RESEARCH ARTICLE

Optimization and Adjustment of Economic Development Strategy in Northern China: From Coordinated Development of Beijing-Tianjin-Hebei Region to Integrated Development of Beijing Bay

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Abstract: Bay area is a regional economic concept evolved from geographical concepts. Bay area economy features an open economic structure, efficient resource allocation capabilities, strong agglomeration and spillover functions, and a well-developed international communication network. It plays a core role in leading innovation and attracting radiation, serving as an important growth pole driving global economic development. Based on summarizing the formation, development, and competitive advantages of bay area economies worldwide, this paper points out the purpose and significance of the concept of "Beijing Bay" proposed under the perspective of coordinated development of Beijing-Tianjin-Hebei region. It also analyzes the path choices for enhancing the vitality of the Beijing Bay urban agglomeration.

Keywords: Economic; Development; Strategy; Beijing Bay

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1 Formation, Development, and Competitive Advantages of Global Bay Area Economies

Metropolitan areas serve as the primary spatial carriers of urbanization in populous countries. In countries like ours, where the population is dense and land is scarce, it is imperative to steadfastly promote urbanization with metropolitan areas as the main form. [1] The modernization of China cannot be achieved without the development of high-quality metropolitan areas, which in turn rely on the development of regional economies. Conceptually, a bay area economy refers to a region composed of one or more connected bays, harbors, and adjacent islands. Presently, it refers to a unified layout of ports, transportation, cities, and industries, forming an open economic system with a central city at its core and surrounding hinterlands as its support. Bay areas, with their deep waters, sheltered harbors, long coastlines, proximity to the sea, and strategic military importance, serve as large port clusters that complement and compete with each other in a small space. They establish port hubs connecting the inland territories to the ocean, becoming crucial "forks" for land-sea interaction. [2] Bay area economies are characterized by an open economic structure, efficient resource allocation, strong agglomeration spillover functions, and developed international communication networks. They play a core role in leading innovation and attracting agglomeration, serving as important growth poles driving global economic development. Since the Western Industrial Revolution, bay areas have become the most important gateways and spatial carriers in the world's

economic landscape, increasingly playing a vital role in leading the trend of era development and promoting the transformation of global production modes. Presently, the four major bay areas in the world include the New York Bay Area, the San Francisco Bay Area, the Tokyo Bay Area, and the Guangdong-Hong Kong-Macao Greater Bay Area.

1.1 New York Bay Area

Situated in the northeastern United States on the west coast of the Atlantic Ocean, the New York Bay Area, centered around New York City, encompasses 35 counties in New York, New Jersey, Connecticut, and Pennsylvania, including cities like New York, New Jersey, and Newark. The development experience of the New York Bay Area includes several aspects: Firstly, convenient transportation infrastructure promotes regional trade facilitation. A well-established transportation infrastructure, including highways, railways, civil aviation, and maritime routes, facilitates efficient flow of various production factors within the region. Secondly, the establishment of globally oriented tertiary industries. The New York Bay Area has phased out energy-intensive and labor-intensive industries, vigorously developing productive service industries such as law, accounting, finance, and management consulting, with a global service scope. This has formed a globally-led high-end productive service industry, creative industries supported by high-end talents, and various industrial clusters catering to large-scale high-end populations, significantly enhancing the economic vitality and global influence of the bay area urban agglomeration. Thirdly, talent agglomeration provides impetus for the development of high-tech industries in the bay area. With 16 universities ranked among the top 100 globally, including Columbia University, Cornell University, Yale University, Princeton University, New York University, etc., the New York Bay Area has a solid intellectual foundation for high-quality talent and high-tech research and development. Simultaneously, it has attracted a large number of transnational high-quality elite talents through immigration or studying abroad, bringing substantial funds, intelligence, and advanced technologies to accelerate its development process. Fourthly, active encouragement of private sector participation in bay area management. The regional planning and development of the New York Bay Area follow a "bottom-up" model, with regional planning carried out by non-governmental organizations such as the Regional Plan Association of New York, which formulates top-level designs and integrates the efforts of citizens, enterprises, and governments in the region to promote the implementation of plans.

1.2 San Francisco Bay Area

Located in northern California on the east coast of the Pacific Ocean, the San Francisco Bay Area comprises 12 counties in California, including cities like San Francisco, San Jose, Oakland, and Santa Clara. It is renowned globally as an innovation hub and one of the most important high-tech research and development centers, housing the world-famous Silicon Valley. The economic development of the San Francisco Bay Area is characterized by: Firstly, it is based on knowledge and technology, boasting strong scientific research capabilities and a large talent pool. California is home to several universities such as the University of California, Stanford University, and the University of San Francisco, along with abundant research resources, attracting over a million technology talents from around the world. Secondly, it harbors a plethora of innovative small and medium-sized enterprises. These enterprises, driven by innovation, serve as the driving force behind the economic development of the San Francisco Bay Area. Thirdly, it has established a robust intercity transportation system. The region has achieved bus-based operations between urban areas, with the central cities showing more prominent agglomeration functions and core roles, leading to a rational urban layout and division of labor. Fourthly, it has established coordination mechanisms between cities within the region. The government has formed the Association of Bay Area Governments to oversee economic development, environmental protection, and construction. Fifthly, it

adheres to the "3E" principles of sustainable development, implementing a series of measures in industrial development, environmental protection, comfortable housing, convenient transportation, and promoting sustainable development, making the bay area a highly competitive living and working area internationally.

1.3 Tokyo Bay Area

Situated at the southern end of the Kanto Plain on the west coast of Honshu, Japan, the Tokyo Bay Area comprises Tokyo Metropolis, Kanagawa Prefecture, Chiba Prefecture, and Saitama Prefecture, known as the "one metropolis and three prefectures." It includes cities like Tokyo, Yokohama, Kawasaki, Funabashi, and Chiba. The Tokyo Bay Area hosts one-third of Japan's population, two-thirds of its economic output, and three-quarters of its industrial output, serving as Japan's political, economic, and industrial center. The development of the Tokyo Bay Area is characterized by: Firstly, relying on port construction to develop large-scale heavy industries and maritime logistics. Tokyo Bay has two major industrial belts, Keiyo and Keihin, hosting over 200 large industrial and commercial enterprises, forming a world-class industrial center. Secondly, emphasizing coordinated development between port cities to achieve mutual prosperity. The bay area boasts six major horseshoe-shaped ports, including Yokohama Port, Tokyo Port, Chiba Port, Kawasaki Port, Yokosuka Port, and Kisarazu Port, forming the Keihin and Keiyo economic belts and a city cluster consisting of major cities like Tokyo, Kawasaki, Yokohama, and Chiba, making it Japan's largest heavy industrial and chemical industrial base. Thirdly, through policy guidance, it achieves differentiated development among cities. Through rational planning by the central government, Tokyo Bay has avoided vicious competition, enabling the coordinated development of multiple ports in the bay area, collaboration, and cooperation, achieving complementary advantages. The Heads of Nine Prefectural Governments Conference has provided a platform for consultation among cities with different development levels within the capital region, promoting coordination and integration of various cities in the metropolitan area to serve the prosperity and orderly integration development of the capital region. Fourthly, it emphasizes infrastructure construction such as transportation to promote the aggregation of various resource elements. The government attaches great importance to the networked and systematic construction of infrastructure.

1.4 Guangdong-Hong Kong-Macao Greater Bay Area

The Guangdong-Hong Kong-Macao Greater Bay Area includes the Hong Kong Special Administrative Region, the Macao Special Administrative Region, and cities such as Guangzhou, Shenzhen, Zhuhai, Foshan, Huizhou, Dongguan, Zhongshan, Jiangmen, and Zhaoqing in Guangdong Province. The strategic objectives of the Greater Bay Area are anchored in creating a vibrant world-class urban agglomeration, establishing a globally influential international science and technology innovation center, serving as a crucial support for the Belt and Road Initiative, demonstrating deep cooperation between the mainland and Hong Kong and Macao, and providing a high-quality living, working, and recreational environment. The goal is to build an international first-class bay area and world-class urban agglomeration. In 2022, the total economic output of the Greater Bay Area exceeded 13 trillion yuan, making it one of the most open and dynamic regions in China and an important bridge for the country's construction of a new development pattern of "dual circulation." The construction and development experience of the Greater Bay Area mainly include the following aspects:

(1) Leveraging complementary advantages and building cooperation platforms to focus on innovation-led high-quality development. Emphasis is placed on leveraging the strong complementary advantages between Hong Kong and mainland cities in the Greater Bay Area, strengthening and deepening cooperation in fields such as finance, trade, shipping, science and technology innovation, and education. For example, by leveraging Hong Kong's strong advantage in basic scientific research and Guangdong's perfect manufacturing industry chain, efforts are made to accelerate

the aggregation of scientific and technological innovation resources in the Greater Bay Area, enhancing the overall scientific research capabilities and effectiveness of scientific research achievements conversion.

(2) Enhancing the level of market integration through "soft" and "hard" connectivity. With a globally accessible transportation system, the Greater Bay Area is witnessing the rapid rise of a world-class airport cluster led by Guangzhou Baiyun Airport, Shenzhen Bao'an Airport, and Hong Kong International Airport. It is estimated that by 2035, the Greater Bay Area will have seven transportation airports with 17 runways, handling a passenger throughput of 420 million people and a cargo throughput of over 200 million tons. All 11 cities in the Greater Bay Area have ports, making it one of the world's largest regional port clusters with the largest throughput capacity and the best water depth conditions. The promotion of "soft connectivity" in the Greater Bay Area is increasingly improving, gradually realizing cross-border collaborative innovation within the region characterized by "one country, two systems, three customs zones, and three currencies," with the flow of personnel, funds, goods, and information continuously breaking through the constraints of the old institutional mechanism, and green financial cooperation being strengthened.

(3) Playing a role in regional spatial organization to promote the development of the Greater Bay Area. By constructing a regional spatial organization pattern suitable for its own development stage and regional characteristics, efforts are made to promote economic and social development, strengthen urban division of labor cooperation, establish a multi-level and multi-domain efficient urban connection network, bridge the industrial chain, supply chain, and innovation chain within the Greater Bay Area, and eliminate unreasonable disorderly competition. Meanwhile, through industrial chain, innovation chain, and supply cooperation and sharing, the radiation driving force both internally and externally is further strengthened.

Overall, constructing a three-dimensional land, sea, and air interconnected transportation network, establishing a sound complementary industrial chain and supply chain system within the bay area, leading with technological innovation, and enhancing market integration are important factors for the formation of the competitive advantages and development of the bay area economy.

2 Integrated Development of "Beijing Bay": Significance and Implications

Dubbed as "Beijing Bay," the small plain at the northern end of the North China Plain, surrounded by the Yanshan and Taihang Mountain Ranges, has historically been a contested area, traversed by the Yongding River and Chaobai River. [3] As early as 1907, American geologist Bailey Willis referred to this area as "Beijing Bay." As a concept in regional economics, "Beijing Bay" has expanded geographically from the small plain at the northern end of the North China Plain to include Beijing and Xiong'an as the core, with the first ring comprising Beijing's urban sub-center, Xiong'an, and Tianjin, the second ring comprising Qinhuangdao, Tangshan, Datong, and Zhangjiakou, and the third ring comprising Dalian, Yantai, Qingdao, Zhengzhou, and Hohhot, connecting multiple cities in Hebei, Henan, Shanxi, Shandong, Inner Mongolia, Liaoning, and forming a city cluster around Beijing-Tianjin-Hebei, the Liaodong Peninsula, the Shandong Peninsula, and the Bohai Rim.

Entering a new era, the coordinated development of the Beijing-Tianjin-Hebei region has been elevated to a major national strategy. In August 2014, the State Council established the Leading Group for the Coordinated Development of the Beijing-Tianjin-Hebei Region, adjusting the "Development Plan for the Capital Economic Circle" to the "Plan for Coordinated Development of the Beijing-Tianjin-Hebei Region." In April 2015, the Central Political Bureau meeting reviewed and approved the "Outline of the Plan for Coordinated Development of the Beijing-Tianjin-Hebei Region," propelling the integrated development of Beijing, Tianjin, and Hebei onto the fast track. The coordinated development of the Beijing-Tianjin-Hebei

region is not only necessary to address the contradictions and problems faced by Beijing's development but also to optimize the national development layout, improve the spatial structure of social productivity, create new economic growth poles, and establish new modes of economic development. It is a major national strategy. Proposing "Beijing Bay" aims to further stimulate the vitality of the urban cluster in the context of the coordinated development of the Beijing-Tianjin-Hebei region, construct a super-large bay area economic system covering the economic hinterland of the northern region, and create a new growth pole for the Chinese economy. From the current domestic and international economic development situation, promoting the integrated development from the coordinated development of the Beijing-Tianjin-Hebei region to "Beijing Bay" is of great significance.

2.1 Strengthening the role of core cities in driving the hinterland economy

With the comprehensive upgrading of information technology and the deepening of global integration, spatial locations are gradually evolving into mobile spaces. As an advanced spatial unit in national and regional economic development, the bay area city cluster is an important hub and key node for external exchanges and connections. Looking at bay areas worldwide, core cities such as New York, San Francisco, and Tokyo play an extremely strong role in integrating their economic hinterlands into globalization and participating in global resource allocation.

As the leading city in the "Beijing Bay" city cluster, Beijing, compared with cities like New York and Tokyo, shares many similarities in economic structure, quality, and scale and has many areas where it holds advantages. This provides a foundation for developing into a new world-class bay area economy and further enhancing Beijing's role in radiating and driving the city clusters in the northern region, promoting the flow of resources and factors in the northern region, enhancing regional global attractiveness and influence through urban connectivity, and strengthening Beijing's position as an international exchange center.

2.2 Providing hinterland support for the construction of a world-class city

Constructing a modern world-class city cluster is a major historical mission of the coordinated development of the Beijing-Tianjin-Hebei region. Currently, the coordinated development of the Beijing-Tianjin-Hebei region has entered a new key stage, and the construction of a modern capital metropolitan circle has achieved new breakthroughs. At the same time, the coordinated development of the Beijing-Tianjin-Hebei region also faces some problems and challenges. On the one hand, despite the continuous expansion of the economy in the Beijing-Tianjin-Hebei region in recent years, its proportion of the national gross domestic product has declined, dropping from 9.3% to 8.29% in the past decade. Compared with the Yangtze River Delta urban agglomeration and the Guangdong-Hong Kong-Macao Greater Bay Area, the comprehensive economic carrying capacity and growth vitality of the Beijing-Tianjin-Hebei region need to be strengthened. On the other hand, there is a large development gap in the surrounding Beijing region, with a significant central city suction effect, leading to developmental discontinuities between cities, prominent problems of incomplete and short industrial chains, and weak driving force for regional economic growth. The role of hinterland cities in supporting central cities is also restricted.

From the Beijing-Tianjin-Hebei region to "Beijing Bay," with Beijing as the center, encompassing multiple cities in Henan, Shanxi, Shandong, Inner Mongolia, Liaoning, and other regions, radiating city clusters such as the Liaodong Peninsula, the Shandong Peninsula, and the Bohai Rim, it is conducive to expanding Beijing's radiation range, enhancing the region's support for Beijing, and promoting regional development. From the coordinated development of the Beijing-Tianjin-Hebei region to the integrated development of "Beijing Bay," the total area of the region will increase by 1.8111 million square kilometers, expanding by more than

8.3 times; the population will increase by approximately 300 million, growing by about 2.7 times; and the regional gross domestic product is expected to reach 32.65 trillion yuan, nearly doubling, further expanding the scale of the northern economic hinterland centered on Beijing.

Table 1 The population and gross domestic product (GDP) situation of the Beijing Bay area[4]

	Total land area (10000 square)	The permanent population of the province (100 million)	2022 Regional Gross Domestic Product (Trillion RMB)
Beijing, Tianjin and Hebei	**21.8**	**1.1**	**10**
Shandong	15.58	1.016	8.74
Henan	16.7	0.987	6.13
Shanxi	15.67	0.35	2.56
Neimenggu	118.3	0.24	2.32
Liaoning	14.86	0.42	2.9
Total	**202.91**	**4.113**	**32.65**
Growth rate (times)	**8.31**	**2.74**	**2.27**

2.3 Providing Development Momentum to Address Regional Imbalances and Insufficiencies

Currently, the complex and severe global situation, including the restructuring of industrial and supply chains, the rise of trade protectionism, and geopolitical conflicts, necessitates the establishment of a more stable economic development pattern in China. At the same time, under the framework of coordinated development in the Beijing-Tianjin-Hebei region, there will inevitably be a deep restructuring of interest structures, with various contradictions and issues becoming more pronounced, potentially evolving into collective events characterized by avoidance under certain conditions. The driving force behind promoting the coordinated development of the Beijing-Tianjin-Hebei region lies in the orderly relocation of non-capital functions from Beijing. The core of the integrated development of "Beijing Bay" is to focus on the integration of the bay area economy. [5] In the process of relocating non-capital functions, it addresses the issues of Tianjin and Hebei's inability to absorb the non-capital functions shed by Beijing and the inadequate support for Beijing from the region, mitigates and resolves the risk of avoidance in coordinated development, balances the regional suction and spillover effects, and creates a new world economic growth pole. The pattern of "Beijing Bay" standing alongside the Guangdong-Hong Kong-Macao Greater Bay Area and the Yangtze River Delta urban agglomeration is conducive to promoting balanced economic development and complementary advantages across China, as well as driving the revitalization of the Northeast and the rise of the Bohai Rim urban agglomeration.

3 The selection of pathways to enhance the vitality of the Beijing Bay cities

Urban vitality refers to the richness and vibrancy of various aspects such as the economy, society, culture, and ecological environment of a city. It is the comprehensive result of a city's vitality, development momentum, population attractiveness, harmony and livability, and reputation, and also manifests the concentration of people, goods, information, and capital flows. Enhancing the vitality of the Beijing Bay city cluster is aimed at achieving Chinese-style modernization, guided by new development concepts, and led by the integrated development of the "Beijing Bay" economy, comprehensively enhancing the quality of regional economy, culture, society, ecological civilization, and urban development, and transforming the "Beijing Bay" into a high-level international modern bay area characterized by innovation, coordination, green development, openness, and sharing.

3.1 Integrated Spatial Planning and Functional Layout

By constructing the "Beijing Bay" city cluster and based on the strategy of coordinated development of the Beijing-Tianjin-Hebei region, the administrative barriers between Beijing-Tianjin-Hebei and the four national-level and vice-provincial-level administrative regions directly under the jurisdiction of Liaoning Province, Shandong Province, Qingdao Municipality, and Dalian Municipality will be broken down. This will improve the political and economic integration through the overall planning, coordination, and cooperation of the bay area economy, promote regional

economic transformation and upgrading, and foster collaborative innovation. Clearing the functional layout and division of responsibilities of each city and region, efforts will be made to remove the institutional barriers to cooperation and development within the "Beijing Bay" city cluster, and promote the functional integration and rational industrial layout of regional cities. Further tapping into the organizational vitality of the Beijing Bay area, a regional spatial organization pattern that conforms to regional characteristics and century development will be constructed to promote prosperous and orderly integrated development of the Beijing Bay area.

3.2 Improvement of Interconnected Transportation Infrastructure

Improving infrastructure such as highways, high-speed railways, and civil aviation, on the basis of existing waterway routes, railway lines, underground railways, modern airports, and dense road networks, will promote the interconnection of water and land transportation and build a three-dimensional interconnected transportation system centered on Beijing and interconnected within the region. Firstly, led by Beijing Capital International Airport and Beijing Daxing International Airport, efforts will be made to develop a world-class airport cluster, driving the formation of a world-class airport group including Tianjin Binhai International Airport, Qingdao Jiaodong International Airport, Liaoning Yingkou Lanqiao Airport, Dalian International Airport, and Zhengzhou Xinzheng International Airport. Secondly, the construction of a world-class port cluster will be promoted to facilitate collaborative cooperation and resource integration between Shandong's coastal ports and Tianjin-Hebei's coastal ports, as well as Liaoning's coastal ports, and to layout and construct a number of inland ports, open up foreign trade shipping routes, increase the throughput of coastal ports, and enhance the hub function of the port cluster within the "Beijing Bay" area in the international logistics supply chain. Optimization and enhancement of the functions of high-speed railways, construction of a cross-regional and cross-provincial transportation channel that connects north and south, and east and west. Acceleration of the construction of a network of interconnected highways among various cities in the region, forming a highway network with highways as the backbone, high-grade trunk roads as the foundation, and rural roads as the supplement, interwoven horizontally and vertically.

3.3 Strengthening Industrial Division of Labor, Collaboration, and Collaborative Innovation

Promoting high-level coordinated development of industries as an important goal of the development of the Beijing Bay city cluster. Efforts will be made to build a multi-level industrial division of labor system, promote linkage and joint construction of industrial development platforms, and achieve orderly linkage and differentiated development of industries within the "Beijing Bay" economic circle through government policy guidance and market regulation. Firstly, optimization and adjustment of the industrial structure of the "Beijing Bay" area will be carried out to create globally competitive advanced manufacturing clusters, promote the upgrading of industrial technology dynamics, and enhance the level of new production capacity in the "Beijing Bay" area. Construction of globally influential service industry clusters will be promoted to attract and form a diversified population structure and enhance the vitality of the urban cluster. Secondly, efforts will be made to accelerate the integration of factor markets, especially the integration of high-end factors such as technology and data, improve factor resource allocation mechanisms, focus on addressing the institutional obstacles faced by high-quality factor resource flow such as intellectual property rights, transactions, flows, and cross-border transmissions in core technologies and key data closely related to "supply chain strengthening" and "chain complementarity", and promote the aggregation of high-quality factor resources to the "Beijing Bay" area to boost regional economic vitality. Thirdly, joint efforts will be made to tackle key core technology research and development, take the construction of the Beijing International Science

and Technology Innovation Center as a lead, establish a large alliance for technological innovation and collaborative innovation in key technology fields such as energy conservation and environmental protection, new energy, new materials, biology, and new pharmaceuticals across Beijing-Tianjin-Hebei, Shandong Peninsula, and Liaodong Peninsula, and jointly carry out research and development. Accelerate the construction of common technology innovation platforms and new industrial chain ecosystem groups, and continuously improve industrial infrastructure. For "shortcomings" such as core technologies, special materials, key components, and advanced manufacturing equipment, joint construction of key common application technology research and development platforms will be carried out to create "chain leaders," "hidden champions," and "specialized and new" enterprises covering key cross-cutting technologies, research innovation, market operation, and production manufacturing, and continuously foster new advantages in market subject competition. Fourthly, improvement of intergovernmental cooperative governance mechanisms and market competition mechanisms, acceleration of government-enterprise cooperation on the standardization of information such as technology and data elements, gradual introduction of a series of mutually integrated regional standards, and then elevation to national standards and even international standards. For technologies and data elements related to national economy and people's livelihoods and national security, the establishment of a regional market risk early warning and emergency response linkage mechanism.

3.4 Strengthening Co-construction and Sharing of Public Services

Meeting the increasing demand for a better life is an important goal in enhancing the vitality of the Beijing Bay city cluster. Strengthening the co-construction and sharing of public services and the integrated construction of basic public services will promote balanced supply and demand and provide high-quality resources to meet the needs of residents in the region for employment, finance, housing, education, healthcare, and other services. Firstly, enhancing cooperation in public health among cities in the bay area, promoting the sharing of medical resources among key cities such as Beijing, Tianjin, and Jinan, and establishing and improving mechanisms for joint prevention and control of public health emergencies and sharing of information. Secondly, jointly building talent education and training bases in the Beijing Bay area to achieve the sharing of high-quality educational resources. Improving the public employment service system in the bay area, establishing an interconnected employment information release platform, and establishing mechanisms for collaboration in labor force vocational skills training, technical education, and employment transfer. Improving the coordination mechanism for social security, and establishing a platform for information exchange and sharing of social security information. Thirdly, coordinating inter-provincial social governance cooperation, building a mechanism for coordinated response, improving the cross-regional social governance system, and forming effective social governance and a good social order. Coordinating the construction of resilient cities, improving the cooperation in disaster prevention, mitigation, and emergency rescue among cities in the region, and enhancing the resilience of bay area cities.

3.5 Promoting Co-governance and Co-protection of the Ecological Environment

Establishing a sound cooperation mechanism in the field of ecological environment in the Beijing Bay city cluster. Firstly, promoting green and low-carbon development in the "Beijing Bay" area. Deepening reforms and innovations in green finance such as climate investment and financing, actively promoting research and application demonstrations of mutual recognition mechanisms for carbon labeling by certification agencies in the "Beijing Bay" area, and continuously improving the level of co-governance, co-protection, and sharing of the ecological environment in the Beijing Bay area. Secondly, enhancing the capacity for coordinated environmental governance in the Beijing Bay area. Supporting key cities in the Yellow River Basin

to carry out cross-border and cross-border water pollution control, establishing a unified environmental monitoring and monitoring system, strengthening coordinated control and governance of pollution sources such as industrial sources, mobile sources, domestic sources, and agricultural sources. Jointly promoting the construction of "zero waste cities" in the Beijing Bay area, carrying out sewage recycling and centralized treatment of pollutants, and sharing facilities for solid waste utilization and disposal. Improving the mechanism for joint law enforcement in cross-regional ecological environment, coordinating joint law enforcement and out-of-area law enforcement for key industrial enterprises, industrial parks, and environmental disputes found in routine law enforcement, petition clues, and source control of pollution outlets in border areas.

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