

New Strategy and Kinetic Energy Regeneration for the Development of China's Urban Agglomeration

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Abstract: The rapid development of modern urban agglomerations has reshaped the territory of China's economic geography and reconstructed the spatial forms of Chinese cities and regions. Since the reform and opening-up, China's urban agglomerations have experienced three stages, i.e. spontaneous cultivation, rapid growth, and the super leading role of planning. The giant development area composed of super urban agglomerations is becoming an emerging geographic unit that improves the urban development quality, promotes regional integration processes and participates in global industrial competition and innovative resource allocations in China. While encountering challenges such as insufficient innovation kinetic energy and implementation difficulties of cross-regional coordination mechanisms, it has also ushered in new opportunities brought about by the shift of the global urban network system focus, the accelerated formation of high-speed rail urban belts, the rise of innovative geographic unit communities, etc. As entering the new era, centering on the high-quality development requirements of urbanization and urban agglomerations, China should establish a new mechanism for more effective coordinated regional development, build an urban pattern of coordinated development of large, medium and small cities and towns with urban agglomerations as the main body, comprehensively enhance the competitiveness of urban agglomerations and regions, and take a steady and innovation-driven road to modernization.

Keywords: urban agglomeration; giant development area; kinetic energy regeneration; multi-center; integration

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Urban agglomerations are the product of the advanced stages of regional urbanization and the highest organizational form of regional spatial forms dominated by big cities. Since the Industrial Revolution, the urbanization process of the world shows that the spatial development of modern cities and its drive to the surrounding areas have basically followed the evolution of single-center decentralized, regional-centralized and network-multi-central trajectories, which has promoted the development of urban agglomerations and the improvement of the multi-level and multi-directional division of the labor system within the modern urban agglomerations and enhanced the comprehensive economic strength and competitiveness of regions and even the country. Over the past 40 years, the urbanization process of contemporary China has experienced the equivalent of more than 200 years of development in western developed countries. The rapid formation and development of urban agglomerations, while supporting “urban China,” are also reshaping the territory of Chinese economic geography and reconstructing the framework of the global urban system, which has become an important carrier for leading China's modernization and participating in international competition. In the new era, the new strategy of China's future regional coordinated development is to establish a more effective new mechanism for regional coordinated development, and to build an urban pattern for the coordinated development of large, medium and small cities and towns with urban agglomerations as the main body.^① Therefore, based on grasping the dominant regions of modern urban agglomerations and the new patterns of national development, it is of great practical significance and value to comprehensively review and recognize the stage characteristics and new missions of China's urban agglomeration development centering on the national strategic goals of building multiple world-class urban agglomerations.

1. Process and stage characteristics of urban agglomeration development in China

The modern urban agglomeration supported by regional economic integration is an advanced stage of the national urbanization and is a more intensive, efficient and quality-oriented regional development mode. In the process of urbanization in China since the reform and opening-up, the urban industrial space reorganization and the urban-rural integration development driven by regional economic integration have become a very distinctive feature. The natural emergence and conscious development of urban agglomerations not only have cultivated new growth poles of economic development but also have strengthened the scale effect and comprehensive strength of central cities through the two-way action of agglomeration and overflow, and have improved the development level of large regions beyond the administrative jurisdictions. Especially after entering the 21st century, with the full implementation of the domestic regional development strategy, China's regional integration process is accelerating and the economic and social development connections among cities in adjacent geographic spaces or along the traffic belts are better connected. The collaborative urban agglomerations dominated by transportation networks, industrial systems and social service integration have become a new strategic development orientation. China's early-developing regions such as the Yangtze River Delta and the Pearl River Delta have been upgraded from a loosely connected regional urban agglomeration to a global super urban agglomeration through the big platforms

① Xi, 2017, p.33

of regional development integration to comprehensively improve the level of internationalization. Therefore, accelerating the development of urban agglomerations is a successful strategy for China's developed regions to directly participate in the global industrial division of labor and build regional and national value chains by reconstructing regional spatial forms.

Since the reform and opening-up, the development process of China's urban agglomerations has directly corresponded to the continuous improvement of the urbanization process and urbanization rate. In March 1978, the State Council convened a national urban work conference to restart urbanization at the national level. At that time, the overall population urbanization rate was less than 18%. In the 1980s and 1990s, despite the reform and opening-up and the vitality of urban-rural development, the process of urbanization lagged far behind the industrialization process due to the constraints of the planned economy and the household registration management system. In particular, the policy of "strictly controlling the scale of large cities, rationally developing medium-sized cities, and actively developing small cities" led to the blockage of urban scale expansion. The independent development of single cities dominated by administrative regions made it difficult for urban agglomerations and metropolitan areas subject to the law of market element allocation to form the mechanisms and policy support for integrated development. After entering the 21st century, when China's urbanization rate was close to 40% and per capita GDP had reached about USD 1,000, especially with the shift of global industrial focus brought about by China's accession to the WTO, China's industrialization process accelerated, and a large number of industrial zones, new urban districts and high-tech zones sprang up. The spatial value of the adjacent areas of big cities and central cities was reflected, which led to the rapid rise of metropolitan areas and urban agglomerations around big cities and central cities. However, on the whole, people's understanding of the concept and connotation of metropolitan areas and urban agglomerations at this stage was still relatively shallow, and the planning and construction were still limited at the local level.

It was during the Eleventh Five-Year Plan that the concept and strategy of modern urban agglomerations were conducted and implemented at the national level. At the end of 2005, the Proposal on Formulating the Eleventh Five-Year Plan for National Economic and Social Development released by the Central Committee of the Communist Party of China, for the first time, adopted the concept of "urban agglomeration" in state planning, requiring "taking megacities and big cities as the leading role to form new urban agglomerations with less land, more employment, strong element agglomeration capacity and reasonable population distribution," and put forward the strategic task of enhancing the overall competitiveness of urban agglomerations in the Pearl River Delta, the Yangtze River Delta and the Circum-Bohai-Sea Region which already had relatively strong economic strength at that time. As a result, during the Eleventh Five-Year Plan period, the planning and promotion of modern urban agglomerations officially entered the national strategy, and the urban agglomerations rose to the core position in the grand strategy of China's urbanization and became the leading task. During this period, the State Council issued the Guiding Opinions on Further Promoting the Reform and Opening-up and Economic and Social Development in the Yangtze River Delta Region and the Outline of the Plan for the Reform and Development of the Pearl River Delta Region (2008-2020) and other documents, clearly specifying the specific requirements for the construction of urban agglomerations in the Yangtze River Delta and the Pearl River Delta. Meanwhile, the national urban agglomeration strategy further promoted the planning of regional urban agglomerations. The research group of the National Development and Reform Commission proposed the planning of China's top ten urban agglomerations in 2007. The Ministry of Housing and Urban-Rural Development formulated the National Urban System Planning

Outline (2005-2020), which proposed to form three major metropolitan interlocking regions including Beijing-Tianjin-Hebei, Yangtze River Delta and Pearl River Delta and 13 urban agglomerations in China. Then, the “main functional area planning” of the national land space planning was implemented. The National Main Functional Area Planning—Building an Efficient, Coordinated, and Sustainable Land and Space Development Pattern released in 2010 proposed the urbanization strategy of “two horizontal and three vertical axes” for the stratification and grading of each region and defined the spatial pattern for the development of major urban agglomerations. In general, during the Eleventh Five-Year Plan period, the guidance on the strategy and planning of urban agglomerations from the State Council and the three major departments including the Development and Reform Commission, the Ministry of Housing and Urban-Rural Development and the Ministry of Land and Resources effectively promoted the new urbanization strategy dominated by urban agglomerations and basically established the spatial extent and development orientation of major urban agglomerations.

The strategic advancement of urban agglomerations and metropolitan areas was inseparable from the continuous improvement of China's urbanization rate. During the period of the Tenth Five-Year Plan and the Eleventh Five-Year Plan, China's urbanization process entered the acceleration stage. China's urbanization rate reached 50%, indicating the arrival of the “urban China” era. With the continuous growth of China's economic strength, China had become the world's second largest economy by 2011. China's voice in global economic activities and urban systems continued to increase. The modernization process of the super urban agglomeration with highly open and integrated development and the metropolitan area leading regions gradually developed. After entering the Twelfth Five-Year Plan, China's regional development took the initiative to conform to the general trend of urban agglomeration integration and the urban agglomeration strategic planning highlighting the “clustering development” which accelerated to replace the original urban development strategic planning so as to seek solutions for problems such as the homogeneous competition and the increasingly severe urban diseases, which placed more emphasis on cooperation and coordinated development among cross-regional cities and towns. In 2012, the report of the 18th National Congress of the CPC clearly stated that we should “scientifically plan the scale and layout of urban agglomerations.” In the Decision of the Central Committee of the Communist Party of China on Several Major Issues Concerning Comprehensively Deepening Reform issued in 2013, it further emphasized that urban agglomerations should improve core issues of the healthy development mechanism and play a strategic guiding role in “promoting the coordinated development of small cities and towns.” This reflected the guiding ideology of the five-sphere integrated plan promoting coordinated economic, political, cultural, social and economical advancement in China's urban agglomerations and regional developments. It was an optimization and improvement of the urban agglomeration development strategy under the guidance of new development concepts. It further highlighted the rational division of labor, the functional complement and coordinated development of large, medium and small cities and towns under the main form of urban agglomeration and emphasized the “one blueprint” under the top-level design. At the same time, the National New Urbanization Plan (2014-2020) was issued to further emphasize the new people-oriented urbanization strategy and promote the coordinated development of large, medium and small cities and towns with urban agglomerations as the main form.

Entering the Thirteenth Five-Year Plan period, along with China's greater role in global economic development, building a modern urban agglomeration with world influence and innovative drive, and maximizing the integration of regional and global innovative resources to achieve the goal of steadily improving national competitiveness became the new strategic choice. The construction of the world-class urban agglomerations in

the Yangtze River Delta, the Guangdong-Hong Kong-Macao Greater Bay Area, and the decision of the Central Government to establish the Xiong'an New Area in Hebei province fully demonstrated the national strategy. In June 2016, the Development Plan of the Urban Agglomeration in Yangtze River Delta was officially released, which set the goal of comprehensively developing a world-class urban agglomeration with first-rate quality by 2030. In April 2017, the establishment of the Xiong'an New Area in Hebei, which was regarded as "a state affair and a millennium plan," was a major decision and deployment for deepening the coordinated development of Beijing, Tianjin and Hebei and resolving Beijing's non-capital function, which would provide a demonstration for the development of China's new urban agglomerations in the construction of green and ecologically livable cities, and the achievement of innovative, coordinated and open developments.

In the light of the above description of the evolution of contemporary Chinese urban agglomerations, the comprehensive considerations based on three dimensions including the steady improvement of the urbanization rate, continuous optimization of strategies and policies for the national urban agglomerations and the implementation of the planning scheme with demonstration and leading roles. The development process of China's urban agglomerations can be divided into three stages since the reform and opening-up.

The first stage was the spontaneous cultivation period of the traditional urban agglomeration, which was roughly from 1978 to the early 21st century. Under the policy of the planned economic system constraints, the beginning of industrialization and the country's discouragement of the development of large cities, the urban agglomerations during these 20 years had developed slowly, and there was even periodic stagnation. But this was the price that must be paid in the process of establishing a socialist market economic system and on the development road of changing from "rural China" to "urban China."

The second stage was the rapid growth period of the modern urban agglomerations. The main period was the approximately 10 years of the Eleventh Five-Year Plan and Twelfth Five-Year Plan. After China officially joined the WTO in 2003, the economy and urban development became highly connected to the international community, especially when the urbanization rate exceeded 50%, and China became the second largest economy in the world. The rapid development of modern urban agglomerations that conformed to the law of urbanization became an important way to promote regional integration and eliminate urban-rural differences. However, during this period, the land urbanization was dominated by local governments, and the internal development quality of urban agglomerations was not high.

The third stage was the promotion period for the super urban agglomeration planning, and the period at the end of the Twelfth Five-Year Plan and the early stage of the Thirteenth Five-Year Plan. It was mainly embodied in the people-oriented mechanism design and spatial form of regional integration, high openness, high-frequency interactions. It was also embodied in the five-sphere integrated plan of urban agglomeration and large-area linkage development and coordinated development. The internal development of urban agglomerations turned to spatial intensification and efficient green. The outward development highlighted the connection to national urban systems and innovation networks, and the interconnections and deep integration became consensus.

In accordance with the process of the urbanization in contemporary China, after entering the third stage, the super scale, morphological networks and divisions of labor systematization have become important performance characteristics of the urban agglomeration development in China. In the future, under the backbone of modern high-speed rail transit, the speed of cross-regional clustering will be further accelerated. At present, China's urbanization rate has reached 57%. It will exceed 60% by 2020 which should be at the end of the Thirteenth Five-

Year Plan, and it will be close to 70% by 2030. The Northam Curve^① of urbanization shows that this period will be characterized by the accelerated agglomeration development of cities. The development process of the world-class urban agglomerations that have been formed in the United States, North America and Japan have shown that when the urbanization rate of a region exceeds 70%, the trend of cluster developments and collaborative divisions of labor among cities will become more obvious and the spatial state of giant development areas will be accelerated. According to the promotion direction of China's new urbanization strategy, the secondary urban agglomerations and metropolitan areas under the leadership of super urban agglomerations will further enhance the quality of urbanization while accelerating agglomeration. In order to enter the ranks of innovative countries in 2020 and realize basic modernization by 2035, China must cultivate emerging regional units with direct participation in global industrial competition and the divisions of labor in value chains, making them become places of concentrated and internationalized innovative resources. Therefore, it is the rational choice and due mission of China's urbanization to make good use of the leading role of modern urban agglomerations at the national strategic level, promote the coordinated development of regions, cultivate emerging regions with global competitiveness and build a highly modernized country with high-quality urbanization.

2. Characteristics and strategic positioning of China's urban agglomeration mega-development

The process of urban agglomeration and regional modernization in the world indicate that regional integration is the booster of economic growth, while the formation of urban agglomerations and metropolitan areas is first manifested as spatial intensification of regional integration, forming efficient economic regions. This is the source and important driving force of economic development in developed countries. From the perspective of economics, the development of urban agglomerations or metropolitan areas focuses on the spatial organization of economic activities and the spatial allocation of resource elements in large regions and pays much attention to the agglomeration and diffusion mechanisms among cities and between cities and regions. In the modern sense, the urban agglomeration or metropolitan area is a giant urban economic zone, which is a geographically connected economic zone composed of one or several different cities and the surrounding rural areas. It is a specific combination of spatial elements in a certain area, which has greater advantages than other areas in terms of industrial structure, organizational structure, spatial layout, degree of specialization, location conditions, infrastructure, and spatial agglomeration of elements. Influenced by the spatial distribution characteristics of cities, the level of social and economic development, and the spatial accessibility determined by traffic conditions, there are differences in the development degree of spatial elements, the spatial aggregation characteristics, the spatial agglomeration of economic activities and the spatial diffusion modes in the formation process of urban agglomerations, thus forming different types of urban agglomerations and metropolitan areas.

At present, China's urbanization process has entered the new stage of spatial development dominated by urban agglomerations and metropolitan areas. The planning guidance of the Belt and Road Initiative, the Beijing-

^① The American urban geographer Ray. M. Northam discovered and proposed the "Northam Curve" in 1979: The urbanization process is divided into three phases: the start phase, the acceleration phase, and the maturation phase. There will be suburban urbanization during the acceleration phase, and there will be counter urbanization during the maturation phase.

Tianjin-Hebei integration, the Yangtze River Delta urban agglomeration and the Guangdong-Hong Kong-Macao Greater Bay Area, plus the rapid construction of the high-speed railway network and the gradual formation of the high-speed rail urban belt have already reshaped the country's economic geography. The five giant development areas including the Beijing-Tianjin-Hebei, the Yangtze River Delta, the Pearl River Delta and the Guangdong-Hong Kong-Macao area, the middle reaches of Yangtze River and Chengdu-Chongqing represent the national grand space strategy. In the giant development areas, there will be traditional leading cities, primary cities or central cities, but the multi-level centralization is an irresistible general trend. Complying with the laws of giant development areas, optimizing resource allocations means and interest coordination mechanisms, and exploring efficient collaborative modes between governments and markets will help to fundamentally solve the problem of balanced and coordinated development in large regions. The network and multi-level centralization of the urban agglomeration brought about by the giant development areas, to some extent, deepen the traditional classical theories of the metropolitan areas and urban agglomerations. Following the basic trajectory of the development of a single city—the formation of a metropolitan scale—the expansion of adjacent metropolitan areas—the modern urban agglomerations supported by multiple cities—the multi-center regional development area is the specific application and practice of the Spatial Multi-directional Expansion Theory, Satellite City Theory, New City Theory, Garden City Theory and Peter Hall's European-based Multi-center Metropolitan Theory derived from the Chicago School in urban and regional planning. The multi-center mega-city region is mainly aimed at the over-concentration of functions in the main and central cities, which solves the urban disease problems of disorderly development, rapid expansion and the waste of resources through effective evacuation and balancing and provides directional guidance for modern urban planning, the promotion of large space networking, the construction of multi-core metropolitan areas, multi-center urban areas, etc. According to the process transition from spatial expansion to the connotation enhancement of the world's five super urban agglomerations, from the single center of the original primary stage to the multiple centers of the intermediate and advanced stage, it effectively alleviates the agglomeration and uneconomic phenomenon brought about by the concentration of large central cities. The development of cities and urban areas is obviously dependent on the path of "economic man." The simple market forces will make cities miss the optimization window in the process of scale, leading to the maximization of an inefficient scale. Because in urban development, according to the action mechanism of "economic man" on society: In the pursuit of the maximization of self-interest, the choice of person or business entity is rational, but the overall outcome is often an irrational choice. Building new centers and forming layered multiple centers through planning can achieve the role of balancing spatial values overall. Also, in the giant development area composed of super urban agglomerations, forming multi-center spatial structures can achieve the internal "scale loan" effect. That is to achieve the economic scale benefits and agglomerations within a larger geographic spatial range. The multiple centers in the advanced stage of urban agglomeration and metropolitan area development are not simple low-density dispersions, but the re-concentration of scale and clustering divisions of labor. Supported by the rail transit system and Internet technology, these agglomerations, although spatially separated, have a highly interactive commute and convenience resulting in an efficient and coordinated functional system. Additionally, in a giant area the layered multi-center evolution of the urban agglomerations effectively promotes the specialized divisions of labor, as well as balanced productivity distributions, narrowing the income gap between adjacent areas and achieving overall growth. The process of American modern urban development and urban agglomeration evolution, and the indicators set for giant development areas are to orderly achieve the goal of multi-centralization.

This is basically corresponding to the law of reverse urbanization in the advanced stage of urbanization.

Along with the arrival of the giant development area era, in terms of how to promote regional growth and balanced development in the case where the spatial structure of the global urban system is relatively stable and where the status of the networked node city changes rapidly, the development concept and practice of multiple centers are undoubtedly feasible. In October 2016, the New Urban Agenda adopted by Habitat III, the United Nations Conference on Housing and Sustainable Urban Development, referred to as “Habitat III,” highlighted the development theme of “open cities.” It is expected that by 2050, the world’s urban population will nearly double. As the world’s population, economic activities, social and cultural exchanges, as well as environmental and humanitarian impacts are increasingly concentrated in cities, the city’s tolerance and sustainable economic growth face serious challenges, and urbanization must be used to achieve structural transformations, high productivity, high value-added activities and resource efficiencies to govern the local economy. It is necessary to promote the integration of urban and rural functions into the regional systems of the national spatial pattern, as well as the urban and human settlements systems to promote sustainable management and utilization of natural resources and land, and to ensure a reliable supply value chain to link urban and rural supply and demand so as to promote fair regional development of urban-rural integration and narrow the social, economic and regional differences between urban and rural areas. The global population expansion and the trend of urban agglomeration can only cope with this challenge through the planning and expansion of “open cities,” that is, the common growth and balanced development of metropolitan areas and urban agglomerations, and the constant cultivation of new growth poles and development belts.

Among the five giant development areas in China, the spatial planning and functional definition of the urban agglomeration of the Yangtze River Delta, the Pearl River Delta, Beijing-Tianjin-Hebei, Guangdong-Hong Kong-Macao and the middle reaches of the Yangtze River are performed at the national strategic level, which have highlighted the multi-center development concept of functional dispersal and embodied the responsibility of being a big developing country “urban China” and an economic power. In 2010, through the release of the main functional area planning, the urbanization strategic pattern with “two horizontal and three vertical axes” as the main body, the agricultural strategic pattern with “seven areas and twenty-three belts” as the main body and the ecological security strategic pattern with “two barriers and two belts” as the main body have been constructed. Among them, the urbanization strategic pattern with “two horizontal and three vertical axes” as the main body specifically refers to the construction of the land bridge channel and the channel along the Yangtze River as the two horizontal axes, and the coastal, Beijing-Harbin-Beijing-Guangzhou, Baotou-Kunming channels as the three vertical axes, which takes the urbanization areas with national optimal development and major development as the main support and takes the other urbanization areas on the axes as important components of the urbanization strategic pattern to promote the optimal development of the Circum Bohai Sea, the Yangtze River Delta, the Pearl River Delta regions, forming three extra-large urban agglomerations, and to promote the major development of the Harbin-Yangtze River, the Yangtze River-Huai River, the west coast of the Taiwan Straits, the Central Plains, the middle reaches of the Yangtze River, Beibu Gulf, Chengdu-Chongqing, Guanzhong-Tianshui and other regions, forming several new large urban agglomerations and regional urban agglomerations. Under the guidance of the main functional area planning, the urbanization areas that China will focus on in the future can also be clarified. The relevant policies of the country will also give inclination and support to these areas to promote their driving effect on the development of regional integration.

In the new concept and practice of regional integration and balanced development in China, the promotion of the coordinated development strategy of Beijing-Tianjin-Hebei is more representative in terms of the decentralization and multi-centralization of super urban agglomerations and giant development areas. Seen from the driving effect of the central cities, the integrative development of Beijing-Tianjin-Hebei will become the seventh largest urban agglomeration in the world. However, the polarization effect of Beijing's high-quality and high-end economy and public service resources, as well as the rapid and infinite spatial expansion, has brought about increasingly serious "urban diseases," and the "poverty belt around Beijing" has formed in the surrounding Hebei region. The integration of Beijing-Tianjin-Hebei involves the three administrative regions of Beijing, Tianjin and Hebei. It is difficult to find a breakthrough to overcome the institutional constraints brought about by administrative divisions. Among them, the evacuation problem of Beijing's non-capital function is even more difficult to solve. After the 18th National Congress of the CPC, the Political Bureau of the Central Committee has repeatedly studied the coordinated development of Beijing-Tianjin-Hebei. In 2015, the Outline of the Plan for Coordinated Development for the Beijing-Tianjin-Hebei Region was issued, which has defined the layout thought of "functional complementary, regional linkage, axial agglomeration and node support" and specified the framework of "one core, two cities, three axes, four areas and multiple nodes" so as to promote the orderly relief of Beijing's non-capital function and build a network-based spatial pattern with important cities as the pivot, with the strategic functional area platform as the carrier, and with the arterial traffic and ecological corridor as the link. We should focus on the orderly resolution of the non-capital function and the optimization and improvement of core functions of the capital, and we should further strengthen the linkage between Beijing and Tianjin and expand the breadth and depth of cooperation in all areas at the same time to accelerate the realization of urban integration development and work together to give full play to the high-end guidance and radiation driving effects. The regional central cities such as Shijiazhuang, Tangshan, Baoding and Handan, and the node cities such as Zhangjiakou, Chengde, Langfang, Qinhuangdao, Cangzhou, Xingtai and Hengshui form a cooperative network that supports the giant development area of Beijing-Tianjin-Hebei. On April 1, 2016, the central government announced the establishment of the Xiong'an New Area in Hebei province. Establishing a national-level new district in Xiong'an, 110 kilometers away from the southwest of Beijing, is intended to create a new center for the coordinated development of Beijing-Tianjin-Hebei through an "anti-magnetic force," making this City of the Future with a population of 2~3 million to form an equilateral triangle having about 100 kilometers of side length with Beijing and Tianjin so as to promote the realization of the grand goal of the Beijing-Tianjin-Hebei world-class urban agglomeration. In September 2017, the Beijing Urban Overall Planning (2016 - 2035) was officially released. The plan has clarified that Beijing's population will be limited to 23 million by 2020 and will be stable at this level for a long time. Therefore, Beijing's future development must be based on the premise of non-capital function evacuation to comprehensively connect with the Xiong'an New Area, establish a convenient and efficient transportation system in both places, and promote the effective transfer, sharing and clustering of scientific and technological innovation resources. In this new planning pattern, Beijing is in the Beijing-Tianjin-Hebei urban agglomeration. Xiong'an is not only a national new district in Hebei province, to some extent, but also a Beijing's enclave and "deputy capital" and the position of a future new center has already been established. From the perspective of national major strategy, the orientation and development vision of the Xiong'an New Area will support the core framework of the Beijing-Tianjin-Hebei world-class urban agglomeration. In the future, together with the urban agglomeration of the Yangtze River

Delta and the Guangdong-Hong Kong-Macao Greater Bay Area, the Xiong'an New Area will represent the country's participation in the global industrial competition and the construction of the innovation value chain. It is a geographical unit with global influence and will play a collaborative role in leading an innovative driving effect in the process of national modernization and global economic geographic reconstruction.

Whether from the rise of the giant development areas or from the planning of the super urban agglomerations, after China's urbanization process has entered an acceleration period and the urban development has become more clustered and integrated, the country's major urban and regional strategies have undergone a fundamental transformation. Carrying out the systematic planning and scientific divisions of labor on land and large areas according to the main functional areas, especially from the internal level and division systems of urban agglomerations to subdivide the metropolitan areas and development corridors, and strengthening the deep connection between cities and towns to deal with the centralization, dispersion and the cooperative relationships between the central zones and the adjacent areas, these have reflected the role of top-level design at the national level. However, in the process of implementation of cross-regional super urban agglomeration planning, deep interconnections will involve multiple fields such as administration, transportation, economy and ecology, so there are multiple conflicts of interests. There are still many challenges in how to establish a benefit-sharing mechanism, reach a consensus on coordinated development, and implement it in plans and actions. Judging from the current operation mechanism of the government-dominant spatial planning of urbanization and urban development in China, we must grasp three key points. The first is to establish an organic system identification of "urban agglomeration family," and orderly promote the construction of clustering and collaborative multi-center regions under the dual balance of governments and markets. The giant development area is a super urban agglomeration, and it will form a vast networked urban complex with multiple structures in the future. For an organic "urban agglomeration family," the internal units exist as "seniority," the main center, the subcenter, the node city, etc., and are aggregated by various factors such as administrative level, resource endowment, economic strength, and characteristic culture. Fully understanding its own level and node position, grasping the opportunity and taking advantage of the situation will accelerate the improvement of its own energy level. The multi-center planning practices in metropolitan areas and urban agglomerations have proved that the successful cases are strongly dominated by the government and the failed cases are lack of government roles. It is necessary to fully respect the law of urban and regional development, simulate the market operation procedures, and carry out the thorough policy design and scientific implementation. The government should withdraw after completing its mission in the early stage so that the market can fully play the follow-up leading role. The second is to seize the opportunity of the high-speed rail network system to reshape China's urban agglomeration forms, seize the opportunity of the high-speed rail urban belt to gradually become the main axis of spatial development, and make the sub-regional and node cities' development focus close to or connected with the high-speed rail urban belt. Since the Eleventh Five-Year Plan, China's new round of modern transportation network construction, high speed railway, urban rail transit, and the construction of large projects of airline transportation have injected new impetus into regional developments and urban function improvements. The rapid transportation network, especially the high speed railway networking, has made the development elements of new industries such as knowledge, capital and technology more concentrated, intensifying the "siphonic effect" of central cities and big cities. The new industrial districts driven by high-speed rail stations and airports have become new carriers for emerging industries and modern service industries, re-creating new growth points of cities and metropolitan areas. In the giant development

areas, high-speed rail is the “channel” for integrating high-end resource elements. Metro and light rail are the “blood vessels” that promote the internal circulation of metropolises. The organic combination of external “channel” and internal “blood vessels” can integrate the resource elements of development with high speed and high efficiency, and cultivate several new “spatial drop points” to alleviate the pressure on the central city or large cities, strengthen the industrial functions of small and medium-sized cities, enhance public services and residential functions of small towns, promote industrial integration and spatial integration of large, medium and small cities, and promote the coordinated development of reasonable spatial layered systems and characteristic functional areas.^① The third is to increase the cultivation of local “innovation units” to constitute innovation network, and promote the structural reorganization and efficiency improvements in element allocations inside the metropolitan complex. The coordinated development inside the urban agglomerations and the creation of new growth platforms require resultant actions from both macro and micro perspectives. From the macro perspective, urban agglomerations often develop across regions, so it is inseparable from the horizontal and vertical coordination and cooperation between the central government and local governments, and between local governments. Governments can use economic, legal, administrative and other means to guide the coordinated development of large regions and urban agglomerations through institutional innovation. From the micro perspective, the coordinated development of regional integration and urban agglomerations is inseparable from the strong driving force of “development poles.” Through the agglomeration, diffusion and innovative role of the “development poles,” we can guide the reasonable wide-area flow of various element resources inside the urban agglomerations and form the development gradient and coordination and distribution of responsibilities among various cities and towns to promote the reasonable industrial layout and spatial system reconstruction of urban agglomerations. Therefore, the organizational model of innovative and coordinated development will give play to the subjective energy of local units, promote the participation of various interest groups, establish a sound interest evaluation, distribution and compensation mechanism, and cultivate several “innovation units” full of innovation and vitality to force the overall system innovation in reverse. Inside a giant development area, only when the “community” and “carrier” of each level form the endless innovation mechanism and ecological environment can cooperation be strengthened in the aggregation to maximize the respective interests. In this way, a new pattern of cross-regional coordinated development in which elements flow freely, subjective functions are effectively constrained, and basic public services are equal, can resource environments be loaded at higher levels.

3. Kinetic energy regeneration and the regional coordinated development of China's urban agglomerations

In the new era, China has strategically emphasized the need to establish a more effective new mechanism for regional coordinated development, and to build an urban pattern of coordinated development of large, medium and small cities and towns with urban agglomerations as the main body. Centering on the new requirements of the regional coordinated development strategy, grasping the stage characteristics and trends of urbanization and urban agglomeration development in China, focusing on the leading functions of urban agglomerations,

① Li, 2012

regenerating the new kinetic energy and high-quality development are of great significance for China, to realize basic modernization and build a modern, powerful country.

In pursuit of the high-quality development of urban agglomeration and regional integration, we must grasp the new opportunities for the reorganization of the global urban systems and the national urban systems brought about by the rapid rise of China's megacities and urban agglomerations, and further enhance the international competitiveness and opening-up level of megacities and regions in the eastern developed regions with the help of the Belt and Road Initiative and China's strategic requirements for forming a new pattern of overall opening to the outside world. With the strategic pivotal role of the energy level upgrading of the world-class urban agglomeration of the Yangtze River Delta and the urban agglomeration of the Guangdong-Hong Kong-Macao Greater Bay Area in the global urban systems and industrial systems, we should stand on the high-end position of the value chain to provide strong innovative carriers and kinetic energy support for achieving basic modernization and building a modern powerful country.^① The spatial economic thought with great vision, openness and integration demonstrated by the Belt and Road Initiative, while changing the world economic geographic space, is also reshaping the spatial pattern of China's urban and regional development. It means the three major urban agglomerations of the Yangtze River Economic Belt and coastal areas have entered the national urban system that is in line with the world urban system, which can integrate production factors and allocate high-quality resources more efficiently on a global scale. Taking the coordinated development in the Yangtze River Delta region as an example, after being established by the state as a world-class urban agglomeration in 2016, the regional integration process of the super leader Shanghai, Jiangsu and Zhejiang has been significantly accelerated. As an international metropolis, Shanghai, in order to build the "four centers" and the global science and innovation center, needs a certain hinterland support. Shanghai has formed the hour-long commute effect with Nanjing, Hangzhou and surrounding cities through the connection of high-speed rail and rapid inter-city transportation networks, further accelerating the pace of integration and urbanization. At the same time, in the hinterland of the Yangtze River Delta centered on Shanghai, including the vast Jiangsu and Zhejiang regions, the country has only established one Free Trade Zone in Shanghai. The enterprises of Jiangsu and Zhejiang provinces must be connected to the international platform of the Shanghai Free Trade Zone to implement the internationalization strategy and carry out international trade business. Therefore, as the first megacity overall planning approved by the 19th National Congress of the CPC, the Shanghai Urban Overall Planning (2017-2035)^② highlights the strategic goals and development orientation of actively integrating into the coordinated development of the Yangtze River Delta region, promoting the coordinated development of Shanghai and surrounding cities, building the Shanghai metropolitan area, and creating world-class urban agglomerations with global influence. It shows that Shanghai has realized that in the future, under the constraints of strictly controlling the size of its permanent population and the negative growth of the total scale of planned urban construction, building a world-class urban agglomeration is difficult to achieve by relying on Shanghai alone and it must work together with the surrounding cities to create a world-class urban agglomeration that has global influences and represents the country's participation in global competition.

Also, to promote the new pattern of urban and regional coordinated development of urban agglomerations, we should also meet the general requirements for China to start a new modernization journey and build a

① Li, 2018

② On December 15, 2017, Shanghai Urban Overall Planning (2017-2035) (referred to as Shanghai 2035) was approved by the State Council.

socialist modern powerful country, grasp the key planned “window period” that conforms to the evolution rules of urban and regional modernization, increase and deepen the intensity of reform, and improve the overall development through scientific planning and multi-planning integration in the reorganization and optimization of the spatial structure within urban agglomerations and metropolitan areas. According to periodic arrangements of the “two-step” strategy of China’s modernization determined by the 19th National Congress of the CPC, in accordance with the requirements of the country’s main functional area planning, all regions are stepping up to formulate or have issued the development planning of cities and urban agglomerations for 2035, and some have also described the strategic vision of 2050. In the current “window period” of strategic planning, we must fully recognize the development trends and laws of urban agglomerations and giant development areas dominated by large cities in the future and made overall arrangements on spatial structural systems, industrial systems and ecological protection systems. In the giant development areas composed of super urban agglomerations, multi-centralization is an irresistible general trend. By planning and constructing new centers and forming layered multiple centers and multi-center spatial structures, the internal “scale loan” effect can be achieved and the economic scale benefits and agglomerations within a larger geographic special range can be achieved to promote the overall balance of spatial values. For example, in the large space of the Yangtze River Delta urban agglomeration, Suzhou, Nantong, Wuxi, Jiaxing and other cities in the Shanghai metropolitan area will form an organic layered structure with Shanghai, and to some extent, they will become the subcenters of the Shanghai metropolis. While helping the construction of Shanghai’s modern metropolis, they will also effectively enhance their own opening degrees and modernization levels.

In addition, the accelerated and high-quality development of the giant urban agglomerations will promote a higher level of cross-regional collaboration and coordinated development. Therefore, the local cities and regional planning in the new era should be based on the fundamental requirements of regional and national modernization, fully grasp the new characteristics of regional economic clustering in the urban agglomeration era, jump out of the traditional spatial planning thought based on administrative regions, show the concept and action strategy of “clustering development,” and realize resource complementation and collaboration in the new spatial structural systems and industrial structures to jointly improve the development quality and market competitiveness of urban agglomerations and regions. In the cross-regional giant development areas, how the secondary functional areas formed by urban agglomerations and metropolitan areas in the same administrative region improve efficiency and promote innovation through the overall coordination also receives more and more attention. Especially in the large areas of the Yangtze River Delta urban agglomeration, due to the high collaborative efficiency, in addition to the facts that the national development planning takes the provincial scope as the boundary and gives each secondary metropolitan area and development belt clear positioning and targets, the localities are also performing the planning integration across administrative regions. In the Development Plan of Urban Agglomeration in the Yangtze River Delta, the state has clearly proposed the goal of building the Yangtze River Delta into a world-class urban agglomeration by 2020 with a world-class urban agglomeration framework featuring a vibrant economy, high-end talent pool, enhanced innovation capacity and intensive and efficient utilization of space, all of which will have been basically formed by 2030 thus strengthening its pivotal role of deploying global resources. The status of serving the whole country and radiating the Asia-Pacific region will be further consolidated. Its position in the global value chain and industrial divisions of labor will be sharply improved and its international competitiveness and influence will be significantly enhanced. A world-class urban agglomeration will be completed in an all-round

way. The plan includes 26 cities in Shanghai, Jiangsu, Zhejiang and Anhui provinces, and nine cities in Jiangsu province including Nanjing, Wuxi, Changzhou, Suzhou, Nantong, Yancheng, Yangzhou, Zhenjiang and Taizhou all of which are involved in the functional planning of space. In addition to Yancheng, the eight cities along the river in Jiangsu province are respectively attributed to the functional blocks of the Nanjing metropolitan area, the Suzhou-Wuxi-Changzhou metropolitan area and the riverside development belt, thus constituting the north wing core area of the world-class urban agglomeration of the Yangtze River Delta to further play a key driving role in the future. Therefore, in the new pattern of the future development of the Yangtze River Delta urban agglomeration, whether it is in a “primary,” or “secondary” position in the Yangtze River Economic Belt or in the Jiangsu riverside area, being regarded as part of the core area of the world-class urban agglomeration, will reflect its strategic mission and encourage all levels of the agglomeration to take the initiative to seize this significant opportunity to optimize the regional development strategy and take advantage of this situation to plan and construct the “Yangtze River urban agglomeration” with integrative development, which will help the eight cities in the Jiangsu riverside area to form a “half-day work, one-day life circle” to jointly build an integrated, open and networked Yangtze River urban agglomeration and enhance the overall development and internationalization of Jiangsu province. We will strengthen the north wing core area of the world-class urban agglomeration of the Yangtze River Delta and explore a new path of high-quality regional modernization under the guidance of the new development concept in the long term to make contributions to the internationalization, green development and innovative resource agglomeration of the Yangtze River Delta urban agglomeration.

It is important to note that in the process of promoting the implementation of the cross-regional giant development areas and the super urban agglomeration planning, deep interconnection involves multiple fields such as administration, transportation, economy and ecology, and there are multiple conflicts of interests. Establishing a benefit-sharing mechanism, reaching a consensus on coordinated development, and implementing plans and actions still require the support of innovative strategies and motivations. Therefore, in order to comprehensively and systematically implement key tasks inside urban agglomerations in stages, apart from the “top-down” requirements, it is necessary for local and regional governments to formulate specific implementation strategies and action plans based on their own conditions and the functional positioning of their development. Only in this way can an efficient new mechanism for regional coordinated development be established.^① Therefore, to enhance the cooperativity, linkage and integrity of urban agglomerations and regional development, it is necessary to increase the intensity of comprehensively deepening reform, and to gather the development forces of all parties with efficient market mechanisms, cooperation mechanisms, mutual assistance mechanisms and compensation mechanisms to form the value consensus and pragmatic actions needed for the construction of urban agglomerations and regional integration and the sharing of development achievements, and provide the continuous innovative kinetic energy for the construction of the new patterns of coordinated development of large, medium and small cities and towns with the urban agglomerations as the main bodies. Efforts should be made to create network innovation spaces across levels, to build an innovation space carrier of multi-directional support inside the urban agglomerations, and to cultivate characteristic “innovation units,” to promote the structural reorganization and the efficiency improvements of element allocations inside the urban agglomeration complex, recreate characteristic and thematic “spatial drop points,” shape a mechanism of cross-regional coordinated development

① Sun, 2018

in which elements are flow freely, subjective functions are effectively constrained, basic public services are equal, and resource environments can be loaded, promote industrial integration and spatial integration of large, medium and small cities, and promote the coordinated development of reasonable spatial layered systems and characteristic functional areas.

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