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Article

Assessment Of The Efficiency Of Multi-Apartment Housing Stock Management And Its Socio-Economic Significance

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Abstract: Uzbekistan is moving from homeowners' associations to professional management of multi-apartment buildings, which now house more than 7.1 million people in over 44,000 buildings. Whether this transition makes management more efficient depends on regional conditions that national statistics do not capture.

This article assesses the efficiency of multi-apartment housing stock management in Termez, the administrative centre of Surkhandarya region and one of the hottest cities in the country. The study combines a review of legislation, official statistics and international literature with a questionnaire survey structured according to PEST analysis and conducted in June–August 2026 (631 respondents, 598 valid questionnaires).

Between 78.1% and 80.1% of respondents recognised the influence of each group of PEST factors on housing management, and economic factors were cited most often. Respondents expect the digital billing system to improve the collection of mandatory contributions: 32.9% expect collection to increase by almost 100% and 35.3% by 50%. One third of respondents (33.8%) consider the contributions high, while 71.6% rate the technological equipment of management bodies as high or adequate.

The article concludes that efficient housing management in the region requires full digitalisation of payments, voting and reporting, transparent setting of contributions with residents' participation, condominium-based management of common property, competition among management companies and state support for energy-saving retrofits adapted to the hot climate.

Keywords: multi-apartment housing stock, management efficiency, mandatory contributions, billing system, digitalisation, energy-saving technologies, management service companies, homeowners' associations, PEST analysis

1. Introduction

The management of multi-apartment housing stock is one of the priority areas of housing policy in Uzbekistan. The legal basis of the sector is the Law "On the management of multi-apartment buildings" adopted in 2019, which regulates relations in the field of managing such buildings [1]. Earlier, the programme for 2017–2021 approved by Presidential Resolution PP-2922 provided for the repair of the housing stock, the financial recovery of homeowners' associations (HOAs) and the introduction of a billing system for mandatory contributions [2].

The sector is now passing through a transition from HOAs to professional management service companies (MSCs). As of January 2026, the country had more than 44,000 multi-apartment buildings with more than 7.1 million residents. They were served by over 900 MSCs and over 200 HOAs, while 856 buildings had introduced direct self-management by residents [3]. In November 2022, when the national "Mening uyim" ("My Home") billing system was launched, the corresponding figures were 39,691 buildings, 736 management organisations and 277 HOAs [4].

The reform has not yet resolved the main problems of the sector. At a meeting in January 2024, the President described the performance of management companies as unsatisfactory in many areas: residents of about 20,000 apartment buildings were dissatisfied with their management companies, and energy consumption in most such buildings was three to four times higher than abroad [5].

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Of the 417 management organisations monitored in January–June 2025, financial inspections revealed the misappropriation of about 25.9 billion UZS of mandatory payments in 83 [6]. In a sociological survey of 2,340 respondents conducted by the "Yuksalish" movement in February 2025, 35.8% rated the work of MSCs as unsatisfactory [7]. In response, a cluster model of management is being piloted in selected cities and districts in 2026–2030, owners are to choose management organisations by voting through the "Mening uyim" system, and all mandatory contributions are to pass through its billing module.

These national figures conceal considerable regional differences. Climate, settlement structure, household incomes and the technical condition of buildings vary between regions, so the efficiency of management has to be assessed where services are actually provided. This article does so for Termez, the administrative centre of Surkhandarya region in the far south of the country.

The problems of multi-apartment housing management in post-socialist countries originate in the mass privatisation of the 1990s, which turned tenants into owners of individual apartments but left the common parts of buildings without effective management and stable funding for maintenance [8]. Lujanen shows that high quorum requirements and optional, often absent owners' associations hinder decisions on repairs, and argues that combining the condominium model with owners' associations is considerably more effective [9]. Comparative studies of European condominium law describe how different legal systems regulate rights to common property, decision-making in the owners' community and the role of professional managers [10].

From an institutional perspective, a multi-apartment building is a form of common property that requires collective action. Ostrom showed that common resources can be managed sustainably when users participate in setting the rules, compliance is monitored by accountable monitors and sanctions are graduated [11]. Studies of apartment living confirm the practical importance of these principles. In Sydney, the governance of apartment buildings by their owners was identified as a major challenge for compact city policy [12], while a study of 135 condominiums in Olsztyn, Poland, found that building age, the number of unit owners and the municipal share in common property significantly affect the rates of renovation funds [13].

A separate line of research concerns the measurement of management performance. Resident and tenant satisfaction surveys are widely used for this purpose, but their reliability as a measure of service quality and the comparability of results across organisations working in different social contexts require careful interpretation [14]. For the analysis of an organisation's external environment, PEST analysis, which goes back to Aguilar's work on environmental scanning, groups factors into political, economic, social and technological categories [15].

In Uzbekistan, research has focused on information exchange between management organisations, resource suppliers, government bodies and owners in the digital economy [16] and on the applicability of the housing management models of France, Germany, Sweden, the Netherlands and Finland [17]. International technical assistance has been directed at professionalising the sector: the EU-funded PROMHOUSE project (2020–2023) introduced the specialities of housing manager and caretaker into vocational training in Kazakhstan and Uzbekistan [18]. The UNECE country profile identified depleted urban infrastructure inherited from the Soviet period as one of the key challenges of the housing sector [19].

Most of these studies, however, address the legal and organisational framework at the national level. Empirical assessments of management efficiency based on residents' opinions in individual regions, particularly in the hot southern regions of Uzbekistan, remain scarce.

Purpose of the Article

The purpose of the article is to assess the efficiency of multi-apartment housing stock management in Termez on the basis of a questionnaire survey and PEST analysis and to substantiate proposals for improving the organisational and economic mechanism of management. The objectives are to describe the housing stock of Termez and the system of its management; to assess the influence of political, economic, social and technological

factors on management; to analyse residents' views on the billing system, the level of mandatory contributions and the technological equipment of management bodies; and to summarise residents' proposals for improving management.

2. Materials and Methods

The object of the study is the multi-apartment housing stock of Termez. The city is the administrative centre of Surkhandarya region and is located on the state border with Afghanistan. According to official estimates, its population was 207.3 thousand on 1 January 2025, and that of the region was 2.95 million [20]. Termez lies in the hottest part of the country: in July 2025, the maximum air temperature at the Termez weather station reached 45.8 °C, and the absolute maximum recorded at the station is 48.6 °C [21]. Under these conditions, the quality of housing and communal services has a direct effect on residents' living conditions and on social stability in the region.

The study used three groups of data. The first comprises legal acts regulating the management of multi-apartment buildings and related areas [22] and official information on the implementation of reforms. The second comprises data on the multi-apartment housing stock of Termez and the organisations serving it, compiled by the author. The third, and main, source is the author's questionnaire survey.

The survey was conducted in June–August 2026, and 631 respondents took part in it. The questionnaires were screened for completeness, for whether respondents had chosen a substantive answer to each question and, most importantly, for whether they had fully understood the essence of the problem raised; 598 questionnaires (94.8%) were retained for analysis. This exceeds the sample size of 384 that is sufficient for large populations at the 95% confidence level and a ±5% margin of error [23]; for n = 598, the maximum margin of error is about ±4.0 percentage points, assuming simple random sampling.

The questionnaire was structured according to the PEST framework. In the first block, respondents were asked whether political and legal, economic, social and technological factors influence the management of multi-apartment housing stock (yes/no). The second block contained questions on the economic and technological aspects of management: the expected effect of the transition to digital billing on the collection of contributions (answer options: an increase of almost 100%, an increase of 50%, no effect, don't know), the assessment of the amount of contributions paid to HOAs and MSCs, and the assessment of their technological equipment (high, medium (adequate), low, don't know). Respondents were also asked to propose measures to improve management.

The combination of the questionnaire survey and PEST analysis was chosen for two reasons. First, the survey reveals the internal situation in the city: how many respondents chose each answer and what their attitude towards the system of housing and communal services is. Second, grouping the results by PEST factors makes it possible to relate the situation in Termez to the regional and national context and to identify strategic development issues. The choice of factors also reflects the specific features of the city: its border and strategic location, the real socio-economic situation, the mentality and social culture of residents and the degree of technological adaptation of the housing stock (Table 1).

Table 1. PEST factors used to assess the efficiency of housing stock management in Termez

PEST factor	Specific features of Termez	Survey indicators
Political (P)	Border and strategic location of the city; national reforms of housing management (Law ZRU-581, transition to professional management, the "Mening uyim" system)	Influence of political and legal factors (yes/no)
Economic (E)	Real socio-economic situation and residents' ability to pay; level of mandatory contributions; collection of payments	Influence of economic factors (yes/no); expected effect of digital billing; assessment of contributions
Social (S)	Mentality and social culture of residents; sense of ownership of common property	Influence of social factors (yes/no); respondents' proposals

Technological (T)	Degree of technological adaptation of the housing stock; equipment of HOAs and MSCs; digital platforms; energy efficiency in a hot climate	Influence of technological factors (yes/no); assessment of technological equipment

Source: developed by the author based on

Survey results were processed using descriptive statistics (absolute and relative frequencies); percentages are given to one decimal place. The survey data reflect respondents' perceptions rather than audited performance indicators, and the margin of error assumes simple random sampling; the results should therefore be interpreted as indicative.

3. Results and Discussion

3.1. Multi-apartment housing stock and its management system. Table 2 shows how the national sector changed between 2022 and 2026. The number of multi-apartment buildings increased by more than 4,300 and the number of professional management organisations by more than 160, while the number of HOAs did not grow (277 in 2022 and over 200 in 2026). The growth of the housing stock has thus been absorbed by professional management companies.

Table 2. Multi-apartment housing stock of Uzbekistan and its management bodies

Indicator	November 2022	January 2026
Multi-apartment buildings	39,691	over 44,000
Residents of multi-apartment buildings	–	over 7.1 million
Professional management organisations	736	over 900
Homeowners' associations (HOAs)	277	over 200
Buildings under direct self-management by residents	–	856

Source: compiled by the author based on and "–" means that the source gives no data.

The main indicators of the multi-apartment housing stock of Termez and its management system are shown in Table 3.

Table 3. Main indicators of the multi-apartment housing stock of Termez and its management system

No.	Indicator	Unit	Value
1	Multi-apartment buildings	units	610
2	Professional management service companies (MSCs)	units	14
3	Homeowners' associations (HOAs)	units	2

Source: compiled by the author.

The 610 multi-storey residential buildings of Termez are assigned to 14 professional management companies on a mahalla (neighbourhood) basis for the provision of housing and communal services. The largest and leading of them are "Sarvar Termiz Servis" LLC, "Termiz Kommunal Servis", "Jayxun Kommunal Xizmat" and "Termiz Ishonch Obod". According to the regional press, as early as 2022 "Sarvar Termiz Servis" alone served 109 multi-storey buildings in six mahallas of the city [24]. Management in Termez is therefore concentrated in professional companies, and HOAs play a marginal role.

3.2. Influence of PEST factors on housing stock management. The analysis of the survey began with the four main PEST questions. Most respondents, at least 78% in each block, confirmed that all four groups of factors influence the management of multi-apartment housing stock (Fig. 1). Economic factors were cited most often (479 respondents, or 80.1%), followed by political and legal (478; 79.9%), social (476; 79.6%) and technological factors (467; 78.1%).

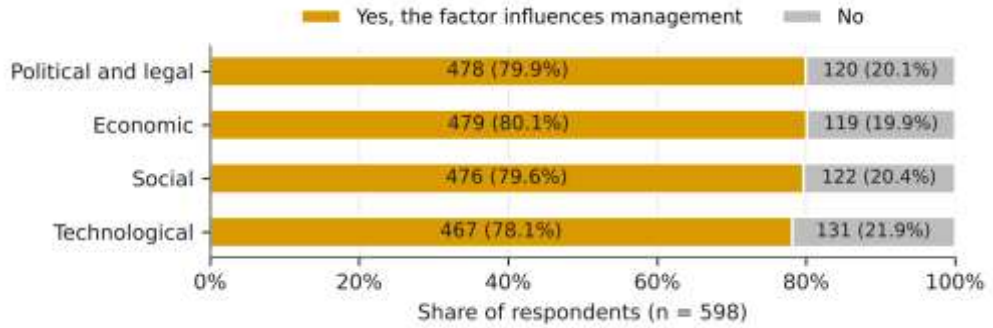


Fig. 1. Respondents' answers to the question whether political and legal, economic, social and technological factors influence the management of multi-apartment housing stock

Source: compiled by the author based on the questionnaire survey (n = 598).

The small spread between the blocks (2.0 percentage points) shows that residents regard housing management as a complex problem rather than a purely technical or financial one. Because economic factors were cited most often, the subsequent analysis focuses on questions reflecting residents' attitudes towards the economic aspects of housing and communal services.

3.3. Digital billing and the collection of contributions. A number of legal acts have introduced a billing system in housing and communal services to increase the transparency of payments, make them targeted and make paying for services more convenient for residents. Residents of multi-apartment buildings in Termez also pay for services through this system. Their answers show different expectations of how billing affects the ability of service companies to collect contributions (Fig. 2). The largest group (211 respondents, or 35.3%) believes that billing can increase the collection of payments by 50%, and 197 respondents (32.9%) by almost 100%. Only 62 respondents (10.4%) expect no effect, while 128 (21.4%) found it difficult to answer.

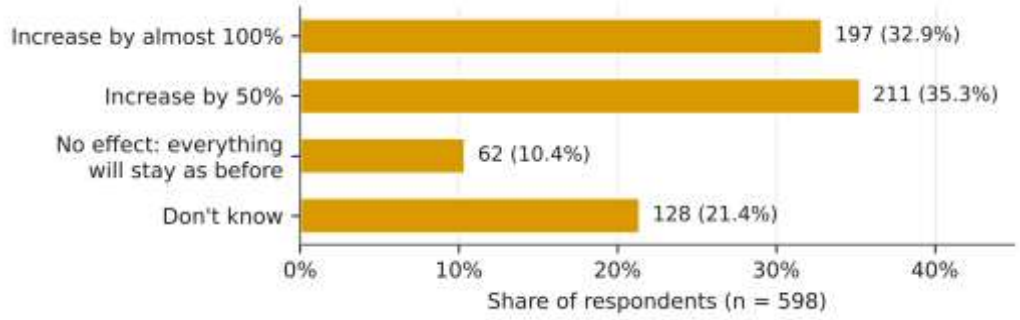


Fig. 2. Respondents' expectations of the effect of digital billing on the collection of mandatory contributions by service companies

Source: compiled by the author based on the questionnaire survey (n = 598).

Thus, more than two thirds of respondents (68.2%) expect a significant effect from digital billing. This confidence can be explained by the features of digital payments: they take little time and are fast, simple and understandable to everyone. The result supports the national decision to route all mandatory contributions and income from additional services through the "Mening uyim" billing system. At the same time, the 21.4% of "don't know" answers indicate that a substantial share of residents still lack information about the system.

3.4. Assessment of mandatory contributions. Respondents were then asked how they assess the amount of contributions paid to HOAs and MSCs. Of the respondents, 202 (33.8%) rated it as high, 239 (40.0%) as medium (adequate), 49 (8.2%) as low, and 108 (18.1%) found it difficult to answer (Fig. 3a). The largest group thus considers the contributions adequate, but one in three respondents considers them high. A similar concern appears in the national survey, in which 44% of respondents stated that residents' opinions are not taken into account when mandatory fees are set and 24.1%

pointed to a mismatch between price and service quality [7]. Transparent setting of contribution rates with residents' participation is therefore an important condition for management efficiency.

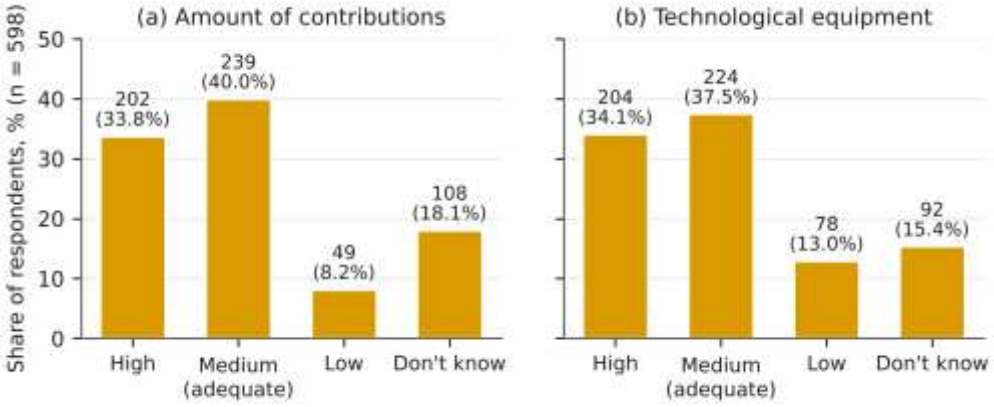


Fig. 3. Respondents' assessment of (a) the amount of contributions paid to HOAs and MSCs and (b) the technological equipment of HOAs and MSCs

Source: compiled by the author based on the questionnaire survey (n = 598). Percentages may not sum to 100% because of rounding.

3.5. Technological equipment of management bodies. Digital payment platforms are only one area of technology use. The technological equipment of HOAs and MSCs also determines whether other services can be digitalised, such as online acceptance of residents' requests and dispatch services; the 2026 reform makes a round-the-clock dispatch service a minimum requirement for managers and provides for AI-based dispatch systems. Most respondents assess this equipment positively (Fig. 3b): 204 (34.1%) consider it high and 224 (37.5%) medium (adequate). The shares of "low" (78; 13.0%) and "don't know" (92; 15.4%) answers are much smaller. Taken together, the two positive answers account for 71.6% of responses, which creates a technological basis for the wider digitalisation of management in the city.

3.6. Respondents' proposals for improving the management mechanism. One of the most important results of the PEST analysis and the survey concerns respondents' practical recommendations for improving the organisational and economic mechanism of multi-apartment housing management. Most respondents emphasised digitalisation, energy efficiency and environmentally friendly technologies, strengthening residents' sense of ownership of their homes and increasing the transparency of management.

Some respondents recommended establishing digital control over the management of multi-apartment buildings, with all processes, such as utility payments, voting in the election of MSC heads and reporting, organised through mobile applications. The introduction of condominium principles was also recommended. This proposal is particularly important, since a condominium helps to reconcile the interests of all participants in the process; international experience also shows that combining the condominium model with owners' associations makes decisions on maintenance more effective.

Respondents also stressed the need to introduce digital systems for managing buildings, to accept residents' requests online, to use energy-saving technologies and to monitor the quality of communal services regularly. Taking into account the hot, dry summer climate of Surkhandarya region, they proposed special state subsidies for installing solar panels on the roofs of multi-storey buildings and for repairing buildings with heat-insulating materials. This proposal is consistent with national policy: since 1 May 2023, new multi-storey buildings must be designed with solar panels on at least 50% of the free roof area, and solar panels installed on buildings are to be transferred to the management body. In addition, respondents emphasised the need to explain to residents how to use the "Mening uyim" application and to prevent monopoly in service provision by ensuring fair competition among private management companies.

Overall, the results show that residents of Termez support digital and market-based instruments of housing management but expect greater transparency in setting

contributions and in reporting. Given the high energy intensity of apartment buildings noted at the national level and the extreme summer temperatures in the city [25], energy-saving retrofits in Termez are an economic as well as an environmental priority.

4. Conclusion

The study shows that the efficiency of multi-apartment housing stock management in Termez depends on a combination of political, economic, social and technological factors, each of which was recognised by about four fifths of respondents. Economic factors are the most important: residents expect digital billing to increase the collection of contributions substantially, but one third of them consider the contributions high. Most respondents assess the technological equipment of HOAs and MSCs as high or adequate, which creates a basis for further digitalisation.

The systematic implementation of the organisational and economic recommendations made by respondents can turn the management of the housing stock in the region from a loss-making activity into a sustainable, investment-attractive and digitalised business model. The priorities are: (1) transferring payments, voting and reporting fully to the "Mening uyim" platform, accompanied by information campaigns for residents; (2) setting contribution rates transparently with residents' participation and requiring MSCs to publish reports; (3) introducing condominium principles for the management of common property; (4) developing fair competition among management companies and preventing monopoly; and (5) providing targeted state subsidies for solar panels and thermal insulation adapted to the hot climate. These measures correspond to the goal of improving the organisational and economic mechanism of multi-apartment housing management.

Future research should compare residents' assessments with objective indicators of management companies' performance, such as collection rates, costs and response times to residents' requests, and extend the analysis to other cities and districts of Surkhandarya region.

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