

6. Jing-Jin-Ji Region, People's Republic of China

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6.1 INTRODUCTION

The Beijing–Tianjin–Hebei Region, known as the Jing-Jin-Ji Region (JJJR), is one of the most important political, economic and cultural areas in China. The Chinese government has recognized the need for improved management and development of the region and has made it a priority to integrate all the cities in the Bohai Bay rim and foster its economic development. This economy is China's third economic growth engine, alongside the Pearl River and Yangtze River Deltas. Jing-Jin-Ji was the heart of the old industrial centres of China and has traditionally been involved in heavy industries and manufacturing. Over recent years, the region has developed significant clusters of newer industries in the automotive, electronics, petrochemical, software and aircraft sectors. Tourism is a major industry for Beijing.

However, the region is experiencing many growth management problems, undermining its competitiveness, management, and sustainable development. It has not benefited as much from the more integrated approaches to development that were used in the older-established Pearl River Delta and Yangtze River Delta regions, where the results of the reforms that have taken place in China since Deng Xiaoping have been nothing less than extraordinary.

The Jing-Jin-Ji Region covers the municipalities of Beijing and Tianjin and Hebei province (including 11 prefecture cities in Hebei). Beijing and Tianjin are integrated geographically with Hebei province. In 2012, the total population of the Jing-Jin-Ji Region was 107.7 million. The level of urbanization is 58.9 percent, 8.1 percentage points less than the Yangtze Delta and 25 percentage points less than the Pearl Delta. Within the Jing-Jin-Ji Region, the urbanization rate varies widely: Hebei province is at 46.8 percent while the rate for Tianjin is 81.5 percent and Beijing 86.2 percent.²⁷²

In April 2015, the regional coordination development plans were approved by the Politburo of the Central Committee of the Communist Party. The plan consolidates the development of the region into a central strategy. This chapter examines the drivers and challenges to the growth and development of the Jing-Jin-Ji Region. It profiles the economic, social and environmental, infrastructure and urban governance factors and challenges, and investigates the existence and development of partnerships that could support a more sustainable approach to urban and regional development in other parts of China. The conclusion suggests ways in which government, business, and communities could collaborate to overcome some of the development problems facing the region, to improve urban growth management and support the sustainable development of cities.

6.1.1 A Brief Overview of the Region

The Jing-Jin-Ji Region has been the third-largest economy of the People's Republic of China (PRC) since the launch of China's economic reform in 1978. In 2013, the region's GDP was estimated at CNY 6.2 trillion, representing 10.9 percent of China's GDP.²⁷³ Since

the mid-2000s, Tianjin has grown much faster than Beijing and Hebei. The growth rate of Tianjin now exceeds the growth rate for China as a whole (Table 6.1).

Table 6.1 Annual GDP Growth Rate in the Jing-Jin-Ji Region, percent

Region	2009	2010	2011	2012	2013
China	9.2	10.4	9.3	7.7	7.7
Beijing Municipality	10.2	10.3	8.1	7.7	7.7
Tianjin Municipality	16.5	17.4	16.4	13.8	12.5
Hebei Province	10	12.2	11.3	9.6	8.2

Source: Statistical Communiqué of the National Bureau of Statistics of China and Beijing, Tianjin, and Hebei Bureau of Statistics.

The largest cities and their dominant industry clusters in the region are:

Beijing Municipality (population: 19.6 million): Beijing is the capital of China and one of China’s four municipalities. Its focus is manufacturing and finance. The main industries are wholesale and retail, information technology, computer services and software, and real estate. In addition, there is a vibrant cultural and creative sector, and its high-tech and high-level services industries are growing fast.²⁷⁴ Beijing ranks overall 39th in the Economist Intelligence Unit’s Hot Spots index on the competitiveness of 120 major cities in 2012.²⁷⁵

Tianjin Municipality (population: 12.9 million): Tianjin is an industrial city. Its main industries include metallurgical machinery, information technology, pharmaceuticals, new energy, and materials. In addition, Tianjin has the aviation and aerospace industries.²⁷⁶ The Tianjin Xingang port is the largest port in north China. The Tianjin Binhai New Area is China’s third Special Economic Zone (after Shenzhen and Pudong), established to attract investment by providing a more liberal financial market and tax incentives.²⁷⁷ Tianjin’s overall rating in the Hot Spots index is 75th.

Principal cities in Hebei province are:

Shijiazhuang (population: 10.16 million): Shijiazhuang is the provincial capital of Hebei province. It is not the geographical centre of Hebei, being far from the municipalities of Beijing and Tianjin. Shijiazhuang is a major chemical industry base and manufacturing centre for the textile and pharmaceuticals industries.²⁷⁸

Baoding (population: 11.19 million): Baoding is the largest city in Hebei province, both in population and area. Baoding, at the centre of Hebei province, was previously the capital of Hebei. Its economy focuses on equipment manufacturing industries, automobiles, new energy, textiles, food, and building materials.²⁷⁹ Zhuozhou city, a county town under Baoding, acts as a dormitory suburb of Beijing.

Tangshan (Population: 7.57 million): Tangshan is a coastal city with a focus on heavy industry. As a centre for the coal mining and steel industries, it is an important part of the northeast China economy. Its port, Caofeidian, has a large iron-ore manufacturing facility and is one of the largest ports in the region.

Langfang (population: 4.36 million): Langfang, located between Beijing and Tianjin, is well connected to the regional transport network. It is 40km from the centre of Beijing and 60km from the centre of Tianjin, 70km from the capital airport and Tianjin airport, and 100km from Tianjin Port. Seven expressways and five railroad lines pass through Langfang city.²⁸⁰ The dominant industries are equipment manufacturing, food processing, wood processing, furniture and metal working. Its three major urban areas, Yanjiao (east of Beijing), Guan and Langfang itself, are dormitory suburbs for Beijing.

Handan (population: 9.18 million): Handan is an important industrial city in Hebei province, but is at the southern end of the province, far from Beijing and Tianjin.

Zhangjiakou (population: 4.35 million): Zhangjiakou is located northwest of Beijing and is a poor, mountainous area. However, Chongli County is being developed for skiing. As a result of Beijing's successful bid for the 2022 Winter Olympics, more winter sports-related industries will be developed in Zhangjiakou.

Qinghuangdao (population: 2.99 million) and **Chengde** (population: 3.47 million): The two are traditional tourism sites, especially for those living in Beijing and Tianjin.

6.1.2 Development Challenges

The development of the Jing-Jin-Ji Region faces a number of challenges:

Lack of Land for Development: The region is relatively hilly and dry. There is not much flat terrain, compared to the Pearl River Delta and the Yangtze River Delta. Less than 50 percent of the land across the three provinces is flat,^{281,282} and much of the urban development occurring in the region is on productive land. Over 45 percent of the Beijing plain area is used for construction.²⁸³

Rapid Rise in Beijing's Population and Congestion.²⁸⁴ From 2000 to 2012, around 16.43 million people moved into the Jing-Jin-Ji Region, of which 6.87 million moved to Beijing. The rapid growth in population has resulted, despite substantial investment in urban infrastructure, in significant traffic congestion, air pollution, and stress on water resources (see Table 6.2).

Table 6.2 Official Resident Population of the Jing-Jin-Ji Region, 2012

City	Total population (million)	Population in districts under city (million)
Beijing	12.78	12.07
Tianjin	9.96	8.16
Shijiazhuang	9.97	2.47
Tangshan	7.37	3.08
Handan	9.80	1.49
Baoding	11.61	1.08
Zhangjiakou	4.67	0.90
Qinhuangdao	2.90	0.87
Langfang	4.25	0.81
Xingtai	7.37	0.72
Chengde	3.74	0.59
Cangzhou	7.35	0.54
Hengshui	4.42	0.50

Source: Based on data from National Bureau of Statistics, *2012 China City Statistical Yearbook* (Beijing: China Statistics Press, 2013).

Lack of Integrated Planning and Coordinated Development: There is no clear industrial orientation and coordination of development in the makeup of the economies of the municipalities of Beijing and Tianjin, and Hebei province. Unlike the Yangtze River Delta, where the urban economic hierarchy has evolved naturally over decades from one hub, i.e. Shanghai, in the Jing-Jin-Ji Region there is no clear strategy for the functional positioning of manufacturing and the ‘division of labour’ among the cities. Unlike the Pearl River Delta, where all cities are governed by Guangdong province, Beijing, Tianjin and Hebei province are at the same provincial administrative level of government, with no supervisory body except the central government, and they lack an effective coordination mechanism to enable them to work together. This is a real challenge for the Jing-Jin-Ji Region, and will require a new regional governance model that is somewhat different to other areas of China. This issue is discussed further in subsequent sections.

Inability to Address Inequity in Development: There are high levels of disparity in the region. Significant differences exist in wealth and technological capacity of firms. In 2013, the per capita income of Tianjin was USD 16,323 while Beijing’s was USD 15,275. However, Hebei Province was USD 6,344.²⁸⁵ Beijing and Tianjin foster high-end industry and technological innovation, but Hebei has limited capacity to develop these industries because of the paucity and narrowness of the skills base in the city’s economy and labour force. While these differences could be addressed through harmonizing supply chains and synergies across a range of different industries, currently there is no effective policy in place to do this.

6.2 ECONOMIC ENVIRONMENT

Table 6.3 provides key economic indicators for JJJR. There are significant differences in the levels of development between the three provinces that make up the region.

6.2.1 Economic Dynamics

Table 6.3 shows that the structures of the economy across the three components of the Jing-Jin-Ji Region are very different. Beijing has already made the transition to a high-income service-based economy, with 77 percent of its economy in the tertiary sector. Almost as wealthy, Tianjin is much more dependent on manufacturing, with services and manufacturing each comprising about half of the economy.

Table 6.3 Key Economic Facts – Jing-Jin-Ji Region, 2013

	Beijing	Tianjin	Hebei
Land area (km²)	16,801	11,917	202,700
Total population (thousands)	21,150	14,130	73,326
Total urban population (thousands)	18,251	8,500	35,286
Labour force (thousands)			
Unemployment rate	1.2%	3.6%	3.7%
GDP (million USD)	312,010	229,283	394,696
Primary industry (million USD)	2,496	2,981	49,732
Secondary industry (million USD)	69,578	116,017	194,585
Tertiary industry (million USD)	239,935	110,285	150,379
GDP per capita (USD)	16,419	15,216	6,271
Total exports (million USD)	63,250	49,030	30,900
Total imports (million USD)	365,860	79,500	23,900
Foreign direct investment (million USD)	8,520	16,830	6,447

Sources: Authors using Data from Beijing, Tianjin and Hebei Statistical Yearbooks 2014; United Nations Conference on Trade and Development (UNCTAD) Inward FDI Performance, 2014.

Hebei province, with some 13 percent of its output still in agriculture, 37 percent in the service sector and about 55 percent in manufacturing, shows yet again another economic structure. Growth rates for Hebei province and Tianjin have been above average for China at 8.2 percent and 12.5 percent respectively, with Beijing's growth at China's average of

7.7 percent. However, the shutdown of polluting industries, which began with the measures taken for the Beijing Olympic Games, and which have continued and broadened, has impacted Hebei province's growth. Its growth rate in 2014 dropped, in an initial estimate, to 6.5 percent.²⁸⁶

6.2.2 Key Industry Growth Sectors

Beijing has the advantage of a developed service industry. In 2013, the proportion of the economy represented by the service industry in the GDP was 76.9 percent, which was the highest among all provincial governments. For example, the service industry in Zhongguancun Science Park, called the 'Chinese Silicon Valley', accounted for more than 70 percent of the value of its total industrial output. Annual revenue for Zhongguancun biological and health industry reached CNY 140 billion (USD 22.4 billion) in 2013; its profit rate has ranked first in the PRC for nine years consecutively.²⁸⁷

Beijing ranked 18th among a group of 30 leading cities worldwide in PricewaterhouseCooper's 2014 Cities of Opportunity study, which assesses what the cities need to do to remain vibrant urban centres in the global economy.²⁸⁸ Beijing performed particularly well on 'economic clout', coming in second by only a tiny difference to the leader, London. It also ranked second on the 'city gateway' indicator, which gives it the lead in Asia and most other continents.

Table 6.4 Key Industrial Sectors in the Jing-Jin-Ji Region, 2014

Industrial sector	Gross industrial output (billion CNY)		
	Beijing	Tianjin	Hebei Province
Agriculture	421.78	412.36	5,832.94
Construction	7,407.09	3,670.53	5,203.92
Retail	6,585.6	n.a.	n.a.
Tourism	354.4	n.a.	n.a.
Industry	396,270.16	125,324.24	99,531.34
Of which dominant industry focus:	Integrated circuits 374,000 (94%)	Mobile phones and integrated circuits 106,336 (85%)	Metal and steel products 58,739 (59%)

Note: Data refer to enterprises with annual business revenue over CNY 20 million.

Sources: Authors using data from Relevant Statistical Yearbooks 2014

Outside Beijing, industry in the Jing-Jin-Ji Region (Table 6.4) is characterized by the predominance of heavy industry – such as electricity generation, petrochemicals, steel and ship making – which accounts for over 80 percent of industrial output in 2010. Tianjin

had an 83.6 percent ratio of heavy industry to GDP in 2010. Although Hebei province lags behind in the sophistication of its economy, its total output is significant; 40 percent more than the sum of Beijing and Tianjin. In 2010, the value-added of industry in Tianjin was only 46 percent that of Hebei.²⁸⁹

The effective use of China's industrial-estate incentives policy, with tax and other incentives coupled with high-quality infrastructure, has proved successful in attracting both local and international investment. Beijing has 19 major development zones, Tianjin has 4 major zones and 22 city level zones, and Hebei province has 5 major development zones. Major development zones with sophisticated infrastructure are typically over 5 square kilometres but may be bigger than 200 square kilometres. As development has proceeded in Beijing and Tianjin, the investment promotion activities have evolved, to foster higher value-added industries as manufacturing costs and sophistication increased. For example, China's first coordinated and unified clearance system has been set up to simplify customs procedures and reduce trade costs. In September 2014, the Jing-Jin-Ji Region integrated customs clearance was started in Shijiazhuang.²⁹⁰

Through market feedback and administrative responses, the costs of doing business in the region have always been reasonably well calibrated to world markets. While substantial initial infrastructure spending was necessary, cost recovery for the services, through both user charges and other taxes, was sufficient to provide good and steadily improving infrastructure in major, well-located zones. However, city-level industrial estates have often been established without due analysis and have not performed as well, in terms of supporting export development and in terms of efficiency of operation. A more coordinated approach to planning and developing such zones is needed, especially in view of the requirements of regional integration.²⁹¹ In respect of other forms of urban development, the urban areas of the Jing-Jin-Ji Region have been the recipients of high levels of public investment, for example, Beijing's metro system is one of the largest in the world.

Significant challenges remain for the region in the area of human capital. Industries face rising cost of labour. People in the capital will not work for the same wage as in less developed provinces. Traditionally low wage jobs have been taken by migrants, but its continuing ability to attract migrant labour in the face of increased job opportunities in the 'sending' provinces is in question. This is because of the impact of strong domestic policies promoting development in the west of China.

In summary, given that Hebei province has a different economic structure, future development could take advantage of a potentially highly synergistic group of subregional economies – but human capital needs developing across the Jing-Jin-Ji Region. The current overall outcome for the cities in the international context is indicated by the Economist Intelligence Unit's Hot Spots index. Beijing and Tianjin rank 10th and 1st, respectively, in the 'economic strength' category; and 56th and 74th in the 'human capital' category. No city in Hebei province was rated.

6.2.3 Trade

Disaggregated data of origins and destinations for imports and exports are not available, but the general directions of trade can be discerned. Beijing's major exports are destined

mainly for Hong Kong, China for re-export. Tianjin's exports are more oriented to direct exports, with the major destinations of the USA, the European Union (EU), Japan and Korea accounting for 53.8 percent of the total exports. Hebei province's major exports are to the USA, Australia, Japan, Korea and Chinese Taipei, mainly reflecting steel exports, but also electronics.

Beijing's principal import trading partners are Saudi Arabia, reflecting oil imports, and the USA. Because it is a centre for internal re-export, Beijing's imports far exceed its exports. Tianjin's imports are more in balance with its exports and reflect the inputs needed for its extensive high-tech manufacturing sector, being from the EU, the USA and Japan. Hebei's imports are mainly from Australia, Brazil, the USA, Germany and India, the first two mainly reflecting raw material inputs to the steel industry.²⁹²

6.2.2 City/Region Economic Competitiveness

The results of existing infrastructure policies are seen in the 'physical capital' category of the Economist Intelligence Unit's Hot Spots index. Beijing ranks 55th, and Tianjin 68th, despite significant investment in transport infrastructure; these positions reflect the lower levels of services provided by the components of infrastructure other than roads and freight.

The financial sector is a strength of the Jing-Jin-Ji Region. The largest domestic banks and insurance companies and many international financial institutions are headquartered in Beijing. Financing the required strategic infrastructure is a challenge for the region, particularly in Hebei province. While the use of land conversion to finance infrastructure has been very successful, the long-term viability of this strategy is very questionable, particularly in the context of the need to fund increasing levels of services for native-born and migrant populations.

The results of existing policies are shown in the ranking of Beijing and Tianjin in the 'financial maturity' category of the Economist Intelligence Unit's Hot Spots index. Beijing ranks 10th along with 15 other world cities. Tianjin ranks 61st along with 22 other world cities. The lack of sophistication of financial support services to companies outside Beijing is a factor holding back the development of the Jing-Jin-Ji Region.

6.3 INNOVATION, CREATIVITY AND BUSINESS ENTREPRENEURSHIP

After the Beijing Olympic Games in 2008, Beijing has become more open and global, a process which is expected to continue with Beijing's successful bid for the 2022 Winter Olympics.

In 2012, China Beijing International Fair for Trade in Services (CIFTIS) was established as the first comprehensive platform for facilitating global trade in services. CIFTIS covers the 12 sectors of trade in services defined by the WTO, namely, business, communication, construction and related engineering, distribution, educational, environmental, financial, health and social, tourism and travel-related, recreational, cultural and sports, transport and other services.²⁹³

In 2014, Beijing came in 8th out of the 84 cities worldwide assessed by the Global Cities Index, breaking into the top 10 for the first time. The index measures cities on how globally engaged they are across the dimensions of business activity, human capital, information exchange, cultural experience and political engagement. Beijing's performance on the index was due to an expansion in the number of Fortune 500 companies, international schools, broadband subscribers, and museums.²⁹⁴

Tianjin has actively promoted innovation policy. Summer Davos, held in Tianjin since 2008, is a prominent vehicle for bringing internationally respected thinkers to the region, and it promotes Tianjin to the world. Up to 2014, more than 150 international Fortune 500 companies have invested in Tianjin, with USD 10.8 billion of actual FDI and USD 12.3 billion FDI on contract.²⁹⁵

The Tianjin Binhai New Area is developing into a significant 'economic growth pole'. As a significant strategic precinct and comprehensive reform pilot zone for the PRC, it is seen as a gateway to northern China. It is envisaged as an advanced and modern manufacturing and R&D transformation centre, a northern international shipping hub and an international logistics nexus, as well as a liveable and ecologically sound city.

The Tianjin Binhai New Area contains seven major industry function zones and one comprehensive trade port. Ranked fourth in the world, the port includes Tianjin Port Free Trade Zone, Tianjin Harbour Economic Area, Tianjin Binhai High-tech Industrial Development Zone, Tianjin Economic-Technological Development Area, Dongjiang Free Trade Port Zone, Sino-Singapore Tianjin Eco-City, the Central Business and Commercial District, and Tianjin Port. The cargo handling capacity of Tianjin Port reached 477 million tons in 2012. The same year, the gross output value of the Tianjin Binhai New Area reached CNY 720.517 billion (USD 120 billion), while GDP per capita was about CNY 300,000 (USD 50,000).²⁹⁶

The first high-tech park in China, the Zhongguancun National Demonstration Zone, is located in Beijing. Zhongguancun has the most intensive aggregation of scientific, education and talent resource in China. It is home to almost 40 colleges and universities, including Peking University and Tsinghua University. Also located there are more than 200 scientific institutions, including the Chinese Academy of Sciences and the Chinese Academy of Engineering. There are also 67 state-level laboratories, 27 engineering research centres, 28 engineering and technological research centres, 24 university science and technology and 29 overseas student pioneer parks.²⁹⁷ Venture capital investment in Zhongguancun account for approximately a third of the economy's total every year.²⁹⁸

R&D has been given substantial emphasis in Beijing. As the technology innovation centre for the PRC, Beijing has strongly supported new technology. In 2013, Beijing's total expenditure on R&D was CNY 120.07 billion (USD 19.3 billion), equal to 6.16 percent of its GDP. In comparison, R&D expenditure in Hebei province in 2013 was only CNY 29 billion (USD 19.3 billion), or 1 percent of its GDP.²⁹⁹

The results of existing policies are reflected in the 'global appeal' category of the Economist Intelligence Unit's Hot Spots index. Beijing ranks 5th despite its active promotion efforts. Tianjin ranks 115th. While Beijing performs well, the lack of support from the remainder of the Jing-Jin-Ji Region is a challenge.

6.3.1 Regional Economic Development Planning

In March 2011, Jing-Jin-Ji Region integration was included in the PRC's 12th Five Year Plan in the form of plans for a Capital Economic Circle. Main functional area planning was undertaken for the 'Bohai Ring' region (Beijing–Tianjin, and Hebei, Liaoning and Shandong provinces). The State Council approved the Hebei Coastal Areas Development Planning in October 2011.

Although some policies aimed at an integrated approach to the development of the region were announced, not much attention was given by Beijing to developing a plan, until intense smog occurred in eastern China in 2013. In February 2014, President Xi called for the integrated and coordinated planning and development of the region around Beijing. The National Development and Reform Commission with relevant ministries, municipalities and provinces prepared the Beijing–Tianjin–Hebei Coordinated Development Plan, which was approved by the central government in April 2015. It was later included in the China development strategy. Once this plan is published, it will become part of the development strategy for the PRC.³⁰⁰

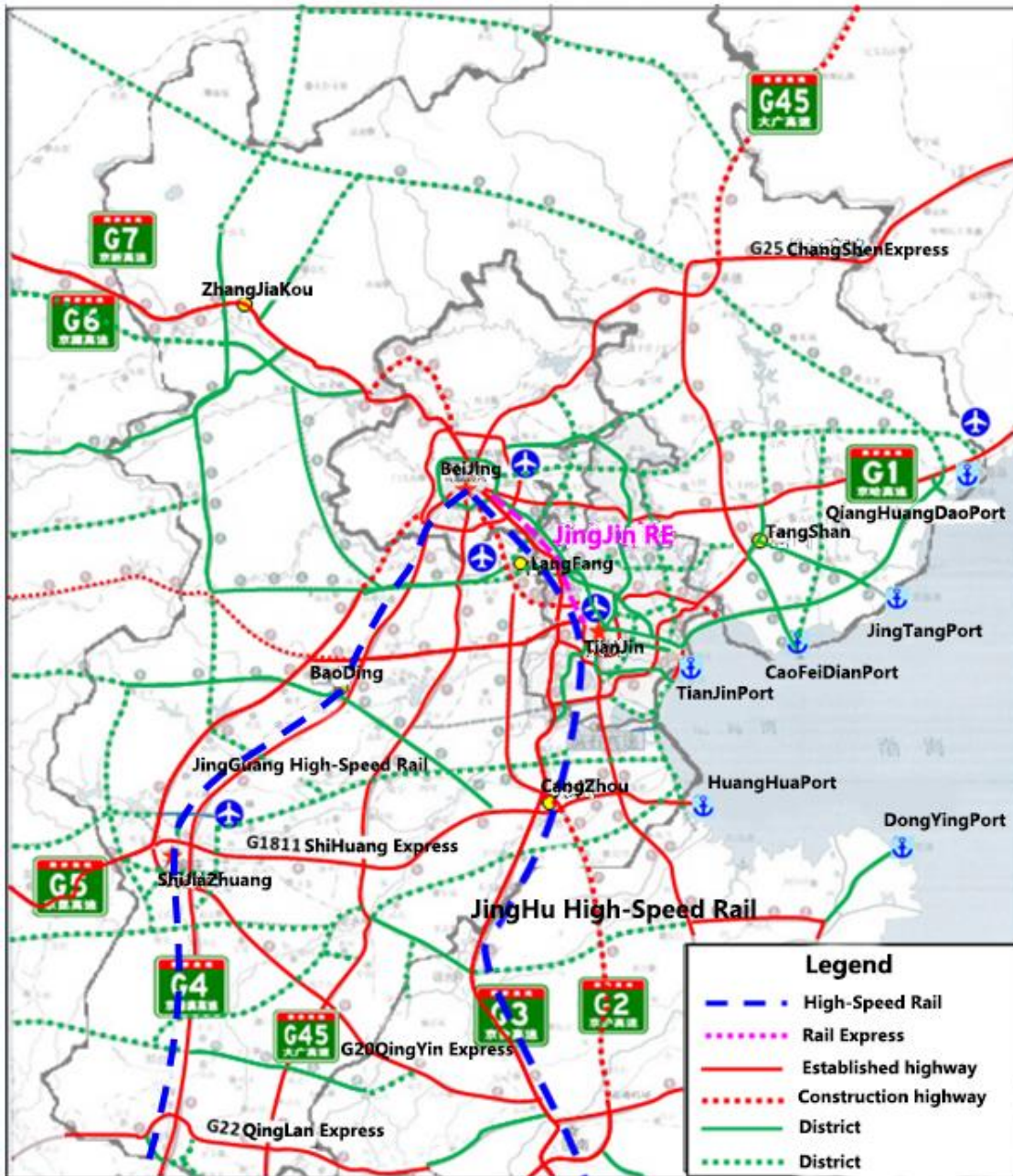
The following analyses the economic underpinnings of the proposed development.

6.4 STRATEGIC INFRASTRUCTURE

6.4.1 Strategic Infrastructure Assets

Jing-Jin-Ji Region has an extensive network of expressways and a high-speed rail network that connects the municipalities of Beijing and Tianjin and the cities in Hebei province with other regions. Jing-Jin-Ji Region also has two international airports, Beijing and Tianjin, with a second international airport south of Beijing under construction. These transportation networks are shown in Figure 6.1.

Figure 6.1 Main Transportation Infrastructure in Jing-Jin-Ji Region



Source: Li Defeng, China Centre for Urban Development, 2014.

The main international airport for the region is in Beijing, but international flights also operate from a number of city airports. Tianjin is China's fourth largest seaport; the new facilities in the Binhai District at Tanggu will add substantial capacity to the region's ports. Other ports in the region, Tangshan, CaoFeidian, Jingtang, Huanghua, Qinhuangdao and Dongying, are also being upgraded.

In July 2014, construction commenced on the southern section of a dedicated cargo express train line. The line stretches 1,181km with 30 stations.³⁰¹ The whole circle will

cover around 140 counties in Jing-Jin-Ji Region, and some counties and cities in the provinces of Shandong and Shanxi.³⁰² Other initiatives include:

- New high-speed rail links to Tianjin and Qinhuangdao (see Figure 6.2). A high-speed railway connecting Tianjin municipality with Qinhuangdao, a port city in Hebei province. Trial operations have been commenced since the end of 2014.
- The South-to-North Water Diversion Project's central route is expected to transfer fresh water from the Han River (a tributary of the Yangtze River) to Beijing (about 1.24 billion cubic metres annually) and to Tianjin (about 1.02 billion cubic metres annually).³⁰³

Figure 6.2 High-Speed Railway Network in Jing-Jin-Ji Region



Source: Translated by China Centre for Urban Development, 2014.

While the ambitious infrastructure spending has resulted in effective logistics infrastructure, urban infrastructure remains a challenge. Water, wastewater and solid waste services have lagged behind. Education and health services also are failing to meet the expectations of citizens. For the migrant population, services are even less accessible. Information and communications infrastructure, overall, is good within the major cities and industrial estates, but is less established in the rural areas of Hebei province.

6.4.2 Future Infrastructure Needs

The focus of future infrastructure investment will be on building a highly efficient transportation network that fully connects Beijing, Tianjin and the cities in Hebei province – to jumpstart regional economic integration. The 2020 Jing-Jin-Ji Region transport network target is expected to be met, including 9,500km of heavy railways and 9,000km of expressways, and shorter travelling times between major cities in the region (within an hour by train and three hours by car).

According to the Outline of Beijing Traffic Development (2004–2030), Beijing is committed to building a 940km outer ring road with 12 lanes to boost the linkage between adjoining areas. Approximately 50 percent of the construction has been finished, with 490km yet to be built. Tianjin also has invested heavily in improving its transport infrastructure with the Binhai, Jingtai, Jingqin, Tanglang Phase 1, Tangcheng Phase 2 and Jishan expressways providing the backbones of three corridors between Beijing, Tianjin and Shijiazhuang.

Hebei province will contribute to building Beijing’s outer ring road, since more than 90 percent (850km out of 940km) of this ring road is within Hebei Province, linking the Jingzhang, Jingshen, Jinghu, Jingtai, Daguang and Jingzhu expressways.³⁰⁴

Planned infrastructure projects feature a continued heavy emphasis on expressways and on high-profile transport infrastructure, specifically high-speed and freight rail (see Figure 6.2). While those projects are important, other aspects of strategic infrastructure, such as higher education, better health services, and a healthier environment, also need to be emphasized. It is these investments that will build the base for the higher value-added, internationally competitive services needed to further increase the GDP per capita and quality of life of the Jing-Jin-Ji Region’s citizens. Despite progress, initiatives to date have not attracted significant new investment and have not, as yet, significantly improved quality of life in the Jing-Jin-Ji Region.

6.4.3 Infrastructure Partnerships

All three entities within the region, Beijing, Tianjin and Hebei province, have announced plans to implement public–private partnership (PPP) schemes for the provision of infrastructure in the region. Hebei province has explicitly stated that its PPPs are in support of the further integration of the region.³⁰⁵ The main PPP modalities for key sectors are:

- *Railways.* These are highly subsidized, but effective in minimizing car traffic. Freight rail is very important for reducing truck traffic, but is also highly subsidized. Opportunities are mainly through availability payment – payment for provision – schemes.
- *Metro extensions.* Property-based value capture (a mechanism that allows government to capture some of the increase in land value generated through infrastructure investments) based on the Hong Kong, China model is both possible and intended.
- *Water supply.* This is dependent on cost recovery tariffs or availability payments from the local governments.

- *Health.* Provision of health services by PPPs through availability payments is both feasible and equitable. Fully cost-recovering PPPs in the sector will serve only the higher income groups.
- *Education.* Availability payments for schools are now routine, but performance based contracts for teaching may also be possible.

For many of these PPP modes, a sustainable revenue base is essential. As many infrastructure projects are not able to cover capital and operation and maintenance (O&M) costs from user charges, a stable subsidy stream, or availability payment, from local governments would be necessary. The key to such revenue streams are land-based revenues, from property tax in the case of availability payments, and from development/land taxes for public transport. Structuring such projects to ensure that the community does not lose is important, but it is not well understood by Jing-Jin-Ji Region governments. Current mechanisms, which capture part of the land value increment from land conversion to fund infrastructure provision, are not financially sustainable, and should be avoided as a source of funding – even counterpart funding.

6.4.4 Operation and Maintenance of Infrastructure

A lack of asset management systems and the ease of justifying and financing capital investments have militated against effective O&M. In too many cases, old assets have been rebuilt, a practice that is environmentally and financially inefficient. Better asset management and more rigorous project appraisal are required. Given the rebalancing of growth in China, and a move away from an automatic recourse to new build, continuing growth of the Pearl River Delta will increase the stress on infrastructure. Cities in the Jing-Jin-Ji Region need to increase their resilience to withstand events occurring both inside and outside of the region as a result of natural or technological hazards, human error or equipment failure.

The Jing-Jin-Ji Region's cities need to future-proof against disruption to infrastructure supply and network systems, particularly in respect of the region's vulnerability to typhoons. Infrastructure failure can be significant and costly; and requires a series of actions to improve the operation, maintenance and replacement of urban utility services. As a risk management strategy, the utility service agencies need to undertake comprehensive asset management planning to reduce the possibility of future failure and ensure that services can be re-established quickly if failure does occur.

6.5 SOCIAL AND ENVIRONMENTAL SUSTAINABILITY

6.5.1 Liveability and Competitiveness

Beijing and Tianjin municipalities are wealthy in terms of GDP per capita, but this wealth is not reflected in the quality of life of its residents. There are major issues with water and air quality. Heavy traffic congestion and poor air quality in the long term may deter high-level professionals from coming to these areas or even encourage them to leave. Foreign businesses are already making choices about locations in Beijing on the basis of air

quality issues.³⁰⁶ Eventually, Jing-Jin-Ji Region may fail to attract the highest level of international and domestic human capital, which will affect its competitiveness.

In Hebei province, the economies of most cities rely on heavy industries, which are highly polluting. Further, in the run-up to the 2008 Beijing Olympic Games, a large number of heavy manufacturing factories were relocated to Hebei province to improve air quality in Beijing. Similar arrangements may be necessary again for the 2022 Winter Olympics, which may place further stress on the province. In addition, solid waste treatment in urban areas is inadequate, and the ecology of the region is deteriorating because of soil erosion and degradation from sand storms.

Although Beijing has the highest concentration of China's elite universities, hospitals, and other specialist services, the challenge lies in providing migrants with access to public services. The hukou system, the household registration system which restricts the movement of people and effectively locks rural dwellers out of the modern economy, is the main obstacle to migrants gaining access to public schools, public health services and some goods, such as automobiles.

Housing affordability is also of significant concern and is a major challenge for Beijing in its quest to attract high value-added people. According to a study by E-House China R&D Institute, the ratio of median house price to median household income in Beijing is 14.6 in 2014 – which internationally is a very high level.³⁰⁷

There is an imbalance of social development, infrastructure and access to public services in the Jing-Jin-Ji Region. Around Beijing and Tianjin, and in 24 poor counties, 2 million people live under the poverty line. In 2010, per capita fiscal expenditure in Beijing district was CNY 18,892; 3.34 times higher than for Hebei province. The best universities and hospitals are concentrated in Beijing. Of the top 50 Chinese universities, 9 are in Beijing, and 5 are in Tianjin. Based on 2011 data, among the 1,399 third-degree hospitals (highest degree) in China, 51 are in Beijing, which is equal to 24 percent of those in the whole of north China (Huáběi in Chinese, referring to Huabei Plain, consisting of Beijing municipality, Tianjin municipality, Hebei province, Shanxi province and the Inner Mongolia Autonomous Region).³⁰⁸

The results of existing social policies are shown in the 'social and cultural character' category of the Economist Intelligence Unit's Hot Spots index. Beijing and Tianjin rank 71st and 111th respectively. While Beijing's performance is better than Tianjin's, it is not outstanding; and it is below that of other capital cities with which it must compete. The results of existing environmental policies are shown by outcomes in the 'environmental and natural hazards' category of the Hot Spots index. Beijing ranks 85th (with eight other cities) while Tianjin ranks 108th, reflecting the poor overall situation in the Jing-Jin-Ji Region.

These outcomes demonstrate an urgent need for the municipalities of Beijing and Tianjin and the province of Hebei to work cooperatively and effectively on social and environmental challenges. They will need to make adjustments to the region's industrial structure and functional orientation, strengthen their regional environmental management capacity and bolster the scientific and technological underpinnings of growth. Incentive mechanisms to foster resource efficiency and ecological conservation; better mechanisms

to promote energy saving and emission reduction; and effective coordination are essential to achieving green and efficient development.

6.5.2 Pollution and Development

The Jing-Jin-Ji Region urgently needs to address air pollution. It is lagging far behind the Pearl River Delta and Yangtze River Delta in air quality, with 69 percent of days in 2013 failing to meet China's air quality standards.

An analysis of air pollution patterns in Beijing, Tianjin and Hebei province show some variations in the levels and sources of pollution. In terms of coal burning, for example, the situation has improved in Beijing and stabilized in Tianjin.³⁰⁹ In Hebei province, however, coal burning still accounts for as much as 80 per cent of the regional consumption. In 2012, motor vehicle emissions were the main source of air pollution in Beijing. For Tianjin, it was sulphur dioxides from coal burning; and in Hebei province, industrial manufacturing proved to be the major source of air pollutants.

Nevertheless, given the geographical proximity of Beijing, Tianjin and Hebei province, a joint prevention and control mechanism is essential. The central government has already reiterated the importance of an integrated, regional approach to preventing and controlling air pollution and to infrastructure construction in the Jing-Jin-Ji Circle.³¹⁰

Central to resolving the air pollution problems in the region is eliminating overcapacity in polluting industries and encouraging those industries to upgrade their equipment. In this regard, Hebei province is the key.³¹¹ The Hebei Environmental Protection Bureau has called for the province to reduce the production capacity of several industries: iron and steel (60 million tons), cement (61 million tons) and coal (40 million tons). It has also suggested that heavy polluters should be provided with support to either transform production modes or relocate.³¹²

However, there are likely to be costly trade-offs. In 2012, Hebei province was 6th in China in terms of GDP, but this was achieved on the back of strong growth in the heavy chemical industry sector. Given the importance of heavy industry to the province's economy, production cuts are likely to have a significant impact on GDP growth, fiscal revenue and employment.³¹³

Also, there are limited incentives for implementing policies that will disadvantage established interests. Traditionally, non-governmental organizations (NGOs) have been the strongest advocates for such measures. But while there has been an increase in environmental NGOs operating in Beijing, their ability to make a real impact remains a question mark. It would not be easy to replicate the achievements of Friends of Nature, Green Earth Volunteers and Global Village of Beijing, the three most influential environmental NGOs in Beijing.³¹⁴ The international environmental organizations operating in Beijing face significant challenges in collaborating and negotiating with the local government, partly due to cultural differences.

6.5.3 Poverty and Inequality

The literature on poverty in the region clearly establishes a ‘poverty belt’ around Beijing and Tianjin, in stark contrast with the areas surrounding the Pearl River Delta and Yangtze regions. Further, the gap between this belt and the urban centres of the region has been growing. The combination of poor, water-starved farming land providing only a meagre living from agriculture and the hukou system, which locks rural dwellers out of the modern economy, has been disastrous for the rural poor. Administrative integration per se will not address this issue. The inhabitants of the ‘poverty belt’ also lack the skills, health and access needed to integrate into a modern economy. Much more proactive means will be needed to reduce and then remove the poverty belt.³¹⁵

6.6 EFFECTIVENESS OF URBAN GOVERNANCE

6.6.1 Regional Vision

The vision for the Jing-Jin-Ji Region is to link 130 million people across Beijing, Tianjin and Hebei province into a single megalopolis.³¹⁶ The Jing-Jin-Ji Region is held out as the model for China’s future urbanization. To realise this vision, it is fundamental to align policies and conflict interests, especially in relation to urban planning, industrial production, state-owned and private companies, and environmental protection.

The Jing-Jin-Ji Region plan has initiated for the three northern areas to be integrated into one economic realm, similar to the Yangtze River and Pearl River Deltas. To achieve parity with the two deltas, the JJJ region needs to further develop private enterprise, enhance the cohesiveness of its industrial base, and further open to the outside world. In 2012, exports accounted for 15 percent of its GDP, compared to 60 percent in the Yangtze River Delta and 63 percent in the Pearl River Delta. The new metropolis would require an investment of CNY 42 trillion (USD 68 billion) over the next 20 years. This large region has great potential for economic development but so far has not achieved that potential.

The industrial base of the Pearl River Delta took shape in the 1980s after China’s first moves to open up to the world, and consequently Shenzhen and Zhuhai have been turned into successful Special Economic Zones (SEZ). After a decade, this opening up process was further enhanced, focusing the industrialization of the Yangtze River Delta, with Shanghai’s Pudong area promoted as the financial hub of the nation. The third generation of reform has shifted its policy focus to the underdeveloped areas of the mainland, including to address income disparity with the ‘Go West’ and ‘Develop Central China’ campaigns. These policies have fostered development in inland regions but failed to address the structural problems in the regional economy, neither to make growth sustainable. In particular, the services sector has remained less developed.

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The establishment of the Special Economic Zones (SEZ) opened China's market to foreign manufacturers, which turned the two Deltas into 'the world's factory'. The experiments in Shanghai Pudong helped to prepare China for the entry into the WTP. The intent now is that the deep-seated structural problems in the Chinese economy can be addressed through a new round of reforms that will be piloted in the Jing-Jin-Ji Region.³¹⁷

President Xi heads the 'leading group' for overall reform and has initiated for integrated and coordinated development among the three regions, ensuring that their actions complement one another in strengthening trilateral cooperation, in order to deliver tangible results within an integrated and coordinated approach to sustainable development. The President reportedly meets each involved minister in the State Council for a weekly briefing on progress.

Analysts, however, have warned that, compared with reforms introduced in the Pearl River Delta and the Yangtze River Delta, the new JJJR plan could potentially meet resistance. The three components of the Jing-Jin-Ji Region have benefits in its unique political status. As China's capital, Beijing accommodates the headquarters of all major party, governmental and military bodies. It is also the home to China's leading academic, cultural, sports and other social institutions, including the mainland's elite universities, hospitals and performance troupes. Along with Shanghai and Chongqing, Beijing and Tianjin are classed as metropolises that are directly under the central government by Chinese governmental hierarchy, each headed by a Politburo member, giving them a higher status than a province.

Bridging the administrative divides among the three regions will require effective coordination and strong leadership. While the Jing-Jin-Ji Region's GDP was USD 1 trillion in 2014, similar to Korea's GDP, and the 15th highest in the world, wealth distribution is uneven in the region. The per capita GDP of Beijing was almost three times that of Hebei province. As the plan aims to more equitably utilize the resources across the region, resistances are likely to come from current 'winners' that have enjoyed far greater access to superior resources of education, healthcare, culture and administration.

6.6.2 Integrated Development Planning

As yet, there is no effective cross-provincial governance mechanism within the Jing-Jin-Ji Region, aside from the high-level leadership group. The regional inequalities make cross-boundary regional cooperation hard to design. Further, the current official performance evaluation mechanism does not provide enough motivation to coordinate and cooperate.

Before 2013, there were many discussions and plans for regional development linking Beijing, Tianjin and Hebei, but no significant actions were taken to improve

harmonization and foster collaborative competition. However, Beijing, Tianjin and Hebei province are confronted with the same significant environmental challenges, which may provide the catalyst for greater regional cooperation, especially in advancing solutions to environmental problems.

In March 2014, a coordination committee for Jing-Jin-Ji Region development was established between the Beijing, Tianjin and Hebei province governments, with strong support from senior business and political leaders in the region. Since June 2014, several high-level meetings and seminars have been held among the governments, and field visits to partner provinces have been conducted. Mechanisms to establish and/or encourage common approaches to promote industry clusters, such as a uniform regional tax, have been developed, and a working group on implementation has been formed.³¹⁸

While a more coordinated and collaborative regional governance structure is very desirable, the challenge will be to bring it to fruition, given the cherished autonomy of provinces and local governments in China. The results of existing policies are shown in the ranking of Beijing and Tianjin in the ‘institutional effectiveness’ category of the Economist Intelligence Unit’s Hot Spots index – at 96th with seven other cities. The overall ranking result for these flagship cities in the Jing-Jin-Ji Region are low when compared to the cities with which they must compete. The cities in the Jing-Jin-Ji Region are competing not only for business outside of China, but with the government’s policy to support more endogenous growth and lift the level of consumption in the domestic economy. They will have to compete with the Pearl River Delta and Yangtze River Delta for business and investment. Unless provincial and local governments can work together to achieve greater cooperation and collaboration, they will lose their competitive advantage and many of the new technology jobs that will be created in China.

6.6.3 Governance Reforms and Initiatives

The Politburo of the Central Committee of the Communist Party of China approved plans on 30 April 2015 for the coordinated development of the Beijing–Tianjin–Hebei region, consolidating the project as a PRC-level strategy.³¹⁹

The strategic plan aims to relieve pressure on Beijing and boost the development of its surrounding regions. Its approval will pave the way for the government to promote economic and spatial restructuring in the region, and improve the management of Beijing’s population. The plan places priority on traffic management, environmental protection, energy security, industrial upgrades and public services.

One of the plan’s most important priorities is to ease the non-core administrative functions from Beijing to Tianjin and Hebei province. Tongzhou district, east of Beijing’s CBD, is planned to be a sub-administrative-centre of Beijing. There are discussions and debates about the relocation of Beijing governmental administration to Tongzhou district, but no official announcements have been made. Tongzhou is strategically located as a hub between Beijing, Tianjin and Hebei province, and is well connected by transport infrastructure. This makes it a possible centre for the relocation of some universities, hospitals and other public services. The second high-speed railway between Beijing and Tianjin is under construction and will further improve the connection between Tongzhou, Tangshan and Qinghuangdao, and thus will improve regional transport integration. A

regional railway development institution was registered in December 2014 as Jing-Jin-Ji Railway Investment Corporation. It is a joint venture, on a 3:3:3:1 share basis, between the Beijing government, Tianjin government, Hebei government and China Railway Corporation (the railway operation under the Ministry of Transport).

The development of the plan has enabled investment in key strategic infrastructure to proceed, including the extension of Beijing's subway network to Hebei province, and collaboration on customs clearance procedures between Beijing and Tianjin municipality starting in July 2015. However, a sufficiently powerful central coordination mechanism to ensure effective implementation is still lacking.

Both Hebei province and Tianjin have always been subordinate to Beijing in resource allocation and administrative concentration. The disparity in political and economic position creates barriers to deeper cooperation and coordination at the administrative level. It will be necessary to break the boundaries of administrative systems to realize true coordination of the three regions.

Second, there are also procedural barriers. For example, although in recent years Beijing has cooperated with Hebei province's cities and development zones, they have encountered problems in harmonizing approaches to such issues as how to calculate GDP and to share taxes. Further, in comparison to the Pearl River Delta and the Yangtze River Delta regions, the Beijing–Tianjin–Hebei Region has a much less developed private sector, and more difficult natural conditions. Lastly, there is, as yet, no free flow of labour and resources in the Jing-Jin-Ji Region as the hukou system is not yet integrated within the region.

6.7 PARTNERSHIPS FOR SUSTAINABLE DEVELOPMENT

6.7.1 Development Partnerships

The component metropolitan areas, cities and Hebei province have myriad partnerships on many levels. However, the different types of partnerships that support the development and management of the Jing-Jin-Ji Region can be characterized into just a few. Many of these involve formal structures, especially when they involve public–private sector partnerships between government and business. Others are less formal and involve networks and associations of professionals, communities and cultural interest groups.

The core partnership types are:

Government-to-government partnerships, providing coordination of economic development activity. The Jing-Jin-Ji Region constituents do not have any cooperation agreements equivalent to the Closer Economic Partnership Arrangements between the mainland and the two Special Administrative Regions (SARs) in the Pearl River Delta.³²⁰ The administrative autonomy of the SARs makes this arrangement necessary, but the process of working through key areas of cooperation and formally agreeing on them is in itself an important basis for effective coordination. Such formal coordination is advocated by both the Beijing–Tianjin–Hebei Integrated Development and Innovation

Centre of the Hebei University of Economics and Business and the Binhai Development Research Institute of Nankai University.³²¹

Under such agreements, coordinated ‘twinning’ of agencies can occur, for example, as exists between the environmental agencies of Hong Kong, China and Guangdong. Such agreements will be essential if major administrative reforms such as unification of hukou (residence) permitting, are to be implemented.

International city-to-city relationships, through sister city relationships and membership of specific interest groupings such as the C40 or Metropolis. Partnerships among institutions – such as educational institutions – in the cities of the region with other cities in the region or with international partners are common. In the urban sector, Peking University’s School of Urban Planning and Design has a long-standing relationship with the Lincoln Institute of Land Policy in the US, for example.

Partnerships involving the private sector either with government or between industry associations. In particular, PPPs in the infrastructure space have occurred in the water sector and for rail investments, but they have not been transparent in their structures and are likely not to be replicated. However, the PRC government has recently introduced an improved framework for such activity.

6.7.2 Strategy for the Development of Partnerships

While the partnerships developed to date have been important, a more strategic approach to partnership development could be taken. Such an approach would focus on the key economic development objectives and set out to establish relationships with partners in potential markets or commodity suppliers, and with collaborators in technology that is related to priority sectors. Examples are port cities as sources of raw materials and/or markets which link to substantial existing or potential hinterlands, such as the Lima ports (railway link to Brazil), Portland (links to US markets) and Brisbane (with its increasing links to Australia’s southern markets via rail and as an export hub for some commodities).

6.7.3 Action Agenda for City or Corridor Development

Key areas of focus for a regional strategy for partnership development should be:

- Investing in environmental infrastructure (particularly in water management and wastewater to augment current efforts and build resilience)
- Developing and implementing, on a sustainable basis, investments in ‘soft infrastructure’ (e.g. control of air pollution and inclusive health and education)
- Sustainable urban finance management (property tax, cost recovery, and then embark on PPP projects to leverage government funds)
- Low carbon planning and finance
- Developing international city-to-city economic links, especially in areas it wants to develop: sports (e.g. with Vancouver), education (e.g. with Canberra – already a sister city), high technology (e.g. with Songdo/Seoul)
- Establishing a more formalized regional planning and implementation body capable of guiding development.

6.7.4 Potential APEC Partnerships

Through APEC, more effective public–private dialogue can be fostered – linking public–private groupings in the Jing-Jin-Ji Region with other dialogue organizations (such as exist in Sydney and Portland). This can be done by fostering an APEC-endorsed approach to developing a strategy such as discussed above, and to promoting the strategy so that the vision is shared by public, private, and community stakeholders.

6.8 CONCLUSIONS

The Jing-Jin-Ji Region is dynamic, but it is under severe stress and undergoing rapid change. In the last decade, structural reforms to central and local governments, the opening of the economy to greater competition and FDI, and internal migration, have significantly changed the socioeconomic structure and governance of the region. It faces many challenges in managing its continuing rapid urban development, transport, social and environmental problems. There is widespread recognition and understanding of these challenges, and the need for collective action by government, business and communities to address them. Partnerships and other collaborative initiatives and efforts are important for developing a viable approach to sustainable development.

Sustainability is a strong underlining principle of the region’s development objectives, but not necessarily of its implementing organizations. The operational policy and decision-making processes of provincial and local government, business and communities are sometimes at odds with the concept. In the area of local economic development, the region has developed a wide range of partnerships between government, business and institutions which do not necessarily make up a coherent whole. With China’s economy slowing, unemployment rates threaten to rise, and investment to slow, except in areas such as services.

Urbanization is a major challenge to the sustainable development of the region. Rising wealth drives lower-density, more energy-inefficient housing and the use of cars. There is a pressing need for the region to focus on greater integration of component cities while retaining high-density development along corridors between urban nodes and within cities. Decentralization of employment, investment and services, through planning support for polycentric city development is essential if the city is to develop more sustainable land-use, employment, transport and delivery systems for urban services. Social problems, in particular those relating to migrants and encroachment on rural communities, are significant and are a concern for the future sustainable development of the region. Similarly, its environmental problems are a competitive disadvantage.

The Jing-Jin-Ji Region has a high-level endorsement for an effective governance structure. More effective coordination of local governments will be needed to achieve the ambitious goals for the region set by the central government. It is necessary to develop a structure which will enable the local bodies to act uniformly in the interests of the region, to improve the coordination of planning and infrastructure and to make the region’s economy more competitive. Better asset management systems are needed to provide a basis for more effective financial management. Such a governance structure is also the

basis for improved use of partnerships underpinning the development of the region and, as discussed above, these partnerships need to be better focused.

While the Jing-Jin-Ji Region's economic performance is impressive, its performance in putting in place the supports necessary for sustainable development is less so. Significant challenges are emerging, particularly in the areas of fiscal, social and environmental sustainability. Thus, while significant progress has been made in planning physical infrastructure, the experience of the Pearl River Delta offers key lessons in regard to the significance of central and local governments working together to build the enabling environment and the logistics components of strategic infrastructure as a basis for productive and complementary domestic and international private-sector investment.

Several areas of challenge need to be addressed. Innovation systems need to be bolstered. Significant investment in human capital development is needed to enhance productivity and to support higher value-adding industry, particularly in Hebei province. Strategic infrastructure other than logistics, particularly social and environmental infrastructure, needs to be further developed as a high priority. In terms of governance, there is a need to coordinate better the response to these challenges across the public and private sectors. The new structures for regional coordination need to address the three dimensions of sustainable development (economic competitiveness, social development, and environmental improvement) to ensure continued growth on a sustainable trajectory.

Big-picture thinking is crucial for the sustainable regional development of the Jing-Jin-Ji Region. However, only with a long-term commitment to change, and a more cooperative and collaborative way of thinking, can the potential of the Beijing–Tianjin–Hebei Region be fully realized.