



# Report and Recommendation of the President to the Board of Directors

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Project Number: 49232-001  
November 2015

## Proposed Policy-Based Loan People's Republic of China: Beijing–Tianjin–Hebei Air Quality Improvement–Hebei Policy Reforms Program

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Asian Development Bank

## CURRENCY EQUIVALENTS

(as of 16 November 2015)

Currency unit	–	yuan (CNY)
CNY1.00	=	\$0.157
\$1.00	=	CNY6.374

## ABBREVIATIONS

ADB	–	Asian Development Bank
BTH	–	Beijing–Tianjin–Hebei
EPD	–	Environmental Protection Department
GDP	–	gross domestic product
HCAAP	–	Hebei Clean Air Action Plan
HPG	–	Hebei provincial government
PBL	–	policy-based loan
PM <sub>2.5</sub>	–	particulate matter of less than 2.5 micrometers in diameter
PRC	–	People’s Republic of China
VOC	–	volatile organic compound

## NOTE

In this report, “\$” refers to US dollars.

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## PROGRAM AT A GLANCE

<b>1. Basic Data</b>		<b>Project Number: 49232-001</b>	
<b>Project Name</b>	Beijing-Tianjin-Hebei Air Quality Improvement-Hebei Policy Reforms Program	<b>Department /Division</b>	EARD/EAPF
<b>Country Borrower</b>	China, People's Republic of China, People's Republic of	<b>Executing Agency</b>	Hebei Provincial Government
<b>2. Sector</b>	<b>Subsector(s)</b>	<b>ADB Financing (\$ million)</b>	
✓ <b>Energy</b>	Energy sector development and institutional reform		7.16
	Energy utility services		99.22
	Oil and gas transmission and distribution		145.46
	Renewable energy generation - biomass and waste		9.06
<b>Education</b>	Education sector development - social protection initiatives		1.67
<b>Public sector management</b>	Public administration		35.15
<b>Transport</b>	Transport policies and institutional development		2.28
	<b>Total</b>		<b>300.00</b>
<b>3. Strategic Agenda</b>	<b>Subcomponents</b>	<b>Climate Change Information</b>	
Inclusive economic growth (IEG)	Pillar 1: Economic opportunities, including jobs, created and expanded	Mitigation (\$ million)	300.00
Environmentally sustainable growth (ESG)	Environmental policy and legislation Global and regional transboundary environmental concerns	CO <sub>2</sub> reduction (tons per annum)	18,100,000
Regional integration (RCI)	Pillar 4: Other regional public goods	Climate Change impact on the Project	Low
<b>4. Drivers of Change</b>	<b>Components</b>	<b>Gender Equity and Mainstreaming</b>	
Governance and capacity development (GCD)	Institutional development	No gender elements (NGE)	✓
Partnerships (PAR)	Bilateral institutions (not client government) International finance institutions (IFI) Official cofinancing		
<b>5. Poverty Targeting</b>		<b>Location Impact</b>	
Project directly targets poverty	No	Rural	Medium
		Urban	Medium
<b>6. Risk Categorization:</b>	Complex		
<b>7. Safeguard Categorization</b>	<b>Environment: C Involuntary Resettlement: C Indigenous Peoples: C</b>		
<b>8. Financing</b>			
<b>Modality and Sources</b>		<b>Amount (\$ million)</b>	
<b>ADB</b>		<b>300.00</b>	
Sovereign Results Based Lending: Ordinary capital resources		300.00	
<b>Cofinancing</b>		<b>366.65</b>	
KfW Bankengruppe		166.65	
World Bank		200.00	
<b>Counterpart</b>		<b>4,131.50</b>	
Government		4,131.50	
<b>Total</b>		<b>4,798.15</b>	
<b>9. Effective Development Cooperation</b>			
Use of country procurement systems		Yes	
Use of country public financial management systems		Yes	

## I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed policy-based loan (PBL) to the People's Republic of China (PRC) for the Beijing–Tianjin–Hebei Air Quality Improvement–Hebei Policy Reforms Program.<sup>1</sup>

2. The program supports the Hebei provincial government (HPG) in increasing its efforts to improve air quality in the greater capital area, comprising Beijing municipality (Beijing), Tianjin municipality (Tianjin), and Hebei province (Hebei) (together, the BTH region). The program will (i) reduce emissions from major air pollution sources, (ii) strengthen environment policy and the institutional framework for implementation, and (iii) enhance employment support for inclusive industrial transformation. The program will provide HPG with a solid basis to introduce incremental reforms under the PRC's 13th Five-Year Plan, 2016–2020, while enabling HPG to consolidate and accelerate necessary actions during 2015–2016.

## II. THE PROGRAM

### A. Rationale

3. **Development constraints.** In 2013, the BTH region, with a population of 109.2 million, generated a gross domestic product (GDP) of CNY6.2 trillion, accounting for 10% of the national total. While the region is an engine of socioeconomic development for the PRC, poor air quality jeopardizes its sustainable growth.<sup>2</sup> The concentrations of sulfur and nitrogen oxides, ozone, and inhalable particulate matter of less than 2.5 micrometers in diameter (PM<sub>2.5</sub>) reached levels that may cause significant public health impacts.<sup>3</sup> In 2014, the annual average PM<sub>2.5</sub> concentration was 93.0 micrograms/cubic meter, several times higher than in cities of developed countries.<sup>4</sup> In the BTH region, PM<sub>2.5</sub> is locally generated and formed in the atmosphere by emissions from (i) industries, (ii) continuous coal burning for electricity generation and heating boilers in urban and rural areas, (iii) increasing motor vehicle emissions, and (iv) the burning of agricultural biomass waste. The topographical and meteorological characteristics of the region are also conducive to the buildup of air pollution. While air pollution has been a common environmental problem for many developed countries as their economies developed over spans of 40–50 years, the situation for the BTH region is unique. As part of a fast-developing upper middle-income country, the region is undergoing unprecedented rates of growth that make the area simultaneously experience various types of air pollution resulting from industrialization, urbanization, and motorization.<sup>5</sup>

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<sup>1</sup> The concept paper was circulated to the Board of Directors on 4 September 2015. ADB. 2015. *Proposed Policy-Based Loan to the People's Republic of China: Beijing–Tianjin–Hebei Air Quality Improvement Program*. Manila. The design and monitoring framework is in Appendix 1.

<sup>2</sup> Global Commission on the Economy and Climate. 2014. *Better Growth Better Climate*. Washington, DC. In 2010, outdoor air pollution in the PRC was estimated to cause 1.3 million premature deaths per year, and economic losses of 9.7%–13.2% of national GDP.

<sup>3</sup> Among the pollutants, PM<sub>2.5</sub> has the most severe impact on public health. The World Health Organization concludes that no amount of PM<sub>2.5</sub> is safe. An epidemiological study by the Chinese Academy of Sciences in Beijing showed the correlation between levels of ambient particulate matter and mortality from cardiovascular and respiratory diseases. The results confirm research findings from the United States and Europe.

<sup>4</sup> The new air quality standard for PM<sub>2.5</sub> in the PRC (GB 3095-2012) is still 35 micrograms/cubic meter (µg/m<sup>3</sup>), compared with 15 µg/m<sup>3</sup> for the United States and Japan, and 10 µg/m<sup>3</sup> for the World Health Organization.

<sup>5</sup> Ambient air pollution follows the typical pattern of socioeconomic development, from industrialization-related primary pollutants (e.g., sulfur oxides and particulate matter) to urbanization- and motorization-related secondary pollutants (e.g., nitrogen oxides and photochemical oxidants). In the BTH region, air emissions from all sources coexist and escalate public health impacts.

4. An imbalanced socioeconomic structure in the BTH region has made Hebei the main source of air pollution and a clear bottleneck for air pollution control. Despite the geographic advantage of encompassing Beijing and Tianjin, Hebei's vast peri-urban and rural area substantially lags in socioeconomic development. In 2014, Hebei's GDP per capita was \$6,509, more than 14% below the national average of \$7,592, and only 40% of Beijing's GDP and 38% of Tianjin's GDP. About 88% of the 3.1 million poor in the region live in Hebei. While Hebei's abundant land resources and inexpensive laborers firmly support the overall development of the BTH region, Hebei's economy relies heavily on polluting secondary industries—coal-fired energy generation, iron, steel, coking, and cement. Their contribution to the provincial GDP increased from 50.3% in 2000 to 52.2% in 2013. During the same period, Beijing and Tianjin gradually transformed their industrial structure to tertiary service industries. In 2014, 7 of the 10 cities with the worst air quality in the PRC were in Hebei. Hebei emits more than 80% of total primary PM<sub>2.5</sub> in the BTH region, and three times more nitrogen oxides—one of the precursors of secondary PM<sub>2.5</sub>—than the total of Beijing and Tianjin. To improve the region's air quality, the first priority is to address Hebei's problems, while improving coordination of air quality improvement efforts in the region.

5. **Government efforts and challenges.** As a national priority, the central government is scaling up its efforts to address this environmental challenge together with climate change.<sup>6</sup> The national air quality standards were updated in 2012 to be equivalent with those in most developed countries. The new environmental protection law came into force in 2015. In 2013, the State Council issued the Action Plan on Prevention and Control of Air Pollution, 2013–2017.<sup>7</sup> In 2013–2014, the central government budgeted CNY15 billion to improve the air quality in six northeastern provinces, including the BTH region. The governments of Beijing, Tianjin, and Hebei formulated their own plans for air pollution prevention and control for 2013–2017. In the five-year Hebei Clean Air Action Plan (HCAAP), HPG commits to reduce by 2017 (i) PM<sub>2.5</sub> concentration by 25% from the 2012 level, (ii) steel-making production capacity by 60 million tons, (iii) cement production capacity by 60 million tons, (iv) coal consumption by 40 million tons, and (v) glass production capacity by 38 million weight boxes.<sup>8</sup> By the end of 2014, Hebei had reduced steel-making capacity by 15 million tons, cement production by 39.2 million tons, and coal consumption by 15 million tons.

6. The introduction of the HCAAP and urgent air pollution mitigation requirements led to Hebei's fragmented policy framework. Pollution reduction efforts during 2013–2014 only resulted in several short-term “end-of-pipe” policy actions and the strengthening of legal enforcement against polluting industries to reduce production capacity and the number of old vehicles.<sup>9</sup> In 2014, Hebei was the PRC's second-largest coal consumer with 90% of energy

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<sup>6</sup> The PRC government recognizes that actions for air pollution control will reduce greenhouse gases (GHGs). The September 2015 joint presidential statement of the United States and the PRC on climate change, and the PRC government's commitment to the 21st Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change indicate the PRC's commitment to lower its 2015 carbon dioxide emissions per unit of GDP by 60%–65% by 2030. This will be achieved through various measures, including power generation with higher efficiency and lower GHG emissions, low-carbon city development, promotion of public transportation, and fuel-efficiency standards on heavy-duty vehicles.

<sup>7</sup> Government of the PRC. 2013. *Action Plan on Prevention and Control of Air Pollution, 2013–2017*. Beijing.

<sup>8</sup> The action plan identifies more than 50 measures. The direct measures for air pollution control include (i) industrial pollution control; (ii) point and area source emission control; (iii) vehicle and mobile source pollution prevention and control; (iv) fuel switch and upgrade and/or phase out of coal-fired boilers; (v) adjustment of energy structure and promotion of clean energy; and (iv) air quality and pollution monitoring, capacity building, and training. The indirect measures include (i) optimizing industrial layout, and (ii) supporting technology transformation and innovation.

<sup>9</sup> “End-of-pipe” policy actions address the end of the process stream, such as the installation of pollution control devices. They can be effective for quick outcomes but do not address the fundamental issues.

supplied by coal, much higher than the national average of about 70%. During 2013–2014, transport policies did not target the key issue of the increasing number of motor vehicles. Both urban and rural areas depend on old and inefficient infrastructure for cooking and heating. The existing policies offered few alternatives to the seasonal burning of agricultural biomass waste. To remove constraints and enhance long-term development prospects, Hebei needs (i) a basic and comprehensive policy framework, (ii) well-coordinated actions to gradually enhance policies, (iii) investments to better manage air pollution reduction efforts, and (iv) private sector participation in financing necessary investments for industrial modernization.

7. A weak environmental institutional framework for policy enforcement and an incomplete set of regulations constrain comprehensive control of air pollution in Hebei. Unlike in Beijing and Tianjin, Hebei does not regulate volatile organic compounds (VOCs), a key pollutant for PM<sub>2.5</sub> and ozone. The vast coverage area and lack of systematic information collection and analytical capacity make the formulation of policies and actions that effectively target key pollution sources difficult. Hebei has issued a series of policies and environmental standards to control industrial air pollution, but inadequate institutional capacity to enforce regulatory compliance is a barrier to a fair and transparent approach to control air pollution.

8. While reducing the capacity of polluting industries is an effective measure to mitigate air pollution, policy reform must be considered in the context of medium- to long-term industrial transformation and inclusive socioeconomic development. Industries in Hebei provide a number of job opportunities to local skilled and unskilled laborers. Air pollution control measures need to consider social aspects as its integral part because industrial transformation may not be successful without an adequate and inclusive social protection system and employment opportunities to support affected laborers during the socioeconomic transition.

9. **Asian Development Bank’s policy dialogue.** The Asian Development Bank (ADB) has been a main development partner of Hebei since 1998.<sup>10</sup> Through technical assistance in 2002–2005, ADB supported the development of Hebei’s provincial development strategy to accelerate its economic integration with Beijing and Tianjin. The strategy emphasizes the need for structural reforms to promote (i) ecological and environmental sustainability of BTH regional development, (ii) greater economic cooperation with Beijing and Tianjin, (iii) pro-poor economic development, and (iv) an enabling investment environment for the private sector. Two ongoing loan projects—Hebei Small Cities and Towns Development Demonstration Sector Project, and Hebei Energy Efficiency Improvement and Emission Reduction Project—are financing needed infrastructure, and contributing to air quality improvement by reducing coal usage by inefficient heating boilers in cities and improving energy efficiency in key industries.

10. In 2014, poor air quality in the BTH region indicated that the 2013–2014 pollution control measures were insufficient. Since mid-2014, policy dialogue has intensified and identified missing links to build a comprehensive policy framework to promote coordinated actions and investments for air pollution reduction. Importantly, it emphasized the need to address not only short-term air pollution control, but develop a solid basis to continue with incremental policy reforms under the PRC’s 13th Five-Year Plan, 2016–2020, and support socioeconomic development over the medium- to long-term. This will enable Hebei to move from being a

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<sup>10</sup> ADB. 2002. *Technical Assistance to the People’s Republic of China for the Hebei Provincial Development Strategy*. Manila; ADB. 2009. *Report and Recommendation of the President to the Board of Directors: Proposed Loan and Administration of Grant to the People’s Republic of China for the Hebei Small Cities and Towns Development Demonstration Sector Project*. Manila; ADB. 2011. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the People’s Republic of China for Hebei Energy Efficiency Improvement and Emission Reduction Project*. Manila.

burden on the region's economic development to a key province that actively contributes to sound development.<sup>11</sup>

**11. The reform program and ADB support.** ADB collaborates with other international development partners to leverage the impact of policy advisory and financial support. German development cooperation through KfW became a cofinancier of the program. The World Bank proposes to support HCAAP implementation through a \$500 million program-for-results lending modality in parallel with the ADB program.<sup>12</sup> In addition to past technical assistance and ongoing loan projects, Hebei requires a comprehensive assistance package during the remaining HCAAP implementation period of 2015–2017 with increased financing. This will enable HPG to (i) strengthen the framework for incremental policy and investment actions to meet short-, medium-, and long-term development objectives; and (ii) scale up air pollution control in 2015–2017. This is systematically addressed by closely coordinated ADB–KfW–World Bank financial assistance: a PBL loan provided by ADB–KfW in 2015–2016 and a program-for-results loan provided by the World Bank in 2016–2017. ADB will be responsible for up-front policy reforms by building on its comparable advantage as the only international financial partner that has worked on Hebei's provincial development strategy. The single-tranche PBL will immediately and effectively respond to Hebei's urgent policy reform and financial needs in 2015–2016, while the World Bank loan will support HPG's achievements of key results in 2016–2017. The ADB and the World Bank programs are designed to fully complement each other.<sup>13</sup>

**12. ADB's value addition.** ADB's value addition includes (i) providing technical advice on policy actions to bridge policy gaps, achieve higher targets, and accelerate reforms; (ii) developing stronger institutional coordination in HPG through a socially inclusive industrial transformation process as a part of important air pollution control efforts; (iii) gaining co-benefits from air pollution reduction and climate change mitigation; and (iv) coordinating multi- and bilateral development partners to scale up effectiveness of policy advice on air pollution control.

**13. Alignment with ADB strategy.** The program supports the PRC's 12th Five-Year Plan, 2011–2015 on environmental improvement; this is expected to continue during the 13th Five-Year Plan.<sup>14</sup> The program is (i) aligned with ADB's current and draft country partnership strategy, 2016–2020 for the PRC; (ii) ADB's paper on a new partnership with upper middle-income countries; and (iii) ADB's operational directions for investing in environmental goods and services for future economic growth.<sup>15</sup>

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<sup>11</sup> In parallel with an overall shift from secondary to tertiary industry, HPG aims to develop a less-polluting secondary industry including new energy industry (e.g., photovoltaic power generation), electric vehicle, information technology, and environmental equipment manufacturing.

<sup>12</sup> The World Bank's program-for-results lending is similar to ADB's results-based lending, providing financial support based on the achievement of pre-agreed results or key development indicators.

<sup>13</sup> The World Bank's program design includes indicators on (i) pollution control technologies in selected industries, (ii) the phaseout of old polluting vehicles, (iii) deployment of an energy-efficient clean biomass stove in rural areas, and (iv) enhancement of the air pollution monitoring network and its analytical protocol. The end-of-pipe measures to cut industrial air pollution are better supported by the program-for-results loan, while the program enables appropriate means to achieve such results through issuing new policies and action plans, and exploring better incentive schemes to accelerate the reform agenda.

<sup>14</sup> In 2014, ADB provided the National Development and Reform Commission with a set of recommendations on eight key development challenges to be addressed under the 13th Five-Year Plan.

<sup>15</sup> ADB. 2012. *Country Partnership Strategy: People's Republic of China, 2011–2015*. Manila; ADB. 2015. *Clients–Contributors–Collaborators: A New Partnership with Upper Middle-Income Countries*. Manila; ADB. 2013. *Environment Operational Directions 2013–2020: Promoting Transitions to Green Growth in Asia and the Pacific*. Manila.



14. **Lessons.** Lessons from sector experience in the PRC include (i) the need for continuous policy dialogue for medium- and long-term development objectives, and (ii) consideration of appropriate incentives and measures to ensure financial viability and consumer affordability. PBLs in other developing member countries provide valuable lessons, including (i) ensuring impacts of policy reforms by identifying performance-based measures, (ii) identifying appropriate interventions to operationalize policy reforms in the field, and (iii) focusing on policy actions on which ADB has strong sector expertise and experience. These lessons were incorporated to the program design. Performance indicators to measure effectiveness of the policy reform are included in the policy matrix. Proposed technical assistance projects will be integrated to support implementation of the agreed policy actions, and monitor and evaluate the performance, while strengthening air pollution control coordination in the BTH region.<sup>16</sup>

## B. Impacts and Outcome

15. The impacts will be reduced air pollution and improved public health in the BTH region. The outcome will be a strengthened framework for incremental policy and investment actions in Hebei to improve air quality in the BTH region. The 17 policy actions were agreed and will be completed by March 2016.

## C. Outputs

16. **Output 1: Policies and actions to reduce air pollution from key sectors issued and approved.** Policy actions will guide future investments to transform Hebei's economic structure to be more environment-friendly. Policies will include (i) adjusting the energy structure by reducing coal consumption and promoting clean energy, (ii) promoting public transport in urban areas, and (iii) reducing seasonal biomass burning and promoting clean energy in rural areas.

17. The policy reform to switch from coal to cleaner energy adopts an integrated approach to address aspects of supply and demand. For the supply side, policy dialogue identified the importance of early deployment of natural gas as a key to trigger fuel switch. The natural gas development plan will be issued with appropriate financial support to accelerate deployment of cleaner energy in Hebei. Another policy will increase the amount of recovery, quality standard, and financial viability of synthetic gas recycled from coke oven flue gas to be used for heating generation and a cleaner energy source—important as Hebei is the second largest coke producer in the PRC. For the demand side, HPG will improve the monitoring and supervision of municipal coal reduction by imposing annual quantitative targets for all municipal governments during 2015–2017. Key emission sources of coal-based boilers and their heating service (main source of pollution in winter) will be addressed by phasing out and replacing small, obsolete, and energy-inefficient coal-fired boilers with centralized heating systems and boilers using cleaner energy. The policy will be accompanied by a comprehensive study of appropriate financial and market-based mechanisms to support the deployment. This will ensure that Hebei residents, including the poor, can enjoy affordable and cleaner heating service during the winter.

18. Promotion of public transport in urban areas is an important medium- to long-term objective to develop an environment-friendly city and to improve quality of life. Although less pronounced, emissions from mobile sources are becoming more evident in Hebei, following the same paths of Beijing and Tianjin. The 2013–2014 provincial program successfully phased out old vehicles that do not meet the emission standard. However, policy reform is needed to trigger

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<sup>16</sup> The proposed technical assistance projects are the Study on the Coordinated Development of Beijing–Tianjin–Hebei and the Beijing-Tianjin-Hebei Regional Air Pollution Control.

a fundamental shift from private to public transport in cities. Reduced motor vehicle emissions will significantly reduce black carbon, one component of PM<sub>2.5</sub> and an agent that significantly contributes to climate change. The new policy will apply a uniform standard to assess, evaluate, and compare the status of public transport in cities, thereby raising the awareness of decision makers on the importance of urban public transport in their cities.

19. Policy reform is also needed to reduce seasonal biomass burning and promote clean energy in rural areas. In Hebei, 86.5% of biomass stalk is collected, but only 10.0% of that is used to recover energy. Policy dialogue confirms that after optimizing the use of biomass resources, a higher energy recovery target is feasible, and should be supported by an effective incentive scheme, especially to make the biomass briquette a preferable choice of energy source in rural areas. The agreed policy actions represent an integrated approach to (i) ban biomass burning for air pollution reduction, (ii) promote the beneficial use of biomass resources to replace coal, (iii) commit to a higher energy recovery target and set clear objectives, and (iv) provide appropriate financial support for policy implementation.

20. **Output 2: Environmental policy and institutional framework for implementation strengthened.** Policy actions will assist Hebei in (i) enhancing the legal and policy framework, (ii) developing a comprehensive monitoring and analytical system, and (iii) strengthening regulatory enforcement capacity in the field of environment. The HCAAP specifies measures to comply with national targets. More than 50 policy documents have resulted from action plans to upgrade Hebei's regulatory framework to reduce air pollution. Despite the effort to align Hebei's standards with those enacted in Beijing and Tianjin, gaps remain concerning complex sources of air pollution, such as VOCs from industrial and domestic point sources, and high diesel vehicle emissions from mobile sources. The first VOC emission standard, with limits comparable to those in Beijing and Tianjin, will be issued for key industry sectors. A study will be commissioned on diesel vehicle emission control, one of the untouched but key mobile emission sources of particulate matter. Regulations on air pollution prevention and control will be improved, focusing on (i) plans and targets for VOC emission control, (ii) regional mechanisms for unified prevention and control in the BTH region, and (iii) legal responsibilities of county and more senior government departments and bureaus for air pollution prevention and control.

21. HPG established the Provincial Environmental Monitoring Center and the Environmental Emergency and Early Warning Center to monitor and analyze ambient air quality and prevent, forecast, and respond to heavy pollution episodes. However, the monitoring is still not adequate to properly understand and analyze local and regional pollution dispersion patterns. The system coverage and capacity must be enhanced for almost all aspects of monitoring, modeling, and forecasting technologies and their operation. HPG has committed to upgrade its air quality audit, including the monitoring of ammonia, VOCs, heavy metals, and elemental and/or organic carbon. The industry regulatory compliance monitoring system needs to be strengthened by installing continuous emission monitoring devices in an additional 1,000 key polluting sources.

22. Despite government efforts to strengthen the capacity of the Environmental Protection Department (EPD), its regulatory enforcement must be improved. The dialogue identified an effective approach to address the challenge. The government will issue a policy to (i) raise awareness and strengthen environmental accountability among key government decision makers in Hebei; and (ii) build the capacity of local EPDs, the Provincial Environmental Monitoring Center, and the Environmental Emergency and Early Warning Center on the use of monitoring equipment and interpretation of data for improved analytical work and regulatory enforcement for counties and townships.

**23. Output 3: Employment promotion for inclusive industrial transformation enhanced.**

The policy action will ensure that workers will be supported during the industrial transformation process. HPG has issued policies to strengthen the social security programs and the financial basis of these policies, including enhanced unemployment insurance and support for enterprises to retain their employees. During PBL processing, dialogue confirmed the importance of training, particularly the provision and quality of training that provides employment options to worker. The scope of such policy reform must be holistic and align with the objectives of industrial transformation. The training must be responsive to the needs of the current and future labor market, and to the demands of emerging industries. The quality of trainers is critical for effective training. A newly issued policy in 2015 (i) improves the quality of training institutions, trainers, and training programs for workers to be redeployed and reemployed; and (ii) strengthens the foundation of human resource development in Hebei.

**D. Development Financing Needs**

24. Hebei is having difficulty mobilizing the financing to implement the HCAAP. The budget for its implementation is estimated at CNY176.3 billion, of which CNY79.4 billion (\$12.4 billion) is for direct measures to control air pollution during 2013–2017. The required funds equal 78% of Hebei's annual fiscal revenue and are nine times more than Hebei's regular fiscal expenditure on environmental protection in 2014. In 2013–2014, a total of CNY19.1 billion was made available, but the central, provincial, and municipal governments are required to scale up their financial contributions. Out of the \$12.4 billion, \$4.8 billion is expected to be spent during 2015–2016 (Table 1). The actual financial inputs by the governments during 2013–2014 and estimated fund allocations during 2015–2017 will amount to about \$9.2 billion, leaving a financing gap of about \$3.2 billion. The ADB, KfW, and World Bank financial assistance will increase the total available resources to \$10.2 billion, covering more than 80% of the \$12.4 billion, with an additional \$2.2 billion to be mobilized for 2017 expenditure. The estimated cost of the agreed policy actions is \$1.1 billion during 2015–2016, approximately 2.4 times more than the ADB–KfW PBL loan proceeds. A larger investment is expected in 2017, the final year of HCAAP.<sup>17</sup>

**Table 1: HCAAP Program Expenditure (2013–2017)**

<b>Expenditure Categories for Direct Air Pollution Control</b>	<b>2013–2017 Estimated HCAAP Cost</b>	<b>2015–2016 Estimated Expenditure</b>
	(\$ million)	(\$ million)
Industrial pollution control	1,388.9	434.5
Urban dust and agriculture point and area source pollution control	4,676.1	1,841.9
Vehicle and mobile source pollution prevention and control	2,221.9	845.0
Upgrade or phase out of coal-fired boilers and switch to cleaner energy sources	879.5	305.1
Fuel switch from coal to natural gas and other cleaner energy sources	2,933.0	1,290.4
Air quality and pollution monitoring, capacity building, and training	330.8	81.3
<b>Total</b>	<b>12,430.2</b>	<b>4,798.2</b>

HCAAP = Hebei Clean Air Action Plan.

Source: Asian Development Bank.

25. The Government of the PRC has requested a loan of \$300 million from ADB's ordinary capital resources and a promotional loan of €150 million equivalent in US dollar from KfW. The ADB loan will have a 15-year term, including a grace period of 3 years; annuity repayment method based on a 15% discount factor; an interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; and a commitment charge of

<sup>17</sup> Justification of Policy-Based Loan Amount (accessible from the list of linked documents in Appendix 2).

0.15% per year. Based on this, the average loan maturity is 10.9 years and there is no maturity premium payable to ADB. KfW's promotional loan will have a tenor of up to 15 years, including a grace period of up to 3 years, with other conditions subject to approval by KfW's board. The ADB and KfW loans will cover approximately 9.8% of the total funding requirement for 2015–2016 (Table 2). The financial requirements for 2015–2016 will be fully met by ADB, KfW, and World Bank assistance.

**Table 2: Financing Plan (2015–2016)**

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank (ordinary capital resources)	300.0	6.3
German development cooperation through KfW	166.7	3.5
World Bank <sup>a</sup>	200.0	4.2
People's Republic of China, central government	1,345.9	28.0
Beijing and Tianjin municipal governments	275.4	5.7
Hebei provincial government	250.4	5.2
Municipal governments in Hebei province	2,259.8	47.1
<b>Total</b>	<b>4,798.2</b>	<b>100.0</b>

<sup>a</sup> The World Bank program of \$500 million will cover 2016–2017, with \$200 million estimated for 2016. Source: Asian Development Bank.

## E. Implementation Arrangements

26. HPG is the executing agency of the program. A leading group chaired by a vice-governor of HPG will be established to provide overall guidance for program implementation. The group will include senior representatives from the Provincial Development and Reform Commission, Finance Department, Agriculture Department, EPD, Transport Department, Energy Administration and Human Resources, and Social Security Department. The loan proceeds will be disbursed in accordance with ADB's Simplification of Disbursement Procedures and Related Requirements for Program Loans.<sup>18</sup> The loan proceeds are expected to be disbursed by a single-tranche before April 2016, upon satisfactory completion of the policy actions. HPG monitors and audits annual expenditures for the HCAAP. HPG will be in a position to establish that expenditures for the HCAAP relating to agreed policy actions will be larger than the loan amount provided by ADB and KfW. ADB will retain the rights to examine these expenditures.

## III. DUE DILIGENCE

### A. Technical

27. Effectiveness and attribution of policy reforms will be monitored through the performance indicators in the policy matrix. The agreed policy actions would contribute to reducing Hebei's annual coal consumption by approximately 12.4 million tons of standard coal, representing 4% of Hebei's total consumption of 287 million tons in 2012.<sup>19</sup> Estimated annual reductions of air pollution and greenhouse gas emissions against 2012 baselines will be 18 million tons of carbon dioxide, 170,000 tons of primary PM<sub>2.5</sub> (19% reduction), 546,000 tons of sulfur dioxide (33%), 289,000 tons of nitrogen oxide (14%), and 71,000 tons of VOCs (5%).<sup>20</sup> Policy actions focusing

<sup>18</sup> ADB. 1998. *Simplification of Disbursement Procedures and Related Requirements for Program Loans*. Manila.

<sup>19</sup> The figures for reductions in standard coal consumption and air emissions are based on the best available information with assumptions. The unit for standard coal—ton coal equivalent—represents the energy generated by burning 1 ton of standard coal, i.e., 29.4 gigajoules or 8.1 megawatt-hours.

<sup>20</sup> A measure of Hebei's GHG emission in 2012 is not available. The reduction of annual coal consumption is equal to 2% of total coal production in the United States in 2012; the PM<sub>2.5</sub> emission reduction is twice the total emission of the United Kingdom; the carbon dioxide emission reduction is equal to Mongolia's national emission.

on upgrading air quality monitoring systems may further reduce emissions by improving regulatory enforcement and environmental supervision, but their actual contribution is difficult to quantify and thus not included in the estimates.

## **B. Economic and Financial**

28. Air pollution is the largest contributor to the burden of disease from the environment. The program will significantly cut pollution emissions in the BTH region. Its economic benefits include (i) reduced public health-related costs due to avoided mortality and morbidity, (ii) improved economic activities due to increased labor productivity, (iii) avoided ecosystem and biodiversity losses, and (iv) reduced maintenance cost of buildings and other infrastructure. The estimation of economic benefits from the program is difficult due to several complex assumptions involved with the analysis, including (i) emission reductions due to the program and translation of the reduced pollutions to outdoor air quality in Hebei and the BTH region, and (ii) identification of the number and geographical distribution of affected people and extent of their exposure to the improved air quality. However, the economic benefit of the program is justified by the evidence that in 2010 PRC outdoor air pollution was estimated to cause 1.3 million premature deaths and economic losses of 9.7%–13.2% of national GDP.<sup>21</sup>

## **C. Governance**

29. The country assessment concludes that the PRC has strong financial management legislation, structures, and systems in place, which have been reinforced in recent years and aligned with international standards. For Hebei, the assessment demonstrates that the Finance Department has good capacity based on the well-established and operating financial management system.<sup>22</sup> Risks of public financial management in the PRC and the program remain moderate as subprovincial performance lags the implementation of reforms in some core functional areas of accounting, reporting, internal audit, and internal control. The country assessment concludes that regulatory frameworks have been significantly enhanced in the areas of procurement and anticorruption in the PRC. ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the government and HPG.

## **D. Poverty and Social**

30. Better air quality will benefit the whole population of the BTH region, particularly children and the elderly, who are the most vulnerable to cardiovascular and respiratory diseases.<sup>23</sup> Under the program, the phaseout of small coal-fired boilers in urban and rural areas may negatively affect the facilities' current employees. The agreed policy reform under the social sector will provide improved employment support and social protection for these workers, as well as those who may be affected by activities not related to the program during HCAAP implementation (e.g., industrial production capacity adjustment). In the long-term, the agreed policy reforms are expected to bring several potential indirect benefits, including (i) better

<sup>21</sup> In 2010, the PRC's GDP was CNY40.2 trillion (\$6.1 trillion). The estimated cost of the PRC's outdoor air pollution increase is due to accumulated evidence and improved analytical techniques: \$76 billion in 2003 (3.8% of GDP, current price) by the World Bank; \$145 billion in 2005 (5.9% of GDP) by the Massachusetts Institute of Technology; and \$635 billion in 2010 (9.7%–13.2% of GDP) by the Global Commission on the Economy and Climate. World Bank. 2007. *Cost of Pollution in China: Economic Estimates of Physical Damages*. Washington, DC; World Bank; K. Matus et al. 2011. Health Damages from Air Pollution in China. *The Massachusetts Institute of Technology Joint Program on the Science and Policy of Global Change Report Series*. Massachusetts; Global Commission on the Economy and Climate. 2014. *Better Growth Better Climate*. Washington, DC.

<sup>22</sup> Financial Management and Fiduciary Assessment (accessible from the list of linked documents in Appendix 2).

<sup>23</sup> Summary Poverty Reduction and Social Strategy (accessible from the list of linked documents in Appendix 2).

access to improved public services, and (ii) new employment opportunities. The policy reform includes designing an appropriate and affordable heating tariff structure for clean energy heating service for poor households. The policy reform for appropriate incentive mechanisms to promote clean energy utilization in rural areas will also ensure it is affordable for rural households, as this is a key aspect in promoting cleaner energy in rural areas.

#### **E. Safeguards**

31. Due diligence during preparation concluded that the program's policy actions do not entail any involuntary resettlement or have any adverse impact on indigenous peoples or the environment.<sup>24</sup> The program is categorized C for involuntary resettlement, indigenous peoples, and environment.

#### **F. Risks and Mitigating Measures**

32. Major risks and mitigating measures are described in detail in the risk assessment and risk management plan.<sup>25</sup> The program is categorized as medium risk mainly due to weak subprovincial performance of the public financial management and slow fund disbursement. The mitigation measures were agreed to closely monitor fund allocation and outputs of clean air actions. The integrated benefits and impacts are expected to outweigh the costs.

### **IV. ASSURANCES**

33. The government has assured ADB that implementation of the program shall conform to all applicable ADB policies, including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in the loan agreement. No disbursement shall be made unless ADB is satisfied that the government has completed the policy actions specified in the policy matrix. The government will ensure that actual expenditures to the areas related to the policy matrix will exceed the resources provided by ADB and KfW.

### **V. RECOMMENDATION**

34. I am satisfied that the proposed policy-based loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the loan of \$300,000,000 to the People's Republic of China for the Beijing–Tianjin–Hebei Air Quality Improvement–Hebei Policy Reforms Program, from ADB's ordinary capital resources, with interest to be determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; for a term of 15 years, including a grace period of 3 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft loan agreement presented to the Board.

Takehiko Nakao  
President

16 November 2015

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<sup>24</sup> Environmental and Social Impact Assessment of the Policy Matrix (accessible from the list of linked documents in Appendix 2).

<sup>25</sup> Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

## DESIGN AND MONITORING FRAMEWORK

<b>Impacts the Program is Aligned with</b> Air pollution in the BTH region reduced Public health in the BTH region improved (Action Plan on Prevention and Control of Air Pollution in Hebei Province, 2013–2017) <sup>a</sup>			
<b>Results Chain</b>	<b>Performance Indicators with Targets and Baselines</b>	<b>Data Sources and Reporting</b>	<b>Risks</b>
<b>Outcome</b> Framework for incremental policy and investment actions in Hebei to improve air quality in the BTH region strengthened	By Q2 2017 Fund disbursement rates for air pollution control measures increased to 80% for the PRC central government and HPG, and 90% for municipal governments (2014 baseline: 71% for the PRC central government, 65% for HPG, 87% for municipal governments)	HPG's air pollution control fund management annual monitoring report	Air pollution control is no longer a priority policy area of HPG.  Limited natural gas supply and/or low price of coal will slow policy commitments for fuel switch and promotion of clean energy in Hebei.
<b>Outputs</b> 1. Policies and actions to reduce air pollution from key sectors issued and approved	By Q2 2016 (All baselines: Not applicable) 1a. Natural gas network expansion plan with time-bound investment approach to accelerate implementation issued by HPG  1b. Enabling regulation to encourage capture of synthetic natural gas from coke oven flue gas and allow its injection into the natural gas distribution network issued by HPG  1c. Action plan for accelerated decommissioning of decentralized heat only boilers and substitution with centralized combined heat and power plants with enhanced emission reduction measures issued by HPG  1d. Policy on quantitative targets for raw coal reduction and promotion of centralized and non-coal-fired heating service adopted by all 11 municipalities  1e. Analysis of financial and market-based incentive schemes for urban and rural heating service from low-carbon and low-emission cleaner energy sources started by the engaged institute	1a. Hebei energy administration submits the issued plan  1b. Hebei DRC submits the issued policy  1c. Hebei DRC submits the issued policy  1d. Hebei energy administration submits government approvals  1e. Hebei DRC and Finance Department submit signed contract,	The municipal governments and the private sector, including key industries, do not support HPG's efforts for air pollution control.

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
	<p>1f. Provincial policy on evaluating performance of investment and institutional framework for promoting urban public transport in all 11 municipal governments submitted for government approval</p> <p>1g. Policy on promotion of crop stalks utilization and prohibition of agricultural biomass burning in rural area issued by the standing committee of Hebei's provincial people's congress</p> <p>1h. Provincial crop stalk utilization plan with higher energy recovery target of 15% of the collected amount drafted by Hebei's Agriculture Department</p> <p>1i. Supporting policy on cleaner energy in rural areas with appropriate financial and market-based incentives to promote biomass-based fuel production, storage, transportation, and utilization for raw coal replacement drafted issued by HPG</p>	<p>including terms of reference</p> <p>1f. Hebei's Transport Department submits issued policy</p> <p>1g. Hebei's Agriculture Department submits policy</p> <p>1h. The Agriculture Department submits draft policy</p> <p>1i. Hebei's Finance Department submits the issued policy</p>	
2. Environmental policy and institutional framework for implementation strengthened	<p>2a. Amendment of the Hebei Air Pollution Prevention and Control Regulations with clear and binding provisions on VOC control, BTH air quality management coordination mechanisms, and accountability for environmental performance submitted to Hebei's provincial people's congress for review</p> <p>2b. Provincial VOC emission standards for key industries issued by HPG</p> <p>2c. Assessment of air pollution control strategies for heavy diesel trucks started by engaged institutes</p>	<p>2a. EPD submits the policy</p> <p>2b. EPD submits the issued policy</p> <p>2c. EPD submits the signed contract, including terms of reference</p>	



Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
	<p>2d. Budget for upgrading the ambient air quality monitoring capacity (including for emergency air quality forecasting) allocated in the 2016 annual work plan</p> <p>2e. The quantity of monitoring equipment to verify compliance with air emission standards of key polluting sources increased</p> <p>2f. Provincial policy on ecological and environmental accountability measures issued by HPG</p> <p>2g. Budget for training plans on air quality monitoring, modeling, forecasting, and regulatory enforcement in counties and townships allocated</p>	<p>2d. EPD submits approved annual work plan</p> <p>2e. EPD submits document on monitoring coverage</p> <p>2f. EPD submits issued policy</p> <p>2g. EPD submits approved training plan for 2016</p>	
3. Employment promotion for inclusive industrial transformation enhanced	3. Provincial government opinion on improvement in employment and entrepreneurship issued by HPG	3. Human Resources and Social Security Department submits the issued policy	
<b>Key Activities with Milestones</b>			
Not applicable.			
<b>Inputs</b>			
ADB: \$300,000,000 (loan)			
KfW: \$166,650,000 (loan)			
World Bank: \$200,000,000 (loan)			
PRC, central government: \$1,345,900,000			
Beijing and Tianjin municipal governments: \$275,400,000			
HPG: \$250,400,000			
Municipal governments in Hebei province: \$2,259,800,000			
<b>Total \$4,798,150,000</b>			
<b>Assumptions for Partner Financing</b>			
Not applicable.			

ADB = Asian Development Bank, BTH = Beijing, Tianjin, and Hebei; DRC = Development and Reform Commission, EPD = Environmental Protection Department, HPG = Hebei provincial government, KfW = German development cooperation through KfW, PRC = People's Republic of China, Q = quarter, VOC = volatile organic compound.

<sup>a</sup> Government of Hebei Province. 2013. *Action Plan on Prevention and Control of Air Pollution in Hebei Province*. Shijiazhuang.

Source: Asian Development Bank.

### **LIST OF LINKED DOCUMENTS**

<http://adb.org/Documents/RRPs/?id=49232-001-3>

1. Loan Agreement
2. Program Agreement
3. Sector Assessment (Summary): Multisector (Energy, Education, Public Sector Management, and Transport)
4. Contribution to the ADB Results Framework
5. Development Coordination
6. Country Economic Indicators
7. International Monetary Fund Assessment Letter
8. Summary Poverty Reduction and Social Strategy
9. Risk Assessment and Risk Management Plan
10. List of Ineligible Items

### **Supplementary Documents**

11. Financial Management and Fiduciary Assessment
12. Justification of Policy-Based Loan Amount
13. Environmental and Social Impact Assessment of the Policy Matrix
14. Sector Assessment: Energy
15. Sector Assessment: Environment (Air Pollution)
16. Sector Assessment: Education (Social Protection)
17. Sector Assessment: Transport

中 华 人 民 共 和 国 财 政 部  
Ministry of Finance, People's Republic of China

DEVELOPMENT POLICY LETTER

Mr. Takehiko Nakao  
President  
Asian Development Bank  
Manila, Philippines

Dr. Norbert Kloppenburg  
Member of the Executive Board  
KfW Bankengruppe  
Frankfurt, Germany

Date: 11 November 2015

Beijing–Tianjin–Hebei Air Quality Improvement – Hebei Policy Reforms Program

Dear President Nakao and Dr. Kloppenburg:

I am writing this letter in the context of ADB's proposed loan to the People's Republic of China in support of Beijing–Tianjin–Hebei Air Quality Improvement -- Hebei Policy Reforms Program.

I refer to the policy measures and undertakings of the Hebei Provincial Government as set out in the attached English translation of a letter dated 5 November 2015 from the Government of Hebei Province to Asian Development Bank and KfW Bankengruppe, expressing the Hebei government's commitment to implement the Beijing–Tianjin–Hebei Air Quality Improvement – Hebei Policy Reforms Program. The letter attaches the policy matrix prepared in English and agreed with the team of the Asian Development Bank and KfW Bankengruppe.

The measures described in the policy matrix for air quality improvement will guide future investments in coming years to transform the Beijing-Tianjin-Hebei region's economic structure to be more environmentally-friendly by adjusting energy structure, promoting public transport in urban areas and reducing seasonal biomass burning in rural areas. Further the policy measures will assist the Beijing-Tianjin-Hebei region to enhance environmental legal and policy frameworks, develop comprehensive monitoring and analytical systems and strengthen regulatory enforcement capacities for further activities. Air quality improvement requires efforts to address socioeconomic challenges, as industrial transformation and closing down of polluting industries will necessitate training and redeployment of workers.

We recognize the need to strengthen the framework for incremental policy and investment actions to improve air quality in the region, not only to serve air pollution control needs, but more importantly, to guide the process of effective economic and social transformation.

The Central government, Hebei Government and the governments of Beijing and Tianjin municipalities allocated tens of billions of Chinese Yuan for air quality improvement in 2013–2015, for the “Implementation Plan of the Air Pollution Prevention and Control Action plan in Hebei Province (2013-2017)”. More financial input is needed to achieve air quality improvement goals.

I am pleased to convey the support of the Government of People’s Republic of China to the Government of Hebei Province in implementing the program and the policy actions as set out in the attached letter and request ADB and KfW Development Bank to provide us with loans of \$300 million from ADB’s Ordinary Capital Resources and 150 million Euro from KfW’s Promotional Loan facility, respectively, which the central government will re-lend to the Government of Hebei Province for such purpose.

Sincerely,

A handwritten signature in black ink, appearing to read 'Zou Jiayi', written in a cursive style.

ZOU JIAYI  
Assistant Minister of Finance

## English Translation of the Development Policy Letter Signed by the Governor of Hebei Province

November 5, 2015

To: Mr. Takehiko Nakao, President of Asian Development Bank &

Dr. Norbert Kloppenburg, Member of the Executive Board, KfW Bankengruppe

Ref: Air Quality Improvement Program of Hebei Province

Dear President Nakao and Dr. Kloppenburg:

On behalf of the Government of Hebei Province, I'd like to extend my sincere gratitude to the Asian Development Bank and KfW Bankengruppe for your continued support to the social and economic development of Hebei Province, to improve the air quality of Hebei Province. I would like to address the followings of air quality improvement program of Hebei Province.

### I. Urgency to improve air quality of Hebei Province

Hebei Province embraces the capital Beijing and the municipality of Tianjin. In 2014, the gross domestic product (GDP) was 2.94212 trillion yuan, ranking the 6<sup>th</sup> in China. With the rapid economic development, the increasingly contradictory contrast with the unsustainable resources and environment is becoming very obvious. The emissions of sulfur dioxides and nitrogen dioxides took the 1<sup>st</sup> and 3<sup>rd</sup> place respectively in 2014. Besides, The concentration of PM2.5 and PM10 surpasses the national standards by 2.1 and 1.7 times respectively.

Among the list of 10 cities with poor air quality issued by Ministry of Environmental Protection, 5-7 are from Hebei.

The main reason of the bad air quality of Hebei Province are the traditional heavy industry-centered economy and coal-dominated pattern of energy consumption. On the one hand, there are historical reasons of the raw material-driven heavy industry and high-energy-consumption and high-pollutant-emission industries of steel, cement, and glass clustering in Hebei, whose output yield last year was the national 1<sup>st</sup>, 5<sup>th</sup>, and 1<sup>st</sup> in China respectively. The iron and steel industry alone consumed 51% of the total industrial energies. And on the other hand, the total consumption of energy resources amounted to 312 million tons of standard coal, ranking the 2<sup>nd</sup> in China. Coal and cokes consumption took 89.6% of the total consumption, 23% higher than the average level of the country.

At present, the main problems restrict the air quality improvement of Hebei are: Firstly, the “Two High” industries, high-energy-consumption and high-pollutant-emission industries are still high. Secondly, the utilization rate of clean energy, natural gas, and renewable energies is low, only taking 6% of the total. Especially, the natural gas is short of supply, which leads to the dilemma of clinging to the coal-dominated energy consumption pattern. Thirdly, the atmospheric monitoring of Hebei is far from satisfactory, with monitoring stations of the environment sparsely located, and the sources, components, mechanisms in the polluted air unidentified, and the accuracy of warning and forecasting of the heavy polluted weather to be improved.

Nowadays, the Chinese Government is making great efforts to implement the big national strategy of The Harmonious Development of Beijing Tianjin and Hebei. Hebei province is the ecological supporting area of Beijing Tianjin and Hebei Province. The air quality of Hebei results in direct influence on the air quality of Beijing, Tianjin and other regions. Likewise, we are making great efforts to strengthen our collaborative development in

the economic and social integration with Beijing and Tianjin, improve our ecology and realize a healthy, coordinated, sustainable economic and social development.

## II. Policy actions of Hebei in the control of air pollution

To carry out the 《Air Pollution Prevention and Control Action Plan by State Council of PRC》 and 《The Measures of Beijing-Tianjin-Hebei on Prevention and Control of Air Pollution》 by the Ministry of Environmental Prevention and other 6 ministries, 《The Implementation Program of Hebei Province on Air Pollution Prevention and Control Action Plan 》 (also known as Hebei Clean Air Action Plan) formulated by Hebei, identifies 50 measures to launch the actions of 6643. Namely, by 2017, Hebei will cut 60 million tons of iron & steel production, 60 million tons of cement production, 40 million tons of coal consumption, and 30 million weight boxes of glass production capacity. In recent years, a series of policies have been made in Hebei to prevent and control air pollution. They are Hebei 3-Year Clean Air Action Plan, 2015 Program of Hebei Province on Prevention and Control of Air Pollution, Implementation Program of Hebei Province on Updating of Coal-Fired Boilers, Hebei's Action Plan to Promote the Industrial Coal-Fired Boilers, and Implementation Program of Hebei Province on Upgrading the low emission of Coal-Fired Power Plant. The issue and implementation of these policies and measures strongly push forward the air pollution prevention work in Hebei, and we have won very good results, and our air quality has been much better.

Based on the dialogues and consultations between ADB, KfW and Hebei Province since January 2015, we recognize the need to strengthen the policy actions in Hebei to improve the air quality in the Beijing-Tianjin-Hebei region. Through our dialogues and discussions between ADB, KfW and the concerned departments of Hebei Province, we reached the common consensus that 17 policy actions shall be issued this and next years in Hebei, which mainly cover six sectors ranging from publicity and application of clean energy, promotion of

urban public transportation, reduction of agricultural stalk burning, strengthening framework of law enforcement and policies, strengthen the capacity building of environmental monitoring, administration and supervision, to providing qualified reemployment training. All these are aimed at air pollution prevention and control. And what is more important is that all the policies shall be put into action, so that air pollution is to be put under an effective control.

Against this background, and on behalf of the Government Hebei Province, I would like to assure you of our commitment to undertake the policy actions, details of which are presented in the attached policy matrix.

1. In restructuring the energy resources, we urge the use of clean energies and reduction of consumption of coals and cokes. The Natural Gas Network Plan of Hebei Province encourages the utilization and development of natural gas in industrial and civil sectors, while the Development Idea of Making Synthetic Gas from Coke Oven Gas in Hebei Province promotes the synthetic natural gas for related enterprises to reduce the consumption of coals and decrease the air pollution. The Implementation Program of Hebei Province on Updating of Coal-Fired Boilers is intended to provide with metering indexes to update all coal-fired boilers during 2015-2017. The Implementation Program of Clean Energy Substitutes has been devised in 11 cities, and Shijiazhuang, Tangshan, Handan, Xingtai, Baoding, Langfang and Cangzhou have had their implementation programs approved by the concerned departments of the people's government of Hebei Province, while programs by other cities are being processed. A survey has been initiated over the fiscal incentives for the central heating by means of clean energy. Hebei Development and Reform Commission is responsible for the implementation of all above-mentioned policy actions.

2. Promoting the utilization of clean energy in rural areas to reduce the seasonal stalk burning. Regulations on Comprehensive Utilization of Agricultural Stalks and Prohibition of



Stalk Burning in the Open Air, and Planning for Comprehensive Utilization of Stalks of Hebei Province are intended to increase the efficiency of stalk utility, reduce stalk burning and push forward the development of circular agriculture. The utilization rate of stalks for energy is expected to be 15% by 2017. The Measures of Hebei Province on Financial Management for Clean Energy Development in Rural Areas shall help support the development and utilization of clean energies in rural areas, promote biomass energy, provide with fiscal subsidies for utilization of coal powder replacement, and advance the use of clean energy furnaces and new central heating boilers. Hebei Agricultural Department and Hebei Finance Department are responsible for the implementation of the above-mentioned policy actions.

3. In promotion of public transportation in urban areas, the Measures of Hebei Province to Prior Development of Public Transport in Urban Areas are aimed at the Implementation of Prior Development of Public Transport in Urban Areas in Hebei Province. The purpose is to increase the capacity and services of urban public transport, triggering a fundamental shift from private to public transport in urban areas, and decreasing air pollution. Hebei Transportation Department is responsible for the implementation of the above policy actions.

4. Strengthen the enforcement of law and policies, the Provisions of Hebei Province on Prevention and Control of Air Pollution submitted to the People's Congress for discussion and the VOC Discharging Standards for Enterprises of Hebei Province promulgated, and Measures of Hebei Province on Ecological and Environmental Accountability are bound to improve our laws and standards in relation to air pollution control, on basis of which violators of ecology and environment are to be punished. The environmental protection department is responsible for the implementation of accountability.

5. Strengthen the capacity building of environmental monitoring, administration and law enforcement. The upgrading the capability of air quality monitoring shall be taken as the key

point for the performance of the environmental protection bureau in 2016, upgrading the monitoring ability and scale of emissions and formulating of Working Plans to Upgrade the Monitoring Ability of Emissions. The monitoring scale is expected to increase from the ongoing 65% of the state-controlled and provincial controlled enterprises to 95% of all enterprises of Hebei Province. Air quality monitoring and forecasting need improving. Enforcement personnel at county and township levels need to improve their enforcement ability, and the budget shall be allocated to the training of these above personals. And strengthening the training of them, improving their capabilities of monitoring, supervision, and administration. Researches should be launched over the emission reduction of the heavy diesel vehicles. Relevant institutions shall be authorized to study the measures to reduce emissions from the heavy diesel vehicles, for the purpose of identification of precision control of the mobile pollution sources. Hebei Environmental Protection Department is responsible for the implementation of above policy actions.

6. Providing the high quality of reemployment training. The Implementation Program on Improvement of Career and Innovation in the New Context is intended to carry out the Promotion of Career and Innovation by State Council, and increase chances of employment for the trainees through diversified incentives and measures. Hebei Social Security and Human Resource Departments are responsible for the implementation of the above policy actions.

The prevention and control of air pollution of Hebei Province is looking forward the supports from international communities. As the long-term strategic partner, we appreciate Asian Development Bank and KfW for your assistance in designing the policy framework. And we request your further assistance of \$300 million from ADB, and €150 million from KfW Development Bank through policy-based lending to support our air quality improvement program in Hebei Province.

Sincerely hope that the cooperation between ADB, KfW and Hebei Province on this PBL could win great success.

Best regards!

Sincerely,

Zhang Qingwei

Governor of the Provincial People's Government of Hebei Province

Attachment Policy Matrix

**POLICY MATRIX**

Policy Reform Areas	Agreed Policy Actions (2015–2016)	Monitoring Indicators in 2016 and Responsible Agency	Donor Coordination
<b>Output 1: Pollution from Key Sectors Reduced</b>			
1.1 Adjustment of energy structure by reducing coal consumption and promoting clean energy	<p>1.1.1. Natural gas network expansion plan with time-bound investment approach to accelerate its implementation drafted by Hebei energy administration and issued by Hebei provincial government (December, 2015)</p> <p>1.1.2. Enabling regulation to encourage capture of synthetic natural gas from coke oven flue gas and allow its injection into the natural gas distribution network drafted by Hebei development reform commission and issued by Hebei provincial government (December 2015)</p> <p>1.1.3. Action plan for accelerated decommissioning of decentralized heat only boilers and substitute them with centralized combined heat and power plants with enhanced emission reduction measures drafted by Hebei development and reform commission and issued by Hebei provincial government (2015, <b>Completed</b>)</p> <p>1.1.4. All 11 municipalities adopted policy on quantitative targets for raw coal reduction and promotion of centralized and non-coal fired heating service (December 2015)</p> <p>1.1.5. Hebei development and reform commission engaged an institute to explore financial and market-based incentive schemes for urban and</p>	<p>2.5 billion cubic meter (m<sup>3</sup>) of synthetic natural gas produced from the coke oven flue gas in 2016 (baseline = 0 from 2013)</p> <p>Raw coal reduction at from 2015 to 2016 will reach in total of 8.0 million tons from all 11 municipal governments (baseline = 0 from 2013).</p> <p>Centralized heating service coverage rate in urban area in all 11 municipalities increased to more than 80% (baseline = less than 70% for all 11 municipalities in 2013).</p> <p>Development and Reform Commission/Energy Administration</p>	ADB-KfW: Policy-based lending for the BTH air quality improvement program

Policy Reform Areas	Agreed Policy Actions (2015–2016)	Monitoring Indicators in 2016 and Responsible Agency	Donor Coordination
	rural heating service from low-carbon and low-emission cleaner energy sources (March 2016)		
1.2 Promotion of public transport in urban area	1.2.1. Provincial policy on evaluating performance of investment and institutional framework of promoting urban public transport in all 11 municipal governments drafted by Hebei transport bureau and submitted for the government approval (March 2016)	The first preliminary results evaluated for urban public transportation issued in December 2016 (baseline = NA) Transport Department	ADB-KfW: Policy-based lending for BTH air quality improvement program
1.3 Reduction of seasonal stalk-burning and promotion of clean energy in rural area	<p>1.3.1. Policy on promotion of crop stalks utilization and prohibition of agricultural biomass burning in rural area drafted by Hebei agriculture bureau and issued by the standing committee of Hebei provincial people’s congress (2015, <b>Completed</b>)</p> <p>1.3.2. Provincial crop stalk utilization plan with higher energy recovery target of 15% of the collected amount drafted by Hebei agricultural department (December 2015)</p> <p>1.3.3. Supporting policy on cleaner energy in rural area with appropriate financial and market-based incentives to promote biomass-based fuel production, storage, transportation and utilization for raw coal replacement drafted by Hebei agricultural bureau and issued by Hebei provincial government (December 2015)</p>	Percentage of collected agricultural stalk for energy recovery reached 12% in 2016 and 15% in 2017 (baseline = less than 10% in 2014). Agriculture Department	<p>ADB-KfW: Policy-based lending for BTH air quality improvement program</p> <p>World Bank: Program-for-results for the Hebei clean air action plan</p>
<b>Output 2. Environmental Policy and Institutional Framework for Implementation Strengthened</b>			
2.1 Enhancement of legal and policy framework	2.1.1 Amendment of the Hebei Air Pollution Prevention and Control Regulations improved and drafted with clear and binding provisions on (i) volatile organic compounds (VOCs) control, (ii) BTH air quality management coordination mechanisms, and (iii) accountability for environmental performance by	11 key industrial sectors will be targeted under the new provincial VOCs standard by December 2016 (baseline = NA). Environment Protection	ADB-KfW: Policy-based lending for BTH air quality improvement program

Policy Reform Areas	Agreed Policy Actions (2015–2016)	Monitoring Indicators in 2016 and Responsible Agency	Donor Coordination
	<p>Hebei environment protection department and submitted to Hebei Provincial People’s Congress review (January 2016)</p> <p>2.1.2 Provincial VOCs emission standard for key industries drafted by Hebei environment protection department and issued by Hebei provincial government (December 2015)</p> <p>2.1.3 Hebei environment protection department engaged an institute to assess air pollution control strategies for heavy diesel trucks (March 2016)</p>	Department	
2.2 Development of comprehensive monitoring and analytical system	<p>2.2.1 Hebei environment protection department allocated budget for upgrading the ambient air quality monitoring capacity (including for emergency air quality forecasting) in its 2016 annual work plan (December 2015)</p> <p>2.2.2 Hebei environment protection department increased the number of monitoring equipment to verify compliance with air emission standards of key polluting sources (January 2016)</p>	<p>The air quality monitoring networks in the Hebei Provincial Environmental Monitoring Center and in 11 cities are upgraded with (i) at least 1 station each to monitor ammonia, VOCs, heavy metals, and elemental/organic carbon; (ii) a total of 30 monitoring stations located in Hebei industrial parks; and (iii) a total of 6 background and regional transport monitoring stations by December 2016 (baseline = NA).</p> <p>Additional 1,000 key pollution sources will be equipped with on-line continuous emission monitoring by December</p>	<p>ADB-KfW: Policy-based lending for BTH air quality improvement program</p> <p>World Bank: Program-for-results for the Hebei clean air action plan</p>

Policy Reform Areas	Agreed Policy Actions (2015–2016)	Monitoring Indicators in 2016 and Responsible Agency	Donor Coordination
		2016 (baseline = 270 pollution sources in 2014). Environment Protection Department	
2.3 Enhancement of regulatory enforcement capacities	2.3.1 Provincial policy on ecological and environmental accountability measures drafted by Hebei environment protection department and issued by Hebei provincial government (December 2015)  2.3.2 Hebei environment protection department approved and allocated budget for training plans on (i) air quality monitoring, modeling, and forecasting, and (ii) regulatory enforcement in counties and townships (March 2016)	At least 50 people from Hebei Environmental Monitoring and Forecasting Centers receive training on (i) and at least 50 officers from local counties and townships receive training on (ii) by December 2016 (baseline = NA).  Environment Protection Department	ADB-KfW: Policy-based lending for BTH air quality improvement program  World Bank: Program-for- results for the Hebei clean air action plan
<b>Output 3. Employment Promotion for Inclusive Industrial Transformation Enhanced</b>			
3.1 Provision of good quality training and supports for employment	3.1.1 Provincial government opinion on improvement in employment and entrepreneurship drafted by Human resources and social security bureau and issued by Hebei provincial government (2015, <b>Completed</b> )	More than 100,000 workers reemployed and redeployed after receiving the training in 2015–2016 (baseline = 50,500 workers in 2013– 2014)  Human Resources and Social Security Bureau	ADB-KfW: Policy-based lending for BTH air quality improvement program

Source: Asian Development Bank.