

Project Administration Manual

Project Number: 51181
Loan Number: LXXXX
November 2017

People's Republic of China: Air Quality Improvement
in the Greater Beijing–Tianjin–Hebei Region
—Regional Emission-Reduction and Pollution-
Control Facility

ABBREVIATIONS

ADB	– Asian Development Bank
BTH	– Beijing–Tianjin–Hebei
CAAP	– Comprehensive Action Plan for Air Pollution Prevention and Control
CCA	– CNY conversion account
CECEP	– China Energy Conservation and Environmental Protection Group
CECEP Huayu	– CECEP Huayu Fund Management Co., Ltd.
CERT	– China Environmental Resources Technology Co., Ltd.
CO ₂	– carbon dioxide
CNY	– Chinese yuan
EWA	– euro withdrawal account
ESCOs	– energy service companies
ESMS	– environmental and social management system
FCA	– framework cooperation agreement
FIL	– financial intermediation loan
FMA	– financial management assessment
MOF	– Ministry of Finance
NDRC	– National Development and Reform Commission
PAM	– project administration manual
PMO	– project management office
PRC	– People's Republic of China
RFA	– revolving funds account
SPDB	– Shanghai Pudong Development Bank
SMEs	– small- and medium-sized enterprises

GLOSSARY

total assets	–	<p>the aggregate at such time of current assets, including cash & equivalent, tradable financial assets, notes receivable, net accounts receivable, accounts prepaid, interest receivable, dividend receivable, other receivables, inventories, prepaid and deferred expenses, long-term bonds due in a year, other current assets</p> <p>non-current assets, including available for sale financial assets, hold-to-maturity investment, long-term account receivable, long-term equity investment, invested real estate, net fixed assets, construction in progress, engineering material, disposal of fixed assets</p> <p>intangible and deferred assets, including intangible assets (land, patents etc.), R&D expenditures, goodwill, long-term amortizable expenses</p>
total liabilities	–	<p>the aggregate at such time of:</p> <p>Current Liabilities, including short-term loans, Inter-company borrowings, Tradable financial debt, Notes payable, Accounts payable, Advances from customers, Payroll and</p>

welfare payable, Taxes and administration fees payable, Interest payable, Dividend payable, Other accounts payable Debt from broking security trade, Long-term liabilities due within one year, Other current liabilities

Long-term Liabilities, including Long-term loans payable, Bonds payable, Long-term accounts payable, Special program account payable, Anticipated liabilities, Deferred revenues, Deferred tax liabilities, Other long-term liabilities

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Project Administration Manual Purpose and Process

The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with the policies and procedures of the government and Asian Development Bank (ADB). The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The China Energy Conservation and Environmental Protection Group as the executing agency, is wholly responsible for the implementation of ADB-financed projects, as agreed jointly between the borrower and ADB, and in accordance with the policies and procedures of the government and ADB. ADB staff is responsible for supporting implementation including compliance by the China Energy Conservation and Environmental Protection Group of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At loan negotiations, the borrower and ADB shall agree to the PAM and ensure consistency with the loan agreement. Such agreement shall be reflected in the minutes of the loan negotiations. In the event of any discrepancy or contradiction between the PAM and the loan agreement, the provisions of the loan agreement shall prevail. Defined terms used in the PAM have the same meanings as in the Loan Agreement and Project Agreement unless otherwise defined in the PAM.

After ADB Board approval of the project's report and recommendations of the President (RRP), changes in implementation arrangements are subject to agreement and approval pursuant to relevant government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval, they will be subsequently incorporated in the PAM.

I. PROJECT DESCRIPTION

1. The project is the third in a multi-year, multi-sectoral Asian Development Bank (ADB) support for air quality improvement in the greater Beijing–Tianjin–Hebei (BTH) region.¹ The first loan, approved in 2015, focused on policy reforms and strengthening regulatory capacity in Hebei province.² The second loan, approved in 2016, targeted improved access to finance, especially for small and medium sized-enterprises, to scale up investments in pollution reduction projects in the region.³ This third project⁴ will complement previous projects and will directly address barriers to deploying high technologies that reduce air pollution from industries, urban infrastructure, and agriculture.⁵

2. The greater BTH region, one of the most important economic regions in the People's Republic of China (PRC), generates more than a third of the country's gross domestic product.⁶ However, the region's impressive economic growth, based on energy intensive and highly polluting industries has resulted in widespread air pollution.⁷ Cities in the greater BTH region consistently rank highest in the country for particulate matter less than 2.5 micrometers in diameter (PM_{2.5})—of which more than half is attributed to coal-based and energy intensive industries—and other air pollutants which make up the air quality index (AQI).⁸ High levels of PM_{2.5} are serious health risks and can lead to premature deaths.

3. The Government of the PRC recognizes the importance of addressing air pollution. In 2013, it launched the Comprehensive Action Plan for Air Pollution Prevention and Control (CAAP) 2013–2017, which introduced the PRC's most stringent air quality measures to reduce air pollution by setting specific emissions targets on sulfur dioxide (SO₂), nitrogen oxide (NO_x), PM_{2.5}, and volatile organic compounds nationally and for the BTH region.⁹ The Government in its Thirteenth Five-Year Plan also requires hundreds of cities to meet “good” or “excellent” standards 80% of the time and it targets a total energy consumption cap,¹⁰ set at five billion tons per year of coal equivalent. In support of CAAP implementation, ADB and the World Bank contributed targeted and coordinated financing of \$800 million (footnotes 2 and 3) and \$1 billion, respectively. Since then, air pollution and PM_{2.5} concentration levels across the BTH region has declined each year—by 9.8% in 2014, 21.3% in 2015, and 7.8% in 2016—reversing the trend of increasing air pollution in the pre-CAAP years. The number of days with good AQI has also improved across the region, demonstrating the effectiveness of the CAAP and its actions.

¹ The greater BTH region refers to Beijing and Tianjin municipalities; Hebei, Henan, Shandong, Shanxi and Liaoning provinces; and Inner Mongolia Autonomous Region.

² ADB. 2015. *Report and Recommendation of the President to the Board of Directors: Proposed Policy-Based Loan to the People's Republic of China for Beijing–Tianjin–Hebei Air Quality Improvement—Hebei Policy Reforms Program*. Manila.

³ ADB. 2016. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the People's Republic of China for Air Quality Improvement in the Greater Beijing–Tianjin–Hebei Region—China National Investment and Guaranty Corporation's Green Financing Platform Project*. Manila.

⁴ The project is included in the Country Operations Business Plan: People's Republic of China, 2017–2019.

⁵ “High technologies” refers to technologies which have higher upfront costs but better lifecycle value than the widely-used technologies, or which have been proven at scale in other countries but not deployed at scale in the PRC.

⁶ The greater BTH region accounts for more than 32% of national gross domestic product (CNY23.5 trillion in 2016).

⁷ The region includes more than half of the PRC's highly energy and pollution intensive steel and cement production capacity, about one-third of the PRC's cars and other automobiles, and heavy concentration of urban and rural housing and energy use as about 370 million of PRC's 1.3 billion population live in the region.

⁸ AQI is a common measure of the quality of air and its potential health impacts. AQI includes consideration of six atmospheric pollutants: SO₂, NO_x, particulate matter less than 10 micrometers in diameter (PM₁₀), PM_{2.5}, carbon monoxide, and ozone. In the PRC, the AQI is categorized from 50 (excellent) to 500 (severe pollution).

⁹ CAAP aims to cut the level of fine particulate matter in the BTH region by 25%–30% compared to the 2013 level.

¹⁰ Meaning they must score below 100 on the PRC's AQI.

4. Despite this initial improvement, the annual average PM_{2.5} concentration level across more than 95% of the cities in the region is still above World Health Organization and national ambient air quality standards.¹¹ In the first quarter of 2017, PM_{2.5} levels rebounded in the region for the first time since 2013 in tandem with high economic growth rates. Thus, existing efforts need to be intensified and fundamental changes made to the region's energy and industry structure to strongly encourage the adoption of cleaner production methods and high technology, so that robust economic growth is de-coupled from rising air pollution.¹²

5. In response to the CAAP, industrial enterprises have generally preferred to invest in low cost, end-of-pipe measures instead of more advanced and cleaner production technologies. There are several reasons for this, including: (i) a gradually tightening regulatory system that encourages end-of-pipe control measures rather than incentivize best practices production technologies; (ii) management preference to follow cheaper, high-return investments in expansion and diversification instead of more capital-intensive but less polluting processes; (iii) limited knowledge of financially viable high technology options; and (iv) absence of appropriate financing instruments to address risks associated with high technology investments. The PRC's efforts to improve environmental monitoring and enforcement—through reform of the Environmental Protection Law, most recently released “*Implementation Plan for the Licensing System to Control Pollutant Emission*” and the soon to be implemented environmental protection tax initiative starting from 1 January 2018—have strengthened the regulatory system. But it is in the early stages of implementation and may need further strengthening.

6. The PRC's economy is undergoing a fundamental change. Its economic structure is gradually moving away from export-oriented industrial growth to consumption-based service sector growth. But to enhance environmental outcomes from this macro-economic transformation it needs to be supplemented by systematic micro-economic transformations in industries and infrastructure services. Meeting longer-term air quality standards can be achieved only if major polluting sources adopts high technologies and cleaner production practices to meet stringent emissions standards. In addition to stringent standards and a robust enforcement system, investments in air pollution reduction must also be cost-effective to business owners. The role of advanced or high technologies in such paradigm is of paramount importance because it can improve process efficiency while reducing emissions. Thus, it directly translates into improved bottom-line financial performance even if it requires higher capital expenditure. This compares favorably with end-of-pipe measures, which generally require lower capital expenditure but also results in further loss of efficiency of production.

7. Advanced or high technologies must be combined with targeted financing to overcome existing barriers (para. 5). At the industry and infrastructure service level, a suite of high technologies can be packaged together for a more comprehensive low-emission solution for any specific applications: for example, an energy efficient building retrofit could include rooftop solar energy, more efficient lighting, advanced thermal management systems for space heating and cooling, and an intelligent digital control system that ensures all these high technologies work in sync as a system. The general strategy described above thus requires bringing together a high level of technical expertise on relevant high technologies, appropriate financing and innovative

¹¹ 40% targeted reduction in PM_{2.5} level from 2013 will still be about 50 micrograms per cubic meter (µg/m³) or about 50% higher than the national standard. The air quality standard for PM_{2.5} (GB 3095-2012) in the PRC is 35 µg/m³, compared with 15 µg/m³ for the United States and Japan, and 10 µg/m³ for the World Health Organization.

¹² China Council for International Cooperation on Environment and Development (CCICED), 2015. *Performance Evaluation on the Action Plan of Air Pollution Prevention and Control and Regional Coordination Mechanism*. China.

business models to a diverse set of industries and infrastructure services in the greater BTH region.¹³ Demonstrating this approach on a selected portfolio of subprojects—distributed across various industries and infrastructure services can reinforce confidence in the commercial viability of such approach and stimulate further demand.

8. The project will implement the strategy described in para. 7 by establishing a regional emission-reduction and pollution-control facility for the greater BTH region (the Facility) to finance deployment of high technologies particularly suited to major emitters in the region. The facility will be held and controlled by China Energy Conservation and Environment Protection Group (CECEP).¹⁴ CECEP is well regarded in the PRC, and internationally, for its high-level of technical expertise across key sectors. It also has a proven track record of successfully managing similar investment funds. It will identify subprojects, match them with appropriate business models for deploying high technologies at scale and will provide financing through the Facility. To ensure that the Facility will have the right focus and diverse reach, it will invest through three types of investment funds: a region-wide fund,¹⁵ provincial- or municipal-level funds involving local-government investors,¹⁶ and technology- or industry-specific funds targeting high polluting sources.¹⁷ Approximately 10% of the Facility is expected to be invested directly into companies pursuing subprojects, with the remainder invested via funds (“Fund” herein has the same meaning as in the Loan Agreement and Project Agreement). The Funds will leverage financing from domestic institutional investors, commercial banks and provincial and municipal governments to scale up investments in high technology applications.

9. A description of the project’s financial products is provided in Appendix 1. The project will limit the overall use of the Facility for investment of equity¹⁸ into companies pursuing subprojects.¹⁹ All Equity Investments by the Facility or the Funds into subproject companies must either be Put-protected Equity or must have another viable exit strategy that will enable CECEP to recover the investment in a timely manner. Equity Investments without a Put are suitable to support companies which require growth capital to achieve the growth and expansion of proven, financially and economically viable technologies which need scaling up in industrial applications, or high technology applications by companies that cannot meet commercial banks’ collateral or the Funds’ debt requirements. Investee companies for both Put-protected Equity and Equity without a Put will have the following characteristics; (i) profitable, (ii) a proven management team, and (iii) clear routes of enhancing value. In the case of Put-protected Equity,

¹³ The BTH air quality targets will require more than CNY250 billion in the foreseeable future.

¹⁴ CECEP is the PRC’s largest technology-based and service-oriented industrial group in energy conservation and environmental protection with total assets of CNY144 billion. The group of company focuses their business on energy efficiency, clean energy, environmental protection, and resources recycling.

¹⁵ The Facility is expected to provide up to CNY1.75 billion and People’s Insurance Company of China at least CNY1.75 billion (maximum to CNY4.25 billion). This Fund is mainly to be used to support CECEP’s projects which are located in the greater BTH region and using high technologies.

¹⁶ Jinan Municipal Government is expected to contribute CNY500 million to a local Fund, the Facility CNY500 million, and Industrial Bank CNY1 billion. Discussion with other municipal governments is also ongoing, including Shenyang and Zhangjiakou Municipalities.

¹⁷ A Deep Well Geothermal Development Fund is being set up to support deep well geothermal for clean heating technology. Dezhou Municipal Government is expected to contribute CNY100 million, while the Facility is expected provide CNY150 million, and Shanghai Pudong Development Bank is expected to contribute CNY750 million. A memorandum of understanding was signed.

¹⁸ Most investments into Funds will be equity so that the Funds themselves are not indebted, but the Funds will be required to use the facility’s money primarily to invest as debt or as Put-protected Equity into subproject companies.

¹⁹ Financially creditworthy means the Put provider shall not have a poor credit record, as recorded in the People’s Bank of PRC credit history database. CECEP should monitor the creditworthiness of the put providers semiannually and inform ADB if the creditworthiness drops. When it has dropped, the equity holding Facility or Fund must take additional measures to mitigate the risks.

the Facility or Funds may support (i) special purpose vehicles for stand-alone Qualified Equity Subprojects to finance financially viable and capital intensive Qualified Equity Subprojects where the sponsor lacks sufficient registered capital to raise necessary debt funding or (ii) enterprises which take on capital intensive Qualified Equity Subprojects that need equity financing matching their risk profiles.

10. Part of the Facility investment is expected to be either directly or through one or more Funds in energy service companies (ESCO) that will invest in multiple subprojects in one or several large enterprises in a selected industrial sector. The ESCO sector has been effective in driving energy efficiency investments in other countries, and is a priority for the Government of the PRC. However, only a limited number of ESCOs in the region have the capacity to finance and implement complex and larger industrial energy efficiency projects deploying high technologies. An Steel Group Energy Saving Technology Co., Ltd., which is expected to cofinance a Fund with the Facility and a commercial bank, is an ESCO under An Steel Group,²⁰ and is one of the only two registered ESCOs recognized by National Development and Reform Commission and the Ministry of Finance (MOF) in the iron and steel industry. The ESCO Fund with An Steel is expected to support energy saving and emission reduction subprojects in the iron and steel industry.²¹ More than 80 subprojects across the iron and steel industry covering a few large enterprises have been identified for the investment pipeline.²² There are also two “super-ESCOs” in the CECEP group of companies that may receive funding through the Regional Fund for further investment in Qualified Subprojects.

11. The project is fully aligned with the PRC country partnership strategy’s (2016–2020) priority of managing climate change and environment to support the government’s priorities in realizing an ecological civilization.²³ Specifically, the project provides multi-sectoral support by: (i) promoting the development of high technologies to scale up the PRC’s capacity for carbon dioxide (CO₂) mitigation; (ii) bringing an international dimension and good practices into the project design; (iii) promoting high technologies on green, clean, and energy efficient development through low-cost and longer tenor financing from ADB, that are perceived as risky by domestic commercial banks; and (iv) as part of a multi-year lending program to provide continuous support to BTH air pollution improvement through deployment and scaling-up of high technologies. The project will also support the strategic priorities of ADB’s Midterm Review of Strategy 2020 to mitigate climate change and promote environmental sustainability.²⁴

12. The project will use the financial intermediation loan modality, which is best suited to (i) extending the project’s reach across multiple sectors and a wide range of enterprises and locations; (ii) aggregating a number of investments in medium to large enterprises with a short payback period (5–7 years); (iii) working in close partnerships with large commercial banks, institutional investors and provincial/municipal governments to enhance their understanding of risk allocations and appraisal to scale-up deployment of high technologies; and (iv) recycling loan proceeds to leverage impacts of the project.

²⁰ An Steel Group Energy Saving Technology Services Co., Ltd. was formally established in 2010 with a registered capital of CNY20 million which gradually increased to CNY100 million.

²¹ An Steel Group is expected to contribute CNY100 million to an ESCO Fund, while the Facility will provide CNY300 million, and Shanghai Pudong Development Bank will also contribute CNY1.2 billion.

²² Iron and steel industry is a highly energy and pollution intensive industry in the region. The greater BTH region also has a high concentration of iron and steel plants.

²³ ADB. 2016. *Transforming Partnership: People’s Republic of China and Asian Development Bank, 2016–2020*. Manila.

²⁴ ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and the Pacific, 2008–2020*. Manila.

A. Impacts and Outcome

13. The project will be aligned with the following impact: reduced air pollution and improved public health in the BTH region (consistent with the CAAP and Thirteenth Five-Year Plan). The project's outcome will air pollution reduced and high technology deployed across the greater BTH region.

B. Outputs

14. The outcome will be achieved through the following outputs:

- (i) **Output 1: Regional Emission-Reduction and Pollution-Control Facility established.** By 2023, the project will establish a facility comprising regional, municipal, or provincial and technology- or industry-specific funds totaling €428.0 million.
- (ii) **Output 2: High technologies to reduce air pollution in agriculture, distributed energy, heating, transport, and iron and steel industry deployed.** By 2023, the facility will provide at least €1,721.2 million in financing for deploying high technologies to reduce emissions and pollution. This output will cover the (i) construction of three biogas and organic fertilizer production facilities, (ii) natural gas production from coke oven gas established at two coke oven facilities, (iii) two smart micro-grids constructed in industrial parks, (iv) geothermal-based district heating provided to two million square meters of floor area, (v) completion of energy-efficiency measures in five iron and steel plants, and (vi) hydrogen fuel cell based public transport pilot tested.
- (iii) **Output 3: Capacity of key stakeholders to deploy high technologies for pollution reduction in the greater BTH region improved.** By 2023, the project will train at least 200 individuals from five key stakeholders in high technologies, selection of appropriate business models, and investment decision-making. In addition, the project will prepare and disseminate a guideline on selecting, appraising, and implementing such projects in selected industries.

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

15. Prior to ADB's loan fact-finding mission, as the executing agency of the project, CECEP, relevant agencies thereof, had already undertaken the following project readiness activities:

- (i) A project management office (PMO), with around 20 staff has been established in CECEP in December 2016;
- (ii) Due diligence of sample subprojects was conducted since February 2017;
- (iii) Subproject Selection Criteria has been discussed and agreed between CECEP and ADB;
- (iv) Environmental and social management system (ESMS) preparation had been carried out in March 2017;
- (v) Using a competitive process agreed with ADB, CECEP has selected Shanghai Pudong Development Bank (SPDB) to act as the Account Bank to administer the project accounts and direct debt investments by the Facility;
- (vi) Domestic process for identifying potential fund cofinanciers has been carried out in February 2017;
- (vii) Facility and Fund structures have been discussed;
- (viii) Draft term sheets for the Regional Fund, a Local Fund (namely Jinan Fund) and a Technology/Industry Specific Fund (Appendix 2) had been discussed among CECEP and ADB; and
- (ix) China Environmental Resources Technology Co., Ltd. (CERT) has been selected for providing support to the ESMS establishment and implementation, a Strategy Cooperation Framework Agreement has been negotiated with CERT and to be signed before the ADB Board's consideration.

16. The indicative information of the representative Subprojects is summarized in Table 1. The energy and emission saving data is incomplete as the assessment of the other Subprojects is currently being undertaken.

Table 1: Indicative Representative Subprojects

No.	Focused Area	Borrower	Project Location	Project Cost (CNY million)	Project Cost (€million)	ADB Loan (€million)	Tenor (Year)	Coal (tons of SCE)	Diesel Reduction (Liter/year)	CO2 Reduction (t)	SO2 Reduction (t)	NO _x Reduction (t)	PM Reduction (t)	THC/VOC Reduction (t)	CO Reduction (t)	FIRR (%)	EIRR (%)
1	Advanced biogas and organic fertilizer	CECEP (Fengqiu) Biomass Energy Co., Ltd.	Henan/Fengqiu County	134.49	17.47	14.65	3	5,318.00	-	11,569.00	17.90	7.80	0.12	6.10	114.20	10.85%	22.07%
2	Industrial by-product gas utilization	Shanxi Liheng Iron & Steel Co., Ltd	Shanxi	669.65	86.97	60.51	5	-	239,400,000.00	580,964.40	691.20	1,942.04	48.60	15.80	29.70	38.02%	43.16%
3	Smart industrial zone development	Integrated Electronic Systems Lab Co., Ltd (iESLab)	Shandong/Jinan City	515.93	67.01	46.39	10	30,659.80	-	76,846.40	366.20	198.70	385.50	-	-	7.86%	7.49%
4	Deep-well geothermal district heating	Shandong Luhai Petrol Technology Co., Ltd	Shandong/Dezhou City	127.85	16.60	7.88	3	13,119.90	-	35,237.90	140.50	122.00	4.90	-	-	11.24%	9.23%
5	H ₂ -based low-emissions transport	Beijing Blue-G Renewable Energy Technology Co., Ltd	Hebei Zhangjiakou	175.00	22.73	15.91	8	-	6,336,000.00	16,663.70	0.51	197.80	7.66	3.17	59.40	25.86%	14.86%
6	Super-ESCO	An Steel Energy-saving Technology Service Co., Ltd (An Steel ESCO)	Liaoning/Anshan, Chaoyang, Yingkou and Bayuquan City	114.06	14.81	13.44	6	35,877.73	-	100,135.10	8,668.60	272.20	1,464.60	-	-	21.57%	44.00%
Total				1,736.97	225.60	158.78		84,975.43	245,736,000.00	821,416.50	9,884.91	2,740.54	1,911.38	25.07	203.30	-	-

CECEP = China Energy Conservation and Environment Protection Group, CO = carbon monoxide, CO₂ = carbon dioxide, EIRR = economic internal rate of return, ESCO = energy service company, FIRR = financial internal rate of return, NO_x = nitrogen oxide, PM = particulate matter, SCE = standard coal equivalent, SO₂ = sulfur dioxide, t = ton, THC/VOC = total hydrocarbons/volatile organic compound.

Source: Asian Development Bank estimates.

17. Table 2 presents the indicative timing of the main project readiness activities that needs to be accomplished in order to achieve loan effectiveness in May 2018. CECEP will establish the (i) Euro Withdrawal account (EWA) denominated in euro at the Account Bank to receive euro from ADB, (ii) CNY Conversion Account (CCA) in CNY to receive the conversion of euro to CNY before transferring loan proceeds to the Facility, Funds, and Subprojects, and (iii) Revolving Funds Account (RFA), dominated in CNY, to receive reflows (principal amount and interests) and (vi) Facility Account, dominated in CNY, to receive loan proceeds from CCA.

Table 2: Project Readiness Activities

Activity	2017								2018						Responsibilities	
	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun		
Due diligence of sample Subprojects																ADB, CECEP
ESMS establishment in CECEP																ADB, CECEP
FCUP Preparation & Submission																CECEP
ADB Management Review Meeting																ADB
FCUP Approval																NDRC
Preparation of Framework Cooperation Agreement between CECEP and the Account Bank																CECEP
Loan Negotiations																ADB, MOF, CECEP
ADB Board approval																ADB
Facility registration																CECEP
Loan and Project Agreements signing																MOF, ADB, CECEP
Funds registration																CECEP
Limited Partnership Agreement (CECEP, the Management Company and other LPs)																ADB, CECEP
Government legal opinion provided																MOF, CECEP
Finalization of onlending agreement																MOF, CECEP
Loan effectiveness																MOF, ADB, CECEP
Establishment of EWA, CCA, and RFA for the CECEP and Facility Account for the Facility																CECEP and the Account Bank

ADB = Asian Development Bank, CCA = CNY conversion account, CECEP = China Energy Conservation and Environmental Protection Group, ESMS = environmental and social management system, EWA = euro withdrawal account, FCUP = Foreign Capital Utilization Plan, LP = limited partner, MOF = Ministry of Finance, NDRC = National Development and Reform Commission, RFA = revolving funds account.

Source: Asian Development Bank estimates.

B. Overall Project Implementation Plan

18. Although the project implementation period is 15 years, the ADB loan will be drawn out over a period of 5 years and is expected to close on 30 November 2023. The loan implementation schedule is provided in Table 3.

Table 3: Project Implementation Plan

Activity	2017			2018				2019				2020				2021				2022				2023			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 1:Regional Emission-Reduction and Pollution-Control Facility established																											
1. Establish BTH-dedicated emission control and pollution reduction facility (Q2 2018)																											
2. Leverage CNY6 billion commercial cofinancing by the Facility (Q4 2023)																											
Output 2: High technologies to reduce air pollution in agriculture sector, distributed energy, heating, transport, and iron and steel industry deployed																											
1. Implement integrated low-emission solutions for municipal and agriculture waste projects (Q4 2020).																											
2. Promote super-ESCOs and implement energy efficiency improvement and emission reduction projects in industries (Q4 2019).																											
3. Implement industrial by-product gas utilization project (Q4 2020).																											
4 Implement deep-well geothermal for district heating project (Q4 2020).																											
5 Implement smart industrial zone development project (Q4 2019).																											
6 Promote hydrogen-based low-emission transport projects (Q1 2023).																											
Output 3: Capacity for key stakeholders to deploy high technologies for pollution reduction in greater BTH region improved																											
1. Adopt and implement ESMS (Q4 2017).																											
2. Approval of ESMS by ADB (Q4 2017).																											
3. Organize workshops on project appraisal and management (Q4 2018).																											
4. Organize workshops on new business models for high technologies (Q4 2021).																											
5. Organize workshops on high technologies (Q4 2022).																											
Reporting and Monitoring																											
Recruitment of China Environmental Resources Technology Co., Ltd																											
Inception/annual/midterm review mission																											
Project progress reports and safeguards report																											
Project audited report																											
Project completion report																											

Loan Effectiveness

Loan closing

ADB = Asian Development Bank, BTH = Beijing–Tianjin–Hebei, ESCO = energy service company, ESMS = environmental and social management system.
Source: Asian Development Bank estimates.

III. PROJECT MANAGEMENT ARRANGEMENTS²⁵

A. Project Implementation Arrangements and Procedures

1. General

19. CECEP, a state-owned enterprise, will act as the executing agency. CECEP's majority-owned subsidiary, CECEP Huayu Fund Management Co., Ltd. (CECEP Huayu) or another CECEP subsidiary, with equivalent experience, approved by ADB after due diligence, will be the facility and fund manager (the Management Company) to manage the Facility and the Funds.²⁶ CECEP Huayu has extensive experience in design, implementation, supervision, evaluation, financing, and management of energy efficiency and environmental protection funds. CECEP Huayu has managed many of CECEP's clean energy funds. With the extensive experience of CECEP and CECEP Huayu, the Facility will focus on (i) financing medium and large emission control and pollution reduction projects, (ii) providing capacity development and technical support to enhance the project readiness of Subprojects using advanced technologies, and (iii) knowledge transfer and new technology demonstration with new business models to scale-up those technologies. The Facility and the Funds shall invest in, among others, the following technologies: (i) deep-well geothermal for district heating, (ii) hydrogen fuel cell buses, (iii) coke oven gas to synthetic natural gas, (iv) smart micro-grid, (v) advanced biogas and organic fertilizer, and (vi) package of energy efficiency improvement measures in iron and steel sector.

20. CECEP is particularly suited to be the executing agency because of its extensive experience in investing in cleaner technologies for energy and other industries and managing clean energy funds. CECEP has an excellent grasp of the best-available technologies and how best to finance and implement them.²⁷ CECEP's expertise will be made available to the Management Company, the Facility, and the Funds by way of an "experts' committee" that will be available to advise the Management Company, the Facility, and the Funds on potential investments. Based on the initial set of representative subprojects and the potential subprojects in the pipeline, a qualified expert committee with the following expertise is suggested as shown in Table 4. CECEP should maintain an available expert committee within the group or outsource it when the required expertise is needed but not available inside CECEP.

21. As fund manager, the Management Company will assess and approve investments in Funds and individual subprojects through investment committees at the Facility and each Fund. The investment review and approval process will include investment structuring to mitigate technical and financial risks and appraisal of environmental impact and risk under the environmental and social management system (ESMS). An ESMS has been developed, and will be adopted and implemented by CECEP and the Management Company in accordance with national policies and regulations, and ADB's Safeguard Policy Statement (2009, as amended

²⁵ Unless otherwise defined in this project administration manual (PAM), terms used in this PAM have the same meaning given to them in the Loan Agreement.

²⁶ CECEP Huayu Fund was established in 2011 to focus on investment in energy conservation and environmental protection and has managed more than CNY7 billion in funds. CECEP Huayu has three shareholders with CECEP Capital, the second-tier subsidiary of CECEP, has the controlled share of 55%. Integrity due diligence of CECEP, CECEP Huayu, and Shanghai Pudong Development Bank has been undertaken in consultation with Office of Anticorruption and Integrity and Office of Cofinancing Operations.

²⁷ CECEP's main business is focused on energy conservation, emissions reduction and environmental protection, with subsidiaries involved in industrial and building energy efficiency, solid waste treatment, solar and wind energy, soil remediation and pollution control, and recycling of organic and inorganic wastes. It also has an extensive network of internal and external experts in these sectors, and extensive experience of planning, implementing and monitoring investments in them.

from time to time). Prior to recommending an investment to the Facility or a Fund, the Management Company will conduct, and will confirm to the relevant investment committee, environmental and social due diligence to confirm compliance with the ESMS, and national environment, health and safety law and regulations. The Management Company will consider technical merit, credit quality, environmental, and social due diligence based on the Subproject selection criteria.²⁸ The Management Company will also monitor the implementation and performance of Subprojects, including measurement and verification of emission and pollution reduction, and preparation of periodic progress reports on project implementation to be submitted to ADB.

Table 4. Suggested Expertise within the Expert Committee

SUBPROJECT TYPES	Technical Expertise Required (advanced technology)
<ul style="list-style-type: none"> Zero-energy sewage treatment and waste water treatment plant 	Anaerobic digestion for biogas production and recovery; biogas power generation; mini-hydropower; solar photovoltaic – rooftop & floating
<ul style="list-style-type: none"> Low-emissions district heating – low-grade geothermal 	Drilling technology; heat exchangers/heat pumps; district heating network management
<ul style="list-style-type: none"> Super ESCO 	Energy efficiency; industrial sector experts; financing and performance contracting
<ul style="list-style-type: none"> Advanced biomass (fertilizer, “bio-coal”) 	Anaerobic digestion; sludge utilization; biogas to power; densification / torrefaction (bio-coal) – mechanical or chemical engineering
<ul style="list-style-type: none"> Intelligent low emissions / smart systems 	Construction engineering; building management; energy management systems/smart grid; apps development; renewable energy (concentrated solar power / compact linear Fresnel reflector); energy storage
<ul style="list-style-type: none"> Hydrogen economy: <ul style="list-style-type: none"> (i) fuel cell transport infrastructure (ii) by-product H₂ utilization from fertilizer, coke ovens, etc. 	chemical / mechanical engineering for fuel cell applications; transport infrastructure planning; energy specialist (hydrogen utilization)

ESCO = energy service company.

Source: Asian Development Bank estimates.

2. Special Features of Financial Intermediation Loan (FIL)

22. The project will establish a focused mechanism under a Facility to finance deployment of low-emission technologies in key sectors, targeting major emitters in the greater BTH region. The Management Company will identify subprojects with appropriate business models for deploying low-emission technologies at scale and will provide financing that addresses the issues identified. CECEP will invest in Qualified Subborrowers and Qualified Investees only through the Facility, or through Funds to be established under the Facility. The Funds may not invest in other funds, only in Qualified Enterprises. Domestic institutional investors and commercial banks will participate in the Funds and in financing some of the companies directly financed by the Facility. Unless ADB otherwise agrees, investment from the Facility into the Regional Fund shall not exceed 50% of the Facility. Subprojects in which any CECEP affiliate

²⁸ The eligibility criteria for the financed subprojects can be accessed in Appendix 3.

has an investment interest shall only be financed under the Regional Fund. No more than 10% of the Facility shall be invested directly into companies pursuing subprojects: unless ADB otherwise agrees, the Facility will invest 90% of the Relent Proceeds into Funds. No more than 30% of the Relent Proceeds shall be used for Put-protected Equity Investments and no more than 10% of the Relent Proceeds shall be used for Equity Investments without a Put.

23. **Entrusted Loans' Tenor.** The tenor of Entrusted Loans will vary depending on the nature of the subprojects. For clean energy and waste-to-energy projects, it normally takes 5–10 years for the Qualified Subborrowers to payback loans, while for energy efficiency projects, it may take 3–5 years. As Entrusted Loans are repaid to the Facility, and as Funds and Equity Investments return funds to the Facility, the principal portion of the proceeds will be reutilized to set up Funds and reinvested in other subprojects. A Facility Account will be set up at the Facility to receive funds from CECEP and invest to qualified subprojects, and receive repayments of the Entrusted Loans made by the Facility and the returns on its Equity Investments in Qualified Enterprises and Funds.²⁹ It is expected that the ADB loan proceeds will be re-utilized at least once before it is repaid to ADB. It is required that CECEP, through the Management Company, the Facility and the Funds, will ensure that all Subprojects and investees comply with (i) all Subproject and investee selection criteria (Appendix 3) applicable to the particular type of investment, and (ii) the ESMS (Linked Document 12 of the RRP).

3. Subproject Selection Procedure

24. Detailed Subproject Selection Criteria (Appendix 3) have been prepared to ensure that only subprojects meeting the development objectives of the project and complying with relevant ADB policies are selected to receive support from the Facility or the Funds.

25. A list of initial representative subprojects has been prepared during the project preparation and the initial due diligence have been carried out by CECEP jointly with the ADB project team. A free limit of €80 million has been set. The Facility or the Funds are free (except as specified elsewhere in this PAM or the Project Agreement) to approve Entrusted Loans where the Facility's and Funds' total investment amounts to less than the free limit without seeking ADB's no objection. For Entrusted Loans where the amount of financing from the Facility and Funds exceeds the Free Limit, CECEP shall submit the screening results and safeguard due diligence reports to ADB for review prior to approval. The Management Company shall keep a record of the results of its due diligence as Facility and Fund manager to be made available for inspection by representatives from ADB upon request. The Management Company is required to prepare subproject appraisal reports to verify compliance with the applicable selection criteria and obtain ADB's "no objection" for Subprojects (i) financed with retroactive financing; (ii) that receive aggregate financing from the Facility and Funds in an amount greater than the "free limit" of €80 million for Entrusted Loans; (iii) financed by Equity Investment; and (iv) that are otherwise required to have ADB's prior review under the Project Agreement or this PAM.

4. Specific Implementation Arrangements for Funds, Equity Investments and Entrusted Loans

26. Before the Facility agrees to invest or invests in any Fund, the Management Company shall submit a report on the proposed fund investment for ADB's prior review and approval, and

²⁹ Entrusted loan means a secured or unsecured loan made under an Entrusted Loan Agreement and using Relent Proceeds (i) made by the Facility or a Fund to a Qualified Subborrower, or (ii) made by the Facility to a Fund.

approval of documentation related to such proposed fund, including but not limited to, a draft Limited Partnership Agreement, a proposal describing the purpose, terms and implementation arrangements of such proposed fund, or such other documentation as ADB shall reasonably request. Neither the Facility nor any Fund that will receive debt or equity from the Facility will fund any subproject that is in the ADB SPS Prohibited Investment and Activities List (Appendix 4). The Facility and each Fund that receives debt or equity from the Facility must adopt the ESMS prepared for the Project and must carry out environmental and social due diligence of the subprojects to be financed by the Facility or such Fund. It will be a requirement of ADB's approval of each Fund that the Management Company act as the fund manager and that all investors agree that Fund investments must satisfy all of ADB's project requirements.

27. Prior to providing or committing to provide any Relent Proceeds for (i) investment in the Facility, (ii) any investment by the Facility in a Fund, (iii) the first Entrusted Loan made by the Facility and by the first Fund to make an Entrusted Loan; (iv) the first Equity Investment without a Put made by the Facility and by the first Fund to make an Equity Investment without a Put; (v) the first Put-protected Equity investment by the Facility and by the first Fund to make a Put-protected Equity investment, and (vi) the first Entrusted Loan or Put-protected Equity investment made by the Facility to an ESCO and by the first Fund to make an Entrusted Loan or Put-protected Equity Investment to an ESCO; CECEP shall submit for ADB's prior review and approval documentation related to such proposed transaction including an appraisal report, in such form and detail as ADB may request, describing the proposed investment, the Facility, Fund or Qualified Enterprise, the terms and conditions of the proposed investment, and drafts of the Project Implementing Contracts relevant to the transaction.

28. Whenever the Facility or a Fund proposes to make any Equity Investment, the Management Company shall before the Facility or the Fund enters into or agrees to the related investment, submit to ADB a "no objection" application for approval of the related investment. Such application shall be in a form satisfactory to ADB and shall contain a description and appraisal of the subproject, the Qualified Investee, the identity of the Put counterparty if the investment is Put-protected Equity or other proposed exit strategy if it is an Equity Investment without a Put, and such other information as ADB shall reasonably request.

29. The Management Company shall ensure that each Qualified Subborrower and Qualified Investee, prior to receiving any financial assistance from the project, enters into an Entrusted Loan Agreement or an Equity Investment Agreement, in each case in a form acceptable to ADB and that reflects the applicable requirements of the Loan Agreement, the Project Agreement, this PAM and the ESMS, in addition to any other provisions a prudent financier would request and that describes clearly and in reasonable detail the Subproject for which the Entrusted Loan or Equity Investment is to be used. For Entrusted Loans, the ADB requirements may be in a Subproject Agreement separate from the Entrusted Loan Agreement provided that the financing is clearly linked to fulfillment of all Subproject Agreement requirements. In the case of Entrusted Loans and Put-protected Equity, the debt must be subject to early repayment, or the equity Puts must be exercisable, if the ADB project requirements are not implemented.

30. For Put-protected Equity, investment will be structured as registered capital but with a put option against a creditworthy third party (not the equity issuer) in favor of Facility or the relevant Fund. In case the investee company is not able to give an exit to the Facility or the relevant Fund through an initial public offering within the Facility's or Fund's required timeframe, strategic sale or other secondary transaction, the Put counterparty will buy the stake at an agreed price. The Put will significantly reduce the risks in executing exit of the investments, which makes the risk profile of Put-protected Equity Investment similar to that of a debt

financing. Puts for Put-protected Equity Investment shall be secured, and the maximum amount of the Put price (the acquisition price by the Put provider of the subject equity, including a return) shall not exceed 70% of the net asset value of the security provided by or on behalf of the Put provider.

B. Project Implementation Organizations: Roles and Responsibilities

31. The roles and responsibilities of the different entities involved in project implementation and oversight are summarized in Table 5.

Table 5: Roles and Responsibilities

Project Implementation Organizations	Management Roles and Responsibilities
Executing Agency (CECEP)	<ul style="list-style-type: none"> • Enter into onlending agreement with MOF; • Enter into Project Agreement with ADB and ensure compliance with its covenants and provisions; • Provide overall guidance and supervision for project preparation and implementation; • Responsible for coordinating project implementation activities among government agencies; • Ensure that ESMS is established and implemented by the Management Company; • Overall responsibility for ESMS implementation; • Enter into FCA with the Account Bank to establish and monitor (i) EWA for receiving ADB loan proceeds; (ii) CCA for receiving conversion of euro to CNY before transferring to Funds and Subprojects; (iii) RFA for receiving repayments from the Facility, and (iv) Facility Account at the Facility; • As limited partner, enter into a Limited Partnership Agreement for the Facility, with the Management Company acting as General Partner and fund manager; and • Prepare and submit annual audited entity financial statements to ADB.
Facility and Fund Manager (the Management Company)	<ul style="list-style-type: none"> • Act as facility and fund manager of the Facility and Funds and assume major responsibility for day-to-day project implementation; • Provide staff resources with competence in technical, environmental, and financial issues pertaining to the project implementation; • As general partner, enter into Limited Partnership Agreements with CECEP for the Facility and with the Facility and other limited partners for the Funds; • Review and assess subproject applications according to the selection criteria and approval process for subprojects described in this PAM; • Recommend subprojects to be financed by the Facility or the Funds to the investment committee; • Obtain ADB's no objection where required; • On behalf of the Facility or the Funds, sign Entrusted Loan Agreements with Qualified Subborrowers (and Funds) for Entrusted Loans, and Subproject Agreements where required; • On behalf of the Facility or the Funds, sign Equity Investment Agreements with Qualified Investee companies, and Puts where the investment is Put-protected Equity;^a • Establish a credit risk management mechanism to monitor the Facility's and the Funds' credit risk and interest rate risk in connection with the project; • Ensure the establishment and implementation of an ESMS, and environmental and social safeguards compliance of the Facility and the Funds and all

Project Implementation Organizations	Management Roles and Responsibilities
	<p>Subprojects under the project;</p> <ul style="list-style-type: none"> • Establish and implement GRM at the Facility, Fund, and subproject level; • Monitor the implementation progress of the Facility, Funds, and subprojects, including compliance with the terms and conditions of the Project Implementing Contracts. Require remedial actions in the event of noncompliance with the obligations; • Prepare ADB loan withdrawal applications with the necessary supporting documents described in the disbursement section of this PAM; • Participate in the external audit of project accounts by providing ADB access to project auditors; • Monitor interest payment, return from Equity Investment, and principal repayment of Entrusted Loan by the Qualified Subborrowers and Qualified Investees; • Monitor the performance of Entrusted Banks; • Prepare and submit (i) semi-annual project progress report; (ii) semi-annual ESMS implementation reports during the implementation stage (first 5 years after loan effectiveness) and annual reports in the following 10 years; (iii) semi-annual consolidated environmental and social monitoring reports during project implementation stage and annually until project closure; (iv) consolidated audited statement of utilization of funds; (v) audited entity financial statements of CECEP, the Management Company, the Facility, and Funds; and (vi) a completion report on the utilization of the Loan, the execution of the Subprojects, their costs, the performance by CECEP and the Management Company of the obligations under or referenced in the Project Agreement and the accomplishment of the purposes of the Loan within 6 months after the completion date of the project or as ADB otherwise specified; and • Liaise with ADB, the Account Bank, other limited partners of all Funds, cofinancing commercial banks, Qualified Subborrowers, Qualified Equity Investees, and other stakeholders.
Counter Guarantee Provider	<ul style="list-style-type: none"> • Provide counter guarantee to MOF for the ADB loan for CECEP; •
The Account Bank	<ul style="list-style-type: none"> • Enter into FCA with CECEP; • Manage (i) EWA, (ii) CCA, (iii) RFA, and (vi) Facility Account; • Participate in subproject due diligence along with the Management Company when the Account Bank proposes to cofinance with the Facility and/or Funds; • Manage exchanges of foreign and domestic currencies for CECEP; • Disburse the Entrusted Loan to Qualified Subborrowers from the Facility and to Funds and Qualified Investees invested by the Facility within 3 days of receipt of ADB loan proceeds to CECEP's EWA;
Qualified Subborrowers and Equity Investees (end-borrowers and investees of the Facility and Funds)	<ul style="list-style-type: none"> • Repay the loan principal; • Pay interest in a timely manner as stated in the relevant agreements; • Implement subprojects in accordance with the Project Implementing Contracts; • Comply with the requirements assigned to them under the ESMS, including providing information and reports required to the Management Company; • Establish GRM at subprojects level; • Get approvals from relevant authorities such as local environmental protection bureaus and the development and reform commissions; • Undertake the procurement of goods and works in compliance with the procurement manual; and • Provide monitoring and evaluation information and participate in the completion review of the subproject.

Project Implementation Organizations	Management Roles and Responsibilities
ADB	<ul style="list-style-type: none"> • Provide guidance and support to executing and other relevant agencies to ensure compliance with Loan and Project Agreements; • Disburse the loan in accordance with the agreed procedures upon receipt of duly authorized withdrawal applications and necessary supporting documentation; • Review project progress reports and monitors implementation of ESMS; • Review and endorse applications of certain Subprojects; • Require CECEP and the Management Company to act on any noncompliance issues; • Conduct regular loan review missions, midterm review mission, and project completion mission; and • Review annual audit reports and follow up on audit recommendations.

ADB = Asian Development Bank, CCA = CNY conversion account, CECEP = China Energy Conservation and Environmental Protection Group, ESMS = environmental and social management system, EWA = euro withdrawal account, FCA = framework cooperation agreement, GRM = grievance redress mechanism, MOF = Ministry of Finance, PAM = project administration manual, RFA = revolving funds account.

^a Including ownership enlargement agreement, capital contribution agreement and equity transfer agreement.

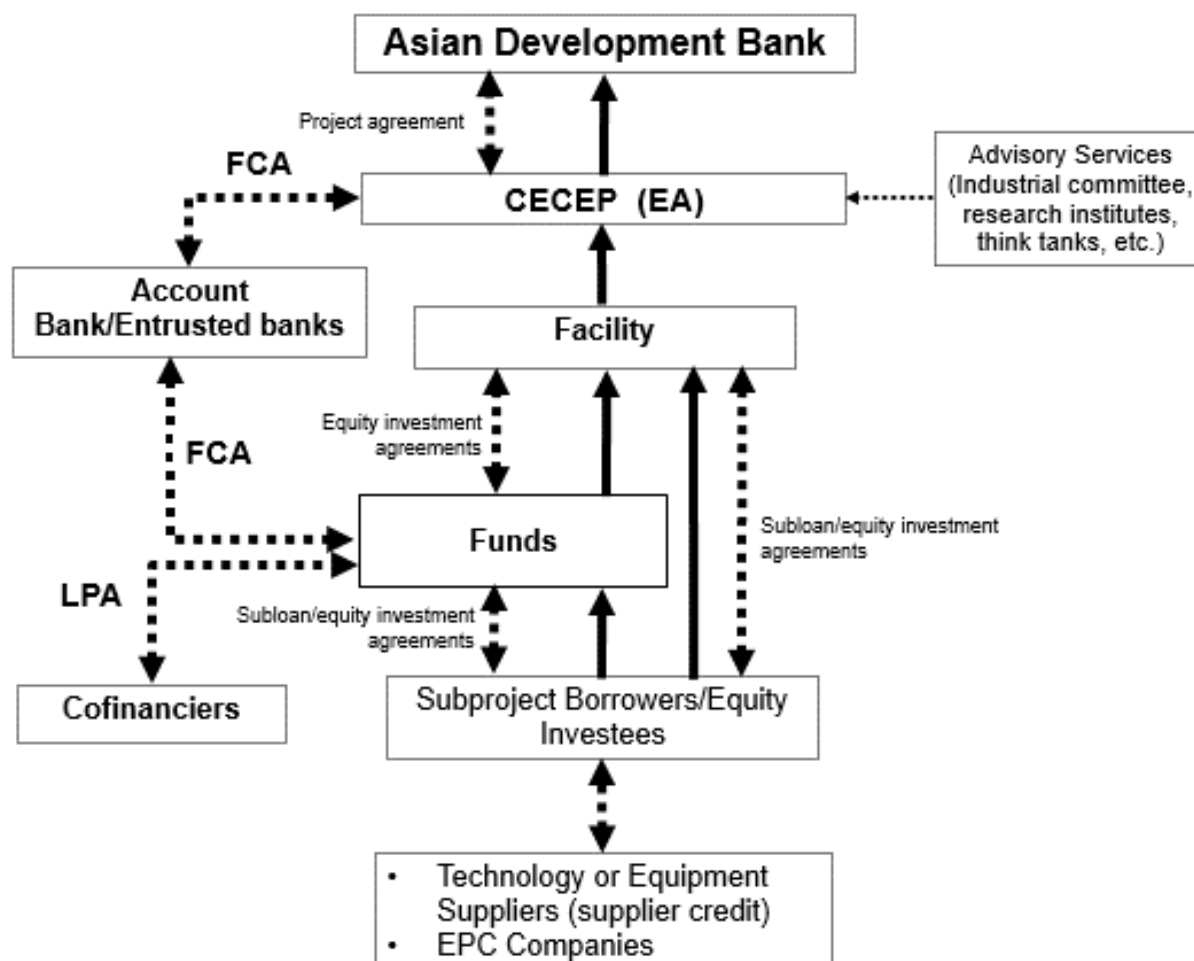
Source: Asian Development Bank estimates.

C. Key Persons Involved in Implementation

Oversight Body	
Executing Agency	
CECEP Group	<p>Mr. Guan Di Manager, Financial Management Department, CECEP Group Telephone No.: +86 10 6224 8531 Fax No.: +86 10 6224 8813 Email: guandi@cecep.cn Address: 18th Floor, Energy Saving Building, No. 42 Xizhimen North Street, Haidian District, Beijing</p>
CECEP Huayu	<p>Mr. Tao Minjie Deputy General Manager, CECEP Huayu Fund Management Co., Ltd Telephone No.: +86 10 8349 6706 Fax No.: +86 10 8349 6701 Email: taominjie@cecep.cn Address: 15th Floor, New Era Building, No. 26 Pinganli West Street, Xicheng District, Beijing</p>
Asian Development Bank	
Energy Division, East Asia (EAEN)	<p>Ms. Sujata Gupta Director Telephone No: +63 2 632 6156 Fax No.: + 63 2 636 2302 Email address: sgupta@adb.org</p>
Mission Leader	<p>Ms. Lin Lu Senior Energy Specialist Telephone No.: +63 2 632 4703 Fax No.: + 63 2 636 2302 Email address: llu@adb.org</p>

D. Project Organization Structure

Figure 1: Project Organization Chart



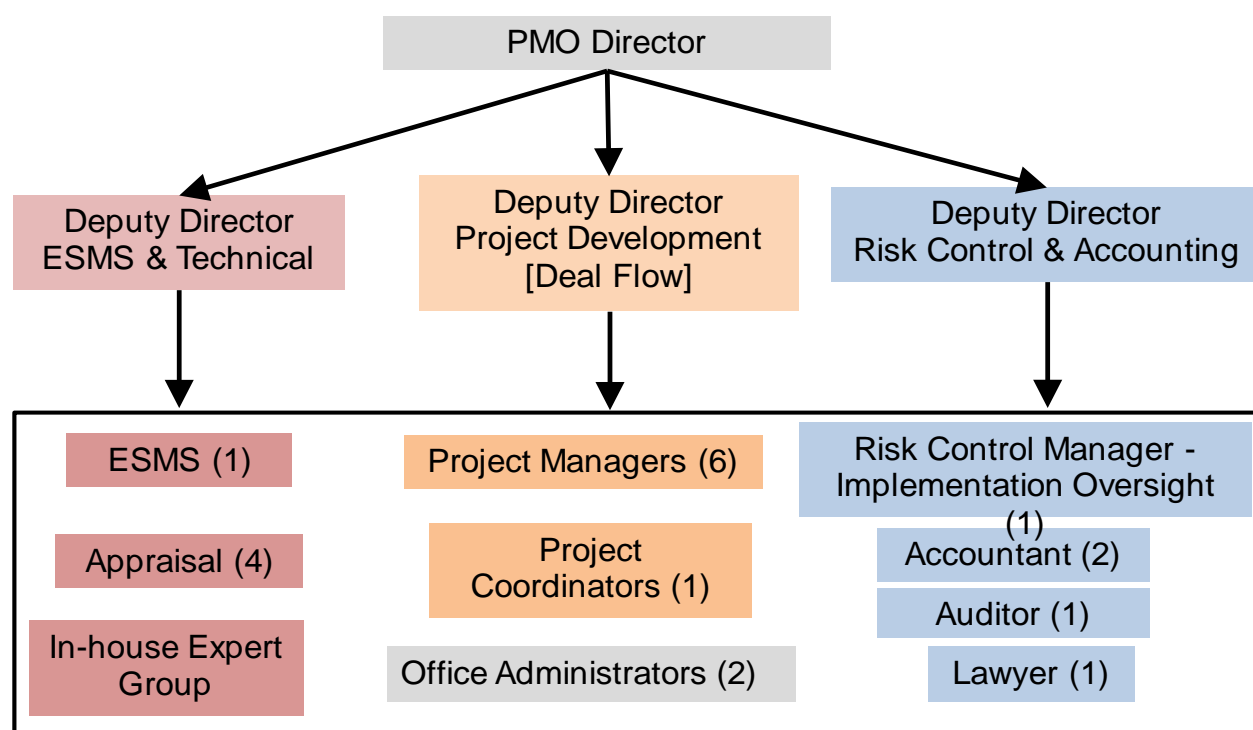
CECEP = China Energy Conservation and Environmental Protection Group, EA = executing agency, EPC = energy performance contract, FCA = framework cooperation agreement, LPA = limited partnership agreement.

Source: Asian Development Bank estimates.

32. CECEP has established a dedicated full-time PMO with around 20 experienced staff with academic qualifications and experience in technical, environmental, and financial responsible for implementation and management of the project including one staff responsible for the ESMS establishment, operation, and reporting. The Management Company will provide staff resources and keep sufficient experienced staff in the PMO. The PMO should at least include and maintain the positions shown in Figure 2. The PMO must have a team of experts with expertise to conduct all of, but not limited to, the following (i) assessing the risk profile of the potential Subprojects; (ii) evaluating the technology and business model; (iii) assessing capacity of the potential subborrowers, potential investees and potential limited partners for Funds; (iv) reviewing and assessing subproject applications according to the selection criteria and approval process for subprojects; (v) recommending approval of Entrusted Loans for subprojects and Equity Investment to the Facility's or Funds' investment committees to be financed; (vi) obtaining ADB's no objection where required; (vii) establishing a credit risk management

mechanism to monitor the Facility's and the Funds' credit risk and interest rate risk in connection with the project; (viii) monitoring the implementation progress of Subprojects, including compliance with the terms and conditions of the project implementing contracts; (ix) taking remedial actions in the event of noncompliance with the obligations; (x) preparing the ADB loan withdrawal applications; (xi) participating in the external audit of project accounts by providing ADB access to project auditors; (xii) monitoring interest payment, return from Equity Investment, and principal repayment of Entrusted Loans by the Qualified Enterprises; (xiii) monitoring the performance of the Account Bank and the Funds' Entrusted Banks; and (xiv) prepare and submit semi-annual project progress report, semi-annual ESMS implementation reports during the implementation stage and annual reports in the following 10 years; semi-annual consolidated environmental and social monitoring reports during the first 5 years during implementation stage and annually in the following 10 years; project consolidated audited financial statement; audited entity financial statements of CECEP and the Management Company, the Facility and each Fund; and a project completion report (PCR).

Figure 2: PMO Organizational Chart



PMO = project management office, ESMS = environmental and social management system.
Source: Asian Development Bank estimates.

IV. COSTS AND FINANCING

33. The project consists of establishing the Facility and Funds to mobilize financing to deploy low-emission technologies. The specific subprojects will be undertaken by Qualified Enterprises. The financing provided through the Facility and by Funds will mainly be utilized by Qualified Enterprises for purchase and installation of equipment. It is not envisaged that the air quality improvement projects to be financed under the project will have significant civil works or require land acquisition. The subprojects will be financed through a combination of counterpart funding from the Qualified Investees and Entrusted Loans or Equity Investments using ADB loan funds and cofinancing provided by domestic commercial banks or other Fund investors and, potentially, funds from other investors in the Qualified Enterprise. The interest during construction of subprojects is included in the cost estimates of appraised subprojects. The subproject cost estimates also include the taxes and duties, transport, and insurance cost.

34. The investment cost of the first batch of subprojects is estimated to be €1,747.0 million including the finance charges on debts. An estimated €1,319.0 million cofinancing is expected for the first batch subprojects. Since the payback period of Subprojects is typically 3–7 years, as the initial batch of subprojects is repaid and Equity Investments returned, the proceeds will be reinvested into another set of subprojects and Funds. CECEP will exert its best endeavors to ensure that the reflows from subprojects will be reinvested to finance additional batches of subprojects having an investment requirement of approximately €1.75 billion. Hence, the total investment to be mobilized by the Facility is expected to be in the range of €3.6 billion.

35. The government has requested a loan of €428.0 million from ADB's ordinary capital resources to help finance the project. The loan size is based on government's development financing needs and potential development impact. The government's green development-related financing need is estimated at \$1 trillion from 2016–2020. The government intends to meet this gap by mobilizing cofinancing from domestic and international sources. For the loan, domestic cofinancing should comprise contribution of €642.0 million from local government, institutional investors and domestic commercial banks, including but not limited to SPDB, Industrial Bank, and People's Insurance Company of China. ADB's project will help meet part of the financing needs.

36. The loan will have a 15-year term, including a grace period of 10 years,³⁰ an annuity repayment at the 10% discount rate option, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility, a commitment charge of 0.15% per year, and such other terms and conditions set forth in the draft loan and project agreements. Based on this, the average loan maturity is 12.95 years, and there is no maturity premium payable to ADB. ADB lending is expected to leverage €1,293.2 or about 3 times its amount through commercial and local government investments and counterpart financing. This includes an estimated €642.0 million from institutional investors, local government and commercial banks, and an estimated €651.0 million from Qualified Enterprises as counterpart contributions.

A. Cost Estimates Preparation and Revisions

37. The cost estimates for appraised subprojects have been prepared based on the information from subproject feasibility studies. The feasibility studies have been prepared by the potential investees using domestic accredited engineering design institutes. The cost estimates

³⁰ A longer grace period is essential to seek the rollover of ADB loan proceeds and larger impacts.

of subprojects to be identified and subsequent batches of subprojects are preliminary estimates and these estimates will be revised when these subprojects are identified and appraised. As and when the Subproject cost estimates are verified, the cost estimates in Tables 7, 9, 10, and 11 will be revised.

B. Key Assumptions

38. The following key assumptions underpin the cost estimates and financing plan:
- (i) Exchange rate: CNY7.6993 = €1.00 (as of 7 November 2017).³¹
 - (ii) Physical contingencies computed at 5% of the total base cost. Price contingencies based on expected cumulative inflation over the implementation period are presented in Table 6. Contingencies include provision for potential exchange rate fluctuation under the assumption of the purchasing power parity exchange rate.
 - (iii) Interest during implementation for ADB loan has been computed at the euro 5-year swap rate plus a spread of 0.5%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.
 - (iv) The interest during construction of Subprojects and cofinancing loans were calculated assuming an interest rate of 5%.
 - (v) CECEP and the Management Company will provide some in-kind contributions in the form of office space and shared use of facilities. These were not included in the project cost estimates.

Table 6: Escalation Rates for Price Contingency Calculation (%)

Item	2017	2018	2019	2020	2021	Average
Foreign rate of price inflation	1.4	1.5	1.5	1.5	1.5	1.5
Domestic rate of price inflation	2.3	2.4	2.4	2.4	2.4	2.4

Source: Asian Development Bank estimates.

³¹ <http://www.exchangerates.org.uk/USD-CNY-exchange-rate-history.html>

C. Detailed Cost Estimates by Expenditure Category

39. The detailed cost estimates for appraised subprojects by expenditure category together is provided in Table 7. The cost estimates by expenditure category for the subsequent batches of subprojects will be prepared during project implementation.

Table 7: Cost Estimates by Expenditure Category

Item	In CNY million			In €million			% of Base Cost
	Foreign Exchange	Local Currency	Total	Foreign Exchange	Local Currency	Total	
I. Appraised Subprojects							
Subproject 1 (Advanced biogas and organic fertilizer) - CECEP (Fengqiu) Biomass Energy Co., Ltd.							
1. Base Costs	126.45	0.00	126.45	16.42	0.00	16.42	94.02%
a. Civil Works	35.18	0.00	35.18	4.57	0.00	4.57	26.16%
b. Equipment Cost	62.28	0.00	62.28	8.09	0.00	8.09	46.31%
c. Subproject Management Cost	12.46	0.00	12.46	1.62	0.00	1.62	9.26%
d. Working capital	16.53	0.00	16.53	2.15	0.00	2.15	12.29%
2. Contingencies	3.52	0.00	3.52	0.46	0.00	0.46	2.62%
3. Financial Charges During Construction Period	4.52	0.00	4.52	0.59	0.00	0.59	3.36%
4. Recurrent cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
Subtotal (1)	134.49	0.00	134.49	17.47	0.00	17.47	100.00%
Subproject 2 (Industrial by-product gas utilization) - Shanxi Liheng Iron & Steel Co., Ltd.							
1. Base Costs	618.40	0.00	618.40	80.32	0.00	80.32	92.35%
a. Civil Works	219.17	0.00	219.17	28.47	0.00	28.47	32.73%
b. Equipment Cost	356.81	0.00	356.81	46.34	0.00	46.34	53.28%
c. Subproject Management Cost	38.37	0.00	38.37	4.98	0.00	4.98	5.73%
d. Working capital	4.05	0.00	4.05	0.53	0.00	0.53	0.60%
2. Contingencies	39.76	0.00	39.76	5.16	0.00	5.16	5.94%
3. Financial Charges During Construction Period	11.49	0.00	11.49	1.49	0.00	1.49	1.72%
4. Recurrent cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
Subtotal (2)	669.65	0.00	669.65	86.97	0.00	86.97	100.00%
Subproject 3 (Smart industrial zone development) - Integrated Electronic Systems Lab Co., Ltd. (IESLab)							
1. Base Costs	410.95	24.20	435.15	53.37	3.14	56.52	84.34%
a. Civil Works	78.60	0.00	78.60	10.21	0.00	10.21	15.23%
b. Equipment Cost	305.05	24.20	329.25	39.62	3.14	42.76	63.82%
c. Subproject Management Cost	21.90	0.00	21.90	2.84	0.00	2.84	4.24%
d. Working capital	5.40	0.00	5.40	0.70	0.00	0.70	1.05%
2. Contingencies	23.11	1.21	24.32	3.00	0.16	3.16	4.71%
3. Financial Charges During	56.45	0.00	56.45	7.33	0.00	7.33	10.94%

Item	In CNY million			In €million			% of Base Cost
	Foreign Exchange	Local Currency	Total	Foreign Exchange	Local Currency	Total	
Construction Period							
4. Recurrent cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
Subtotal (3)	490.52	25.41	515.93	63.71	3.30	67.01	100.00%
Subproject 4 (Deep-well geothermal district heating) - Shandong Luhai Petrol Technology Co., Ltd.							
1. Base Costs	115.75	0.00	115.75	15.03	0.00	15.03	90.54%
a. Civil Works	65.65	0.00	65.65	8.53	0.00	8.53	51.35%
b. Equipment Cost	37.60	0.00	37.60	4.88	0.00	4.88	29.41%
c. Subproject Management Cost	6.00	0.00	6.00	0.78	0.00	0.78	4.69%
d. Working capital	6.50	0.00	6.50	0.84	0.00	0.84	5.08%
2. Contingencies	8.45	0.00	8.45	1.10	0.00	1.10	6.61%
3. Financial Charges During Construction Period	3.65	0.00	3.65	0.47	0.00	0.47	2.86%
4. Recurrent cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
Subtotal (4)	127.85	0.00	127.85	16.60	0.00	16.60	100.00%
Subproject 5 (Hydrogen-based low-emissions transport) - Beijing Blue-G Renewable Energy Technology Co., Ltd.							
1. Base Costs	175.00	0.00	175.00	22.73	0.00	22.73	100.00%
a. Civil Works	0.00	0.00		0.00	0.00	0.00	0.00%
b. Equipment Cost	175.00	0.00	175.00	22.73	0.00	22.73	100.00%
c. Subproject Management Cost	0.00	0.00		0.00	0.00	0.00	0.00%
d. Working capital	0.00	0.00		0.00	0.00	0.00	0.00%
2. Contingencies	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
3. Financial Charges During Construction Period	0.00	0.00		0.00	0.00	0.00	0.00%
4. Recurrent cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
Subtotal (5)	175.00	0.00	175.00	22.73	0.00	22.73	100.00%
Subproject 6 (Super-ESCO) - An Steel Energy-saving Technology Service Co., Ltd. (An Steel ESCO)							
1. Base Costs	108.26	0.00	108.26	14.06	0.00	14.06	94.91%
a. Civil Works	28.65	0.00	28.65	3.72	0.00	3.72	25.12%
b. Equipment Cost	70.67	0.00	70.67	9.18	0.00	9.18	61.96%
c. Subproject Management Cost	8.34	0.00	8.34	1.08	0.00	1.08	7.31%
d. Working capital	0.60	0.00	0.60	0.08	0.00	0.08	0.53%
2. Contingencies	2.87	0.00	2.87	0.37	0.00	0.37	2.51%
3. Financial Charges During Construction Period	2.94	0.00	2.94	0.38	0.00	0.38	2.57%
4. Recurrent cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
Subtotal (6)	114.06	0.00	114.06	14.81	0.00	14.81	100.00%
Subtotal (1-6)	1,711.56	25.41	1,736.97	222.30	3.30	225.60	

Item	In CNY million			In €million			% of Base Cost
	Foreign Exchange	Local Currency	Total	Foreign Exchange	Local Currency	Total	
II. Subprojects to be Identified ^a	5,181.74	6,333.24	11,514.98	673.01	822.57	1,495.58	
III. Project Management Expenses of CECEP	0.00	198.81	198.81	0.00	25.82	25.82	
Total Project Cost (I+II+III)	6,893.30	6,557.46	13,450.76	895.31	851.69	1,747.00	

CECEP = China Energy Conservation and Environmental Protection Group, ESCO = energy service company.

^a Including financial charges during construction.

Sources: Asian Development Bank estimates.

D. Allocation and Withdrawal of Loan Proceeds

40. The ADB loan proceeds have been allocated as described in Table 8. The category for allocation of Entrusted Loan and Equity Investment includes allocation to Subprojects which are already appraised, to be appraised and identified during loan implementation based on the financing requirements of these Subprojects.

Table 8: Allocation and Withdrawal of Loan Proceeds

No.	Category	Total Amount Allocated for ADB Financing (€ million)	Percentage and Basis for Withdrawal from the Loan Account
1.	Provision of Entrusted Loan and Equity Investments ^a	428.0	100% of expenditures claimed
Total		428.0	

€ = euro; ADB = Asian Development Bank.

^a Subject to the condition for withdrawal described in paragraph 7 of Schedule 2 of the Loan Agreement.

Source: Asian Development Bank estimates.

E. Detailed Cost Estimates by Financier

Table 9: Detailed Cost Estimates by Financier
(€ million)

Item	ADB Loan		Commercial bank/other financial institution		Subborrower		CECEP Huayu		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
I. Appraised Subprojects										
Subproject 1 (Advanced biogas and organic fertilizer) - CECEP (Fengqiu) Biomass Energy Co., Ltd.	14.7	83.87%	-	0.00%	2.82	16.13%	-	0.00%	17.47	100.00%
Subproject 2 (Industrial by-product gas utilization) - Shanxi Liheng Iron & Steel Co., Ltd.	60.5	69.58%	-	0.00%	26.46	30.42%	-	0.00%	86.97	100.00%
Subproject 3 (Smart industrial zone development) - Integrated Electronic Systems Lab Co., Ltd. (IESLab)	46.4	69.23%	-	0.00%	20.62	30.77%	-	0.00%	67.01	100.00%
Subproject 4 (Deep-well geothermal district heating) - Shandong Luhai Petrol Technology Co., Ltd.	7.88	47.46%	-	0.00%	8.72	52.54%	-	0.00%	16.60	100.00%
Subproject 5 (Hydrogen-based low-emissions transport) - Beijing Blue-G Renewable Energy Technology Co., Ltd.	15.9	70.00%	-	0.00%	6.82	30.00%	-	0.00%	22.73	100.00%
Subproject 6 (Super-ESCO) - An Steel Energy-saving Technology Service Co., Ltd. (An Steel ESCO)	13.4	90.72%	-	0.00%	1.37	9.28%	-	0.00%	14.81	100.00%
Subtotal (1–6)	158.8	70.38%	-	0.00%	66.81	29.62%	-	0.00%	225.60	100.00%
II. Subprojects to be Identified^a	269.2	18.00%	642.00	42.93%	584.36	39.07%	-	0.00%	1,495.58	100.00%
III. Project Management Expenses of CECEP	-	0.00%	-	0.00%	-	0.00%	25.82	100.00%	25.82	100.00%
Total Project Cost (I+II+III)	428.0	24.50%	642.00	36.75%	651.18	37.27%	25.82	1.48%	1,747.00	100.00%

ADB = Asian Development Bank, CECEP = China Energy Conservation and Environmental Protection Group, Ltd., ESCO = energy service company.

^a including financial charges during construction.

Source: Asian Development Bank estimates.

Table 10: Detailed Cost Estimates by Output
(€ million)

	Total Cost	Output 1: Regional Emission-Reduction and Pollution-Control Facility established	Output 2: High technologies to reduce air pollution in agriculture sector, distributed energy, heating, transport, and iron and steel industry deployed	Output 3: Capacity for key stakeholders in deployment of high technologies for pollution reduction in greater BTH region improved
I. Appraised Subprojects				
Subproject 1 (Advanced biogas and organic fertilizer) - CECEP (Fengqiu) Biomass Energy Co., Ltd.				
1. Base Costs	16.42	8.21	8.21	
a. Civil Works	4.57	2.28	2.28	
b. Equipment Cost	8.09	4.04	4.04	
c. Subproject Management Cost	1.62	0.00	0.00	1.62
d. Working capital	2.15	1.07	1.07	
2. Contingencies	0.46	0.23	0.23	
3. Financial Charges During Construction Period	0.59	0.29	0.29	
4. Recurrent cost	0.00	0.00	0.00	
Subtotal (1)	17.47	8.73	8.73	
Subproject 2 (Industrial by-product gas utilization) - Shanxi Liheng Iron & Steel Co., Ltd.				
1. Base Costs	80.32	40.16	40.16	
a. Civil Works	28.47	14.23	14.23	
b. Equipment Cost	46.34	23.17	23.17	
c. Subproject Management Cost	4.98	0.00	0.00	4.98
d. Working capital	0.53	0.26	0.26	
2. Contingencies	5.16	2.58	2.58	
3. Financial Charges During Construction Period	1.49	0.75	0.75	
4. Recurrent cost	0.00	0.00	0.00	
Subtotal (2)	86.97	43.49	43.49	
Subproject 3 (Smart industrial zone development) - Integrated Electronic Systems Lab Co., Ltd. (iESLab)				
1. Base Costs	56.52	28.26	28.26	
a. Civil Works	10.21	5.10	5.10	
b. Equipment Cost	42.76	21.38	21.38	
c. Subproject Management Cost	2.84	0.00	0.00	2.84
d. Working capital	0.70	0.35	0.35	
2. Contingencies	3.16	1.58	1.58	
3. Financial Charges During Construction Period	7.33	3.67	3.67	
4. Recurrent cost	0.00	0.00	0.00	
Subtotal (3)	67.01	33.50	33.50	
Subproject 4 (Deep-well geothermal district heating) - Shandong Luhai Petrol Technology Co., Ltd.				
1. Base Costs	15.03	7.52	7.52	
a. Civil Works	8.53	4.26	4.26	
b. Equipment Cost	4.88	2.44	2.44	
c. Subproject Management Cost	0.78	0.00	0.00	0.78
d. Working capital	0.84	0.42	0.42	
2. Contingencies	1.10	0.55	0.55	
3. Financial Charges During Construction Period	0.47	0.24	0.24	
4. Recurrent cost	0.00	0.00	0.00	
Subtotal (4)	16.60	8.30	8.30	
Subproject 5 (Hydrogen-based low-emissions transport) - Beijing Blue-G Renewable Energy Technology Co.,				

	Total Cost	Output 1: Regional Emission-Reduction and Pollution-Control Facility established	Output 2: High technologies to reduce air pollution in agriculture sector, distributed energy, heating, transport, and iron and steel industry deployed	Output 3: Capacity for key stakeholders in deployment of high technologies for pollution reduction in greater BTH region improved
Ltd.				
1. Base Costs	22.73	11.36	11.36	
a. Civil Works	0.00	0.00	0.00	
b. Equipment Cost	22.73	11.36	11.36	
c. Subproject Management Cost	0.00	0.00	0.00	0.00
d. Working capital	0.00	0.00	0.00	
2. Contingencies	0.00	0.00	0.00	
3. Financial Charges During Construction Period	0.00	0.00	0.00	
4. Recurrent cost	0.00	0.00	0.00	
Subtotal (5)	22.73	11.36	11.36	
Subproject 6 (Super-ESCO) - An Steel Energy-saving Technology Service Co., Ltd. (An Steel ESCO)				
1. Base Costs	14.06	7.03	7.03	
a. Civil Works	3.72	1.86	1.86	
b. Equipment Cost	9.18	4.59	4.59	
c. Subproject Management Cost	1.08	0.00	0.00	1.08
d. Working capital	0.08	0.04	0.04	
2. Contingencies	0.37	0.19	0.19	
3. Financial Charges During Construction Period	0.38	0.19	0.19	
4. Recurrent cost	0.00	0.00	0.00	
Subtotal (6)	14.81	7.41	7.41	
Subtotal (1–6)	225.60	112.80	112.80	0.00
II. Subprojects to be Identified^a	1,495.58	747.79	673.01	74.78
III. Project Management Expenses of CECEP	25.82	-	-	25.82
Total Project Cost (I+II+III)	1,747.00	860.6	785.8	100.6

CECEP = China Energy Conservation and Environmental Protection Group, ESCO = energy service company.

^a including financial charges during construction.

Note: Numbers may not sum precisely because of rounding.

Source: Asian Development Bank estimates.

F. Detailed Cost Estimates by Year

41. The yearly breakdown of subproject cost estimates by subproject approval and utilization is provided in the Table 11 for the appraised subprojects. The details of subprojects to be identified are indicative at this stage and these will be verified and Table 11 will be revised during loan implementation.

Table 11: Detailed Cost Estimates by Year (€ million)

Item	Total cost	2018		2019		2020		2021		2022	
		Approval	Utilization	Approval	Utilization	Approval	Utilization	Approval	Utilization	Approval	Utilization
I Appraised Subprojects											
Subproject 1 (Advanced biogas and organic fertilizer) - CECEP (Fengqiu Biomass Energy Co., Ltd.	17.47	17.47	17.47								
Subproject 2 (Industrial by-product gas utilization) - Shanxi Liheng Iron & Steel Co., Ltd.	86.97	86.97	60.88		26.09		0.00				
Subproject 3 (Smart industrial zone development) - Integrated Electronic Systems Lab Co., Ltd. (iESLab)	67.01	67.01	33.50		20.10		13.40				
Subproject 4 (Deep-well geothermal district heating) - Shandong Luhai Petrol Technology Co., Ltd.	16.60	16.60	5.15		6.48		4.98				
Subproject 5 (Hydrogen-based low-emissions transport) - Beijing Blue-G Renewable Energy Technology Co., Ltd.	22.73	22.73	22.73		0.00						
Subproject 6 (Super-ESCO) - An Steel Energy-saving Technology Service Co., Ltd. (An Steel ESCO)	14.81	14.81	14.81		0.00						
Subtotal (1-6)	225.60	225.60	154.55	0.00	52.67	0.00	18.38	0.00	0.00	0.00	0.00
II. Subprojects to be Identified^a	1,495.58			224.34	224.34	523.45	523.45	448.67	448.67	299.12	299.12
III. Project Management Expenses of CECEP	25.82		4.67		4.91		5.15		5.41		5.68
Total Project Cost (I+II+III)	1,747.00	225.60	159.22	224.34	281.91	523.45	546.99	448.67	454.08	299.12	304.80

CECEP = China Energy Conservation and Environmental Protection Group, ESCO = energy service company.

^a including financial charges during construction.

Source: Asian Development Bank estimates.

G. Contract and Disbursement S-Curve

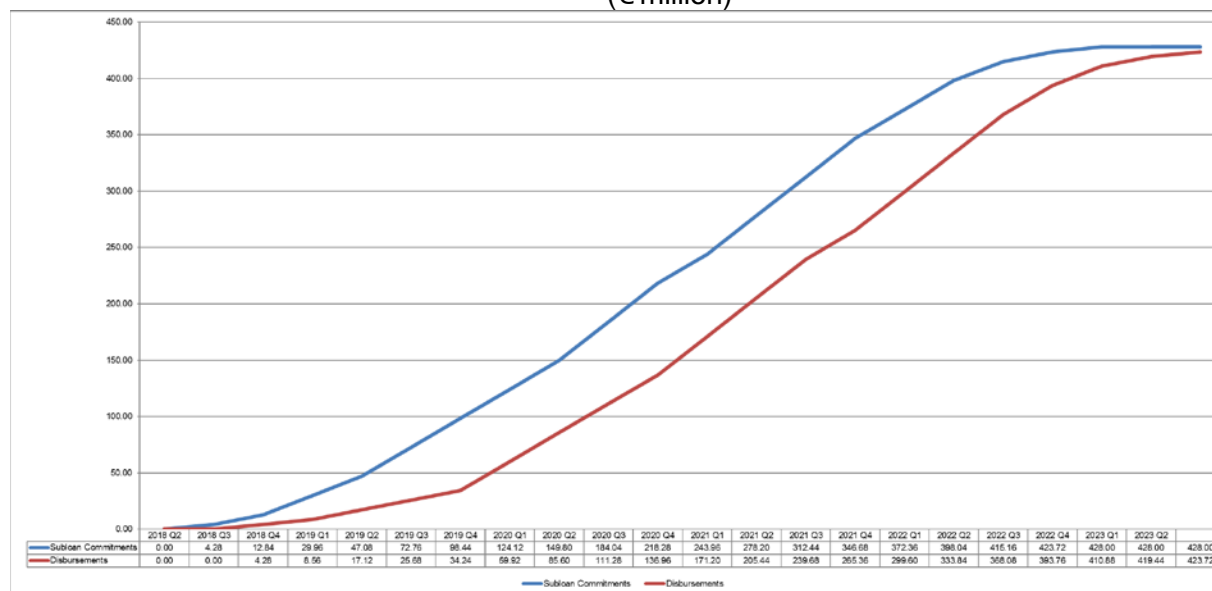
42. The S-curve (Figure 3) provides estimates of how the ADB loan will be committed and disbursed during the course of loan implementation. It is only the ADB financing which will be recorded in ADB's systems for internal monitoring and reporting purposes. Counterpart funds and any other cofinancing are therefore excluded. The projection for commitment in this case relates to approval of Entrusted Loans and Equity Investments.

Table 12: Commitment and Disbursements Projections
(€ million)

YEAR	Subloan Commitments					Disbursements				
	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
2018			4.28	8.56	12.84				4.28	4.28
2019	17.12	17.12	25.68	25.68	85.60	4.28	8.56	8.56	8.56	29.96
2020	25.68	25.68	34.24	34.24	119.84	25.68	25.68	25.68	25.68	102.72
2021	25.68	34.24	34.24	34.24	128.40	34.24	34.24	34.24	25.68	128.40
2022	25.68	25.68	17.12	8.56	77.04	34.24	34.24	34.24	25.68	128.40
2023	4.28				4.28	17.12	8.56	4.28	4.28	34.24
TOTAL					428.00					428.00

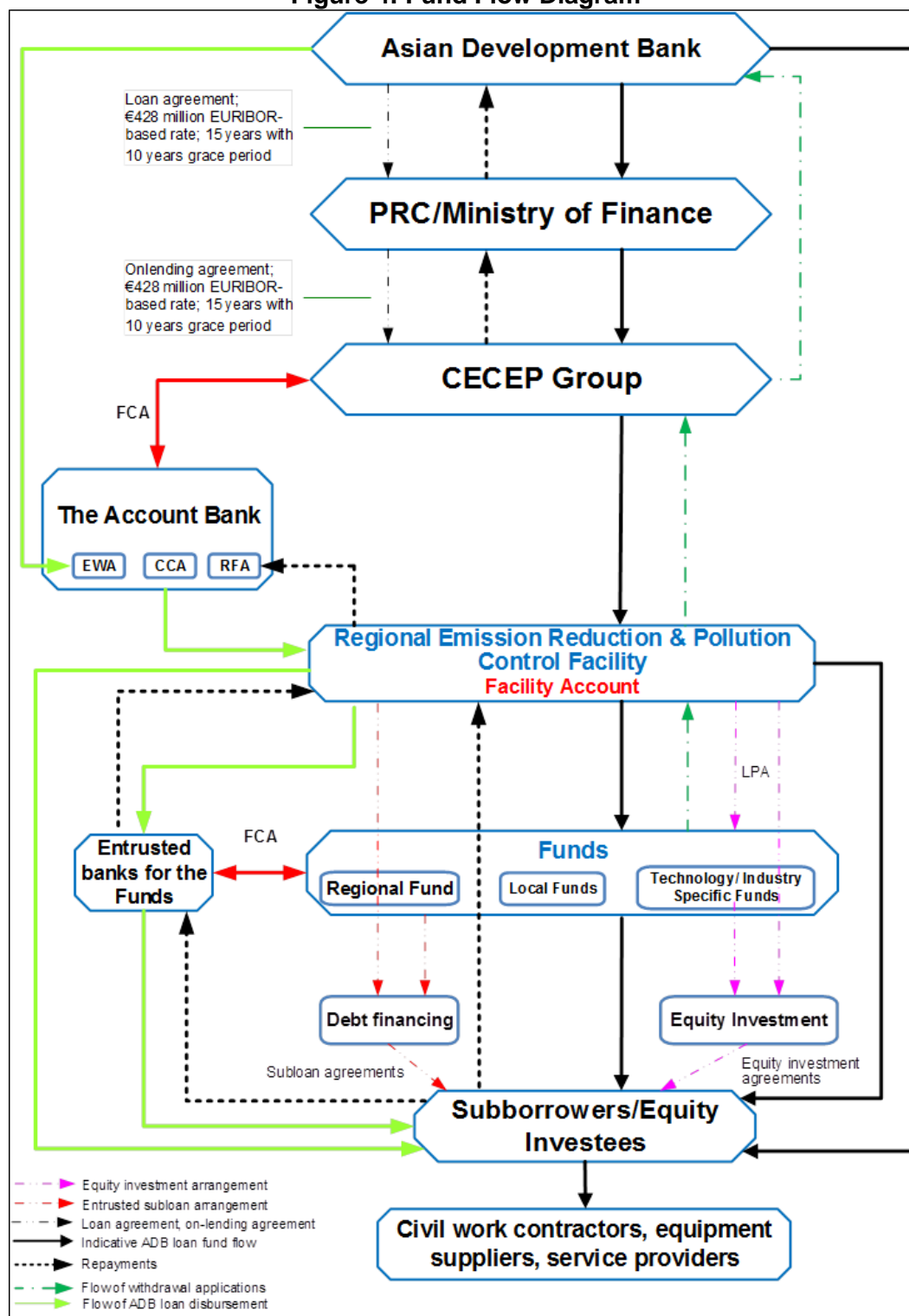
Source: Asian Development Bank.

Figure 3: Commitment and Disbursements S-Curve
(€ million)



H. Fund Flow Diagram

Figure 4: Fund Flow Diagram



CCA = CNY conversion account, CECEP = China Energy Conservation and Environmental Protection Group, EWA = euro withdrawal account, FCA = framework cooperation agreement, LPA = limited partnership agreement, RFA = revolving fund account, PRC = People's Republic of China. Source: Asian Development Bank estimates.

43. Figure 4 shows the (i) agreements between ADB, PRC/MOF, CECEP, the Account Bank, Qualified Investees, and Qualified Subborrowers; and (ii) cash flows of ADB loan funds to and from Qualified Enterprises. The agreement flow, loan disbursement and fund flow are as follows:

- (i) ADB will enter into a Loan Agreement with the PRC, acting through MOF, and MOF will enter into an onlending agreement with CECEP on the same terms as the agreement between ADB and MOF.
- (ii) CECEP will enter into an FCA with the Account Bank for the operation of the euro-denominated EWA and CCA, as well as acting as Entrusted Bank for Entrusted Loans directly made by the Facility.
- (iii) CECEP will enter into a Limited Partnership Agreement with the Management Company to create the Facility.
- (iv) The Facility will enter into Limited Partnership Agreements with other investors in Funds and the Management Company as general partner and fund manager;
- (v) The Facility and the Funds will enter into (a) Entrusted Loan Agreements and where required, Subproject Agreements with Qualified Subborrowers for the Entrusted Loans, and (b) Equity Investment Agreements and, for Put-protected Equity, Puts, with the Qualified Investees.
- (vi) ADB loan proceeds will be disbursed to CECEP's EWA maintained at the Account Bank.
- (vii) Upon receipt of loan proceeds, the Account Bank will convert the loan proceeds into CNY in the CCA, and transfer the loan proceeds to the Facility Account in the Facility, (a) for those Subprojects directly financed by the Facility, the Account Bank will transfer the funds to the Qualified Enterprises account within 3 days of receipt of funds, and (b) for Entrusted Loans or Equity Investments from the Facility to Funds, the Account Bank will transfer the funds to the account of Entrusted Banks for the Funds within 3 days of receipt of loan proceeds, and such banks will have to transfer the funds to the Funds' Qualified Enterprises accounts within 3 days of receipt of the loan proceeds from the Account Bank.
- (viii) The repayments of the Entrusted Loans and return of Equity Investments from its direct investments by the Facility and from Funds will be repaid to the Facility Account.
- (ix) The cash accumulated in the Facility Account will be used for setting up new Funds and financing Subprojects until ADB loan principal repayments are due.

44. **Loan Proceeds Re-deployment.** CECEP shall and shall cause the Facility and the Funds (during their respective reinvestment periods) to, relend or redeploy all repaid or returned principal to make further investments in Qualified Enterprises (or in the case of the Facility, in other Funds) as quickly as feasible after amounts are repaid or returned. CECEP shall ensure that the Facility and all Funds require that principal will be repaid to investors if it is not redeployed within 6 months after receipt. Where principal is repaid to the Facility and not redeployed within 6 months after receipt the Facility will repay that amount to CECEP which will return it to the government as a loan prepayment unless ADB otherwise agrees.

V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

45. The financial management assessment (FMA) was conducted in April 2017 in accordance with ADB's Guidelines for the Financial Management and Analysis of Projects and the Financial Due Diligence: A Methodology Note. The FMA considered the capacity of CECEP, CECEP Huayu and SPDB which ADB would accept as the Management Company and the Account Bank, including funds-flow arrangements, staffing, accounting and financial reporting systems, financial information systems, and internal and external auditing arrangements.³²

46. The FMA results for CECEP, CECEP Huayu, and SPDB show that financial management systems and procedures of CECEP, CECEP Huayu, and SPDB are all in place to perform proper financial management and reporting necessary for smooth implementation of the project. SPDB, as the Account Bank and potential co-investment partner of certain Funds, has complied with the requirements of establishing sustainable operation systems that are adequate for project implementation. CECEP, and its subsidiary CECEP Huayu, practice accrual-based accounting and follow business accounting standards of the PRC, which are consistent with the international accounting standards. Their accounting procedures are aligned with the regulations and policies issued by MOF, which are considered effective and adequate for the project.

47. The designated accounting and financial staff of CECEP are recognized as sufficient for the project and CECEP has a lot of experience of participating in international financial institutions loan projects or technical assistance projects.³³ However, CECEP Huayu is found to be short of human power to undertake the designated tasks. For this ADB loan, CECEP Huayu has formed a very capable top management team with sufficient experiences in both debt and equity investment funds, however, its staffing in the implementing level is found insufficient. There is a need for CECEP Huayu to hire more and retain capable debt and equity investment professionals. A new recruitment plan and a compensation incentive policy specially for the ADB loan project have been formulated by CECEP Huayu and submitted to CECEP for approval. Once approved, the lack of staffing of CECEP Huayu and difficulty to retain capable equity investment managers will be addressed. On the other hand, the newly recruited staff are likely to be not familiar with ADB's guidelines and procedures on procurement, disbursement and safeguard standard required by ADB. Appropriate measures including capacity development activities for CECEP Huayu staff were agreed between CECEP Huayu and ADB and will be implemented before loan effectiveness.

48. CECEP is one of the largest central state-owned enterprises (SOE) specialized in energy conservation, clean energy, resource recycling, and environmental protection businesses. Its profit margin is not high but the cash flows are stable. It is financially robust and has the financial strength to undertake the fundamental investment risks including technical, financial, and credit risks, and market risks including foreign exchange rate risk and interest rate risk associated with the ADB loan. When dealing with foreign exchange rate risk and interest rate risk, CECEP expects to obtain regular monitoring report and professional advices from the

³² Financial Management Assessment (accessible from the list of supplementary documents in Appendix 2 of the Report and Recommendation of the President to the Board of Directors).

³³ For example, CECEP acted as Project Management Office for Energy Efficiency Financing Project of the World Bank, and its consulting subsidiary has undertaken many technical assistance projects for ADB and the World Bank.

Account Bank and will have timely access to related risk-mitigating financial instruments and measures arranged by the Account Bank.

49. For the past 4 years CECEP's, CECEP Huayu's, and SPDB's external audit reports had an unqualified opinion. SPDB fully complies with prudential regulations set by the regulator, China Banking Regulatory Commission. The financial management risks were assessed to be low. Risk analysis of CECEP, CECEP Huayu, and other key institutional arrangement identifies four substantial risk factors: (i) financial sustainability of the project implementation structure, (ii) timely establishment of various dedicated Funds and timely identification of sufficient number of Subprojects to be invested by these funds, (iii) performance of fund investments, and (iv) fund management team staffing. Conclusion of risk analysis is that the project is feasible with consideration of CECEP Huayu's capacity, its firm commitment, and CECEP's resource.

50. The overall assessment concluded that the financial management risk level of the project is moderate. The project risks can be mitigated to low level if the recommended mitigation measures below are adopted.

Table 13: Financial Management, Internal Control and Risk Assessment Table

Risks	Impact	Likelihood	Risk Assessment	Proposed Mitigation
Inherent Risks				
For CECEP (EA):				
<p>Country Specific Risks– National accounting standards as issued by the Ministry of Finance are equivalent to International Accounting Standards and acceptable to ADB. Audit reports of supreme audit institution are submitted timely in accordance with ADB requirements.</p> <p>ADB experiences in project implementation shows generally high financial management capacity and high rate of timely implementation of projects. Audit reports of supreme audit institution are submitted timely in accordance with ADB requirements.</p>	low	less likely	low	
Entity Financial Strength - CECEP as the only one central SOE specialized in energy conservation and environmental protection business holds a robust financial standing. Its low debt service coverage ratio will not cause liquidity problem since it has CNY22 billion of cash and cash equivalent, tradable financial assets and available for sales financial assets at the end of 2016, which is six times of the ADB loan size, and has unique capability to issue bonds with AAA rating, has CNY450 billion of unused credit lines (120 times of the ADB loan amount) to borrow from bank, and obtain new capital injection from SASAC for developing new capital expenditure projects. Compared to the ADB loan amount, it has very large asset scales, and holds great amount of cash and tradable financial assets. Its business plan by 2020 also indicate that its financial standing will continually improve.	low	less likely	low	<p>CECEP is required to keep its total liabilities to total assets ratio to be not more than 70% on a consolidated basis. Audited financial statements of both CECEP and the Management Company will be provided to ADB each year for monitoring purpose.</p> <p>It will be covenanted that the total liabilities to total assets ratio of CECEP shall be no more than 70%, which will be monitored each year before the loan closure.</p>
For the Management Company				
<p>Entity Specific Risks–The complexity of the structure to set up the Facility and various Funds may cause problem. However, this risk can be resolved since the Facility has sole LP, likely partners of major Funds have been identified and the preliminary cooperation willingness among partners are strong. Also, the low cost of ADB loan provides plenty of space for deal negotiation. Roles and responsibilities of each partner in the Fund level will be reasonably distributed and clearly specified in the legally binding limited partnership agreements, which are subject to ADB's prior acceptance</p>	high	less likely	substantial	The limited partnership agreements for all Funds shall be developed by Huayu and provided to ADB for acceptance before their signature.
CECEP Huayu has CNY200 million of registered capital, and	low	less likely	low	A binding undertaking acceptable to ADB

Risks	Impact	Likelihood	Risk Assessment	Proposed Mitigation
so far just CNY60 million of committed capital is paid in, There is a large space for it to obtain shareholder's cash capital injection.				from CECEP or from all of the shareholders of the Management Company to contribute registered capital to the Management Company in such amounts and at such times as required to pay the costs of administering the Facility and the Funds to satisfy Project standards and requirements. t.
Project Risks				
Specific Risks for CECEP				
Financial sustainability of the project implementation structure —has been modeled with positive cash flows under conservative assumptions. CECEP is the leading and largest enterprise in PRC in the sector of EEER. It has strong technical capacity available for the Management Company to assess the technical risk of subprojects.	low	less likely	low	ADB loan proceeds should be kept in separate accounts from the other Funds of CECEP.
Staffing —CECEP and SPDB are sufficiently staffed for accounting, auditing, and financial management.	low	less likely	low	
Internal audit —CECEP has independent internal audit department which is sufficiently staffed with qualified personnel. Under the group of CECEP there is a total of 500 internal audit professionals. The Facility, Funds, and subproject companies are subject to internal audit of CECEP. The government of the PRC is cracking down on corruption, in particular in central state-owned enterprises. The governance during the project implementation is ensured. Continuous routine internal audits are carried out for CECEP and the Management Company as well as for all new investment project companies. The Audit Department of CECEP has vast experience in project auditing.	low	likely	moderate	The project is subject to CECEP-organized routine internal audit, with necessary adaptation to meet special ADB monitoring and reporting requirement.
Specific Risks for the Management Company				
Financial sustainability of the project implementation structure —has been modeled with positive cash flows under conservative assumptions. CECEP is the leading and largest enterprise in PRC in the sector of EEER. It has strong technical capacity available for the Management Company to assess the technical risk of subprojects.	high	less likely	substantial	ADB loan proceeds should be kept in separate accounts from the other Funds. Risk-adjusted pricing: The Facility shall, and shall cause each Fund to, establish a reasonable target floor rate of return for each investment which has properly considered the interest risk and

Risks	Impact	Likelihood	Risk Assessment	Proposed Mitigation
Identification of sufficient subprojects—Total capital of all Funds is CNY8.6 billion and the invested subprojects will have CNY13.8 billion of total investment. The Management Company and its local partner shall have the capability to solicit sufficient number of eligible subprojects for the related Funds to invest. The wide geographic region, a large portion of CECEP internal subprojects, the involvement of various types of local partners who will not only provide funds but also provide potential Subprojects and the recruitment of investment professionals with rich business outreach can reduce this risk.				investment risk. The projected investment return requirement on sample subprojects will be reviewed by ADB in advance. Loan disbursement will be made upon provision of signed subproject investment agreements.
Poor investment performance —CECEP has hired experienced top management members with successful fund management track records since late 2015 and will recruit more implementing team members soon. All together, they are expected to be capable of running the fund business as designed under the FIL. To further motivate their engagement in the investment management, a reasonable compensation incentive policy applicable to the fund management team should be adopted by the Management Company with prior approval from CECEP.	High	less likely	substantial	The Management Company will be held accountable for ensuring the eligibility of invested subprojects in accordance with the PAM. Implementation of the market-based compensation incentive policy by the Management Company for its staff and management will be carried out within one year after the loan effectiveness and will be reviewed by ADB review mission. Periodic evaluation by CECEP (semiannual) on Facility and Funds investment's performance shall be implemented.
Staffing —The accounting department of CECEP Huayu is fully staffed, the top leaders with rich debt and equity investment experience are in place as well, but CECEP Huayu is not sufficiently staffed in its implementation team for undertaking the assigned tasks in the FIL as assessed in April 2017. CECEP Huayu argued that there is no need for a big implementing team at the moment, which will create unnecessary financial burden. CECEP Huayu has developed a new recruitment plan with sufficient staffing (around 20 employees) for the FIL and will implement it in line with the ADB loan project implementation progress.	low	likely	moderate	The Management Company's suitable implementation of staffing plan should be in compliance with the ADB loan project implementation schedule and will be monitored and reviewed by ADB during review mission.
General Risks for both CECEP and the Management Company				
Accounting policies and financial management system —CECEP, CECEP Huayu, and SPDB practice accrual accounting in accordance with the PRC's GAAP. CECEP and	low	less likely	low	Capacity training on ADB requirements and procedures of disbursement and procurement will be provided to ensure

Risks	Impact	Likelihood	Risk Assessment	Proposed Mitigation
CECEP Huayu have all adopted Accounting Standards for Business Enterprises approved by MOF, which is consistent with IAS on a project accounting level.				they are understood by all related staff in CECEP, the Management Company, and the Account Bank in advance.
External Audit —CECEP and its subsidiaries are subject to annual external audits on a rotating basis by CPAs auditing firms designated by SASAC. All these SASAC-designated auditing firms are experienced in auditing large-scale businesses, are familiar with the IAS and can provide proficient auditing services to the ADB loan related entities. The project will also receive government-organized audits after project completion.	low	less likely	low	The project will be subject to annual external audit and government-organized acceptance audit.
Reporting and Monitoring —The reporting and monitoring of the project will be carried out mainly by the Management Company with guidance by the PAM.	low	less likely	low	The PAM includes guidance on preparing progress reports and annual reports acceptable to ADB.
Funds flow/Disbursement Arrangements —All ADB loan proceeds shall be made to the EA and transferred, after conversion into CNY, to the Facility and Funds and then to subprojects through a chain of escrow accounts in which fund flows can be clearly traced.	high	less likely	substantial	A disbursement manual will be prepared. A disbursement training will be provided to strengthen capacity of all stakeholders.
Project implementation delay risks —numerous onlending arrangements must be formulated and agreed among the entities in combination with ADB inherent risks to engage qualified legal counsels.	low	likely	moderate	ADB will provide support for formulation of key agreement templates.
Information Systems —CECEP Huayu uses computerized accounting software, which is in compliance with the Chinese Accounting Standards. SPDB has further sophisticated accounting software that can provide detailed project account transaction recording, loan fund flow tracking, financial book summary and archive index management.	low	less likely	low	The Management Company Huayu shall monitor the PAM's requirement on reporting.
Overall Project Risk	Moderate	likely	Moderate	Implementing the mitigation actions mentioned above will reduce the risk to low.
Overall Risk	Moderate	likely		

ADB = Asian Development Bank, CECEP = China Energy Conservation and Environmental Protection Group, CECEP Huayu = CECEP Huayu Fund Management Co., Ltd, CPAs = Certified Public Accountants, EA = executing agency, EEER = energy efficiency and emission-reduction, FIL = financial intermediation loan, GAAP = generally accepted accounting principles, IAS = international accounting standard, LP = limited partner, MOF = Ministry of Finance, PAM = project administration manual, PRC = People's Republic of China, SASAC = State-owned Assets Supervision and Administration Commission of the State Council, SOE = state-owned enterprise, SPDB = Shanghai Pudong Development Bank.

^a Debt Service Converge Ratio = Cash flow from operations divided by annual debt service obligations (interest and principal).

Source: Asian Development Bank.

51. The following actions are required to be taken by the related parties:

Table 14: Finance Management Action Plan

No.	Actions	Timeline
1	The framework cooperation agreement between CECEP, the Facility and the Account Bank shall be reviewed by ADB	Before it is signed
2	Investment strategy, exit strategy, and the selection process of Equity Investments shall be reviewed and accepted by ADB	At the time of ADB's prior review of the Facility and each Fund and before all Equity Investment are approved or signed.
3	Limited Partnership Agreements for the Facility and Funds are to be developed by the Management Company with support from ADB and approved by ADB in each instance	For the Facility, prior to initial loan withdrawal, for each Fund, before the agreement is signed and before any funds are committed or invested
4	A binding undertaking acceptable to ADB from CECEP or from all of the shareholders of the Management Company to contribute registered capital to the Management Company in such amounts and at such times as required to pay the costs of administering the Facility and the Funds to satisfy Project standards and requirements	Prior to initial loan withdrawal
5	Limited Partnership Agreement for the Facility and Funds shall be signed by the relevant investors and the underlying Entrusted Loan/Subproject/Equity Investment Agreement shall be signed by the related Facility or Funds and the Qualified Enterprises	Prior to any loan disbursement
6	The Management Company needs to get the market-based compensation incentive policy for its staff approved by CECEP and implement it in practice	Within one year after the loan effectiveness
7	The Management Company needs to get its new recruitment plan approved by CECEP and execute it on a timely basis	In line with the ADB loan project implementation progress

ADB = Asian Development Bank, CECEP = China Energy Conservation and Environmental Protection Group.

B. Disbursement

1. Disbursement Arrangements for ADB Funds

52. The loan proceeds will be disbursed in accordance with ADB's Loan Disbursement Handbook (2017, as amended from time to time), and detailed arrangements agreed upon between the government and ADB. Online training for project staff on disbursement policies and

procedures is available.³⁴ Project staff are encouraged to avail of this training to help ensure efficient disbursement and fiduciary control. Pursuant to ADB's Safeguard Policy Statement (2009, as amended from time to time), ADB funds may not be applied to the activities described in ADB's Prohibited Investment Activities List set forth in Appendix 4. CECEP and the cofinanciers will also ensure that their, and the Facility's and Funds' investments are in compliance with all applicable national laws and regulations.

53. Before the submission of the first withdrawal application, CECEP, through MOF, will submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the government, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is in accordance with the Loan Disbursement Handbook. Individual payments below such amount should be paid by CECEP and subsequently claimed to ADB through reimbursement, unless otherwise accepted by ADB.

54. Loan proceeds will be used for making Entrusted Loans and Equity Investments to Qualified Enterprises through the Facility and Funds and to provide Entrusted Loans and Equity Investments to Funds. Prior to withdrawal of Loan funds, the due diligence review document for every subproject including technical, economic, financial, environmental and social safeguards based on the selection criteria and requirements in the ESMS, will also need be submitted for review. CECEP is required to provide the following project implementing contracts to ADB and obtain a subproject number from ADB before submitting a withdrawal application.

- (i) For Entrusted Loans to Qualified Subborrowers, Entrusted Loan Agreement signed between an Entrusted Bank, the Facility or Fund and a Qualified Subborrower, and, where the Entrusted Loan Agreement does not include all of the requirements herein and in the Loan Agreement and Project Agreement related to the Qualified Subborrower and Subproject, a Subproject Agreement.
- (ii) For Equity Investment, Equity Investment Agreement signed between the Facility or Fund and a Qualified Investee and, where the investment is Put-protected Equity, a Put.

55. Loan proceeds will be disbursed to CECEP's EWA to be set up at the Account Bank. The EWA will be denominated in euro. The Account Bank will convert the ADB funds into CNY in CECEP's CCA. The Account Bank will disburse the loan proceeds to Qualified Subborrowers and Qualified Investees or to bank accounts set up by the Funds at their respective Entrusted Banks within three days of receipt of ADB loan proceeds. CECEP will submit withdrawal applications for payment or reimbursement of eligible expenditures in CNY as described in the statement of expenditure (SOE) sheets. CECEP will indicate special instructions that payment will be in euro.³⁵

56. **Statement of expenditure.** The SOE for financial intermediation loan may be used for reimbursement and payment to the EWA account.³⁶ The applicable project implementing contracts in para. 54 should be maintained and made readily available for review by ADB's disbursement and review missions, upon ADB's request, and for independent audit. CECEP has adequate capacity to manage SOE procedures.

³⁴ Disbursement eLearning. http://wpqr4.adb.org/disbursement_elearning

³⁵ Refer to Section 3D of Appendix 7A of the Loan Disbursement Handbook.

³⁶ Appendix 7D of the Loan Disbursement Handbook.

57. **Conditions for all withdrawals.** No withdrawals shall be made from the Loan Account until (a) the Onlending Agreement and the Framework Cooperation Agreement with the Account Bank and with the Entrusted Bank for any Fund then in existence have been signed; (b) a Limited Partnership Agreement has been signed for the Facility and for any Fund then in existence; (c) if ADB considers it necessary, a Management Agreement with the Managements Company has been signed; (d) templates for an Entrusted Loan Agreement for loans to Funds, an Entrusted Loan Agreement for loans to Qualified Subborrowers, a Subproject Agreement ancillary to Entrusted Loan Agreements for use in connection with Entrusted Loans to Qualified Subborrowers, an Equity Investment Agreement and Put for Put-protected Equity investments and for Equity Investments without a Put and such other Project Implementing Contracts as ADB may specify have been approved by ADB; (e) CECEP shall have opened in the Account Bank a Euro account for receiving funds from ADB and a Renminbi account for receiving converted monies from the Euro account, and the Facility shall have opened in the Account Bank a Renminbi account for receiving Recycled Funds, all on terms acceptable to ADB; (f) an ESMS has been adopted by CECEP, the Management Company, the Facility and by any Fund that has then come into existence; and (g) a binding undertaking acceptable to ADB from CECEP or from all of the shareholders of the Management Company to contribute registered capital to the Management Company in such amounts and at such times as required to pay the costs of administering the Facility and the Funds to satisfy Project standards and requirements.

58. Furthermore, to ensure the smooth implementation of the FIL, CECEP shall not exceed the maximum of 70% of total liabilities to total assets ratio, which will be monitored by ADB before loan closure and ADB shall have the right to ask CECEP to take correction actions if it does not meet the requirement, and CECEP shall take such actions.

C. Accounting

59. CECEP shall (i) maintain separate accounts for (a) EWA, (b) CCA, (c) RFA, and (d) shall ensure that the Facility Account is maintained at the Facility; (ii) maintain records for the project, and shall cause the Fund manager to maintain and provide to CECEP separate accounts and records for each Fund; and (iii) prepare an annual consolidated statement of utilization of funds (SUF)³⁷ for the project in accordance with accounting principles acceptable to ADB. A sample SUF is in Appendix 5.

60. In addition to the annual SUF, CECEP, the Management Company, the Facility, and each Fund shall provide to ADB its annual financial statements prepared in accordance with financial reporting standards acceptable to ADB.

D. Auditing and Public Disclosure

61. CECEP will cause the annual consolidated SUF to be audited annually in accordance with international standards on auditing and with the government's audit regulations, or with auditing standards acceptable to ADB, by an independent auditor whose qualifications, experience and terms of reference are acceptable to ADB. Currently, the external audit for

³⁷ In the case of financial intermediation loans, an audited SUF will be submitted in lieu of the audited project financial statements. The audited SUF will indicate: (i) the opening balance; (ii) the name of financial intermediary; (iii) details of subloans; (iv) closing balance; (v) comparative figures for prior year; and (vi) cumulative amount to date. The audited SUF will also be accompanied by adequate explanatory notes which will include the basis of preparation, reporting currency, undrawn external assistance, and details of subloans such as amounts committed, disbursed up to the previous year, disbursed during the current reporting period, cumulative disbursement, undisbursed commitments, percentage of loan utilized, etc.

CECEP is undertaken by Zhongqinwanxin CPAs, which is acceptable to ADB. CECEP shall seek ADB's no objection if it proposes to change the auditor. The audited SUF together with the auditor's report will be furnished in the English language by CECEP to ADB within 6 months after the close of the fiscal year to which they relate.

62. The audit report for the SUF will include a management letter and auditor's opinions, which cover (i) whether the project financial statements present an accurate and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting standards; (ii) whether the proceeds of the loan were used only for the purposes of the project; and (iii) whether the borrower or executing agency was in compliance with the financial covenants contained in the legal agreements and the PAM (where applicable).

63. In addition to the annual audited SUF, CECEP will (i) have its financial statements audited annually by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB, in accordance with international auditing standards or the national equivalent acceptable to ADB; (ii) as part of each such audit, have the auditors prepare the auditors' opinion(s) on the financial statements and compliance with any financial covenants it is required to maintain as specified in the loan or project agreements; and (iii) furnish to ADB not later than 6 months after the end of the fiscal year to which they relate, copies of such audited financial statements and auditors' opinion(s), all in the English language, and such other information concerning these documents and the audit as ADB shall from time to time reasonably request.

64. In addition to the annual audited statement of utilization of funds referred to in paras. 59–63 hereinabove, CECEP shall, and shall cause the Facility and each Fund to (i) provide to ADB their annual financial statements prepared in accordance with national accrual-based financial reporting standards acceptable to ADB; (ii) have such financial statements audited annually by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB, in accordance with international standards for auditing or the national equivalent acceptable to ADB; (iii) as part of each such audit, have the auditors prepare the auditors' opinion(s) on the financial statements and compliance with any financial covenants it is required to maintain as specified in the Loan Agreement or the Project Agreement, and a management letter; and (iv) furnish to ADB not later than 6 months after the end of the fiscal year to which they relate, copies of such audited financial statements and auditors' opinion(s), all in the English language, and such other information concerning these documents and the audit thereof as ADB shall from time to time reasonably request.

65. CECEP shall require the Account Bank to provide to CECEP, and CECEP shall provide to ADB copies of the Account Bank's audited annual financial statements immediately on their publication by such entity and in any event, not later than 6 months after the end of the fiscal year to which they relate.

66. The Government, CECEP, and CECEP Huayu have been made aware of ADB's approach to delayed submission, and the requirements for satisfactory and acceptable quality of the SUF.³⁸ ADB reserves the right to require a change in the project account auditor (in a

³⁸ ADB's approach and procedures regarding delayed submission of audited project financial statements:

(i) When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (a) the audit documents are overdue; and (b) if they are not received within the next 6 months, requests for new contract awards and disbursement, processing of new reimbursement, and issuance of new commitment letters will not be processed.

manner consistent with the constitution of the borrower), or for additional support to be provided to the auditor, if the audits required are not conducted in a manner satisfactory to ADB, or if the audits are substantially delayed. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

67. Public disclosure of the annual audited SUF for the project, including the auditor's opinion on the statements, will be guided by ADB's Public Communications Policy 2011.³⁹ After the review, ADB will disclose the audited SUFs and the opinion of the auditors on the statements no later than 14 days after ADB's confirmation of their acceptability by posting them on ADB's website. The management letter, additional auditor's opinions, and audited CECEP, the Management Company and the Account Bank entity financial statements will not be disclosed.⁴⁰

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- (ii) When audited project financial statements are not received within 6 months after the due date, ADB will withhold processing of requests for disbursement, processing of new reimbursement, and issuance of new commitment letters. ADB will (a) inform the executing agency of ADB's actions; and (b) advise that the loan may be suspended if the audit documents are not received within the next 6 months.

- (iii) When audited project financial statements are not received within 12 months after the due date, ADB may suspend the loan.

³⁹ Public Communications Policy: <http://www.adb.org/documents/pcp-2011?ref=site/disclosure/publications>.

⁴⁰ This type of information would generally fall under public communications policy exceptions to disclosure. ADB. 2011. *Public Communications Policy*. Para 97(iv) and/or 97(v).

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting and Retroactive Financing

68. All advance contracting and retroactive financing will be undertaken in conformity with ADB Procurement Guidelines (2015, as amended from time to time). The borrower and CECEP have been advised that approval of advance contracting and retroactive financing does not commit ADB to finance the project.

69. **Advance contracting and retroactive financing.** Subprojects to be retroactively financed must comply with the ESMS. All retroactive financing of Subprojects before the loan effective date is subject to ADB's prior review and approval of documentation related to such proposed transaction including an appraisal report, in such form and detail as ADB may request, describing the subproject, the Qualified Enterprise, the terms and conditions of the proposed use of proceeds and drafts of the proposed project implementing contracts for the transaction. Retroactive financing may be made for (i) refinancing, with Entrusted Loans, loans made by CECEP or the Facility before the loan effective date, and (ii) making Entrusted Loans to Qualified Subborrowers to finance subprojects which commenced before the loan effective date, provided that any loan being refinanced and each expenditure supported by the refinancing Entrusted Loan was incurred not earlier than 12 months before the signing of the ADB loan agreement, the subproject to be refinanced has been evaluated under the ESMS and is fully compliant, and the amount of aggregate retroactive financing does not exceed 20% of the total ADB loan amount.

B. Procurement of Goods, Works

70. Procurement activities will be carried out in accordance with ADB's Procurement Policy applicable to FILs, and adopt appropriate procedures, including (i) payment of reasonable prices, and (ii) fair canvassing when selecting suppliers. Procurement by Qualified Enterprises supported by the Facility (or in any other circumstance where there is no cofinancing of Facility funds) must be from ADB member countries. Procurement by Qualified Enterprises receiving financing from a Fund comprising both Facility money and cofinancing where the cofinancier has signed an memorandum of understanding with ADB, as will generally be the case in Fund investments, may procure from ADB member countries or from non-members. All Qualified Enterprises will be encouraged to procure all goods through competitive bidding or shopping when such procedures are most appropriate in the interest of economy and efficiency. CECEP should monitor procurement and report to ADB if there occurs any inconsistency with ADB procurement guidelines and PRC's procurement laws. To provide guidance to Qualified Subborrowers and Qualified Investees in undertaking procurement using ADB loan proceeds, and for CECEP to monitor the procurement activities undertaken by Qualified Enterprises, a project specific procurement manual has been prepared and included in Appendix 6.

C. Procurement Plan

71. As the project is using FIL modality, CECEP is not responsible for directly procuring goods and services, and a procurement plan has not been prepared. However, a procurement manual is prepared to regulate the procurement activities under the project (Appendix 6).

VII. SAFEGUARDS

A. Environmental and Social Safeguards

72. **Environment safeguards.** The project follows FIL modality and an ESMS is developed to meet FIL requirements. The FIL project will not include subprojects with category A for environment.

73. **Social safeguards.** The Subproject Selection Criteria (Appendix 3) exclude subprojects that (i) have any land acquisition and house demolition, (ii) result in labor retrenchment or labor redundancies, and (iii) have impacts on ethnic minorities. CECEP is required to ensure that this requirement is met during the screening of newly identified subprojects in accordance with the procedures stipulated in the ESMS.

B. Environmental and Social Management System

74. The ESMS describes (i) institutional due diligence of CECEP, CECEP Huayu, and CERT involved in the Facility; (ii) ESMS policy; (iii) environmental and social safeguards requirements; (iv) Subproject selection criteria; (v) ADB prohibited investment activity list; (vi) environmental and social management procedures, including establishment and operation of Subproject level and Facility level grievance redress mechanism (GRMs); (vii) institutional responsibilities, staffing, training, and ESMS operation budget; and (viii) assurances of the project.

75. CECEP shall adopt and shall cause the Management Company, the Facility, and each Fund to adopt, in the case of CECEP, the Management Company, and the Facility not later than the signing date of the Loan Agreement, an ESMS that meets the requirements of ADB's Safeguards Policy Statement (2009) and has been approved in writing by ADB, and shall, and shall cause the Facility and each Fund to implement it in reviewing, approving, and monitoring each Subproject. CECEP shall ensure that all investors in Funds agree in the Fund documentation that all Fund investments must comply with ADB's Project requirements. CECEP will take final responsibility of ESMS implementation while the Management Company will take day-to-day responsibility of implementation of ESMS. Due to limited experience and insufficient expertise on environmental and social safeguards of CECEP Huayu, CECEP made a long-term partnership and contractual arrangement with CERT, a qualified and specialized institute for environmental impact assessment. CERT will actively support the Management Company on ESMS implementation. CECEP shall not provide or permit to be provided financial support to any subprojects, unless the subprojects have been assessed and confirmed to be in compliance with all ESMS requirements, by the CERT or another consultant approved in writing by ADB. After 1 year of implementing the ESMS, ADB will reassess the capacity of CECEP's internal safeguards experts. If ADB is satisfied with their capacity, CECEP's internal safeguard experts can then sign off and approve safeguard assessments of Subprojects. ESMS will be implemented for all the subprojects financed by the project beyond the ADB project completion.

76. Environmental and social performance will be evaluated on a semiannual basis. CECEP will ensure that environmental and social safeguard monitoring requirements indicated in the ESMS are met. CECEP shall ensure that safeguard GRMs are established as provided in the ESMS.

77. CECEP shall ensure that design changes/adaptation options prescribed in the climate risk and vulnerability assessment will be taken into account in the final subproject design.

VIII. GENDER AND SOCIAL DIMENSIONS

78. CECEP shall and shall cause the Facility and the Funds to ensure that contractors and service providers engaged in the Project and in Subprojects (i) give equal pay for equal work regardless of gender, ethnicity or social group; (ii) give priority to women in the employment and training opportunities generated under the Project; (iii) maximize the employment of local people who meet the job and efficiency requirements for subproject construction, operation and maintenance; (iv) provide workers with adequate on-the-job and safety training; (v) disseminate information on sexually transmitted diseases (including HIV/AIDS) and human trafficking to subcontractors/employees and local communities surrounding the subproject construction sites; (vi) implement HIV/AIDS awareness and prevention training for sub-contractors/employees; (vii) implement human trafficking awareness activities; (viii) provide necessary measures to ensure the safety and health of its sub-contractors/employees; and (ix) observe local customs concerning acceptable behavior towards the local population. This is included in Subproject Selection Criteria and CECEP is required to ensure this requirement is met with respect to future Subprojects.

79. CECEP shall and shall cause the Facility and the Funds to ensure that the core labor standards and the PRC's applicable laws and regulations are complied with during Subproject implementation and that specific provisions are included in bidding documents and contracts financed by the ADB Loan under the Project requiring that the contractors, among other things: (a) comply with the PRC's applicable labor law and regulations and incorporate applicable workplace occupational safety norms; (b) do not use child labor; (c) do not discriminate workers in respect of employment and occupation; (d) do not use forced labor; and (e) do not restrict workers from developing any legally permissible means of expressing their grievances and protecting their rights regarding working conditions and terms of employment.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING, AND COMMUNICATION

A. Project Design and Monitoring Framework

Impact the Project is Aligned with Air pollution reduced and public health in the BTH region improved (Comprehensive Action Plan for Air Pollution Prevention and Control of the PRC and the Thirteenth Five-Year Plan) ^a			
Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Outcome Air pollution reduced and high technology deployed across the greater BTH region	By 2024: a. At least (i) one million tons of standard coal equivalent saved; (ii) six million cubic meters of synthetic natural gas produced, (iii) 5,000 GWh of micro-grid and rooftop electricity used, and (iv) 100 million square meters of clean space heating provided (2016 baseline: all 0) b. At least (i) five million tons of CO ₂ , (ii) 20,000 tons of SO ₂ , (iii) 3,000 tons of NO _x , and (iv) 3,000 tons of PM _{2.5} emissions avoided per year (2016 baseline: 0)	a. Semiannual implementation reports prepared by CECEP b. Subproject completion reports prepared by CECEP	Macroeconomic slowdown constrains (i) investments from cofinancing partners in the facility and (ii) private sector investments in high-technology projects with high perceived risk.
Outputs 1. Regional Emission-Reduction and Pollution-Control Facility established 2. High technologies to reduce air pollution in agriculture, distributed energy, heating, transport, and iron and steel industry deployed	By 2023: 1. The facility comprising regional, municipal or provincial and technology- or industry-specific funds totaling €428.0 million established (2016 baseline: Not established) 2a. At least €1,721.2 million in financing provided by the facility, cofinancing, and counterpart financing (2016 baseline: 0) 2b. At least (i) construction of three biogas and organic fertilizer production facilities, (ii) natural gas production from coke oven gas established at two coke oven facilities, (iii) two smart micro-grids constructed in industrial parks, (iv) geothermal-based district	1. Semiannual implementation reports prepared by CECEP 2a–b. Subproject completion reports prepared by CECEP	Weak demand from borrowers may slow implementation.

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
3. Capacity of key stakeholders to deploy high technologies for pollution reduction in the greater BTH region improved	<p>heating provided to 2 million square meters of floor area, (v) completion of energy-efficiency measures in five iron and steel plants, and (vi) hydrogen fuel cell based public transport pilot tested (2016 baseline: all 0)</p> <p>By 2023: 3a. At least 200 individuals from five key stakeholders trained in high technologies, selection of appropriate business models, and investment decision-making (2016 baseline: 0)</p> <p>3b. Guideline on selection, appraisal, and implementation of such projects prepared and disseminated by CECEP (2016 baseline: Not prepared)</p>	3a–b. Semiannual implementation reports prepared by CECEP	

Key Activities with Milestones

Output 1: Regional Emission-Reduction and Pollution-Control Facility established

- 1.1 Establish BTH-dedicated emission-control and pollution-reduction facility (Q2 2018)
- 1.2 Leverage CNY6 billion in commercial cofinancing by the facility (Q3 2023)

Output 2: High technologies to reduce air pollution in agriculture, distributed energy, heating, transport, and iron and steel industry deployed

- 2.1 Implement integrated low-emission solutions for municipal and agriculture waste projects (Q4 2020)
- 2.2 Promote super ESCOs and implement energy-efficiency improvement and emission-reduction projects in industries (Q4 2019)
- 2.3 Implement industrial by-product gas use project (Q4 2020)
- 2.4 Implement deep-well geothermal for district heating project (Q4 2020)
- 2.5 Implement smart industrial zone development project (Q4 2019)
- 2.6 Promote hydrogen-based low-emission transport projects (Q1 2023)

Output 3: Capacity of key stakeholders to deploy high technologies for pollution reduction in the greater BTH region improved

- 3.1 Adopt and implement ESMS (Q4 2017)
- 3.2 Gain approval of ESMS by ADB (Q4 2017)
- 3.3 Organize workshops on project appraisal and management (Q4 2018)
- 3.4 Organize workshops on new business models for high technologies (Q4 2021)
- 3.5 Organize workshops on high technologies (Q4 2022)

Inputs

ADB: €428,000,000 (loan)
 Subborrowers: €651,200,000
 Local governments, commercial banks, and institutional investors: €642,000,000
 CECEP: €25,800,000

Assumptions for Partner Financing

Not applicable.

ADB = Asian Development Bank, BTH = Beijing–Tianjin–Hebei, CECEP = China Energy Conservation and Environmental Protection Group, CO₂ = carbon dioxide, ESCO = energy service company, ESMS = environmental and

social management system, GWh = gigawatt-hour, PM_{2.5} = particulate matter less than 2.5 micrometers in diameter, SO₂ = sulfur dioxide, NO_x = nitrogen oxide.

- ^a Government of the PRC. 2013. *Comprehensive Action Plan for Air Pollution Prevention and Control of the People's Republic of China*. Beijing; and Government of the PRC. 2015. *The 13th Five-Year Plan for Economic and Social Development of the People's Republic of China, 2016–2020*. Beijing.

Source: Asian Development Bank.

B. Monitoring

80. **Project performance monitoring.** The project performance will be monitored through the project performance management system (PPMS). The total project implementation period is 15 years and the loan implementation period is 5 years from the date of loan effectiveness. The estimated loan closing date is 30 November 2023 and the project completion date is 31 May 2023. The Management Company will establish the PPMS in a form acceptable to ADB to monitor the progress in project implementation during the loan implementation period. The PPMS will ensure the monitoring of project's impacts, outcomes and outputs with respect to the performance targets set forth in the design and monitoring framework. CECEP and the Management Company will exert their best endeavors to meet the performance targets set in the design and monitoring framework.

81. The Management Company will prepare a semiannual progress reports in a format acceptable to ADB and submit these reports within 30 days of the end of each semi-annual period. These reports will provide (i) a narrative description of progress in project implementation; (ii) any changes to the subproject implementation schedule; (iii) problems or difficulties encountered, including the monitoring of creditworthiness of the put providers; (iv) work to be carried out in the next 6 months with respect to each component and Subproject; and (v) compliance with ESMS, and include the environmental management plans prepared for subprojects. The progress report will also report summary statement of EWA, CCA, RFA, the Facility Account, and any new subprojects approved. The template for preparing the progress reports is in Appendix 7.

82. The Management Company will prepare a consolidated English environmental monitoring report semi-annually during the first 5 years after loan effectiveness, and annually in the following 10 years for submission to ADB. In addition, ESMS implementation reports will be prepared during the first 5 years after loan effectiveness and annual ESMS implementation reports will be prepared for the next 10 years for submission to ADB. The consolidated environmental and social monitoring report will be prepared semi-annually during the first 5 years of loan implementation and annually in the following 10 years. The consolidated environmental monitoring reports will be disclosed in ADB website.

83. **Compliance monitoring.** The compliance status of loan and project covenants, including the provisions of the ESMS will be reported and assessed through the semi-annual progress reports and verified by ADB review missions.

C. Evaluation

84. ADB and the government will review the project implementation jointly at least once a year. In addition, ADB and the government will undertake a comprehensive midterm review approximately 2 years after the start of project implementation. This midterm review will include a detailed evaluation of the project scope, selection criteria, implementation arrangements, achievement of scheduled targets, and progress on engaging a subsequent batch of Subprojects to be financed by the FIL reflow funds. Within 3 months after the end of grace period of the project, CECEP or the Management Company will submit a PCR to ADB. This report will then be the basis for a joint evaluation of the project conducted by CECEP, the Management Company, and ADB during a project completion review mission to be conducted by ADB. CECEP or the Management Company shall engage an accredited agency or agencies acceptable to ADB to undertake, within 6 months after the physical completion of each Qualified

Subproject, measurement and verification of the energy savings and reduction in emissions of CO₂, SO₂, NO_x, PM₁₀, PM_{2.5}, ozone, and volatile organic compounds achieved by such subproject and shall provide to ADB the consolidated results of the measurement and verification of such savings and reductions of all physically completed Qualified Subprojects, with reference to the energy and emissions baseline established before the project implementation and from time to time at ADB's request.

D. Reporting

85. During the loan implementation period, CECEP or the Management Company will provide ADB with (i) semi-annual progress reports in a format consistent with ADB's project performance reporting system including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions, (c) an updated lending and disbursement plan, and (d) updated implementation plan for the next 6 months; (ii) consolidated audited SUF and entity financial statements; (iii) semiannual environmental and social monitoring reports and ESMS implementation reports in a format that agreed with ADB; and (iv) a PCR within 6 months of physical completion of the project. To ensure that projects will continue to be both viable and sustainable, project accounts and entity audited financial statements together with the associated auditor's report, should be adequately reviewed. The template to be used in preparing semiannual progress reports is in Appendix 7. Table 15 summarizes the key reporting requirements during project implementation.

Table 15: Summary of Key Reporting Requirements During Implementation

Name of Report/Documents	Timing of reporting	Remarks
Semiannual progress reports	Every 6 months until loan completion	First report to cover the half year ended 31 December 2018
Consolidated audited statement of utilization of funds including Auditor's report	Before 30 June of each year throughout the loan implementation period, i.e., from loan effectiveness until loan closing date	First report due by 30 June 2019
Audited entity financial statements of CECEP, the Management Company, Facility and Funds	Before 30 June of each year throughout the loan implementation period, i.e., from loan effectiveness until loan closing date	First report due by 30 June 2019
ESMS implementation report	Semiannually during the first 5 years after loan effectiveness, and annually in the next 10 years	
Consolidated environmental and social monitoring report	Semiannually during the first 5 years after loan effectiveness, and annually in the following 10 years	
Project completion report	Within 3 months after the end of grace period of the project or otherwise agreed between ADB and EA	Tentatively 30 November 2023

ADB = Asian Development Bank, CECEP = China Energy Conservation and Environmental Protection Group, EA = executing agency, ESMS = environmental and social management system.

Source: Asian Development Bank estimates.

E. Stakeholder Communication Strategy

86. Consultation is an important aspect of the project. The project's stakeholder communication strategy has four major themes, which are to ensure:

- (i) The project is implemented in an open and transparent manner that provides access to ADB funds in an equitable manner to the qualified applicants to receive them based on the project selection criteria.
 - (ii) Stakeholders who might be adversely affected by the project are identified and engaged in consultations with a view to protecting their interests.
 - (iii) Benefits arising from the project are communicated to interested parties in order to promote (a) the further development of the Facility and Funds; (b) similar initiatives by other provinces or cities; and (c) the benefits of emission reduction and energy conservation generally.
 - (iv) Corruption risk is minimized (discussed separately in Section X of this PAM).
87. In order to implement this strategy the following steps have or will be taken:
- (i) Opportunities to access project funds to be openly and widely advertised within the greater BTH region using a variety of media selected to reach the targeted enterprises most likely to benefit from the Facility and Funds.
 - (ii) The Management Company and limited partner(s) of the Facility and each Fund will ensure that local communities affected by the Project are consulted before each subproject approval under the provisions of ESMS, and after subproject implementation, to identify, assess, and remedy any residual concerns.
 - (iii) Within 2 months from the loan effectiveness, the Management Company will commence disclosure of all key project-related information, including the scope, financial and institutional arrangements of the project; and a semi-annual project progress report.

X. ANTICORRUPTION POLICY

88. ADB's Anticorruption Policy was explained to and discussed with the government, CECEP, and CECEP Huayu and it was emphasized that ADB reserves the right to investigate, directly or through its agents, any alleged violations of the Anticorruption Policy relating to the Project.⁴¹ CECEP and the Management Company shall ensure that all agreements and other contracts it, the Facility or the Funds enter into in relation to the Project include provisions specifying the right of ADB to audit and examine the records and accounts of financial organizations, contractors, suppliers, consultants, and other service providers as they relate to the Project. Individuals and/or entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the project.⁴²

89. To support these efforts, relevant provisions of ADB's Anticorruption Policy are included in the loan and project agreements under the Project. In addition, the following characteristics of the Project promote transparency and strengthen governance: (i) scrutiny of the subprojects (technical, financial, economic, environmental, and social), Qualified Enterprises by the Management Company; (ii) the inclusion of anticorruption provisions in the project implementing contracts including agreements between CECEP and the Account Bank, and in all Limited Partnership Agreements (or other fund constitutional documents) and fund management contracts, Equity Investment Agreements and Entrusted Loan Agreements; and (iii) an information campaign to be carried out by the Management Company to inform enterprises and other large energy consumers about the Project and their entitlements.

⁴¹ Anticorruption Policy: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>

⁴² ADB's Integrity Office web site: <http://www.adb.org/integrity/unit.asp>

XI. ACCOUNTABILITY MECHANISM

90. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make an effort in good faith to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.⁴³

⁴³ Accountability Mechanism. <http://www.adb.org/Accountability-Mechanism/default.asp>

XII. RECORD OF CHANGES TO THE PROJECT ADMINISTRATION MANUAL

91. All revisions and/or updates, as agreed between CECEP and ADB, during the course of the implementation are retained in this section to provide a chronological history of changes to implemented arrangements recorded in the PAM.

No.	PAM Changes/Updates	Date	Remarks
1	Initial draft	27 April 2017	Loan Pre-Fact Finding Mission
2	Second draft	17 August 2017	Fact-Finding Mission
3	Third draft	22 September 2017	Before Loan Negotiation

DESCRIPTION OF PROJECT FINANCIAL PRODUCTS

1. Using the proceeds of the financial intermediation loan (FIL), China Energy Conservation and Environmental Protection Group (CECEP) through the Facility and the Funds will offer the following financial products in the project to support selective air quality improvement investments in the greater Beijing–Tianjin–Hebei (BTH) region: (i) Entrusted Loans, (ii) Equity Investments without a Put, and (iii) Put-protected Equity. The project will establish a greater BTH region dedicated Emission-Reduction and Pollution-Control Facility (the Facility) to deploy advanced technologies to reduce air pollution from industries, urban infrastructure, and agriculture sectors. The Facility will invest both in Funds and directly in enterprises (up to 10% of the Facility) to finance Qualifying Enterprises to undertake qualifying subprojects. It is expected that Asian Development Bank (ADB) funds will leverage financing from institutional investors, local governments and commercial banks and be onlent/invested to support eligible subprojects on commercial terms.

2. **Entrusted Loans.** Debt financing will be provided through the Facility, investing ADB loan proceeds (“Relent Proceeds” as defined in the Loan Agreement) into Qualified Subborrowers for Qualified Subprojects or into Funds (for further investment in Qualified Subborrowers or Qualified Investees for Subprojects) to improve air quality in the greater BTH region by using advanced technologies. The project’s debt products will include (i) unsecured Entrusted Loans; (ii) Entrusted Loans secured by a transfer to the lender of a controlling interest in the borrower, where control is not to be exercised unless the loan is in default and where the controlling interest is redeemable by the borrower’s shareholder at a pre-agreed price on repayment of the loan; and (iii) Entrusted Loans secured by third party guarantees or by collateral security; The Entrusted Loans will be offered at an interest rate close to the prevailing market rate and the actual rate will be at the Facility’s or the Fund’s discretion depending on the risk profile of the subprojects. Entrusted loan agreements will be signed between an Entrusted Bank, the Facility, or a Fund, and the Qualified Subborrower.

3. **Equity Investment.** The equity financing will be provided through the Facility either investing Relent Proceeds into Qualified Investees to improve air quality in the greater BTH region by using advanced technologies, or by the Facility investing debt or equity into Funds (for further investment into Qualified Subborrowers or Qualified Investees for Subprojects). Equity investment without a Put is important to enable companies with advanced low-carbon technologies, which are technically and commercially proven, to scale up operations (organically or through mergers and acquisitions) and enter new markets. Each Put-protected Equity Investment must be provided to a special purpose vehicle housing a stand-alone capital-intensive subproject where the sponsor lacks sufficient registered capital to raise necessary debt funding or to an enterprise holding a capital-intensive subproject where the enterprise needs equity financing to match its risk profile. A dedicated team with expertise will be established in the Management Company to conduct following specific tasks in considering Equity Investments without a Put: (i) assessing the risk profile of the target company, (ii) estimating the financing demand at its development stage, (iii) evaluating the technology and business model, (iv) assessing capacity of the management, (v) proper valuation of the company, and (vi) designing a realistic exit plan. Equity Investment without a Put of ADB Relent Proceeds from the Facility and Funds will be capped to €42.8 million. Put-protected Equity investment of ADB Relent Proceeds from the Facility and Funds will be capped at €128.4 million.

4. Potential companies for Equity Investment will be screened and selected based on eligibility criteria developed by CECEP and in compliance with ADB’s selection criteria. Equity

will be injected into the Qualified Investee to support a Qualified Equity Subproject. Investment will be structured as registered capital. The investee must meet the applicable eligibility criteria herein and in the Loan Agreement and Project Agreement and the Subproject must be located in the greater BTH region. An Equity Investment Agreement will be signed between the Facility or the relevant Fund and the Qualified Investee, which sets out all of the project requirements to be achieved by the Qualified Investee and Qualified Equity Subproject. Each Equity Investment by the Facility or the Funds must either (i) be Put-protected Equity,¹ or (ii) have a viable exit strategy that will enable CECEP to recover the investment in a timely manner.

5. Where there is both an Entrusted Loan or Equity Investment and cofinancing for the same Qualified Subborrower and the same subproject, the position of the Facility or the Fund may be senior, pari passu, or subordinated. The Facility's investments into Funds may also be senior, pari passu or subordinated relative to other investors in the Funds.

¹ A put option is an option contract in which the beneficiary of the put option obtains the right to sell a specified quantity of a security at a specified price within a fixed period of time or on the occurrence of certain events.

DRAFT TERM SHEETS

Annex 1: Discussion Draft for Regional Fund

Investors: People's Insurance Company of China (PICC), the ADB-provided Facility ("Facility"), and the General Partner (GP)

Fund structure: Limited partnership

Fund manager and GP: CECEP Huayu Fund Management Company. Except as specified in "Payments" below, all Fund costs and expenses will be borne by the Fund Manager.

Target fund size: CNY3.5 billion (max. from Facility = the smaller value between CNY1.75 billion or 50% of fund size)

Commitment from PICC: CNY1.75 billion

Minimum drawdown from PICC each call: CNY300 million

Minimum drawdown from PICC in 1st year after Fund launch: CNY500 million

Investment period: 5 years from the launch date of the Fund. Committed money will be fully invested or PICC's remaining commitments will expire at the end of the investment period unless PICC agrees to an extension.

Reinvestment: Until the 8th anniversary of the Fund's launch date repaid principal will be reinvested not more than 6 months after it is received, or the portion representing PICC's investment will be repaid to PICC on the next semi-annual Repayment Date thereafter.

Final Repayment Date: All investments necessary to repay PICC's principal and a fixed return of __% must be liquidated, and money paid to PICC as provided in "Payments," below, by the 10th anniversary of the Fund's launch date unless PICC agrees to an extension.

Investment profile: The Fund will invest only in debt or put-protected¹ equity companies. The Fund may invest in companies in which CECEP or the Fund Manager has an interest provided that the consent of a majority in investment interest of other investors in the Fund agrees to the investment in each instance.

Investment restrictions: Investments of the Fund must be in companies and provided for the sole purpose of undertaking medium- to large-scale air emissions abatement projects using advanced or best available technology. Investment restrictions will include technology standards and minimum requirements for emissions reductions per dollar invested. Detailed investment restrictions will be as agreed with ADB. All companies receiving investments will be required to comply with ADB environmental, social, integrity, and other requirements and to report on their compliance.

Governance: The Fund will have an investment committee comprising Fund Manager senior investment personnel, technology experts selected by the Fund Manager, and senior

¹ Put-protected Equity here means "debt as equity" where the put is to a creditworthy third party or other Equity Investments where the Fund has a put to a creditworthy third party.

management personnel from CECEP. Limited partners may attend investment committee meetings as non-voting participants. The Fund will be audited annually in accordance with ADB requirements.

Concentration limits: Fund investments in any one company or related group of companies, or for any one subproject, will be limited to 20% of total Fund size.

Diversification requirements: At least one investment shall be made in each of the following technology fields: (1) agricultural waste utilization, (2) clean heating, (3) micro grid/rooftop electricity generation, and (4) wastewater/sludge treatment.

Repayment Dates: 30 June and 31 December in each year.

Payments to PICC: Interest and other returns to the Fund in excess of principal, returns of principal received by the Fund that are not reinvested within 6 months after receipt and returns of principal received by the Fund after the end of the reinvestment period will be applied: 1st to pay any taxes owing by the Fund; 2nd to pay the costs incurred in respect of any third party consultants or experts engaged by the Fund Manager; 3rd to pay Fund Manager's Fees; 4th to PICC until it receives a fixed return of ____% per annum on its principal investment; 5th to the Facility, the GP and any other investors until they have received a return of ____% per annum on their principal investments; 6th to PICC until it has been repaid its principal in full; and 7th to the Facility, the GP and any other investors other than PICC until they have been repaid their principal investments in full. Amounts received by the Fund in excess of the amounts specified in the preceding sentence will be paid, after paying any taxes, consulting and experts' costs and Fund Manager's Fees, to the Facility, the GP and any other investors in proportion to their respective investment amounts.

Fund Manager Fees: PICC will pay to the Fund Manager fees of 0.5% per annum on amounts actually invested into the Fund, calculated from the date of PICC's provision of money to the Fund pursuant to a call until the date when the principal amount is returned to the investor by the Fund.

Calls on investor commitments: The Fund Manager may require PICC to provide money to the Fund, in proportion to their commitments to the Fund and in no event in excess of PICC's total commitments to the Fund, only as and when investments have been approved by the investment committee. The Fund Manager will give PICC not less than 30 days' notice to provide money to the Fund, specifying the date by which moneys must be provided. The Fund Manager will not require money to be provided more than 30 business days before it reasonably expects to provide the money to an investee.

Temporary Investments: All money temporarily held by the Fund will be held in an interest-bearing bank account at, or money market product issued by, bank that provides entrusted bank services for the Fund, and interest will be paid out as describe in "Payments."

Annex 2: Discussion Draft for Local (Jinan) Fund

Investors: Industrial Bank (CIB), Jinan Finance Co. (Jinan), the ADB-provided Facility ("Facility"), and the General Partner (GP)

Fund structure: Limited partnership

Fund manager and GP: CECEP Huayu Fund Management Co. Ltd. Except as specified in "Payments" below, all Fund costs and expenses will be borne by the Fund Manager.

Target fund size: CNY1 billion

Commitment from CIB: CNY500 million

Commitment from Jinan: CNY250 million

Commitment from Facility: CNY250 million

Investment period: 5 years from the launch date of the Fund—committed money will be fully invested or Investors' remaining commitments will expire at the end of the investment period unless all investors agree to an extension.

Reinvestment: Until the end of the investment period repaid principal will be reinvested not more than 6 months after it is received by the Fund or will be repaid to the investors as provided in "Payments," below, on the next semi-annual repayment date thereafter.

Final Repayment Date: All investments must be liquidated, and money paid as provided in "Payments," below, by the 7th anniversary of the Fund's launch date unless all investors agree to an extension.

Investment profile: The Fund will invest only debt or put-protected equity (footnote 1) in companies.

Investment restrictions: Investments of the Fund must be in companies, not less than 80% in Jinan, and provided for the sole purpose of undertaking medium- to large-scale air emissions abatement projects using advanced or best available technology. The Fund may not invest in companies in which CECEP or the Fund Manager has an interest. Investment restrictions will include technology standards and minimum requirements for emissions reductions per dollar invested. Detailed investment restrictions will be as agreed with ADB. All companies receiving investments will be required to comply with ADB environmental, social, integrity and other requirements and to report on their compliance.

Governance: The Fund will have an investment committee of five persons: two appointed by Fund Manager, one appointed by Jinan City government, one independent person selected by the investors, and one technical expert selected by the fund manager. Decisions will require the affirmative vote of four participants. Limited partners may attend investment committee meetings as non-voting participants. The Fund will be audited annually in accordance with ADB requirements.

Diversification requirements:_____.

Repayment dates: _____ in each year.

Payments:

1. Interest and other returns to the Fund in excess of principal will be applied: (i) 1st to pay any taxes owing by the Fund; (ii) 2nd to pay the costs incurred in respect of any third party consultants or experts engaged by the Fund Manager; (iii) 3rd to pay Fund Manager's Fees; (iv) 4th to CIB until it receives a fixed return of ____% per annum on its principal investment; and (v) 5th to the Facility, Jinan, the GP and any other investors in proportion to their respective investments.
2. Returns of principal received by the Fund that are not reinvested within 6 months after receipt and returns of principal received by the Fund after the end of the reinvestment period will be applied: 1st to CIB until it has been repaid its principal in full; and 2nd to the Facility, Jinan, the GP and any other investors other than CIB until they have been repaid their principal investments in full.
3. Amounts received by the Fund in excess of the amounts specified in the preceding paragraphs will be paid, after paying any taxes, consulting and experts' costs and Fund Manager's Fees, the Facility, the GP and any other investors until they to the Facility, Jinan, the GP and other investors other than CIB, in proportion to their respective investment amounts.

Fund Manager Fees: CIB and Jinan will pay to the Fund Manager fees of 0.5% per annum on amounts they actually invest into the Fund, calculated from the date of their provision of money to the Fund pursuant to a call until the date when the principal amount is returned to the investor by the Fund.

Calls on investor commitments: The Fund Manager may require investors to provide money to the Fund, in proportion to their commitments to the Fund and in no event in excess of their respective total commitments, only as and when investments have been approved by the investment committee. The Fund Manager will give investors not less than 30 days' notice to provide money to the Fund, specifying the date by which money must be provided. The Fund Manager will not require money to be provided more than 30 business days before it reasonably expects to provide the money to an investee.

Temporary Investments: All money temporarily held by the Fund will be held in an interest-bearing bank account at, or money market product issued by, bank that provides entrusted bank services for the Fund, and interest will be paid out as describe in "Payments."

Annex 3: Discussion Draft for Technology/Industry Specified (Debt) Fund

Investors: Shanghai Pudong Development Bank (SPDB), Ansteel Group, the ADB-provided Facility ("Facility"), and the General Partner (GP)

Fund structure: Limited partnership

Fund manager and GP: CECEP Huayu Fund Management Co., Ltd. Except as specified in "Payments" below, all Fund costs and expenses will be borne by the Fund Manager.

Target fund size: CNY1.6 billion

Commitment from SPDB: CNY1.2 billion

Commitment from Ansteel: CNY100 million

Commitment from Facility: CNY300 million

Investment period: 5 years from the launch date of the Fund—committed moneys will be fully invested or Investors' remaining commitments will expire at the end of the investment period unless all investors agree to an extension.

Reinvestment: Until the end of the investment period repaid principal will be reinvested not more than 6 months after it is received by the Fund or will be repaid to the investors as provided in "Payments," below, on the next semi-annual repayment date thereafter.

Final Repayment Date: All investments must be liquidated, and money paid as provided in "Payments," below, by the 7th anniversary of the Fund's launch date unless all investors agree to an extension.

Investment profile: The Fund will invest debt in (i) Ansteel ESCO company, (ii) SPV's in which the Fund owns at least 50% of equity and Ansteel ESCO owns the remainder (and at minimum 1%), or (iii) in energy savings project host companies that have entered into energy savings performance contracts with the vehicles referred to in subclauses (i) or (ii). All equity invested by the Fund will be put-protected equity. The debt will be based on cash-flow based lending in reliance on cash flows from energy savings performance contracts between Ansteel ESCO company and energy savings project host companies.

Investment restrictions: Investments of the Fund must be provided for the sole purpose of undertaking air emissions abatement projects under energy savings performance contracts, using advanced or best available technology. The Fund may not invest in companies in which CECEP or the Fund Manager has an interest. Investment restrictions will include technology standards and minimum requirements for emissions reductions per dollar invested. Detailed investment restrictions will be as agreed with ADB. All companies receiving investments, and all energy savings project host companies, will be required to comply with ADB environmental, social, integrity and other requirements and to report on their compliance.

Governance: the Fund will have an investment committee of five persons: two appointed by Fund Manager, one appointed by Ansteel Group, one independent person selected by the other investors, and one technical expert selected by the fund manager. Decisions will require the affirmative vote of four participants. Limited partners may attend investment committee

meetings as non-voting participants. The Fund will be audited annually in accordance with ADB requirements.

Repayment dates: _____ in each year.

Payments:

1. Interest and other returns to the Fund in excess of principal will be applied: 1st to pay any taxes owing by the Fund; 2nd to pay the costs incurred in respect of any third-party consultants or experts engaged by the Fund Manager; 3rd to pay Fund Manager's Fees; 4th to SPDB until it receives a fixed return of ____% per annum on its principal investment; 5th to the Facility, Ansteel Group, the GP and any other investors in proportion to their respective investments.
2. Returns of principal received by the Fund that are not reinvested within 6 months after receipt and returns of principal received by the Fund after the end of the reinvestment period will be applied: 1st to SPDB until it has been repaid its principal in full; and 2nd to the Facility, Ansteel Group, the GP and any other investors other than SPDB until they have been repaid their principal investments in full.
3. Amounts received by the Fund in excess of the amounts specified in the preceding paragraphs will be paid, after paying any taxes, consulting and experts' costs and Fund Manager's Fees, the Facility, the GP, and any other investors until they to the Facility, Ansteel Group, the GP, and other investors other than SPDB, in proportion to their respective investment amounts.

Fund Manager Fees: SPDB and Ansteel Group will pay to the Fund Manager fees of 0.5% per annum on amounts they actually invest into the Fund, calculated from the date of their provision of money to the Fund pursuant to a call until the date when the principal amount is returned to the investor by the Fund.

Calls on investor commitments: The Fund Manager may require investors to provide money to the Fund, in proportion to their commitments to the Fund and in no event in excess of their respective total commitments, only as and when investments have been approved by the investment committee. The Fund Manager will give investors not less than 30 days' notice to provide money to the Fund, specifying the date by which money must be provided. The Fund Manager will not require money to be provided more than 30 business days before it reasonably expects to provide the money to an investee.

Temporary Investments: All money temporarily held by the Fund will be held in an interest-bearing bank account at, or money market product issued by, bank that provides entrusted bank services for the Fund, and interest will be paid out as describe in "Payments."

SUBPROJECT SELECTION CRITERIA

A. Selection Criteria for All Subprojects

1. The subprojects supported by the project must meet the technical, financial, economic, environmental, and social criteria below as well as the criteria in the Loan Agreement and the Project Agreement and elsewhere in this project administration manual (PAM). The subproject must focus on the following sectors: energy efficiency, environmental protection, clean energy, resource recycling and utilization, clean transportation and other related fields. Selected subprojects must lead and demonstrate air quality improvement, low-emissions development, energy efficiency and emission reduction work in greater Beijing–Tianjin–Hebei (BTH) region¹ and must involve advanced technology and provide adequate financial returns to the investor and substantial benefits to the economy, society, and environment. The following criteria will apply to all subprojects.

1. Subproject Technical Criteria

2. All subprojects must meet the following criteria:
 - (i) All subprojects should result in net emission and in any case must not result in an increase in energy consumption² and emissions comparing to the current situation where the subprojects are located, including carbon dioxide (CO₂), sulfur dioxide (SO₂), nitrogen oxide (NO_x), and airborne particulate matter (PM₁₀ and PM_{2.5}), volatile organic compounds (VOC) or others may be approved by Asian Development Bank (ADB).
 - (ii) Baseline for energy consumption and emissions shall be established before the subprojects are implemented. Energy consumption and emissions produced by the subprojects after implementation shall be monitored and recorded.
 - (iii) Preference shall be given to subprojects with lowest unit emission reductions cost (\$/ton).
 - (iv) All subprojects must use commercially available technologies with reliable, measurable, and verifiable emission reductions that will contribute to the achievement of the Action Plan on Prevention and Control of Air Pollution (2013–2017) as updated from time to time, and the Thirteenth Five-Year Plan of the People's Republic of China and successive Five-Year Plans.
 - (v) All subprojects must not be on the government's overcapacity list.
 - (vi) The proposed technologies to be used shall be the best available technologies where feasible.
 - (vii) All subprojects shall comply with ADB's Energy Policy 2009 and the industry policies of the subproject location. Preference will be given to subprojects that belong to the encouraged and prioritized sectors of the national/local government's list/plan, local key supported projects or pilot project identified by the national/local government.
 - (viii) All subprojects shall contribute to at least one of the output indicators set in the Project's design and monitoring framework; and
 - (ix) All subprojects must be located in the geographic areas listed under greater BTH region (footnote 1) and must address air pollution issues.

¹ The greater Beijing–Tianjin–Hebei region refers to Beijing and Tianjin municipalities; Hebei, Henan, Shandong, Shanxi and Liaoning provinces; and Inner Mongolia Autonomous Region.

² Equivalent in ton of standard coal equivalent.

2. Subproject Financial Criteria

3. All subprojects must be financially viable. The financial analysis should be prepared in accordance with ADB's Financial Management and Analysis of Projects guidelines. In particular:
- (i) The estimated subproject investment and operations costs, as well as cash inflows, must be clearly presented and must be reasonable.
 - (ii) The financial internal rate of return (FIRR) calculated on a real basis consistent with the ADB Financial Management and Analysis of Projects guidelines shall be greater than the weighted average cost of capital.
 - (iii) The FIRR must be robust under various sensitivity scenarios.

3. Subproject Economic Criteria

4. For all the proposed subprojects, the total economic benefits must exceed the total economic costs when analyzed in accordance with ADB's 2017 Guidelines for the Economic Analysis of Projects. The economic internal rate of return of the subproject must be greater than the discount rate of 9% (6% if there are substantial nonmarket benefits that cannot be easily valued), and must be viable under adverse sensitivity scenarios. Without-project scenarios used for comparison with project interventions must reflect realistic assumptions of technological progress over time. Changes in greenhouse gas emissions should be valued at \$36.3/ton of carbon dioxide equivalent (2016 values) with 2% real annual increase. Valuation of pollution effects may include resource cost savings from health improvements, but should not attempt to value mortality directly. If original air quality modeling is not conducted to relate changes in emissions to ambient pollution concentrations and economic outcomes, the same unit pollution marginal damage costs should be applied as in economic analysis of representative Subprojects for RRP preparation.

4. Subproject Environmental and Social Safeguards Criteria

5. All subprojects must meet the following criteria:
- (i) Each subproject shall meet requirements of the environmental and social management system developed for the Project.
 - (ii) The subprojects shall not have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. Environment Category A subprojects, within the meaning of the SPS, will be excluded from the Project.
 - (iii) Initial Poverty and Social Assessment and Summary Poverty Reduction and Social Strategy shall be prepared for all subprojects.
 - (iv) Each subproject must acquire proper approvals from relevant national, provincial, and local authorities.
 - (v) The subprojects must not be located in any designated environmental protection zone, ecological sensitive area, or cultural heritage site.
 - (vi) Each subproject must be designed, constructed, and operated in accordance with relevant national and provincial social and environmental laws and regulations.
 - (vii) The subprojects must not involve any land acquisition or housing demolition.³
 - (viii) The subprojects must not have any negative impacts on ethnic minorities.⁴

³ The subproject proposal will be screened through an involuntary resettlement impact screening checklist which is included as Appendix 6 of the Environmental and Social Management System (ESMS) in accordance with procedures contained in the project's ESMS

⁴ The subproject proposal will be screened through an ethnic minorities impact screening checklist.

- (ix) The subprojects must not support enterprises which have activities involving commercial development of cultural resources of Indigenous Peoples without their consent for the commercialization of such resources.
- (x) The subprojects shall not result in labor retrenchment or labor redundancies.

6. In the event that a potential subproject has good energy savings and emission reduction potential, but does not meet one or more of these criteria, the Management Company may consider and recommend it to ADB, in which case ADB will review and may approve or disapprove in its discretion.⁵

B. Selection Criteria for Qualified Subborrower

7. All Qualified Subborrowers must meet the following criteria:
- (i) All Qualified Subborrowers must be financially creditworthy and not have a poor credit record, as recorded in the People's Bank of PRC credit history database.
 - (ii) The Qualified Subborrowers must be capable to, and must, contribute a minimum of 30% of the total subproject investment cost as counterpart financing.
 - (iii) The Qualified Subborrowers must commit to enhance their capacities in project planning, financing, implementing and monitoring during the subproject preparation and implementation periods.
 - (iv) The Qualified Subborrowers must have complied with all relevant domestic environmental regulations and must acquire relevant environment permits with respect to the existing facilities where the subproject will be implemented.⁶
 - (v) The Qualified Subborrowers must be in compliance with relevant domestic occupational health and safety standards.
 - (vi) The Qualified Subborrowers' debt service coverage ratio,⁷ taking into account the proposed debt investment for the relevant subproject, calculated as per the related ADB guidelines,⁸ shall be greater than 1.2. Any inconsistency shall get ADB's prior acceptance.

C. Selection Criteria for Qualified Equity Subprojects and Qualified Equity Investees

1. Due Diligence Requirement and Investment Criteria for All Equity Investment

8. The investment focus will be on companies which need capital for continuous growth, scaling up, corporate acquisitions, particularly for enhancing the environmental sustainability of

⁵ Process for changes in to the selection criteria for any subproject should follow ADB's Project Administration Instructions (PAI 5.02).

⁶ Per the SPS, existing facility referred to: for projects involving facilities and/or business activities that already exist or are under construction, the borrower/client will undertake an environment and/or social compliance audit, including on-site assessment, to identify past or present concerns related to impacts on the environment, involuntary resettlement, and Indigenous Peoples. The objective of the compliance audit is to determine whether actions were in accordance with ADB's safeguard principles and requirements for borrowers/clients and to identify and plan appropriate measures to address outstanding compliance issues. Where noncompliance is identified, a corrective action plan agreed on by ADB and the borrower/client will be prepared. The plan will define necessary remedial actions, the budget for such actions, and the time frame for resolution of noncompliance. If a project involves an upgrade or expansion of existing facilities that has potential impacts on the environment, involuntary resettlement, and/or Indigenous Peoples, the requirements for environmental and social impact assessments and planning specified in Safeguard Requirements 1-3 will apply in addition to compliance audit.

⁷ Debt Service Convergence Ratio = annual cash flow from operations divided by annual debt service obligations (interest and principal).

⁸ ADB *Financial Due Diligence: A Methodology Note* (2009 as amended from time to time).

the company's operations. Moneys from the Facility or a Fund for an Equity Investment must be invested into an Equity Investee who will undertake the Qualified Subproject and may not be used to purchase equity interests from existing investors.

9. **Minimum Due Diligence Requirements.** The due diligence for all Equity Investment shall at least comprise, but not be limited to, the following:

- (i) A detailed appraisal and assessment of business and financial risks of the target company.
- (ii) A detailed appraisal and assessment of key technology and growth potential of the target company.
- (iii) A detailed appraisal and assessment of the target company's management team; including its relevant experiences, expertise, management culture, attitude to risk, and psychology.
- (iv) A detailed review, identification, and assessment of feasibility of identified exit routes. In case of a support to a project with an agreed put option, the facility should obtain a legal opinion of the possibility to execute the put.
- (v) A detailed corporate governance assessment and integrity due diligence of the management.

10. **Investment criteria.** All Equity Investments must be in investees that:

- (i) Conduct businesses with environmental/social return, which can also generate an enhanced financial return; and
- (ii) The investment exit horizon does not exceed 5 years.

2. Selection Criteria for Equity Investment that Does Not Qualify as "Put-Protected Equity"

11. Equity Investments that does not qualify as Put-Protected Equity must meet the following requirements:

- (i) Investments will be in companies at growth or expansion stage which need capital to enable significant and strategic expansion where "growth stage" refers to consistent source of income and regularly taking on new customers with profit improving, and "expansion stage" refers to rapid growth in both revenue and cash flow.
- (ii) The Qualified Investee must possess patent(s), proprietary technology and/or technical know-how in the sectors mentioned in para. 1.
- (iii) The Qualified Investee must have good growth potential with feasible technology.
- (iv) The Qualified Investee should be ready for fast growth or further scaling up of production.
- (v) Investments will be made in an amount not greater than CNY500 million (including not more than CNY125 million of ADB funds from the Facility).
- (vi) The target Return on the Equity Investment⁹ will be greater than 10% annually.

3. Selection Criteria for Put-Protected Equity Investment

12. Put-protected Equity Investments must meet the following requirements:

- (i) Investments may be in: (a) special purpose vehicles for stand-alone Qualified Equity Subprojects to finance financially viable and capital intensive Qualified Equity Subprojects where the sponsor lacks sufficient registered capital to raise

⁹ Return on equity = net income before interest and taxes divided by the invested equity.

necessary debt funding; or (b) enterprises which take on capital intensive Qualified Equity Subprojects that need equity financing matching their risk profiles.

- (ii) The investment must be protected by an agreed put of the whole investment, in writing, using a template acceptable to ADB against a creditworthy third party (not the issuer) and must be executable.
- (iii) Puts shall be secured, and the maximum amount of the put (acquisition price of the subject equity, including a return) shall not exceed 70% of the net asset value of the security provided by or on behalf of the Put provider.
- (iv) The return amount incorporated in the Put exercise price must be greater than the average interest rate charged by the Facility or Funds on Entrusted Loans under the same Facility or Fund.

ADB PROHIBITED INVESTMENT ACTIVITIES LIST

The following do not qualify for Asian Development Bank financing:

- (i) production or activities involving harmful or exploitative forms of forced labor¹ or child labor;²
- (ii) production of or trade in any product or activity deemed illegal under host-country laws or regulations, or international conventions and agreements, or subject to international phase outs or bans, such as (a) pharmaceuticals,³ pesticides, and herbicides;⁴ (b) ozone-depleting substances;⁵ (c) polychlorinated biphenyls⁶ and other hazardous chemicals;⁷ (d) wildlife or wildlife products regulated under the Convention on International Trade in Endangered Species of Wild Fauna and Flora;⁸ and (e) trans-boundary trade in waste or waste products;⁹
- (iii) production of or trade in weapons and munitions, including paramilitary materials;
- (iv) production of or trade in alcoholic beverages, excluding beer and wine;¹⁰
- (v) production of or trade in tobacco;¹⁰
- (vi) gambling casinos and equivalent enterprises;¹⁰
- (vii) production of or trade in radioactive materials,¹¹ including nuclear reactors and their components;
- (viii) production of, trade in, or use of unbonded asbestos fibers;¹²
- (ix) commercial logging operations or the purchase of logging equipment for use in primary tropical moist forests or old-growth forests; and
- (x) marine and coastal fishing practices, such as large-scale pelagic drift-net fishing and fine-mesh net fishing, harmful to vulnerable and protected species in large numbers and damaging to marine biodiversity and habitats.

¹ Forced labor means all work or services not voluntarily performed, that is, work or services extracted from individuals under threat of force or penalty.

² Child labor means the employment of children whose age is below the host country's statutory minimum age of employment, or the employment of children in contravention of International Labor Organization Convention No. 138, "Minimum Age Convention" (www.ilo.org).

³ A list of pharmaceutical products subject to phase outs or bans is available at <http://www.who.int>

⁴ A list of pesticides and herbicides subject to phase outs or bans is available at <http://www.pic.int>

⁵ The chemical compounds that react with and deplete stratospheric ozone, resulting in the widely publicized ozone holes, are listed in the Montreal Protocol, together with target reduction and phase out dates. Information is available at <http://www.unep.org/ozone/montreal.shtml>

⁶ A group of highly toxic chemicals, polychlorinated biphenyls are likely to be found in oil-filled electrical transformers, capacitors, and switchgear dating from 1950 to 1985.

⁷ A list of hazardous chemicals is available at <http://www.pic.int>

⁸ A list is available at <http://www.cites.org>.

⁹ As defined by the Basel Convention; see <http://www.basel.int>

¹⁰ This does not apply to project sponsors that are not substantially involved in these activities. "Not substantially involved" means that the activity concerned is ancillary to a project sponsor's primary operations.

¹¹ This does not apply to the purchase of medical equipment, quality control (measurement) equipment, and any other equipment for which ADB considers the radioactive source to be trivial or adequately shielded.

¹² This does not apply to the purchase and use of bonded asbestos cement sheeting where the asbestos content is less than 20%.

SAMPLE STATEMENT OF UTILIZATION OF FUNDS

	<u>201x</u>	<u>201x</u>	<u>Cumulative</u>
A. Opening cash balance	<u>xx</u>	<u>xx</u>	<u>xx</u>
B. Sources of funds			
1 ADB loan proceeds	xx		xx
2 Reflows (repayments from SLA 1)		xx	xx
3 Reflows (repayments from SLA 2)			xx
4 Bank's own funds (equity)	xx	xx	xx
5 Others			xx
Total (sum 1 to 5)	<u>xx</u>	<u>xx</u>	<u>xx</u>
C. Uses of funds			
1 Subloans to qualified sub-borrowers (SLA 1)			
ADB share	xx		xx
Bank share	xx		xx
2 Subloans to qualified sub-borrowers (SLA 2)			
ADB share		xx	xx
Bank share		xx	xx
Total (sum 1 to 2)	<u>xx</u>	<u>xx</u>	<u>xx</u>
D. Net cash activity (B - C)	<u>xx</u>	<u>xx</u>	<u>xx</u>
E. Ending cash balance (A + D)	<u>xx</u>	<u>xx</u>	<u>xx</u>

NOTES: Include basis of preparation, reporting currency, undrawn external assistance, and details of subloans such as amounts committed, disbursed up to the previous year, disbursed during the current reporting period, cumulative disbursement, undisbursed commitments, percentage of loan utilized, etc.

ADB = Asian Development Bank, SLA = subloan agreement.

PROCUREMENT MANUAL

A. Introduction

1. This procurement manual is prepared to regulate the procurement activities of the Air Quality Improvement in the Greater Beijing–Tianjin–Hebei (BTH) Region—Regional Emission-Reduction and Pollution-Control Facility, which will utilize an Asian Development Bank (ADB) financial intermediation loan (FIL). ADB expects that for FILs, the procurement is undertaken by the respective loan beneficiaries in accordance with established private sector or commercial practices, and which are acceptable to ADB.

2. First objective of the manual is to draw attention to Qualified Subborrowers and Qualified Investees that they have the responsibility to ensure the procurement activities they undertake to implement their Subprojects must:

- (i) Comply with any relevant laws and regulations of the People's Republic of China (PRC) and the municipal or provincial governments in the greater BTH region where the Subprojects are located,⁶⁷ and
- (ii) Adhere to procurement principles⁶⁸ and guidance determined by ADB to be applicable to this FIL project.

3. Second objective of the manual is to offer specific guidance on how procurement activities can be undertaken that will ensure compliance with ADB principles and guidelines.

4. It is not appropriate for this ADB manual to offer specific advice on compliance with the specific requirements of the PRC and local governments' laws and regulations. Such legal compliance is the responsibility of Subproject owners and applies not just to procurement activities but is an all embracing responsibility they have in how they conduct to all their business activities.

5. Notwithstanding the above statement, all the guidance provided in this manual is considered to be compatible with current applicable PRC law—and specifically the PRC Tendering and Bidding Law 1999 (effective from 1 Jan 2000), the scope and applicability of which includes all investment projects that utilize foreign capital funds. Subproject owners should therefore ensure that their procurement staff are familiar with the requirements of this law and its applicable regulations, in addition to being provided with this procurement manual.

6. It is also not the intention of this manual to force changes in the procurement procedures of subproject owners where they already substantially comply with required ADB procurement principles. However, it is expected that subproject owners will review their own procurement procedures using the contents of this manual as a guide and adjust their procedures to ensure the required substantial compliance.

7. The contents of this procurement manual will be kept under review during project implementation and can be revised at any time according to the project requirements, or changes in applicable laws and regulations. Any changes in the manual will be jointly approved by China Energy Conservation and Environmental Protection Group (CECEP) and ADB.

⁶⁷ The greater Beijing–Tianjin–Hebei region includes Beijing and Tianjin municipalities; Hebei, Henan, Shandong, Shanxi and Liaoning provinces; and Inner Mongolia Autonomous Region.

⁶⁸ ADB will advise the fund manager where the restriction is waived in connection with a particular fund, in which case the requirement can be removed from the procurement manual as it applies to that fund.

B. Procurement Objectives

8. The aim of any procurement process is to ensure the resulting procurement provides the purchaser with goods, works or services that:

- (i) **Are fit for the intended purpose**—i.e., they meet required quality, durability and performance criteria;
- (ii) **Provide value for money** to the purchaser; and
- (iii) Are procured in **a timely and efficient manner**.

9. These objectives are wholly compatible with best commercial practice and endorsed by ADB. However, the objectives are not mutually exclusive and they can conflict to a degree. For example, sophisticated procurement procedures may well be justified for large scale or technically complex procurement but would not be justified on efficiency grounds for simpler small-scale procurement. ADB procurement guidelines and commercial best practice procurement regulations recognize the need for an efficient procurement process by providing simpler procedures for small-scale procurement.

10. Another crosscutting objective of any procurement process is to adequately safeguard Subproject owners against the risks of corruption and fraud that could damage the level of Subproject performance (as measured in financial terms and/or energy/emissions savings), and potentially the competitiveness of the entire business.

C. ADB Procurement Principles

11. ADB procurement guidelines are based on the principles of (i) competition; (ii) economy and efficiency; (iii) transparency; and (iv) fairness and equal opportunity. Each of these principles is briefly explained below, while specific guidance on their application is given in Section D of this manual.

12. **Competition.** Open competition is the default approach, and conditions for other methods are clearly described. Conditions justifying a departure from open competition may involve situations when open competition is either inappropriate (e.g., due to proprietary technology) or when it hinders optimal economy and efficiency.

13. **Economy and efficiency.** The procurement processes are efficient and lead to optimal results in a balanced consideration of time, costs, and quality. This requires that the procurement processes are not cumbersome and prone to unnecessary delays.

14. **Transparency.** The procurement processes are governed by clear rules that are easily accessible and can be consistently applied. Contract opportunities are advertised widely.

15. **Fairness and equal opportunity.** All eligible bidders have an equal and fair opportunity. Procurement processes avoid preferential or discriminatory measures that might favour or adversely affect certain participants, and are not prone to opportunities of collusion and excessive discretion.

16. It is generally accepted by procurement experts that these principles, if properly applied, will ensure the procurement objectives set out in Section B of this manual are realized by Subproject owners and represent best procurement practice. However, in setting the

requirement that “FIL procurement is undertaken by the respective loan beneficiaries in accordance with established private sector or commercial practices, acceptable to ADB,” ADB recognizes that it may be in the interests of commercial borrowers of ADB funds to apply these principles in a more flexible manner than as stipulated in ADB’s detailed procurement guidelines that have been designed with public procurement primarily in mind.

D. Specific Guidance on FIL Procurement

17. This section of the manual builds on the earlier content by providing some specific guidance to subproject owners. The section first gives guidance on how generally accepted procurement objectives might be best achieved and then considers each of the ADB procurement principles in turn and gives guidance on compliance.

1. Ensuring the Procurement Results are Fit for Purpose

18. For potential suppliers to provide equipment or goods or services that meet the needs of the purchaser, it is vital that purchasers clearly articulate their needs and expectations to those potential suppliers. Therefore, appropriate written information should be provided to potential suppliers. A good written specification of purchaser needs will enhance the prospects for those needs being successfully met and will also provide a basis for any procurement disputes to be adjudged and settled in a fair way.

19. Feasibility study reports will need to be prepared and approved for all the subprojects. These feasibility study reports will document the performance expectations of the Subproject and therefore, it is important that, as a minimum, these expectations are included in relevant procurement specifications.

20. For the procurement of key equipment and/or civil works that are critical to the performance of the subproject then the procurement documentation should include a more detailed design specification. This should be prepared by qualified technical staff in conjunction with procurement staff.

21. For the procurement of services (such as technical support to assist the implementation of the subproject), it is important to ensure the potential service providers are suitably qualified, and that the scope of work and the required outputs/deliverables of the service provider are clearly defined.

2. Achieving Value for Money

22. Value for money (VFM) is normally considered to be achieved if the purchaser feels they have paid a fair price for what they have received. However, some would argue that VFM is only achieved if one pays the lowest available price.

23. In reality, VFM is a more complex concept to assess than simply through a purchase price comparison alone. For example, for an equipment purchase, the costs or downtime for equipment servicing, and the availability of spare parts may be important factors to the purchaser. Additional length of a performance guarantee (over and above anything specified by the purchaser) might also legitimately influence the purchaser to not purchase based on the cheapest price. If VFM is to be assessed on a scientific basis then a risk-based approach over the equipment life cycle should be used, but even then there will be subjectivity over matters

such as assessing the level of risk and the value of maintaining a long-lasting and trusted purchaser-supplier relationship.

24. Specific guidance on making VFM judgements is as follows:

- (i) Consider what factors will affect the VFM judgement in advance of procurement and where possible include these into the product specification. Also, ask all potential suppliers to provide supplementary information considered relevant to the purchase decision in addition to the basic supply price (e.g., response time to breakdowns, guarantee terms, service frequencies, downtime and costs, delivery periods and costs of spare parts).
- (ii) Establish a company procurement committee to evaluate VFM and make procurement decisions as a means of reducing the individual subjectivity in VFM assessments. Ensure that records are kept of decisions made and the reasons for them, so that independent or higher level reviews can assess their reasonableness.
- (iii) Use open procurement (see below) wherever possible so that the lowest available specification compliant price is known thus making the price premium paid for non-quantifiable VFM factors readily identifiable.
- (iv) Only use sole supplier purchasing where either (a) an existing competitively let rolling supplier contract already exist, or (b) there has been recent similar procurement made via open procurement, or (c) extenuating circumstances apply that justify short-cutting normal procedures and company standing orders allow for this (note: such a situation under the FIL is extremely unlikely and such short-cutting is normally only justified in response to an emergency).

3. Timeliness and Efficiency of Procurement

25. For the procurement process to operate in a timely and efficient manner, the subproject will need to be planned and budgeted, so procurement activities are carefully scheduled to be compatible with the subproject implementation plan and that financial commitments can be met when due.

26. It follows that procurement plans should (i) be linked to the financial plans, (ii) allow a realistic time for the completion of individual activities, and (iii) as far as possible avoid a "log jam" of activity in the procurement department.

27. Efficiency of procurement will be achieved where (i) companies develop standardized procedures and procurement documentation, (ii) the number of procurement packages are minimized without unduly restricting competitiveness, (iii) adopting simplified procurement procedures for small low value procurement, and (iv) the use of existing rolling annual or multi-year supplies of services and supplies for which a company has a regular demand.

4. Use of Competitive Procurement

28. Effective competition undoubtedly reduces prices by forcing suppliers to innovate and become more efficient. Purchasers will only be able to benefit from reductions that are available if they use procurement procedures based on competitive bidding or shopping.

29. Competitive procurement is most commonly achieved in a project setting through advertising and an open invitation for suppliers to request tender document and submit bids.

30. For some critical and specialist procurement packages a multi-stage procurement process may be advantageous whereby potential suppliers are first invited to pre-qualify by demonstrating they have the required skills and experience. Then all pre-qualified suppliers would be invited to submit bids.

31. Preparing bids for some procurement packages can impose a heavy workload and expense on potential suppliers, and this can discourage some good quality suppliers from bidding if they feel their chance of being successful is low. Purchasers can guard against the risks this situation creates restricting the number of suppliers invited to bid to a small number (typically three to five) of those most qualified to be the supplier.

32. However, before deciding on the detailed procurement procedures to use they should ensure subproject owners should consult any applicable government laws and regulations on the procurement methods permissible in specific circumstances. This especially applies to state-owned enterprise (SOE) subproject owners who will undoubtedly operate in a more regulated procurement environment than wholly private enterprises.

5. Fairness and Equal Opportunity

33. All eligible bidders should have an equal and fair opportunity. Procurement processes are designed and implemented that avoid preferential or discriminatory measures that might favour or adversely affect certain participants.

34. Fairness and equal opportunity goes hand in hand with procurement procedures that require open competitive bidding. It also goes hand in hand with transparency in procurement (see below).

35. Further measures to promote fairness and equal opportunity include:

- (i) Ensuring that potential suppliers have adequate time to submit bids or expressions of interest (the actual time allowed should depend on the complexity of the procurement and the level of detail requested in bids/expression of interest);
- (ii) The terms of purchase contracts used are equitable to both sides;
- (iii) The purchasing organization has a grievance redress mechanism (GRM) to deal with cases of alleged unfairness, misprocurement, or other abuses. This mechanism should operate so as to be independent of the purchasing function; and
- (iv) Subject only to issues of commercial confidentiality, unsuccessful bidders may request and receive feedback on why they were unsuccessful.

6. Transparency in Procurement

36. Transparency of procurement processes are those governed by clear rules that are easily accessible and can be consistently applied. This will show that the purchaser is fair and provides equal opportunity to all, as evidenced by their open and fair in procurement activity.

37. Transparent procurement involves contract opportunities (procurement plans and individual bid opportunities) being advertised widely, and results are published (or at least made available to the unsuccessful bidders).

- (i) Transparency in procurement has a number of potential benefits to purchasers.

- (ii) Competition is increased.
- (iii) Suppliers can more readily identify the bids most suited to them allowing them to select which bids to make and better tailor bids to meet the purchaser's needs. From the purchaser side this reduces the number of poor quality or unqualified bids and should increase bid quality.
- (iv) They gain a reputation for openness and fairness in how their businesses are operated and if they practise local procurement policies (where allowed by applicable regulations) for the support they provide the local community.
- (v) Open and transparent processes are less susceptible to abuse through fraud and corruption and such abuse is more likely to be detected.

E. Required Organizational Capacity and Arrangements

38. Subproject owners need to assess whether or not they possess adequate procurement capacity in terms of:

- (i) functional responsibilities;
- (ii) internal processes;
- (iii) resources and skills;
- (iv) information management; and
- (v) experience and performance.

39. For the selection of subprojects, ADB has assessed organizational capacity of proposed subproject owners. The capacity building suggestions of these assessments may be of guidance to others and can be shared by contacting the Management Company for relevant guidance. A procurement capacity checklist is provided in Annex 1 to this manual.

40. If subproject owners conclude it is uneconomical to build the required internal procurement capacity then they should consider recruiting the services of a procurement agent to fill the gap.

Annex 1: Procurement Capacity Checklist

This checklist works systematically through the procurement cycle identifying key requirements at each stage.

I. Specific Assessment and Ratings

QUESTION		
Name of the Company		
Checklist filled by:		
Position:		
Tel/Mobile:		
Email:		
A. ORGANIZATIONAL AND STAFF CAPACITY	RESPONSE: 'YES' OR 'NO' WITH BRIEF COMMENTS	RISK
A.1. Is there a permanent properly staffed procurement unit in the IA?		
• Number of procurement staff		
• Position of the procurement unit in the company		
• Name of the procurement unit head and years of working experience in procurement		
A.2. Are the number and qualifications of procurement staff sufficient to undertake the procurement under the proposed project?		
A.3. Does the procurement unit undertake procurement in accordance commercial practices in the sector?		
• If the company is not an SOE, does the procurement unit have clear procurement rules and procedures?		
• Please indicate a simplified full procurement procedures		
A.4. Do the commercial practices comply with requirements of national and provincial procurement laws and regulations?		
• If the company is an SOE, does the procurement comply with the Law on Tenders and Bids?		
• Has the procurement unit prepared procurement rules and procedures accordingly?		
B. INFORMATION MANAGEMENT		
B.1. Is there a referencing system for procurement files in the company?		
• If "yes", please indicate how the system is referencing (i.e., by date, by types [civil works, equipment, services, etc.], amount, etc.)		
B.2. Is there adequate equipment and personnel to administer the procurement records management functions?		
• Does the procurement unit or company Archives Department administrate the records?		

QUESTION		
• The records are kept in e-file, hard copies or both?		
B.3. Does the procurement unit adhere to a document retention policy (i.e., for what period are records kept)?		
B.4. Is there a single contract file with a copy of contracts and all subsequent contractual correspondence?		
C. PROCUREMENT PRACTICES		
Goods and Works		
C.1 Does the procurement unit have a manual for procurement of goods and works?		
C.2 Is there a bid evaluation committee (permanent or ad-hoc) established within the IA?		
C.3 Is the decision of a bid evaluation committee final or subject to approval by higher authorities within the IA?		
C.4 Do the commercial practices applied by the IA comply with key procurement principles of open competition, economy, efficiency, fairness and transparency?		
D. EFFECTIVENESS		
D.1. Is contractual performance systematically monitored and reported?		
D.2. Does the agency monitor and track its contractual payment obligations?		
D.3. Is a complaints resolution mechanism described in national procurement documents?		
D.4. Is there a formal non-judicial mechanism for dealing with complaints?		
E. ACCOUNTABILITY MEASURES		
E.1. Is there a standard statement of ethics to which the procurement unit is required to formally commit?		
E.2. Are staff of the procurement unit required to declare any potential integrity violations during the procurement process?		
E.3. Is the performance of the procurement unit subject to annual audit?		

II. General Rating

Criterion	Risk
A. Organizational and Staff Capacity	
B. Information Management	
C. Procurement Practices	
D. Effectiveness	
E. Accountability Measures	
OVERALL RISK RATING	

Annex 2: National Competitive Bidding

The Borrower's *Law of Tendering and Bidding of the People's Republic of China* promulgated by Order No. 21 of the President of the People's Republic of China on August 30, 1999, are subject to the following clarifications required for compliance with the Guidelines:

- (i) All invitations to prequalify or to bid shall be advertised in the national press, or official gazette, or a free and open access website in the Borrower's country. Such advertisement shall be made in sufficient time for prospective bidders to obtain prequalification or bidding documents and prepare and submit their responses. In any event, a minimum preparation period of thirty (30) days shall be given. The preparation period shall count (a) from the date of advertisement, or (b) when the documents are available for issue, whichever date is later. The advertisement and the prequalification and bidding documents shall specify the deadline for such submission.
- (ii) Qualification requirements of bidders and the method of evaluating the qualification of each bidder shall be specified in detail in the bidding documents, and in the prequalification documents if the bidding is preceded by a prequalification process.
- (iii) If bidding is preceded by a prequalification process, all bidders that meet the qualification criteria set out in the prequalification document shall be allowed to bid and there shall be no limit on the number of pre-qualified bidders.
- (iv) All bidders shall be required to provide a performance security in an amount sufficient to protect the Borrower/Project Executing Agency in case of breach of contract by the contractor, and the bidding documents shall specify the required form and amount of such performance security.
- (v) Bidders shall be allowed to submit bids by mail or by hand.
- (vi) All bids shall be opened in public; all bidders shall be afforded an opportunity to be present (either in person or through their representatives) at the time of bid opening, but bidders shall not be required to be present at the bid opening.
- (vii) All bid evaluation criteria shall be disclosed in the bidding documents and quantified in monetary terms or expressed in the form of pass/fail requirements.
- (viii) No bid may be rejected solely on the basis that the bid price falls outside any standard contract estimate, or margin or bracket of average bids established by the Borrower/Project Executing Agency.
- (ix) Each contract shall be awarded to the lowest evaluated responsive bidder, that is, the bidder who meets the appropriate standards of capability and resources and whose bid has been determined (a) to be substantially responsive to the bidding documents and (b) to offer the lowest evaluated cost. The winning bidder shall not be required, as a condition of award, to undertake responsibilities for work not stipulated in the bidding documents or otherwise to modify the bid as originally submitted.
- (x) Each contract financed with the proceeds of the Loan shall provide that the suppliers and contractors shall permit ADB, at its request, to inspect their accounts and records relating to the performance of the contract and to have said accounts and records audited by auditors appointed by ADB.
- (xi) Government owned enterprises in the Borrower's country may be permitted to bid if they can establish that they (a) are legally and financially autonomous, (b) operate under commercial law and (c) are not a dependent agency of the Borrower/Project Executing Agency.
- (xii) Re-bidding shall not be allowed solely because the number of bids is less than three (3).

TEMPLATE FOR SEMI-ANNUAL PROGRESS REPORT

报告期 (Reporting period)		提交日期 (Date of Submission)	
A. 介绍及基础数据 (INTRODUCTION AND BASIC DATA)			
1. 项目基础信息 (Basic Project Information)			
项目号 (Project/Loan Number)	PRC: 51181/L XXXX		
项目名称 (Project Title)	Air Quality Improvement in the Greater Beijing–Tianjin–Hebei Region—CECEP’s Regional Emission Reduction and Pollution Control Facility		
接收人 (Recipient)	People’s Republic of PRC		
执行机构 (Executing Agency)	PRC Energy Conservation and Environmental Protection (CECEP)		
项目办 (Project Management Office)	CECEP		
项目汇总表 (Project Summary Cost Estimates) (€ million)			
Item	Amount		
A. Base Cost			
1.			
2.			
3.			
Subtotal (A)			
B. Contingencies			
C. Financial Charges During Implementation			
Total Project Cost (A+B+C)			
项目融资计划 (Project Summary Financing Plan)			
Source 资金来源	Amount (€ million)	Share of Total (%)	
	金额	占比	
Asian Development Bank 亚行	471.0		
Ordinary Capital Resources 普通资金来源			
Total Project Cost			
2. 项目批准、生效及关闭日 (Project Approval, Effectiveness and Closing Dates)			
批准日期 (Approval date)		项目实施期限 (原) [Elapsed project period (original)]	
贷款协定、项目协定签字日 (Loan signing date)		关帐日 (修改后) (Loan closing date) (revised)	
生效日期 (Loan effective date)		项目实施期限 (修改后) [Elapsed project period (revised)]	
关帐日(原定) (Loan closing date) (original)		亚行上次项目检查时间 (Date of last ADB review mission)	

Table 2: Payback Progress of Subprojects

Subborrower	Total Investment Cost	ADB loan		Payback Progress							
				Cumulated Up to the End of Last Period		Amount this Period		Cumulative Amount		%	
				US\$	Euro	US\$	Euro	US\$	Euro	US\$	Euro
A. Financing Product 1											
xxx											
xxx											
B. Financing Product 2											
xxx											
xxx											
Total											

C. 实施进度 (IMPLEMENTATION PROGRESS)
1. 报告期间项目实施进度情况 (Project Implementation Progress during the Reporting Period by Output)
[_____, (State the progress and achievements in implementation by output since the last progress report.)]
2. 项目实施安排 (Project Implementation Arrangements)
[_____, (State assessment of project implementation arrangements such as establishment, staffing, and funding of the PMO)]
3. 项目进度评价 (Assessment of Project Progress)
(Assess progress in implementing the overall project to date in comparison with the original implementation schedule—quantifiable and monitorable target, (include simple charts such as bar or milestone to illustrate progress, a chart showing actual versus planned expenditure, S-curve graph showing the relationship between physical and financial performance, and actual progress in comparison with the original schedules and budgets, the reference framework or guidelines in calculating the project progress including examples are shown in <i>the project administration memorandum [PAM]</i>) (You can append existing chart/table/graph showing physical and financial progress as appendices, if any.)
4. 评价主要假设条件及风险的有效性 (Assessment of the Validity of Key Assumptions and Risks)
[评价实现量化后的实施目标所设想的主要假设条件及风险的有效性 (Assess the validity and key assumptions and risks in achieving the quantifiable implementation targets)]
5. Progress of Subborrower
6. Effectiveness of RFA and the Facility Account
7. Interest Differential Accumulated and Used, and effectiveness in achieving its targeted objectives
8. Implementation of ESMS
(Include implementation of activities in the environmental management plan under the ESMS for Subprojects)
9. Selection of Subsequent Batches of Subprojects

(Include progress in identifying, screening, assessing, and selection future Subprojects).
D. 项目建设目标 (PROJECT PURPOSES)
1. 建设内容/实施安排状况 (Status of Project Scope/Implementation Arrangements)
[_____, (Assess the status of project scope/implementation arrangements compared with those in the project document, and whether major changes have occurred or will need to be made.)]
2. 项目成果实现的可能性及补救措施 (Likelihood of Achievement of the Project Outcomes and Remedial Measures)
[_____, (Assess the likelihood that the immediate development objectives (project purpose) will be met in part or in full, and whether remedial measures are required based on the current project scope and implementation arrangements.)]
3. 主要假设和风险变更 (Changes to the Key Assumption and Risks)
[_____, (If applicable, assess changes to the key assumptions and risks that affect attainment of the development objectives.)]
4. 其他建设内容 (Other Project Developments)
[_____, (If applicable, state any other project developments, including monitoring and reporting on environmental and social requirements that might adversely affect the project's viability or accomplishment of immediate objectives.)]
E. 相关条款的遵从 (COMPLIANCE WITH COVENANTS)
[_____ (Summarize the status of the borrower's and EA's compliance with key financial, safeguards, and other covenants, particularly, for those covenants on due.)]
F. 主要问题与困难 (MAJOR PROJECT ISSUES AND PROBLEMS)
[如适用, 请归纳影响或有可能影响项目实施进度、符合各条款要求, 及实现即期目标等的主要问题, 提出解决这些问题的建议 (如变更建设内容、项目实施安排及贷款资金的再分配) (If applicable, summarize the major problems and issues affecting or likely to affect implementation progress, compliance with covenants, and achievement of immediate development objectives. Recommend actions to overcome these problems and issues (e.g., changes in scope, changes in implementation arrangements, and reallocation of loan proceeds)]
G. 下一汇报期工作计划 (WORK PLAN FOR NEXT 6 MONTHS)

Status of Compliance with Major Loan and Project Covenants
贷款协定和项目协定中主要条款的遵守情况

Schedule	Paragraph No.	Description	Status	Type