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A Critical Analysis of Beijing's Urban Planning: Economic, Transportation, and Demographic Perspectives

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Abstract. This paper presents a comprehensive review of Beijing's urban development planning, focusing on its development process, current situation, and future optimization directions. Firstly, it outlines key changes in urban layout and development strategies across different policy periods. Then, it analyzes Beijing's urban planning from three core dimensions: economy, transportation, and population, summarizing development patterns and evaluating advantages and disadvantages. Economically, Beijing has promoted development through spatial planning for consumption and production, implementing an industrial map and a commercial consumption layout plan to guide industries and improve enterprise efficiency. In transportation, the city has worked to optimize spatial structure to better support industrial and consumption needs. Regarding population, Beijing's demographic evolution reflects shifts in urban positioning, with planning efforts moving from rapid growth to stable, coordinated development. As China's political, cultural, and innovation hub, Beijing should continue embracing concepts of innovation, coordination, green development, openness, and sharing. Scientific urban planning plays a vital role in enhancing development quality, improving residents' well-being, and providing valuable insights for future planning both in Beijing and other cities.

Keywords: Beijing, Urban planning, Economic development, Traffic management, Population control

1. Introduction

Urban planning, as a key factor in optimizing resource allocation and promoting sustainable urban development, profoundly influences the spatial form, functional operation, and living quality of cities. As the capital of China, Beijing is not only a political center, cultural center, international communication center, and a center for scientific and technological innovation, but its planning also has significant exemplary significance for the urban construction across the country. In recent years, under the strong guidance of policies such as the "Beijing-Tianjin-Hebei Coordinated Development Plan Outline" and the "Special Planning for the Spatial Layout of Commercial Consumption in Beijing", the development of Beijing has continuously deepened and transformed. Its experiences in urban governance and planning are valuable for the development of large cities and are worthy of in-depth exploration. This article adopts the literature analysis method, by reviewing Beijing's urban planning documents, academic research, and statistical data, systematically analyzes the historical

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development and current situation of Beijing's urban planning. In terms of theoretical value, this article will reveal the development logic and policy impact of Beijing's urban planning, providing reference for urban planning theory. In terms of practical significance, by analyzing the current advantages and disadvantages of the situation, targeted solutions are proposed, providing support for urban planning and academic research, and helping Beijing achieve high-quality development.

2. Beijing's urban master plan and population evolution

As the capital of China, Beijing's urban planning not only relates to its development but also has significant impact on the urban governance models at national levels. "The overall direction of its master plan is closely intertwined with the governance ideas of the central authorities" [1].

2.1. Period 1: 1949-1956

In 1953, the first Beijing Urban Master Plan emphasized economic development and industrial construction, aiming to build a socialist city that “serves the central government, production, and the working people" [2]. It prioritized labor productivity, industrial site selection, and the establishment of Beijing as an industrial and technological center. Functional zoning concentrated on industrial and cultural-educational areas, with preliminary arrangements for agriculture, building materials, and transportation, forming a relatively basic urban spatial structure.

This period marked the formation of Beijing's initial urban planning framework and a phase of rapid population growth. In the same year, the Municipal Committee proposed the "Draft on the Reconstruction and Expansion of Beijing's Urban Planning” to the Central Committee. It envisioned Beijing as both a political-cultural and industrial center, projected a population of 5 million, and advocated compact, outward development while avoiding urban issues seen in capitalist cities. The draft, however, was not approved due to lack of consensus. During this period, the population of Beijing grew rapidly, and the main reasons for this were three. The improvement in social security and health conditions became the fundamental reason for the population growth. The population policy of encouraging childbirth was an important reason for the rapid growth. The third reason was the mechanical growth of the population caused by population migration.

2.2. Period 2: 1957-1976

The second Beijing Urban Master Plan, introduced in 1958 and known as was the "Foundation Plan," marking a further refinement of urban planning. It emphasized expanding the new areas outward from the old city, maintaining the city's economic and industrial focus. The plan introduced concepts such as the "road network framework," "dispersed group layout," and "mother-child city layout." A road system from the first to the fourth ring was outlined, and the central urban planning area reached 600 square kilometers, wirh a projected population of 6 million people [3].

However, from 1959 to 1961, urban construction stagnated due to national economic difficulties. Problems such as industrial over-concentration, weak infrastructure, environmental pollution, and imbalanced land use emerged. After that, the Urban Planning Bureau was abolished during the outbreak of the "Cultural Revolution." From 1968 to 1971, although the planning bureau resumed and began the revision of the third master plan during this period, attempting to propose improvement countermeasures for the problems exposed in the second plan, due to the social and political environment at that time, this revision plan was not given due attention and was ultimately shelved.

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During the period of 1957-1976, the urban population scale of Beijing also underwent three adjustments. The first time was in the spring of 1957. The expert studio of the Municipal Committee and the Beijing Urban Planning Committee officially proposed the "Preliminary Plan for Beijing Urban Construction Master Plan", whose basic idea was basically the same as that in 1953, the difference being that the urban scale of the urban area was increased to 6 million people. The second time was in August 1958. The idea of "three differences" was proposed, emphasizing the combination of industry and agriculture. The 600 square kilometers of urban land in the urban area was divided into multiple "groups" in a form. At the same time, the urban scale was reduced to 3.5 million people. The urban area was expanded to 168,000 square kilometers. In 1961, the Eighth Plenary Session of the Eighth Central Committee of the Communist Party of China proposed the policy of "adjustment, consolidation, enrichment, and improvement", and the scale of urban basic construction was appropriately reduced. The emphasis on population control and rational resource allocation in urban planning was further strengthened during this stage. The revision of the master plan during this period fully demonstrated the continuous adjustment and optimization of urban population development trends and management strategies under different historical backgrounds.

2.3. Period 3: 1977-1990

In 1983, Beijing issued the fourth version of its urban master plan, introducing a more systematic and forward-looking urban strategy to address growing developmental contradictions. The plan emphasized four key aspects:

Firstly, it proposed an economic model aligned with Beijing’s functional and geographical characteristics, shifting from heavy industry toward knowledge-intensive and sevice sectors such as science, culture, education, and information. Second, environmental protection was prioritized with the principle of "treating mountains and waters, preventing pollution, promoting benefits, and eliminating drawbacks," reflecting an early awareness of sustainable development. Third, the concept of "bones and flesh matching" highlighted the need to integrate infrastructure with residential services, aiming to improve citizens’ living standards by balancing hard infrastructure (e.g., roads, pipelines) with public amenities (e.g., housing, school). Fourth, the plan sought to reorient Beijing's spatial layout and industrial structure, correcting excessive industrialization and reinforcing the city’s identity as a national cultural and political center. To mitigate urban overconcentration, the plan also encouraged regional collaboration with neighboring cities like Tianjin and Tangshan to promote coordinated development.

With natural population growth and increased migration, Beijing’s concentric spatial expansion revealed the limitations of earlier planning. In response, the municipal government proposed the Beijing Urban Construction Master Plan Proposal (Draft), which included: (1) reaffirming Beijing’s role as the national political and cultural center; (2) capping the population size at around 10 million within 20 years, with 4 million in the urban core; (3) emphasizing environmental quality; (4) advocating inner-city renovation, suburban adjustment, and outer-suburb development; (5) designating Beijing as a historical and cultural city; (6) using residential communities as basic units of urban life; and (7) prioritizing infrastructure development.

Overall, the period from the 1983 master plan onward marked a shift in Beijing's urban development logic from industrial to service-led growth, from expansion to controlled management, and from fragmented to integrated governance. This transformation reflected a broader strategic repositioning of Beijing from an industrial base to a modern cultural and political metropolis within the national development framework.

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2.4. Period 4: 1991-2000

During this period, the government revised the overall plan again, and the natural population growth decreased, but the total population size continued to increase.

In October 1993, the State Council approved the "Beijing Urban Master Plan" (Revised Edition). It had two changes: 1. This overall plan was a cross-century project and the second planning for the People's Republic of China over 50 years. It determined the goal of realizing modernization for the capital and the development plans for the "Eighth Five-Year Plan", "Ninth Five-Year Plan" and 2010. 2. Based on the socialist market economy system, the direction of urban construction was comprehensively studied.

2.5. Period 4: since 2001 to present

The new urban master plan of the 21st century stage saw a stable and sustainable development of the population.

On January 12, 2005, the executive meeting of the State Council approved the "Beijing Urban Master Plan (2004 - 2020)". Since then, the development goal of Beijing has been clearly defined as "National Capital, World City, Cultural City, and Livable City" [4]. And it proposed "Two Axes, Two Belts, and Multiple Centers" [5]. This alleviated the pressure of population growth in Beijing and dispersed the urban functions of Beijing. For a long time, a large number of people in Beijing were concentrated in the urban center area. This strategic adjustment in space has three benefits: alleviating population pressure, reducing the traffic pressure in Beijing, and facilitating the construction of a suitable living environment.

3. Current situation of Beijing's urban planning

3.1. Economic development planning

3.1.1. Industrial structure adjustment and upgrading

For the economic development of Beijing, the focus will be on the layout of consumption and production spaces. On November 30, 2022, the Beijing Commission of Planning and Natural Resources issued the notice of the "Special Planning for the Layout of Commercial Consumption Spaces in Beijing" [6]. The current layout planning of international consumption experience zones in Beijing will mainly be concentrated in the areas near Tiananmen in Dongcheng, Xicheng, Chaoyang, and the northeastern part of Fengtai and the northwest part of Tongzhou. It mainly serves consumers from all over the world and, while highlighting Chinese culture, connects with international fashion trends to enhance international reputation and attractiveness.

On September 14, 2024, the Beijing Development and Reform Commission released the upgraded version of Beijing's industrial map, covering the primary, secondary, and tertiary industries, including the innovation and technology zone, international business service zone, and high-tech industry zone. Currently, the high-tech industry zone in Beijing is mainly concentrated in the southern part of the city. The map provides convenience for numerous enterprises, enabling them to identify key industrial parks and find channels for scenario demand connection. Through 75 current industrial status and planning maps, a clear layout of Beijing's industrial planning has been constructed, providing guidance and direction and achieving good social responses.

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3.1.2. Economic policies and regional economic layout

Beijing's new urban plan outlines a spatial structure of "one core, one main, one backup, two axes, multiple points, and one area," with clear development priorities for each district [7]. "One core" refers to the capital's functional core area, serving as the national political, cultural, and international exchange center. This area emphasizes security, heritage protection, environmental improvement, and refined governance. "One main" is the central urban area (Dongcheng, Xicheng, Chaoyang, Haidian, Fengtai, and Shijingshan), which aims to become a harmonious and livable space through population. "One backup" refers to the Beijing urban sub-center.

To build a high-tech and high-end economic structure in line with the strategic positioning of the capital, Beijing focuses on promoting the high-quality development path centered on scientific and technological innovation. Among them, the high-level construction of "three cities and one area" is listed as the top priority, that is, focusing on the leading position of the Zhongguancun Science City in science and technology, breaking through the original innovation ability of Huairou Science City, activating the development potential of the Future Science City, and promoting the overall improvement of the intelligent manufacturing and industrialization capabilities of Beijing Economic Development Zone (one area) [8]. This layout not only reflects the systematic arrangement of the functional positioning of different regions, but also provides important support for the efficient aggregation of capital resources and collaborative innovation in the capital.

In terms of industry, Beijing focuses on strategic emerging sectors such as new energy vehicles, integrated circuits, intelligent manufacturing, cloud computing, mobile internet, health tech, and satellite applications. By promoting technological breakthroughs and integrating the industrial, innovation, and capital chains, Beijing aims to build a globally influential hub of science and technology.

3.2. Transportation planning

3.2.1. Guiding principles for rail transit and public transportation

"Comprehensively implement the spirit of the 20th National Congress of the Communist Party of China, the Third Plenary Session of the 20th Central Committee, the Central Economic Work Conference, the National Transportation Work Conference, and the Sixth Plenary Session of the 13th Municipal Committee. Guided by the development of the new era capital, focusing on the strategic positioning of the 'Four Centers', and meeting the governance needs of a megacity. Taking the opportunity of comprehensive reform and the '15th Five-Year Plan', adhering to the people-oriented and premier standards, implementing the requirements of 'integration, network construction, optimization, intensification, and efficiency enhancement', aiming for the goals of 'convenience, smoothness, greenness, intelligence, and safety'. In the process of work promotion, It is necessary to adhere to planning guidance, practice green development, strengthen precise governance and joint governance, rely on intelligent empowerment, and build a resilient transportation system. Strengthen overall planning, organization and coordination, supervision and implementation, and assessment and evaluation. Systematically exert efforts, promote joint construction and joint governance, continuously advance, and promote the capital transportation to achieve high-quality development. Fully build the capital transportation lifeline of 'people enjoying travel, goods flowing freely, safe and accessible', shaping a capital model of a transportation-strong country" [9].

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3.2.2. Challenges of transportation planning

How to support the functional improvement of the sub-center, optimize the spatial layout, promote the balance of employment and residence, is the most critical problem to be solved at present. Currently, the employment pattern in the northern three counties and Tongzhou District shows a significant imbalance. The main employment areas are still the central urban area of Beijing. This situation has triggered a significant copycat transit commuting traffic phenomenon in the central area. Taking the northern three counties as an example, about 150,000 employed people go to Beijing every day. Among them, up to 63% choose to work in the central area, while only about 7% are employed in Tongzhou District. The employed population living in the Tongzhou District has about 245% working in urban areas outside the Tongzhou District. This indicates that the sub-center has initially shown an employment repulsion force. In the future, as the public service facilities such as education and healthcare in the sub-center continue to be optimized and improved, the residential population and employment positions will further concentrate in the sub-center. Given this, it is necessary to focus on the new opportunities and challenges brought by the functional improvement and spatial layout optimization of the sub-center to transportation development.

4. Future development suggestions

The government should deeply improve the industrial foundation of the three northern counties and meet market demands. Leveraging its own advantages, a differentiated development pattern should be formed from the central urban area. Enhance the intelligent transportation system to alleviate traffic pressure. Adjust the duration of traffic lights based on traffic congestion conditions to make road traffic more efficient. For example, during peak hours, according to the queue length of traffic flow in each direction, extend the green light duration of the main roads by 20-30 seconds to improve road traffic efficiency. Green development and sustainable urban planning strategies. Such as formulating the urban scale in line with resource and environmental carrying capacity; protecting the long-standing historical culture; establishing an industrial layout in line with the concept of circular economy; quantifying ecological infrastructure based on space; researching and improving aspects such as resource conservation, protection and utilization through systematic approaches.

5. Conclusion

This article examines the evolution of Beijing’s urban planning since the founding of the People’s Republic of China, highlighting five major revisions that reflect a transition from industrial expansion to a focus on comprehensive functionality, regional coordination, and sustainable development. The first master plan emphasized industrialization and population growth, while subsequent plans gradually refined the city's role and spatial structure. Over time, Beijing’s urban strategy shifted from prioritizing political and cultural functions to embracing broader goals such as becoming a national capital, world-class city, cultural hub, and livable metropolis. Strategic spatial models, such as the "two axes, two belts, and multiple centers," were introduced to support these objectives. Beijing's current economic development framework—"one core, one main, one backup, two axes, multiple points, and one area"—seeks to stabilize economic layout and protect the historical and cultural character of the city’s core. In alignment with national strategies, this structure promotes sustainable growth by integrating spatial planning with economic and environmental goals. However, ongoing transportation challenges remain a pressing concern. Enhancing the functionality of the sub-center, optimizing spatial distribution, and achieving a better balance

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between employment and residential areas are critical. Future development should focus on three key areas: economy, transportation, and sustainability. The three northern counties are encouraged to pursue differentiated development and traffic congestion must be addressed through advanced technologies and smart infrastructure. To ensure sustainable urban growth, planning must also incorporate historical preservation and resource efficiency.

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