Repositioning and Functional Analysis of Metropolitan Planning

ZHANG Li, GAO Runyi

Abstract: Fostering modern metropolitan regions is a national strategy. Although metropolitan planning is being advanced rapidly, practice is characterized by multiple coexisting plan types, overlapping content, and persistent implementation difficulties. After systematically reviewing current metropolitan-planning practices in China, this paper draws on international experience and the direction of national planning-system reform to argue that metropolitan planning should be a comprehensive, macro-guiding statutory plan focused on coordination across administrative boundaries and government departments. Its position should be understood within the national planning system: metropolitan plans should be classified as regional plans, jointly prepared by multiple departments, and submitted to the competent higher-level people's government for approval and implementation. Regional planning, represented by metropolitan planning, should implement national spatial strategies, promote coordinated regional development, clarify relationships among plan types, improve the national planning system, strengthen cross-boundary coordination, and support the dynamic maintenance of local plans.

Keywords: metropolitan region; metropolitan planning; regional planning; planning system

Funding note: National Key R&D Program of China, "Theories and Methods for Territorial Spatial Optimization and System Regulation" (2022YFC3800800).

China has long debated how metropolitan regions should be delimited and planned, and this discussion has generated extensive practice. Research in the 1990s mainly examined their economic attributes from the perspective of regional economic integration [1]. At the beginning of the twenty-first century, plans for the Nanjing, Xuzhou, and Suzhou-Wuxi-Changzhou metropolitan regions marked the entry of the concept into formal planning practice [2-4]. The National New-type Urbanization Plan (2014-2020) introduced the term into a central-government document in 2014 and called for stronger radiating effects from central cities. The 2019 Guiding Opinions on Fostering and Developing Modern Metropolitan Regions then established metropolitan regions as national strategic spatial units. The report to the Twentieth National Congress further placed city clusters and metropolitan regions at the center of a coordinated urban system, giving them an important role in the national development and urbanization pattern.

Recent scholarship has addressed theoretical evolution [1], spatial delimitation [5], implementation of spatial strategies, plan positioning, coordination mechanisms, and spatial governance [6-9]. Studies of metropolitan planning have also examined shifts in governance orientation [10-11], including changes in planning concepts, coordination mechanisms, and government functions, and have explored key fields such as infrastructure, ecological protection, and industrial linkages through local practice [6,12-13]. Research has additionally considered metropolitan territorial spatial planning [14] and sectoral planning. Existing discussion, however, concentrates on conceptual implications, boundary definition, or the content of individual plan types. It has not yet systematically clarified the internal logic, objectives, functions, and preparation rationale of metropolitan planning within the national planning system.

This paper therefore reviews the main types of metropolitan plans and diagnoses the difficulties encountered in their preparation and implementation. It then uses international experience and current planning-system reform to reconsider the position, institutional organization, and functions of

metropolitan planning. The aim is to deepen metropolitan-planning theory and improve the quality of planning practice.

1 Main Types of Metropolitan Planning

Among current metropolitan-planning practices, development planning began earlier and has progressed rapidly. Territorial spatial planning has only recently been initiated in a limited number of regions, while sectoral planning remains at an early stage.

1.1 Metropolitan-Region Development Plans

The 2018 Opinions of the CPC Central Committee and the State Council on Unifying the Planning System and Giving Better Play to the Strategic Guiding Role of National Development Planning defined development planning as an overall blueprint for economic and social development. Applied to metropolitan regions, a development plan specifies the general direction of development and the priorities for coordination. It is both a macro blueprint and a joint action program, and it provides an important basis for governments at all levels to perform functions in economic regulation, market supervision, social governance, public services, and ecological and environmental protection.

Since the National Development and Reform Commission issued the 2019 Guiding Opinions, many localities have prepared metropolitan-region development plans, several of which have received formal replies from the Commission. As Table 1 shows, most are located in southern and southeastern China. Plans formally replied to by the Commission generally cover overall positioning, the broad spatial development pattern, major fields requiring coordination, and implementation mechanisms. Key topics include transport interconnection, industrial-system development, ecological co-governance, shared public services, open cooperation platforms, and institutional reform. These plans have a clear comprehensive character, emphasize long-term development goals and five-year strategic deployment in major fields, and usually extend their outlook to 2035. They are therefore medium- and long-term strategic plans for metropolitan development.

Table 1 Seventeen metropolitan-region development plans since 2020

Plan	Approval	Planning horizon	Cross-provincial	Basic unit	Planning area
Nanjing	2021-03	2025; outlook 2035	Yes	District/county	27,000 km², 20.0 million; extended to 66,000 km², 35.0 million
Fuzhou	2021-07	2025; outlook 2035	No	District/county	26,000 km², 13.0 million
Chengdu	2021-11	2025; outlook 2035	No	City	26,400 km², 27.61 million; extended to 33,100 km², 29.66 million
Changsha-Zhuzhou-Xiangtan	2022-03	2025; outlook 2035	No	District/county	18,900 km², 14.84 million
Xi'an	2022-03	2025; outlook 2035	No	District/county	20,600 km², 18.02 million
Chongqing	2022-08	2025; outlook 2035	Yes	District/county	35,000 km², 24.40 million
Qingdao	2023-10	2030; outlook 2035	No	District/county	21,500 km², 15.58 million
Guangzhou	2023-10	2030; outlook 2035	No	District	20,000 km², 32.57 million
West Bank of Pearl River Estuary	2023-10	2030; outlook 2035	No	City	21,000 km², 14.353 million
Shantou-Chaozhou-Jieyang	2023-10	2030; outlook 2035	No	City	10,600 km², 13.75 million

Zhanjiang-Maoming	2023-10	2030; outlook 2035	No	City	24,700 km², 13.27 million
Shenzhen	2023-10	2030; outlook 2035	No	District/county	16,300 km², 34.15 million
Jinan	2024-02	2030; outlook 2035	No	District/county	22,300 km², 18.10 million
Wuhan*	2022-12	-	-	-	-
Shenyang*	2023-02	-	-	-	-
Hangzhou*	2023-08	-	-	-	-
Zhengzhou*	2023-10	-	-	-	-

* No formal development-plan text was found, although relevant reports are available.

1.2 Metropolitan Territorial Spatial Plans

Territorial spatial planning is a key instrument for allocating spatial resources and regulating development and protection. It seeks to coordinate administrative boundaries with metropolitan spatial guidance and to integrate spatial control, governance institutions, and policy design. The Technical Regulation for the Preparation of Metropolitan Territorial Spatial Plans, implemented by the Ministry of Natural Resources on 1 April 2024, specifies principles, preparation priorities, implementation safeguards, and deliverable requirements. Core tasks include identifying current spatial conditions and key coordination units, defining development objectives, planning spatial structure and public-service facilities, and coordinating ecological conservation, infrastructure, disaster resilience, transport, and cultural and natural landscape protection.

Several provinces and cities have begun relevant work. Sichuan approved the Chengdu Metropolitan Territorial Spatial Plan, Zhengzhou completed public consultation, and plans for Changsha-Zhuzhou-Xiangtan, Jinan, and Greater Shanghai are being prepared. Compared with development plans, these documents have stronger spatial guidance and a five-year planning period. The regulation requires them to conform to the national territorial spatial planning outline and connect with provincial territorial spatial plans. In practice, however, published drafts still vary greatly in depth. Their overall orientation, broad conceptual content, and large difference in subject area from development plans also make their substantive position uncertain.

1.3 Metropolitan Sectoral Plans and Their Relationship with Territorial Spatial Planning

The concept of sectoral planning has long been ambiguous in planning practice and academic discussion. The 2018 Opinions define sectoral plans as plans prepared to guide development in a specific field, arrange major projects, allocate public resources, and formulate relevant policies. The 2019 Opinions on Establishing a Territorial Spatial Planning System and Supervising Its Implementation define territorial spatial planning as detailed planning and relevant sectoral planning for development, protection, and construction activities within a given area. Sectoral planning concerns special institutional arrangements for territorial development and protection within a specific region or field and provides dedicated plans for the use of space.

Sectoral plans within the territorial spatial planning system include plans related to territorial spatial use and plans in other fields. The former commonly cover ecological restoration, comprehensive land consolidation, heritage protection, housing, and transport; the latter include planning for cross-basin territorial space and other departmental responsibilities. The regulation explicitly classifies metropolitan territorial spatial planning as a cross-administrative-area territorial spatial sectoral plan.

Yet metropolitan coordination also involves electricity and gas networks, waste incineration locations, water-source and wastewater-facility placement, rail alignments, ecology, industry, public services, water, and energy. These fields involve different departments and require multi-actor consultation.

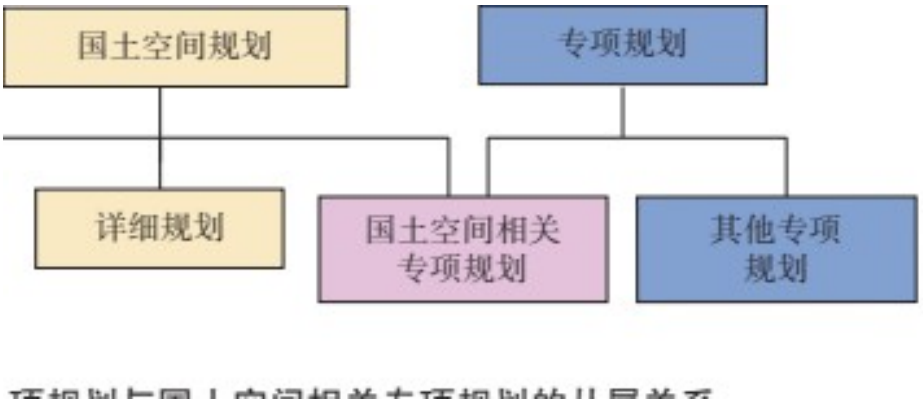

Fig. 1 Subordinate relationship between sectoral plans and territorial-spatial sectoral plans

From the content of planning and the multiplicity of responsible actors, metropolitan sectoral planning cannot be fully accommodated within territorial spatial planning. Separate metropolitan sectoral plans remain necessary. At present, sectoral planning at this scale is still exploratory. Apart from development plans already acknowledged by the National Development and Reform Commission, relevant commissions and departments have proposed intentions in transport, industry, public services, water, energy, and ecology [15].

2 Practical Difficulties in Metropolitan Planning

2.1 Unclear Interfaces among Plan Types and Administrative Levels

Current mainstream metropolitan plans are development plans and territorial spatial plans. The 2018 Opinions call for a national planning system led by development planning, based on spatial planning, and supported by sectoral and regional planning. At the metropolitan scale, the integrative and strategic character of development planning should guide territorial spatial and other sectoral plans. Yet metropolitan planning overlaps with sectoral planning in actual practice. Development plans and territorial spatial plans also differ substantially in their time horizons: the former usually cover five years with an outlook to 2035, while the latter generally cover fifteen years. This creates a discontinuity in which a shorter-term development plan is expected to guide a longer-term spatial plan.

Internal and external relationships are also difficult to coordinate. The national territorial spatial planning system has developed a relatively complete five-level, three-category, and four-system framework [16], with clearer vertical transmission among national, provincial, municipal, county, and township plans [17-18]. Metropolitan regions, however, cross administrative boundaries. Their territorial spatial plans should guide the plans of constituent administrative units, while the regulation also requires them to implement relevant provincial plans. Because province-level and lower-level master plans are largely complete and entering approval and implementation [19], metropolitan plans may duplicate their content while touching only lightly on the core cross-boundary conflicts they are expected to resolve.

2.2 Blurred Content Boundaries between Development and Territorial Spatial Plans

A metropolitan region is a city-region structure whose defining feature is a commuting relationship that exceeds the traditional urban area or municipal boundary [20]. In practice, metropolitan regions have become spatial-governance units that cross administrative boundaries. Their planning scale extends beyond the traditional concept of commuting and addresses integrated development and cross-regional coordination in both space and economic and social affairs [21]. Spatial and development issues are therefore closely linked, and the intended objective is integrated coordination at the metropolitan scale.

Development plans and territorial spatial plans nevertheless begin from separate disciplinary viewpoints. Each tends to be vague about the other's concerns, and both lack sufficiently clear scope and depth [22]. The 2019 Guiding Opinions emphasize infrastructure, industrial division, market integration, public services, ecological protection, urban-rural integration, and comprehensive fostering of modern metropolitan regions. With the exception of market development, the regulation includes nearly all of these themes. Examples include integrated transport and integrated public-service facilities, which differ in wording but substantially overlap in content.

During metropolitan construction, this separation can produce planning concepts detached from spatial development and spatial planning detached from practical problems. Large areas of intersecting content may also lead to different interpretations or competing treatment of the same object and government function.

2.3 Parallel Multi-actor Coordination and Difficult Implementation

The cross-regional character of metropolitan regions makes plan preparation an interregional coordination process. Local governments pursue their own interests and often prioritize local economic and social development. Peripheral cities in some triangular core areas actively connect with the central city mainly through regional cooperation, seeking industrial transfer, capital concentration, and other competitive advantages. Under China's centralized governance framework, the absence of a central metropolitan coordinating body means that equal dialogue and bargaining among governments often fail to produce an effective balance of interests. A formalized consensus-building path is also lacking.

Metropolitan regions therefore find it difficult to build stable cross-regional policy-coordination frameworks, and implementation remains weak [23]. Nanjing, Hangzhou, Zhengzhou, and Chengdu have explored three-tier coordination arrangements covering consultation, decision making, and implementation, but most have not moved beyond an initial stage. The Greater Shanghai Metropolitan Region's spatial coordination plan was jointly approved by the governments of Shanghai, Jiangsu, Zhejiang, and Anhui, indicating an intention to seek higher-level authority for coordinated implementation.

3 Repositioning Metropolitan Planning and Reconsidering Its Functions

Given these practical difficulties and international experience, metropolitan planning should not remain confined to development planning or territorial-spatial sectoral planning. Its position should be

reconsidered within the national planning system. It should become a statutory regional-planning mechanism that guides coordination across plan types and supports the implementation of national spatial strategies.

3.1 Lessons from International Practice

Tokyo, New York, Greater London, and Seoul have accumulated extensive experience in cross-regional planning. First, regional planning is treated as joint planning for a shared area, with broad government and social participation. Multi-region and multi-level governments negotiate to reach consensus and jointly prepare regional plans. Regional organizations and other actors also serve as important tools for aggregating interests [24].

Second, implementation mechanisms and legal safeguards are sufficiently developed. Japan's Metropolitan Area Readjustment Act, the United Kingdom's Greater London Authority Act, and South Korea's Seoul Metropolitan Area Readjustment Planning Act provide legal continuity for organizations, taxation, financing, and development policies [25]. Many countries have also established dedicated regional-development coordination and management institutions. The Greater London Authority, created in 1964, strengthened the government's macro-level guidance for metropolitan development [26].

Third, metropolitan plans coordinate regional spatial structure, infrastructure, and action planning through organizational mechanisms. Greater London planning operates as a regional spatial strategy: strategic planning defines development objectives, and subregional planning translates policies into spatial action [27]. New York's regional plans adopt a problem-oriented approach and formulate regional plans and policies around issues that improve cross-regional connectivity [28].

3.2 Regional Planning in the National Planning System

The Decision of the Third Plenary Session of the Twentieth CPC Central Committee in July 2024 called for improving the national strategic planning system and policy coordination mechanism, strengthening plan articulation and implementation, maintaining the strategic guidance of national development planning, reinforcing the foundational role of territorial spatial planning, and enhancing the implementation-support role of sectoral and regional planning. The basic structure established by the 2018 Opinions has therefore remained stable. Development, territorial spatial, sectoral, and regional planning should be understood as approximately parallel plan types under the leadership of development planning.

Their functions differ. Development planning strengthens guidance for regional competitiveness and serves as an overall action program. Territorial spatial planning translates objectives into space, establishes bottom-line constraints, and optimizes spatial structure. Sectoral planning coordinates and implements specific fields corresponding broadly to departmental responsibilities. Regional planning should focus on cross-regional coordination. Yet national practice has long emphasized professional plans led by departments and industries, including territorial spatial, transport, water, and ecological plans. Regional planning has no single corresponding department and has been marginalized during the current multi-plan integration and territorial spatial planning reforms, despite a long history of theory and practice [1].

Regional planning fills gaps between plans at different levels by integrating resources and coordinating cross-boundary conflicts in development, space, and sectoral affairs. Earlier regional plans contributed substantially to the national distribution of productive forces through programs such as jointly selected industrial locations, seven major economic regions, and Third Front construction [29-30]. After the goal of establishing a market economy was confirmed in 1992, regional planning gradually became a policy lever for strengthening departmental functions and directing efficient resource allocation [30]. Development, spatial, and sectoral regional plans consequently formed three relatively separate systems. Because responsible departments often maximize their own performance and lack an effective dialogue mechanism, plans overlap, conflict, and remain weakly coordinated. A more effective regional-planning institution is therefore an important missing component of the national planning system.

3.3 Repositioning Metropolitan Planning

Metropolitan planning should move beyond traditional administrative units and single plan types. The national objective of coordinated regional development and an urban system supported by city clusters and metropolitan regions indicates that these areas are major spatial carriers of future development. Coordination already extends beyond spatial matters or socioeconomic indicators and requires systemic solutions across administrative boundaries and policy fields.

Drawing on international experience, metropolitan planning should integrate the core content of development and spatial planning. It should combine strategic guidance with spatial support and implementable measures. Accordingly, a metropolitan plan should be a comprehensive regional plan jointly prepared by multiple departments, a guiding instrument for cross-administrative and cross-departmental issues, and a statutory plan. Ecological systems, industry, transport, public services, and the spatial base are mutually dependent, and their cross-regional coordination is central to high-quality metropolitan operation [31].

Preparation should be organized through close cooperation among relevant ministries, provinces, cities, and departments. Given China's territorial scale and the different development stages of its metropolitan regions, each plan should identify the main development and spatial-operation conflicts of its constituent cities and counties. Flexible interdepartmental teams can then focus the plan and improve coordination. Cross-provincial plans should generally be approved by the State Council, and cross-municipal plans by the competent provincial government; plans involving major national interests may be elevated to State Council approval. Where necessary, an approved metropolitan plan may also be supported by legislation at the corresponding level.

3.4 Reconsidering the Functions of Metropolitan Planning

3.4.1 Implementing National Spatial Strategies and Promoting Coordinated Regional Development

Since the Fourteenth Five-Year Plan, metropolitan regions have become major carriers of new-type urbanization, the dual-circulation development pattern, and national development strategies. Metropolitan planning is an important instrument for their effective operation and for constructing a coordinated regional-development pattern. Unlike many Western planning systems with established traditions of horizontal coordination, China's system combines strong vertical administration with urban

governance structured by administrative jurisdictions. Regional coordination among administrative actors consequently remains difficult [13].

Metropolitan plans should therefore function as higher-level strategic guidance documents. Through regional leadership and coordination, they can direct and incentivize governments and departments to advance metropolitan development, while supporting implementation and supervision from the strategic blueprint to physical construction. Regional plans, including metropolitan plans, are thus effective instruments for implementing national spatial strategies.

3.4.2 Clarifying Relationships among Plans and Improving the National Planning System

Since the 2018 Opinions, the boundaries and positions of major plan types have gradually become clearer. Metropolitan practice has nevertheless produced a complex collection of development, spatial, and sectoral plans, creating substantial administrative coordination costs. In an ideal sequence, national development planning would first define the national system of metropolitan regions. The national territorial spatial planning outline would provide the spatial basis, national sectoral plans would supply specialized support, and regional plans for metropolitan regions, city clusters, and river basins would directly implement national spatial strategies.

Repositioning and integrating metropolitan planning within this structure can simplify procedures and close the administrative logic of the national planning system. Metropolitan planning should serve as an intermediate hub that carries national strategies downward and connects local plans upward. It would implement national strategy, improve the transmission of local planning, and provide the supporting function assigned to regional planning.

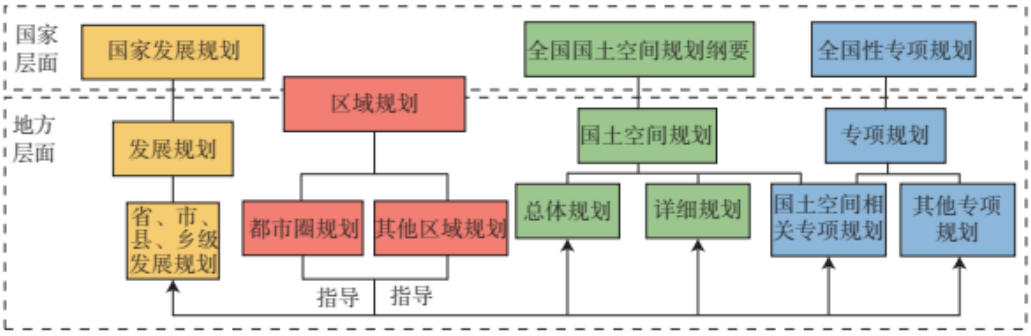

Fig. 2 Relationship among development planning, regional planning, territorial spatial planning, and sectoral planning

3.4.3 Strengthening Cross-boundary Coordination and Dynamically Maintaining Plans at All Levels

China has established development, territorial spatial, and sectoral plans at all administrative levels, with relatively clear top-down transmission. Adding a new metropolitan level across established administrative boundaries could increase coordination costs and produce a transmission paradox. The metropolitan planning proposed here, however, is not a comprehensive blueprint that directly adds another vertical tier. It is a guiding regional plan for specific spatial areas and concrete cross-regional cooperation problems.

Because metropolitan regions span municipalities and sometimes provinces, their plans should be forward-looking and ideally prepared alongside, or before, plans for constituent jurisdictions. In reality, preparation began late, after more than 90 percent of municipal and county territorial spatial plans had already been approved. Metropolitan planning can no longer directly guide much of their existing content. It should still avoid becoming a simple aggregation of plans. Provincial, municipal, and county territorial spatial plans have concentrated on the three control zones and three lines, often addressing cross-boundary conflicts only briefly. Development and sectoral plans also remain organized mainly by administrative level and weakly coordinate cross-regional factors.

Regional planning represented by metropolitan planning can fill this gap. It can provide a basis for performance evaluation and dynamic adjustment of plans at different levels and of different types, thereby supporting the coordination and long-term operation of the planning system.

4 Conclusion

Metropolitan planning is now widespread, but its position and functions remain insufficiently understood. This paper has reviewed the principal types and practical difficulties of existing plans and reconsidered metropolitan planning in light of international practice and national planning-system reform.

A planning system led by development planning, founded on territorial spatial planning, and supported by sectoral and regional planning has taken shape. Deeper integration is now needed. Metropolitan regions are inherently cross-regional and cross-departmental, and planning at this scale should promote ministerial cooperation and equal interregional dialogue while strengthening the integration of major national strategies. Maintaining parallel development, spatial, and sectoral plans with overlapping approval bodies and unclear content boundaries reproduces the administrative complexity that multi-plan integration sought to reduce.

Metropolitan planning should therefore be organized from the perspective of the national planning system [32]. Development, territorial spatial, and sectoral planning should be integrated at the metropolitan scale through joint preparation by multiple ministries and governments, and the resulting document should be treated as regional planning. Regional planning is positioned to resolve developmental and spatial conflicts across administrative areas. It includes metropolitan plans and other region-based plans such as river-basin, city-cluster, and macro-regional plans. This interpretation clarifies the role of regional planning and contributes to the improvement of the national strategic planning system. Future research should further define the content frameworks and boundaries of each plan type.

Notes

① The Technical Regulation for the Preparation of Metropolitan Territorial Spatial Plans, organized by the Ministry of Natural Resources, took effect on 1 April 2024 and further specified the concepts and principal content of such plans.

② For example, the Chengdu Metropolitan Territorial Spatial Plan.

References

[1] Shen Mingrui, Wang Ziqing, Cui Gonghao. Metropolitan regions in China: theoretical origins and planning practice [J]. Urban Planning Forum, 2023(2): 57-66.

[2] Zhang Wei. The concept and characteristics of metropolitan regions and their planning [J]. City Planning Review, 2003(6): 47-50.

[3] Luo Chengshu, Cheng Yushen. Spatial structure and evolutionary mechanisms of the Hangzhou metropolitan region [J]. Urban Development Studies, 2017, 24(6): 30-38.

[4] Wang Xingping, Zhu Kai. Innovation spaces in metropolitan regions: types, patterns, and evolution, with Nanjing as a case [J]. Urban Development Studies, 2015, 22(7): 8-15.

[5] Qian Zihua. Conceptual and spatial delimitation of metropolitan regions [J]. Planners, 2022, 38(9): 152-156.

[6] Yin Zhi, Shang Yanran, Cui Yin, et al. Theoretical framework and practice of modern metropolitan planning [J]. Planners, 2023, 39(4): 5-10.

[7] Lu Qingqiang, Long Maoqian, Ouyang Peng, et al. Regional collaborative governance and contract-based collaborative planning: restructuring metropolitan governance and changing planning concepts [J]. City Planning Review, 2024, 48(2): 12-19.

[8] Zhou Y, Xu H, Wang Y, et al. Promoting coordinated spatial governance of mega-cities in China via spatial organization of metropolitan areas [J]. Frontiers of Urban and Rural Planning, 2024, 2(1): 24.

[9] Wu Zhiqiang, Yan Juan, Xu Haowen, et al. Ten key annual issues in the development of urban-rural planning, 2024-2025 [J]. Urban Planning Forum, 2024(6): 8-11.

[10] Long Maoqian, Li Wan, Hu Ming, et al. New logic and directions of change in metropolitan governance in China [J]. Planners, 2020, 36(3): 12-16.

[11] Zhang Yishuai, Huang Jianzhong, Wang Qixuan, et al. Metropolitan governance in China from the perspectives of rescaling and metagovernance [J]. Planners, 2023, 39(4): 19-27.

[12] Xiong Jian, Fan Yu, Zhang Zhenguang, et al. Innovations in spatial-coordination planning for the Greater Shanghai Metropolitan Region under regional coordination and spatial governance [J]. Urban Planning Forum, 2022(2): 76-82.

[13] Wang Guangtao, Ye Qing, Li Fen, et al. Reflections on fostering modern metropolitan regions [J]. Urban Planning Forum, 2019(5): 14-23.

[14] Xiong J, Sun J, Tu Q, et al. Theory building and technical innovations for spatial planning of China's metropolitan areas: insights from planning of Greater Shanghai Metropolitan Area [J]. Frontiers of Urban and Rural Planning, 2024, 2(1): 19.

[15] Wu Wenxi. Zhengzhou approved as the tenth national metropolitan region, with a high goal of international influence [N]. 21st Century Business Herald, 2023-11-01(006).

[16] Rong Yuefang. Research on the metropolitan-planning preparation system [J]. Urban Planning Forum, 2003(4): 78-84.

[17] Zhao Min. Logic and operational strategies for constructing the territorial spatial planning system [J]. Urban Planning Forum, 2019(4): 8-15.

[18] Xu Jing, Yang Xi. Territorial spatial planning transmission systems and implementation mechanisms [J]. China Land, 2020(8): 21-24.

[19] Hao Qing, Yang Fan. Territorial spatial support for Chinese modernization: concluding remarks on the special issue [J]. Journal of Natural Resources, 2022, 37(11): 3033-3036.

[20] Wang Xingping. Metropolitanization as a new stage of urbanization in China [J]. Urban Planning Forum, 2002(4): 56-59.

[21] Zhang Shuangyue. Evolutionary logic, challenges, and strategies for metropolitan planning and development [J]. Technoeconomics and Management Research, 2024(4): 96-100.

[22] Zhang Tinglin, Sun Bindong. Delimiting the spatial extent of current metropolitan planning in China [J]. Urban Planning Forum, 2023(4): 104-109.

[23] Zhang Jingxiang, Hu Hangjun. Metropolitan development, planning, and governance innovation under the new development environment [J]. Economic Geography, 2023, 43(1): 17-25.

[24] Bai Zhili. Theory and practice of broad-area administration in Japan: the development of the Tokyo Capital Region [J]. Japan Studies, 2017(1): 10-26.

[25] Hu Mingyuan, Gong Pu, Chen Huaijin, et al. Fostering modern metropolitan regions as the key to high-quality city-cluster development during the Fourteenth Five-Year Plan [J]. Administration Reform, 2020(12): 19-29.

[26] Wu Qian. Spatial planning for foreign capital megacity regions under rescaling [J]. Urban Planning International, 2019, 34(2): 78-85.

[27] Du Kun, Tian Li. Implementation framework and content of urban strategic planning: lessons from the Greater London implementation plan [J]. Urban Planning International, 2016, 31(4): 90-96.

[28] Zhang Chun, He Canfei. Metropolitan regions and spatial planning: international experience [J]. Urban Planning International, 2010, 25(4): 85-91.

[29] Lu Dadao. Theory and Practice of Regional Development in China [M]. Beijing: Science Press, 2006.

[30] Chen Ming, Shang Jing. Evolution and future trends of regional planning [J]. Urban Development Studies, 2015, 22(12): 70-76.

[31] Yin Zhi, Shang Yanran, Cui Yin, et al. Theoretical framework and practice of modern metropolitan planning [J]. New Urbanization, 2023(8): 33-39.

[32] Zhao Min, Cheng Yao. Hierarchical and categorical construction of the national planning system: the logics of zoning and systems [J]. City Planning Review, 2025, 49(3): 4-11.

AI-assisted translation