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The Influence of Construction Industry Enterprise Concentration on Housing Development in the Moscow Agglomeration

The paper presents an analysis of the dynamics of formation and development of the housing market in Moscow and the Moscow Region, taking into account the degree of concentration of construction industry enterprises within the study area. The analysis is based on statistical data from the Unified Register of Developers (ERZ) for the period 2017–2025. The study employs statistical methods, as well as systems analysis and dynamic analysis. In addition, system-based, dynamic, and geoinformation approaches are applied. The research identifies key patterns in the influence of the concentration level of industrial housing construction on the intensity of construction activity across districts of Moscow and the Moscow Region. Areas with a high degree of market concentration are identified, where more than half of the total floor area of housing under construction is developed by ten large developers within each region. Geoinformation analysis reveals the formation of several stable territorial clusters ("construction islands"), located primarily along the administrative boundary of Moscow and effectively forming a unified zone of housing market development together with the adjacent agglomeration. The paper demonstrates that the localization of construction projects is directly related to the spatial distribution and concentration of construction industry facilities. The obtained results can be used in planning the flow-line construction of residential real estate projects and in the development of the required regional infrastructure.

Keywords: *housing construction, statistical analysis, geoinformation analysis, construction flows, system analysis, construction industry, construction dynamics*

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INTRODUCTION

At present, the construction industry faces the task of increasing the rate of commissioning of real estate facilities and reducing construction timelines. Achieving this objective requires the development of a long-term program aimed at forming object-specific and specialized construction flows.

The formation of such flows necessitates consideration of three principal regional components:

- the region as a territory;
- the predominant type of residential construction;
- the number of developers operating within the region.

The region as a territory constitutes a complex system that includes buildings and structures, transport infrastructure, facilities of the construction industry, and the geographical distribution of construction industry facilities relative to the most actively developing areas within the region, taking into account local geographical characteristics.

The predominant type of residential construction — namely monolithic and panel housing construction — significantly reduces the duration of real estate development and forms the basis for the establishment of corresponding construction flows. Each housing type is characterized by specific cost, time, spatial, and resource parameters that influence output performance in the implementation of investment and construction projects.

Developers, as the principal initiating entities of investment and construction activity, exert a substantial influence on the pattern of regional housing market development. The study of construction flow functioning requires the identification of their organizational structure, the construction approaches they apply, and their interaction with other participants in the construction process.

MATERIALS AND METHODS

The study employed statistical methods of analysis, including the processing and interpretation of quantitative data; systems analysis to assess interactions among construction industry facilities and their flow characteristics; dynamic analysis to examine temporal changes in key indicators; and geoinformation analysis. The empirical basis of the research consisted of statistical and other informational sources, materials characterizing the production and economic activities of developers, expert assessments, and other documentation related to the construction sector.

The study was based on data obtained from the Unified Register of Developers (ERZ) database for the period from 2017 to 2025.

RESULTS

At present, the city of Moscow and the Moscow Region represent the largest territories in terms of residential construction rates. This region is particularly suitable for analysis, as it demonstrates the highest population growth while simultaneously exhibiting a high population density [1].

According to the Unified Register of Developers[1], as of October 2025, 18,754,280 m^2 of residential real estate is under construction in Moscow and

[1] Unified Register of Developers : official website. URL: https://erzrf.ru/ (rus.).

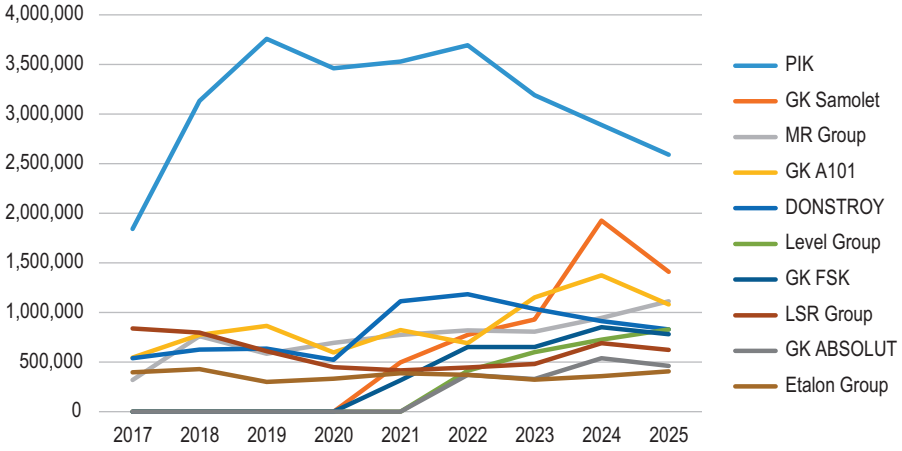

Fig. 1. Volume of construction of apartment buildings, m², 2017–2025, by Moscow developers

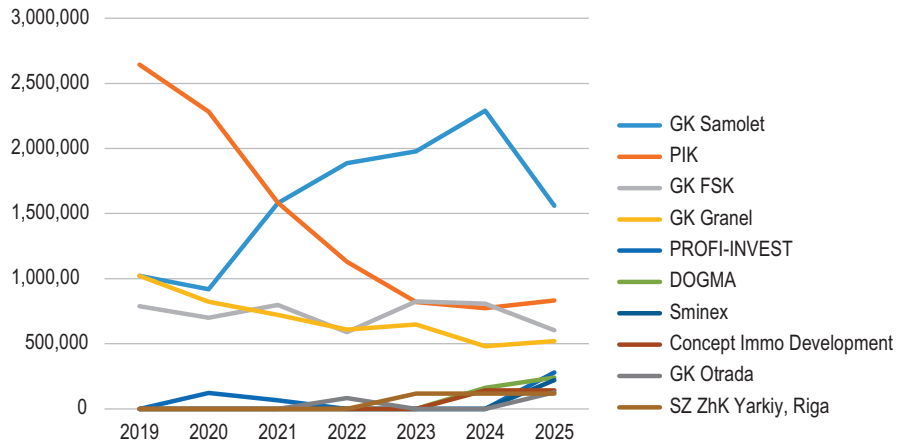

Fig. 2. Volume of apartment building construction, m², 2019–2025, by developer in the Moscow region

8,175,970 m² in the Moscow Region. More than half of the total construction volume is concentrated among the top 10 developers by residential construction output: 10,116,240 m² (53.95 %) in Moscow and 4,640,518 m² (56.77 %) in the Moscow Region. The analysis of developer activities in this region constitutes an important aspect of studying the application of organizational and technological mechanisms, as developers plan and structure construction flows for residential projects and determine rational technological and organizational approaches to project implementation [2]. As of October 2025, the largest developers in Moscow are: GK "PIK" — 2,589,966 m²; GK "Samolet" — 1,409,821 m²; MR Group — 1,112,324 m²; GK "A101" — 1,081,616 m²; "DONSTROY" — 828,662 m²; Level Group — 826,947 m²; GK "FSK" — 779,638 m²; LSR Group — 623,169 m²; GK "ABSOLUT" — 459,810 m²; and Etalon Group — 404,287 m² (Fig. 1).

In the Moscow Region, the largest developers are: GK "Samolet" — 1,559,975 m²; GK "PIK" — 833,157 m²; GK "FSK" — 604,627 m²; GK "Granel" — 519,696 m²; "PROFI-INVEST" — 278,648 m²; "DOGMA" — 238,671 m²; "Sminex" — 219,950 m²; "Concept Immo Development" — 142,774 m²; GK "Otrada" — 127,204 m²; and SZ ZhK Yarkiy, Riga — 115,816 m² (Fig. 2).

Among the ten largest developers by construction volume, GK "PIK" and GK "Samolet" are particularly prominent. As of the end of 2025, they jointly account for 21 % of all residential construction in Moscow and 29 % in the Moscow Region. Their combined share among the top ten developers amounts to 40 % in Moscow and 52 % in the Moscow Region.

The two companies employ distinct organizational strategies. GK "PIK" implements a development model characterized by pronounced vertical integration. The company relies on its own production facilities, including large-scale house-building plants such as DSK-2 and DSK-3[2]. These enterprises specialize in the production of primary structural elements, enabling GK "PIK" to maintain greater control over key stages of construction component manufacturing. This approach enhances the level of industrialization and facilitates large-scale construction output [3–5]. At the same time, the company rationally combines internal production capacities with the involvement of external contractors and subcontractors, with a significant share of on-site construction work performed by third-party organizations.

In contrast, GK "Samolet" follows a classical development strategy. The company does not possess its own production facilities; instead, it operates through an internal general contractor, LLC "Stroy-Development", which coordinates the activities of contracted firms and specialized subcontractors[3]. On the one hand, this production organization model may increase construction costs and

[2] RAO PIK SZ: Company Profile. Construction News Agency. URL: https://m.asninfo.ru/companies/22-pao-pik-sz (rus.).

[3] Samolet Group of Companies: Company Profile. Mail Finance. URL: https://finance.mail.ru/card/gruppa-kompanij-samolet-715 (rus.).

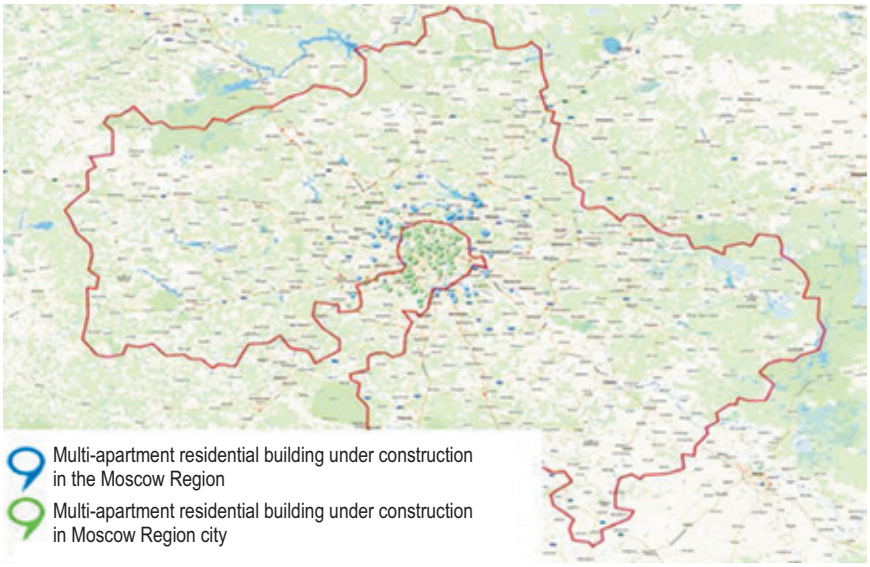

Fig. 3. Concentration of multi-apartment residential buildings under construction in Moscow and the Moscow Region as of October 2025

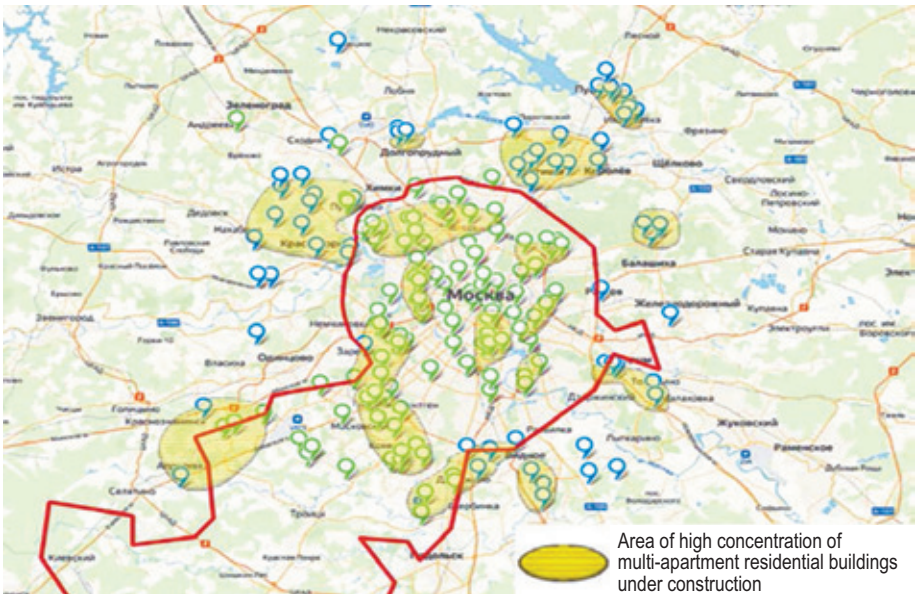

Fig. 4. Areas of high concentration of multi-apartment residential buildings on the map of Moscow and the Moscow Region

reduce direct control over processes that determine the critical path. On the other hand, it eliminates the need to maintain fixed production capacities, provides greater organizational flexibility and investment adaptability, and contributes to the sustainability of construction flows in residential development [6–10]. As of October 2025, these developers are constructing 187 multi-apartment residential buildings (126 in Moscow and 61 in the Moscow Region). Notably, the majority of projects in the Moscow Region are located in close proximity to the administrative boundary of Moscow (Fig. 3).

Fig. 3 demonstrates that the region includes territories with both high and low concentrations of construction activity. The most intensive development is observed in Moscow and adjacent areas. However, for the efficient utilization of regional territory, the housing market should develop not only within the capital and its immediate surroundings, but throughout the entire Moscow Region.

The uneven distribution of development activity can be explained by the fact that the nearest agglomeration beyond Moscow's administrative boundary should be regarded as a natural extension of the city, as its economic activity is closely integrated with the capital. The largest towns of the Moscow Region are likewise located near Moscow and are economically oriented toward it, effectively functioning as components of the metropolitan agglomeration [11]. At present, several development "zones" can be identified — areas with the highest concentration of multi-apartment residential construction (Fig. 4).

These high-concentration zones have emerged due to two territorial factors. The first factor is strong consumer demand for housing located as close as possible to the capital. Such housing allows residents to maintain economic and social connectivity with Moscow while benefiting from lower prices, typically associated with lower land costs [12]. The second factor is the presence of a wide

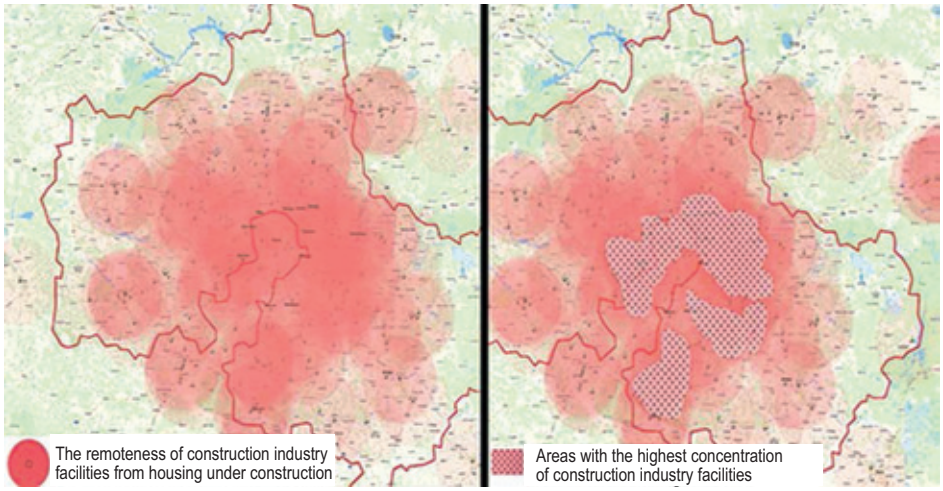

Fig. 5. Territories of the city of Moscow and the Moscow region depending on the density of construction industry facilities in these territories

range of construction industry enterprises oriented toward residential development within these zones [13] (Fig. 5).

As shown in Fig. 5, certain areas of the region exhibit a high concentration of construction industry facilities, which corresponds to an increased concentration of residential development. In other territories, this indicator is lower, implying either the need to establish new construction industry facilities or to improve the utilization of existing capacities while addressing issues of mobility and sustainability.

CONCLUSION

The analysis of residential construction in Moscow and the Moscow Region has identified areas with a high concentration of housing development. More than half of the total residential construction volume is carried out by ten developers, with GK "PIK" and GK "Samolet" being the largest. Geoinformation analysis has revealed the formation of several stable development clusters ("zones"), predominantly located along the administrative boundary of Moscow, in territories functioning as a continuation of the metropolitan agglomeration. This pattern should be taken into account, as despite their formal administrative affiliation with the Moscow Region, these territories effectively operate as extensions of the capital. The results obtained in this study may be applied in the development of organizational and technological mechanisms aimed at transferring the most complex and labor-intensive processes from construction sites to industrial production facilities. Such an approach would contribute to reducing overall costs and ensuring high construction rates in the housing market, while integrating construction flows across Moscow and the Moscow Region.

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Влияние концентрации предприятий стройиндустрии на формирование и развитие жилищного строительства в Московской агломерации

В статье представлен анализ динамики формирования и развития рынка жилья в Москве и Московской области с учетом степени концентрации предприятий строительной индустрии на данной территории. Проведенный анализ базируется на основе статистических данных Единого реестра застройщиков (ЕРЗ) за период 2017–2025 гг. При исследовании были использованы статистические методы, методы системного и динамического анализа. Также были применены системный, динамический и геоинформационный подходы. В ходе проведения исследования были выявлены основные закономерности влияния степени концентрации индустриального домостроения на степень строительной активности по районам Москвы и Московской области. Установлены районы с высокой степенью концентрации рынка объектов недвижимости, где больше половины площадей строящегося жилья возводится десятью крупными застройщиками в рамках каждого региона. Геоинформационный анализ показал формирование нескольких устойчивых территориальных кластеров («островов» застройки), располагающихся преимущественно на границе города Москвы и фактически образующих единую зону строительного развития рынка жилья с прилегающей агломерацией. В статье показано, что локализация строительных проектов связана напрямую с размещением и концентрацией объектов стройиндустрии. Полученные результаты могут быть использованы при планировании поточного возведения объектов недвижимости на рынке жилья и развитии требуемой региональной инфраструктуры.

Ключевые слова: *жилищное строительство, статистический анализ, геоинформационный анализ, строительные потоки, системный анализ, строительная индустрия, динамика строительства*

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