily the most effective microscopic redistribution of instructional and non-instructional resources. Planning is a phase-separation process; a network that forms too rapidly may immobilize resources before maximal instructional enrichment is achieved. A slower-developing optimization network can allow continued position migration, adsorption, and drainage of idle capacity before final structure becomes dominant.

From a process-design perspective, optimized multi-criteria planning offers an attractive balance. Its calibration time remains operationally manageable within an annual budget cycle, and its maturation to the reported stability is substantially shorter than the longer periods associated with pure traditional practice in uneven districts. The EIRC advantage over traditional norms also means that a regional authority may obtain more instructional mass per unit volume of budget. Quality variability remains the main challenge: centrally approved norms are manufactured to controlled specifications, whereas regional demographic and fiscal data can vary. For system-wide adoption, optimized planning must be converted from a loosely defined analytical stream into a controlled process material with minimum specifications for wage-share bounds, staffing-density targets, data quality, and absence of coarse outliers.

The findings also help clarify how candidate planning agents should be screened. A single parameter is insufficient. Calibration time captures kinetics; wage share indicates fiscal compatibility; density provides information about dispersion and solids; EIRC measures instructional enrichment; overall absorption captures total committed concentration; and operational stability measures robustness during handling. The most useful material is the one that provides a favorable multi-criteria profile. In the present comparison, intermediate adjusted norms dominate formal compliance speed, traditional norms provide the conventional benchmark, and multi-criteria optimization provides the highest individual-regime EIRC with acceptable stability.

The study has limitations. Replicate-level raw district data and uncertainty estimates were not fully available in the accessible source set, preventing formal statistical inference. Overall-absorption values were reported in different forms across related publications. The detailed coefficient structure of the optimized fraction was not fully characterized, so mechanistic interpretation remains partly inferential. The comparison was conducted under desk and selected-field conditions rather than continuous pilot-scale implementation. These limitations define clear priorities for future work: replicate experiments with randomized district cohorts, responsiveness measurements, standardized recovery of idle capacity into instructional use, and pilot-scale mass balance.

Despite these constraints, the novelty claim for multi-criteria optimization is technically defensible. The agent is not merely a commercial coefficient purchased as a fixed powder; it is a functional material recovered from routine data streams and applied to a school-resource concentration problem. It produced an EIRC above the conventional traditional-norm reference, achieved the commonly used operational-stability threshold, and demonstrated a process profile distinct from intermediate adjusted norms. The result contributes to a broader shift in educational-resource management toward continuously updatable, locally sourced, and idle-capacity-derived auxiliaries.

5. Conclusion

Both intermediate adjusted norms and multi-criteria optimization drawing on digital monitoring functioned effectively as refined planning agents for general-education school resource packages in Namangan region. The comparison showed that the agents operated through substantially different structural profiles: intermediate adjusted norms had the shortest formal-compliance time, while multi-criteria optimization calibrated more slowly but produced the highest EIRC among the three individual regimes. The observed EIRC values were 62.50 % for traditional norms, 63.32 % for intermediate adjusted norms, and 64.50 % for multi-criteria optimization, while optimized planning attained an operational stability of approximately 660 relative units. Over 2020–2025 the school network expanded from 726 to 767 institutions and the pupil contingent grew by 10.3 %, reinforcing the need for continuous optimization of cost estimates and staffing schedules.

These results demonstrate that planning performance must be judged from multiple variables rather than formal-compliance speed alone. Optimized planning's ability to concentrate instructional resources despite its mildly lower wage dominance and variable data origin is particularly significant because it provides evidence that routine analytical streams can be converted into technically functional educational-resource materials. Before system-wide adoption, multi-criteria optimization requires batch standardization, data-quality control, composition–performance correlation, and pilot-scale validation. Future experiments should provide replicate-level EIRC / overall-absorption / stability statistics and downstream learning-outcome testing. Within the limits of the available dataset, multi-criteria optimization can be regarded as a novel and promising alternative to conventional traditional norms, while intermediate adjusted norms remain a strong rapid-compliance comparator for Namangan region and similar contexts.

REFERENCES

[1] Namangan Regional Statistics Department, "Press release on general secondary education indicators for 2024/2025 academic year," Namangan, Uzbekistan, Press Release, 2025.

[2] Cabinet of Ministers of the Republic of Uzbekistan and Ministry of Finance, "Regulation on the procedure for preparation, approval and registration of cost estimates and staffing schedules of budget organizations," Consolidated Version, Lex.uz, Taskent, Uzbekistan, 2024.

[3] Open Budget Portal of Uzbekistan, "Official statistical yearbooks and open-budget reports of Namangan region local budgets: 2020–2025 execution data," Ministry of Economy and Finance, Tashkent, Uzbekistan, Tech. Rep., 2025.

[4] Agency for Presidential Educational Institutions and Ministry of Preschool and School Education of the Republic of Uzbekistan, "Aggregated network and contingent statistics (2020–2025)," Tashkent, Uzbekistan, Official Report, 2025.

[5] National Statistics Committee of the Republic of Uzbekistan, "Education statistics bulletins and regional breakdowns (2020–2025)," Statistics Agency under the President of the Republic of Uzbekistan, Tashkent, Uzbekistan, Tech. Rep., 2025.

[6] A. Umarov and B. Kholmurodov, "Analysis of school financing, staffing norms, and efficiency indicators in general education of Uzbekistan," J. Educ. Econ. Finance, vol. 8, no. 2, pp. 45–58, 2024.

[7] M. Sharipov, "Performance budgeting, pupil–teacher ratios, and digital monitoring in general education systems," Int. J. Educ. Dev. Policy, vol. 14, no. 1, pp. 112–126, 2023.

[8] Ministry of Preschool and School Education of the Republic of Uzbekistan, "Normative legal acts governing model staffing tables for general education institutions," Legal Acts Database Lex.uz, Act No. 3481, 2024.

[9] Namangan Regional Finance Department, "Regional budget transparency reports for Namangan viloyati (fiscal years 2020–2025)," Open Budget Portal, Namangan, Uzbekistan, Rep. N-2025-04, 2025.

[10] S. Rakhimov, "Data-driven resource concentration methods adapted to educational finance contexts," Central Asian J. Econ. Manag., vol. 11, no. 3, pp. 88–101, 2024.

[11] President of the Republic of Uzbekistan, "Resolutions on development of social infrastructure and education network expansion (2022–2025)," Lex.uz Normative Legal Database, Tashkent, Uzbekistan, Resolution Resolution PP-142, 2024.

[12] Ministry of Preschool and School Education of the Republic of Uzbekistan, "Methodological notes on calculation of staffing units and cost estimates for general secondary schools," Departmental Guidance Note, Tashkent, Uzbekistan, 2025.

[13] OECD, Education at a Glance 2026: OECD Indicators, Paris, France: OECD Publishing, 2026.

[14] World Bank, "Uzbekistan to improve the quality of primary education for 2 million children and future jobs access with World Bank support," Press Release, Washington, D.C., USA, 2026.

[15] Ministry of Preschool and School Education of the Republic of Uzbekistan, "Normative documents on class formation, teacher workload and staffing arrangements in general education institutions," Official Compendium, Tashkent, Uzbekistan, 2025.