Environmental and Social Management System Arrangement

Project Number: 51181
November 2017

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

Prepared by China Energy Conservation and Environmental Protection Group for the Asian Development Bank.

CURRENCY EQUIVALENTS

(as of 7 November 2017)

Currency unit	–	yuan (CNY)		
CNY1.00	=	$0.1514	or	€0.1299
$1.00	=	CNY6.6045	or	€0.8578
€1.00	=	CNY7.6995	or	$1.1658

NOTE

In this report, "$" refers to US dollars

ABBREVIATIONS

ADB	–	Asian Development Bank
AP	–	Affected Person
BTH	–	Beijing–Tianjin–Hebei
CAP	–	Corrective Action Plan
CECEP	–	China Energy Conservation and Environmental Protection Group
CECEP Huayu	–	CECEP Huayu Fund Management Co., Ltd.
CERT	–	China Environment Resources Technology Co., Ltd.
CRAES	–	Chinese Research Academy of Environmental Sciences
CRVA	–	Climate Risk and Vulnerability Assessment
CO_2	–	Carbon Dioxide
EHS	–	Environmental, health, and safety
EIA	–	Environmental Impact Assessment
EMP	–	Environmental Management Plan
EMoP	–	Environmental Monitoring Plan
ESCO	–	energy service company
EPB	–	Environmental Protection Bureau
ESMS	–	Environmental and Social Management System
GRM	–	Grievance Redress Mechanism
IEE	–	Initial Environmental Examination
MEP	–	Ministry of Environmental Protection
NO_x	–	Nitrogen Oxide
PIAL	–	Prohibited investment activities list
PRC	–	People's Republic of China
REA	–	Rapid Environmental Assessment
SPS	–	Safeguards Policy Statement
SO_2	–	Sulfur Dioxide

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I. INTRODUCTION

A. The Project

1. The greater Beijing–Tianjin–Hebei (BTH) region is one of the most important economic regions in the People's Republic of China (PRC), generating more than a third of the country's gross domestic product.[1] However, the region's impressive economic growth was based on energy intensive and highly polluting industries,[2] which left a trail of widespread air pollution across the whole region. Cities in the greater BTH region consistently ranked highest in the country for particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$), and other air pollutants which together make up the air quality index (AQI).[3] This severe air pollution and its associated health risks contribute to more than one million premature deaths annually in the PRC. Coal-based energy-intensive industries are estimated to be responsible for more than half of the total $PM_{2.5}$ emissions in the region.[4]

2. The proposed 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 (refers to the Project thereafter). The Project manager will identify subprojects with appropriate business models for deploying low-emission technologies at scale and provide financing that addresses the air pollution issues in the greater BTH region. The Project will invest both in funds and directly in enterprises to finance qualifying subprojects. To further improve the effectiveness and to acknowledge diversity of challenges at hand, the Project will have three focused areas: (i) a region wide approach, (ii) a provincial or municipal level approach in partnerships with relevant governments, and (iii) specific technology or industry subsector approach. Domestic institutional investors and commercial banks are actively sought to scale-up efforts. Some municipal governments have shown strong interest to set up such a facility in their jurisdiction. Asian Development Bank (ADB) funding is expected to be leveraged at 1:3 through commercial and local government investments. By integrating high-level technical expertise across key sectors with a proven track record of successfully managing multiple investment funds, China Energy Conservation and Environment Protection Group (CECEP), will give much needed confidence to commercial financial institutions to leverage additional financing.

3. The primary financing instrument of the Project will be debt. Equity investments will be possible where either (i) the investment is protected with a creditworthy put option, or (ii) there is another viable exit strategy that will enable CECEP to recover the investment in a timely manner. Equity investments may be needed to support subprojects using economically viable technologies which are not widely perceived as commercially viable, or they may be needed to support the large-scale use of well-established advanced technologies by companies that cannot meet banks' collateral or other debt requirements.

4. Some of the investment may be in energy service companies (ESCO) that will invest in multiple subprojects in one or several large enterprises in an industrial sector. The ESCO sector has been effective in driving energy efficiency investments in other countries, and is a priority for the Government

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

[2] The region includes more than half of the PRC's highly energy and pollution intensive steel and cement production capacity, about one-third of 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.

[3] AQI is a common measure of the quality of air and its potential health impacts. AQI includes consideration of six atmospheric pollutants: sulfur dioxide (SO_2), nitrogen oxide (NO_x), suspended particulates smaller than 10 micrometers in diameters (PM_{10}), $PM_{2.5}$, carbon monoxide, and ozone. In the PRC, the AQI is categorized from 50 (excellent) to 500 (severe pollution).

[4] Bloomberg Philanthropies and Green Finance Committee of China Society for Banking and Finance. 2016. *Green Finance for Low Carbon Cities.* China.

of the PRC. However, only a few BTH ESCOs have the capacity to finance and implement more complex and larger industrial energy efficiency projects and to deploy innovative, high-impact technologies. There are two "super-ESCOs" in the CECEP group that may receive funding for further investment in qualifying subprojects. CECEP group's ESCOs and other large-scale ESCOs will be considered.

5. The proposed project is fully aligned with the Country Partnership Strategy (2016–2020) priority on managing climate change and environment to support the government's priorities in realizing an ecological civilization.[5] The proposed project will also support the strategic priorities of ADB's Midterm Review of Strategy 2020 to mitigate climate change and promote environmental sustainability.[6]

B. Proposed Financing Plans and Modality

6. The proposed Project will use the financial intermediation loan modality, which is best suited to (i) extend reach across multiple sectors and a wide range of enterprises and locations; (ii) aggregate a number of investments in medium- to large-enterprises with a short payback period (5–7 years); (iii) work 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 advanced technologies; and (iv) recycle loan proceeds multiple times to leverage impacts of the project.

7. These solutions will facilitate wider adoption of high technology and appropriate business models adopted in industries, urban and rural energy services, urban transport, wastewater and sludge treatment, agriculture and municipal waste utilization across the BTH region. The Project will help industries become low-carbon, low-emission and highly efficient, thereby improving the air quality in the BTH region. 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. The outcome of the project 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.

[5] ADB. 2016. *Transforming Partnership: People's Republic of China and Asian Development Bank, 2016–2020*. Manila.

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

C. Project Implementation Arrangement

8. CECEP, a state-owned enterprise, will act as the executing agency, and 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). CECEP Huayu has managed many of CECEP's clean energy funds. With the benefit of CECEP's and CECEP Huayu's extensive experience, the Project will focus on (i) financing medium- and large-emission control and pollution reduction projects, (ii) providing capacity development and technical support to enhance the readiness of green projects, and (iii) knowledge transfer and new technology demonstration with new business models to scale up those technologies.

9. CECEP has an excellent grasp of the technologies available and how best to finance and implement them. 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 in planning, implementing and monitoring investments in them. CECEP owns many in-house technologies which are state-of-the-art technologies and need to be demonstrated and scaled up. CECEP's expertise will be made available to the Management Company and the funds by way of an "experts' committee" that will be available to advise the Management Company and the funds on potential investments.

10. As fund manager, the Management Company will assess and approve investments in funds and individual subprojects through an investment committee. The investment review and approval process will include investment structuring to mitigate technical and financial risks and appraisal of environmental impacts and risks under the environmental and social management system (ESMS) established for the Project in compliance with PRC national laws and regulations as well as ADB's Safeguard Policy Statement (SPS) 2009. The ESMS will be approved by ADB and implemented prior to signing of the loan agreement. The Management Company will consider technical merit, credit quality, environmental, and social due diligence and ADB's subproject selection criteria to be developed and agreed during project processing.

11. The Management Company will be responsible for the day-to-day project management implementation including this ESMS, and monitoring of the implementation and performance of subprojects, including measurement and verification of emission and pollution reduction. With the assistance of consultants, the Management Company will assess, appraise, and approve (only when all environmental and social due diligence are complete and satisfactory per the ESMS requirements) individual subprojects.

12. The roles and responsibilities of the different entities involved in implementation and oversight of the ESMS are summarized in Table I-1 and described in detail in the project administration manual (PAM).[7]

[7] Project Administration Manual (accessible from the list of linked documents in Appendix 2 of the main text of the report and recommendation of the President).

Table I-1: Roles and responsibilities related to ESMS

Project Implementation Organizations	Management Roles and Safeguards Responsibilities
CECEP	➢ Ensures compliance with ADB's SPS 2009 and other requirements relating to environmental and social safeguards. ➢ Ensures full implementation of this ESMS. ➢ Takes ultimate responsibility for ESMS implementation.
The Management Company	➢ Adopts the ESMS as part of its overall management system. ➢ Duly and diligently implements and meets all the requirements of ESMS, which can be revised and updated, if necessary, in consultation with ADB. ➢ Maintains a safeguard unit with suitably qualified and experienced full time staff including an ESMS Manager. ➢ Enters a long-term consulting service agreement with CERT who will provide expertise in environmental due diligence, assessment, and monitoring. ➢ Reviews subproject applications, appraises them, and selects subprojects in accordance with the selection criteria, due diligence and approval procedures that are described in the ESMS. ➢ Supervises and monitors ESMS implementation progress of subprojects, including compliance with the terms and conditions of the subproject agreements. ➢ Conducts regular site visits and safeguard review missions in accordance with the ESMS requirements. ➢ Requests remedial actions in the event of noncompliance with the obligations under subproject agreements with respect to the ESMS implementation. ➢ Ensures environmental and social safeguard compliance of all subprojects in accordance with PIAL, the PRC laws and regulations, and ADB's SPS 2009. ➢ Meets all reporting requirements including ESMS reporting requirements to ADB and retains supporting documentation for ADB to examine at any time.
Subborrowers (end borrowers of ADB loan, including equity, loans, investments for ESCOs)	➢ Provide information and reports required under the ESMS to the Management Company. ➢ Obtain the required approvals from relevant authorities such as local EPBs in accordance with all applicable PRC laws and regulations. ➢ Implement subprojects in accordance with the subloan agreements and subproject agreements. ➢ Ensure the subprojects comply with the requirements assigned to subborrowers under the ESMS. ➢ Provide monitoring and evaluation information and participate in the completion review of the subprojects. ➢ Comply with applicable PRC laws and regulations and the ADB PIAL.
ADB	➢ Reviews screening results and safeguard due diligence reports of all subprojects before loan closure. ➢ Supports the Management Company by providing advice, guidance, supervision, and monitoring on the ESMS implementation in accordance with SPS requirements so that ADB's interests are safeguarded in all ADB's investments. ➢ Conducts regular site visits and safeguard review missions in accordance with the SPS requirements. ➢ Reviews project progress reports, environmental and social monitoring reports, and ESMS implementation reports. ➢ Monitors the implementation of the ESMS. ➢ Reviews and endorses applications of new subprojects. ➢ Requires the Management Company to develop corrective action and act on any non-compliance issues in a timely manner. ➢ Organizes PCR jointly with various agencies and project stakeholders.

ADB = Asian Development Bank, CECEP = China Energy Conservation and Environment Protection Group, CERT = China Environmental Resources Technology Co. Ltd, EHS = environmental, health, and safety, ESMS = environmental and social management system, EPB = environmental protection bureau, ESCO = energy service companies, PCR = project

completion report, PIAL = prohibited investment activities list, PRC = People's Republic of China, SPS = ADB Safeguard Policy Statement.

D. Environmental and Social Management System

13. The ADB loan will be used to finance emission-reduction and pollution-control subprojects in various sectors in the greater BTH region. This ESMS document is prepared for the Project in accordance with ADB SPS 2009. This ESMS will be maintained and implemented by the Management Company as part of the overall management systems to comply with the relevant PRC laws and regulations as well as ADB SPS 2009 requirements. The ESMS will apply to all subprojects (including equity investments and entrusted loans) supported by the Project using (i) ADB loan proceeds in the initial batch of subprojects; and (ii) the revolving fund established with reflows from the initial batch of subprojects.

14. The screening and categorization procedure established under this ESMS will ensure that all subprojects will be screened, categorized, pre-selected, and properly appraised in terms of their environmental and social impacts/risks as well as the potential improvement of energy efficiency and emission reductions by these subprojects. This ESMS contains (i) environmental and social policies; (ii) screening, categorization, and review procedure; (iii) organizational structure and staffing, including training; (iv) environmental impact assessment (EIA) requirements; and (v) monitoring and reporting. The ESMS shall serve as the basis for all subprojects screening and categorization, due diligence and review, supervision, and monitoring.

15. As there is a gap between the PRC environmental, health, and safety (EHS) regulations and SPS 2009,[8] this ESMS provides an enabling mechanism to meet both PRC and ADB environmental and social safeguard requirements on subprojects that will be financed by the Project. This ESMS defines roles, responsibilities, and provides procedures to avoid, minimize, and mitigate any (i) direct, indirect, cumulative, and induced adverse impacts/risks on the environment; (ii) adverse impacts and risks of involuntary resettlement; (iii) adverse impacts on ethnic minorities and their communities that may arise from the implementation of such subprojects; and (iv) labor retrenchment that may arise from the implementation of such subprojects.

16. The ESMS will be (i) established and documented as part of the Project's overall management systems; (ii) agreed by CECEP, prior to loan effectiveness; and (iii) adopted and implemented by CECEP and by the Management Company prior to signing of the loan agreement.

17. CECEP will take ultimate responsibility for the ESMS implementation, while the Management Company will perform the day-to-day ESMS implementation tasks on behalf of CECEP. The Management Company will adopt the ESMS as part of its overall management system for the Project. The Management Company's ESMS Manager will review environmental and social due diligence of candidate subprojects to be financed by the Project and will select them if they meet the selection criteria.

18. The day-to-day implementation of ESMS will be performed by an EHS team at the Management Company consisting of a qualified and experienced ESMS manager and designated staff, designated environmental specialists from China Environmental Resources Technology Co. Ltd. (CERT). The tasks and responsibilities of the stakeholders in terms of ESMS implementation are summarized in Table I-2.

[8] For instance, public consultation, grievance redress mechanism, and community health and safety are not critical components in the PRC EHS regulations but are required in ADB SPS 2009.

Table I-2: The ESMS Implementation Arrangement

Tasks	Task execution (responsible/focal person)	Implementation Responsibility (Sign-off authority)	Ultimate Responsibility
Screening subprojects	Subproject (ESMS manager or designated staff)	The Management Company	CECEP
Preparation and submission of environmental and social checklists with detailed project description of subprojects	Subproject (ESMS manager or designated staff)	The Management Company	CECEP
Initial site visits of subprojects	Designated specialists and/or EHS team at the Management Company	The Management Company	CECEP
Preparation and submission of environmental and social categorization with detailed project description of subprojects	The Management Company EHS team with support from designated specialists	The Management Company	CECEP
If a pre-selected subproject is categorized as B for the environment, inform ADB and implement gap filling measures	The Management Company ESMS manager	The Management Company	CECEP
Conducting all the required environment and social due diligence and preparing relevant reports of pre-selected subprojects	The Management Company EHS team with support from designated specialists	The Management Company	CECEP
Preparation and submission of environmental and social due diligence reports to ADB	The Management Company EHS team with support from designated specialists	The Management Company	CECEP
Final selection of subprojects	The Management Company ESMS manager	The Management Company	CECEP
Subproject IEEs including EMP, EMoP, ESMS, and GRM implementation, as required in this ESMS	Subproject (ESMS manager or designated staff)	The Management Company	CECEP
Preparation and submission of subproject-specific environmental and social monitoring reports to the Management Company (semi-annual reports)	Subproject (ESMS manager or designated staff)	The Management Company	CECEP
Regular subproject visits to check EMP, EMoP, ESMS, and GRM performance	The Management Company EHS team or designated specialists	The Management Company	CECEP
Preparation and submission of consolidated environmental and social monitoring reports as required in the ESMS	The Management Company EHS team or designated specialists	The Management Company	CECEP
Preparation and submission of ESMS implementation reports as required in the ESMS	The Management Company ESMS Manager or designated specialists	The Management Company	CECEP

ADB = Asian Development Bank, CECEP = China Energy Conservation and Environmental Protection Group, EMP = environmental management plan, EMoP = environmental monitoring plan, ESMS = environmental and social management system, GRM = grievance redress mechanism, IEE= initial environmental examination.
Source: ADB

Table I-3: ESMS Managers and/or Designated Sign-off Authority for ESMS

Organization	Name	Title	Contact Information
CECEP	Du Xiaodong	Manager	Email: duxiaodong@cecep.cn Tel: 86-10-62247815
CECEP Huayu	He Chang	ESMS Manager	Email: ylhc105@163.com Tel: 86-10-82022911-038
	Xiong Chengcheng	ESMS Staff	Email: xccheng1230@163.com Tel: 86-10- 82022911-051
CERT	Lu Wei	EHS Manager	Email: lvw@borhome.com Tel: 86-10-84926800

CECEP = China Energy Conservation and Environmental Protection Group, CERT = China Environment Resource Technology Co., Ltd., EHS = environmental, health and safety, ESMS = environmental and social management system
Source: CECEP and CECEP Huayu, April 2017.

II. ENVIRONMENTAL AND SOCIAL MANAGEMENT DUE DILIGENCE OF RELEVANT INSTITUTIONS

19. Prior to the environmental and social management policy and applicable requirements for the Project being developed, environmental and social management due diligence was conducted for the organizations that will be involved in or associated with the implementation of the project. In addition, CECEP has entered an agreement with CERT to supplement the capacity of environmental and social due diligence and management of potential subprojects. This chapter discusses existing environmental and social management policy and applicable requirements in perspective of these institutions.

A. China Energy Conservation and Environmental Protection Group

20. CECEP is the PRC's largest technology-based and service-oriented industrial group in energy conservation and environmental protection. CECEP is directly administered by State-owned Assets Supervision and Administration Commission (SASAC) of the State Council. It was founded on 5 May 1995 with a registered capital of CNY19.47 billion and total assets CNY461.7 billion. CECEP is the executing agency of the Project as such it will be the oversight body of the Project.

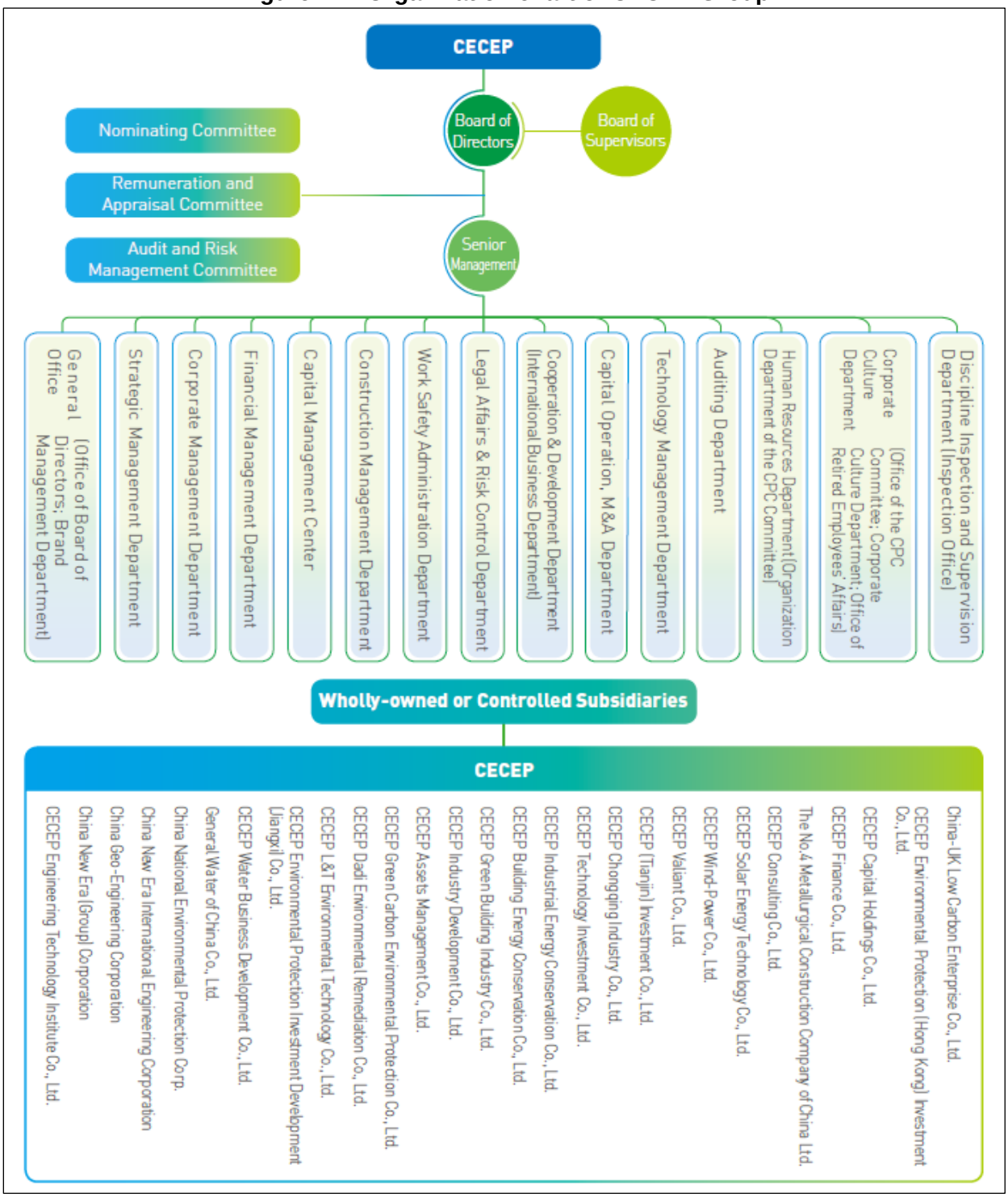
21. CECEP Group has 15 administrative departments at its headquarters in Beijing. CECEP has 27 controlling subsidiaries, including 7 stock-listed companies with a total employee of more than 50,000. The main projects carried out by CECEP spread 40 countries and regions. As a holding company, CECEP does not involve in the day-to-day business management of its subsidiaries. The organization chart of CECEP is presented in **Figure II-1**.

22. CECEP is the only state-owned enterprise (SOE) with the mandate of energy efficiency, clean energy, environmental protection, and resources recycling. It is the strongest and largest high-tech industry group in the PRC's energy conservation and environmental protection sector. As an integrated service providers, CECEP's business includes the whole industry chain, including planning, design and consulting, construction, equipment manufacturing, investment and operation, energy conservation and emission reduction in waste generation, sewage treatment, new and renewable energy, energy conservation and environmental protection.

23. **EHS Management.** CECEP's headquarters has a Safety Production Management Department with five staff including a department head and a safety and environment management manager whose main responsibilities include (i) environmental protection and safety training; (ii) promotion of safety awareness; (iii) collecting safety statistics; and (iv) evaluation of safety and environmental protection performances of subsidiaries. The Department also has a manager responsible for emergency management and a manager responsible for safety and environment monitoring.

24. **Green Financing.** CECEP registered as the issuer of the green corporate bonds on 27 July 2016. The products are certified as double green certification of corporate bonds by the Energy Consulting Co., Ltd. and Ernst & Young, an independent third party certification of green products.

Figure II-1: Organization chart of CECEP Group



CECEP = China Energy Conservation and Environmental Protection.

25. CECEP successfully issued CNY3 billion and CNY2 billion of green corporate bonds on 16 August and 23 September 2016 through Shanghai Stock Exchange. Issuing interest rates reached the lowest rates in non-financial corporate issuance of green bonds in the PRC bond market, which established a landmark demonstration of green financial products. This CNY5 billion of corporate bonds will reduce financial costs of the selected projects. At the same time, these clean energy, energy conservation, environmental protection projects will have significant energy conservation and emission reduction benefits.

26. CECEP's green bonds will be used to invest in energy efficiency and renewable energy projects in the following sectors: wind power, solar power, energy conservation, and solid waste disposal. The projects were selected according to the *Green Bond Supporting Project Directory* (2015 Edition) published by the China Finance Society Green Finance Specialized Committee. The energy savings and emission reductions from these projects were established as follows when they are fully operational : energy savings of 280,865 tons of coal equivalent per annum (tce/a), replacing fossil energy of 162,300 tce/a, carbon dioxide (CO_2) emission reduction of 1,154,459 tons per annum (t/a), sulphur dioxide (SO_2) emission reduction of 3,566 t/a, and Nitrogen Oxide (NO_x) emission reduction of 1,380 t/a. The green bond projects will have significant energy saving and environmental benefits and play a positive role for promoting domestic green bond development market.

27. **Energy Conservation**. CECEP is dedicated to promoting energy conservation and energy saving technologies. Its energy-conserving and environmentally-friendly industrial model has become a choice for sustainable development. By using its advanced service capacity and technologies, CECEP has promoted industrial restructuring and upgrading, and made significant contribution to energy efficiency and environmental protection.

28. CECEP implements energy conservation projects at large energy-intensive enterprises in many fields with comprehensive solutions, through integrating sophisticated energy conservation and environmental protection technologies and management practices. In 2015, CECEP's operations reduced 1,109,300 tons of CO_2 and saved 423,400 tons of coal.[9]

29. **Environmental Protection.** The mission of CECEP is to protect the natural environment and ecological resources. CECEP actively explores new ways and models for the development of environmental industry and strives to be the pioneer of environmental protection industry in the PRC.

30. Air pollution has become a major issue of public concern in recent years. CECEP makes great use of its technology and management skills to help bring back the blue sky. It has developed wind power projects recognized as golden standard program, which are important demonstrations to others in the sector.

31. CECEP provides sewage treatment and water supply service for more than 10 provinces and cities. CECEP's capacity of providing or supplying water is 4.83 million tons per day and the sewage treatment capacity is 6.99 million tons per day. CECEP also invested and built two reservoirs with a total storage capacity of 182.32 million tons.

32. CECEP has also developed world-leading devices for monitoring heavy metals in water and bioremediation technology. Moreover, it cooperates with governments and enterprises at different levels to make use of solid waste and promote sustainable development.

[9] Source: 2015 CECEP Corporate Social Responsibility Report.

33. **Clean Energy.** CECEP owns premium wind resources of over 20 million kiloWatt (kW), standing out among domestic peers in wind-power project investment and operation. CECEP is also one of the biggest operation businesses in solar power generation. In 2015, CECEP's power stations were built in 18 provinces and cities. CECEP is actively expanding renewable energy business in overseas markets.

34. **Safety Management.** Safety is the core value and first priority of CECEP. CECEP values safety culture and provides a safe working environment for employees. It has established staff safety indicators in the safety performance management system. CECEP promotes safety culture companywide and makes safety a part of every employee's responsibility and life. Moreover, CECEP actively conduct various forms of safety educations and training to increase the safety awareness of employees.

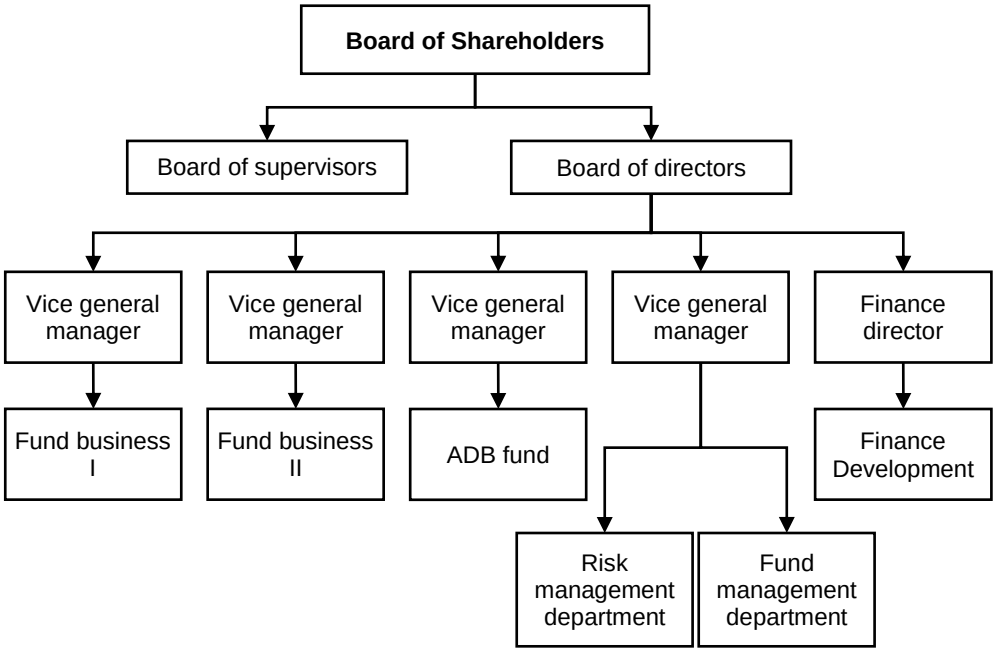
35. **Corporate Social Responsibility**. CECEP supports local communities of science, education, culture, public health and transportation, and strengths relationships with local communities where CECEP operates its facilities. It has a policy and practice to promote local procurement and operation therefore contributes to local economy. It encourages affiliated enterprises to create jobs for people with disabilities. By means of radio, television, traditional media and new media, CECEP disseminates knowledge of energy conservation and environmental protection to the public and shares the experience and achievements of the demonstration projects to strengthen ties with local communities. CECEP publishes its Corporate Social Responsibility Report every year on its website.

B. CECEP Huayu Fund Management Co., Ltd.

36. CECEP Huayu was established in 2010 with the approval of the National Development and Reform Commission. CECEP Huayu is a joint venture company among three business partners. Its business focus is primarily in the field of energy conservation and environmental protection investment. CECEP Huayu is the only large investment fund manager in CECEP. It manages CNY12.7 billion investments. CECEP Huayu's business partners including major banks, venture capital management institutions, large national SOEs, local SOEs and stock-listed companies. CECEP Huayu currently has six departments with more than 20 people. CECEP Huayu or another CECEP subsidiary, with equivalent experience, approved by ADB after due diligence, will be the facility and fund manager will be the fund manager with the main responsibility to implement the Project, including ESMS implementation. The organization chart of CECEP Huayu is shown in Figure II-3.

37. CECEP Huayu aims to become a first-class, professional fund management company in energy-saving and environmental protection in the PRC. CECEP Huayu is committed to promote the development of China's energy conservation and environmental protection industry, creating good returns for shareholders and fund investors. It focuses on energy conservation and environmental protection industry investment by maximizing the use of the CECEP's main business advantages and industry integration capabilities.

Figure II-3: Organization Chart of CECEP Huayu



Source: CECEP Huayu, 2016.

38. Based on the assessment of CECEP Huayu, it is concluded that CECEP Huayu is experienced in project screening, financial due diligence, evaluation, implementation, and supervision of energy efficiency and environmental protection projects. They have established an ADB project implementation unit to coordinate and implement the Project. However, at present they do not have specialized staff to deal with environmental and social due diligence and are not familiar with ADB's requirements, especially requirements on environment and social safeguards. CECEP agrees to engage staff with environmental background and establish an EHS team including an ESMS Manager. In addition, CECEP will enter a long-term partnership and contract with CERT to provide technical support to the Management Company for ESMS implementation. The ESMS manager at the Management Company will work closely with designated specialists from CERT.

39. Capacity building and training of CECEP Huayu staff as well as designated specialists from CERT on environmental and social safeguard related issues were provided. Additional capacity building and training during the implementation of the project will be conducted as needed. Institutional due diligence of CERT was also conducted and the result is provided below.

C. China Environmental Resources Technology Co. Ltd.

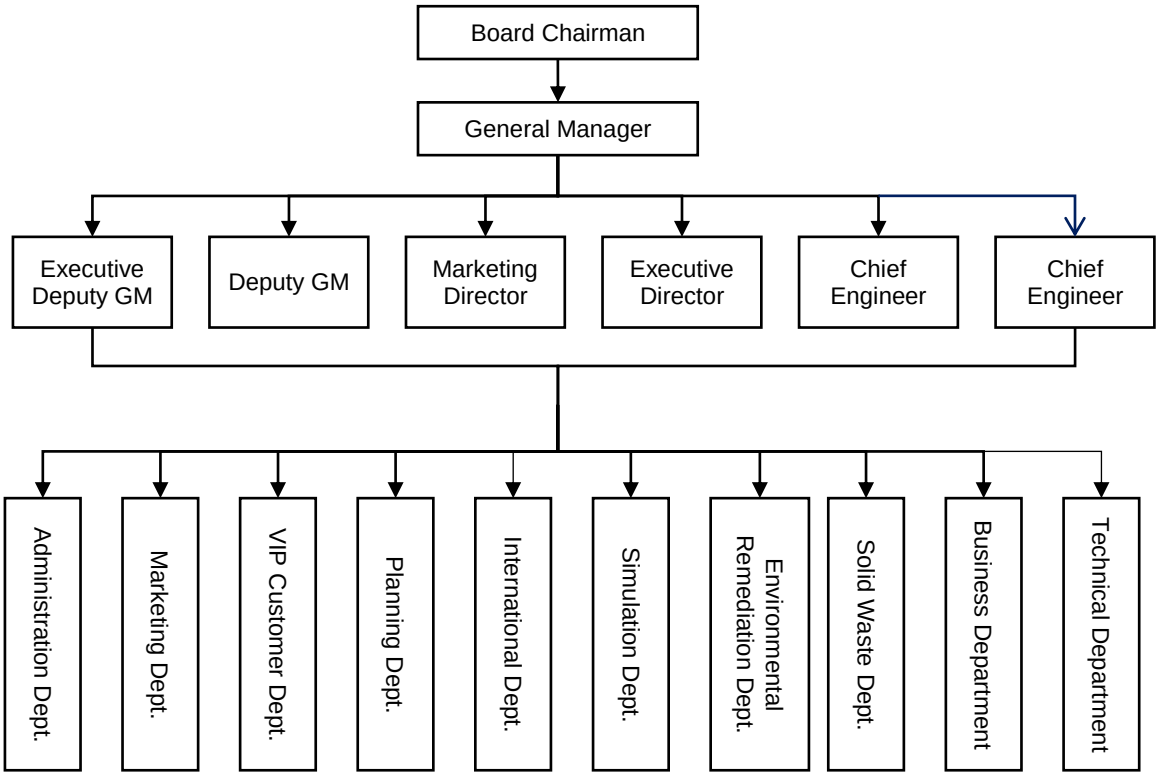
40. CERT, formerly affiliated with the Chinese Research Academy of Environmental Sciences (CRAES), is one of the top environmental impact assessment and environmental management institutions in the PRC.

41. In 1989, CRAES was awarded with an environmental impact assessment certificate for construction projects issued by the State Environmental Protection Administration. In 1994, CRAES established the Environment Assessment Evaluation Center responsible for the environmental impact assessment of construction projects.

42. Per the requirements of the Ministry of Environmental Protection (MEP), all environmental organizations must separate their relationships with government agencies. In November 2015, CERT was restructured and officially separated from CRAES. Most of the technical staffs from the former organization were transferred to CERT.

43. CERT has a registered capital of CNY10.1 million with its head office in Beijing. CERT has 10 departments in its Beijing office and 13 branches office in the PRC, covering Yunnan, Sichuan, Hunan, Jiangxi, Guangdong, Fujian, Zhejiang, Shandong, Liaoning, Ningxia, Heilongjiang, Henan Provinces and Inner Mongolia Autonomous Region. The organization chart of CERT is shown in Figure II-4.

Figure II-4: Organization Chart of CERT



44. **Professional background.** CERT has more than 90 professional people, of which 39 have registered EIA Engineer certificates. In addition, 15 staffs have senior engineer titles. More than 90% of the technical staffs have environment engineering or related postgraduate degree.

45. **Business scope.** CERT holds the first qualification certificate of EIA in the PRC issued by MEP and is authorized to perform Category A EIA work in many sectors, including textile, chemical fiber, medicine, building materials, thermal power, chemical and petrochemical, mining, transportation and social. In addition, it also has the certificate to perform Category B EIA work in forestry and water sectors. In 2016, CERT performed EIA work for 265 projects, including 165 Category A projects and 100 Category B projects.

46. CERT's business scope covers environmental impact assessment, environmental planning, environmental inspection and acceptance, environmental supervision, environmental management, and Environmental Steward technology promotion. CERT holds the deputy director position in the Environmental Impact Assessment Branch of Chinese Association of Environmental Protection Industry.

47. **Management system.** CERT has established quality management, environmental management and occupational health and safety management systems and it has obtained the ISO-9001 quality management system certification, OHSAS-18001 occupational health, safety management system certification, and ISO-14001 environmental management system certification. Moreover, the company is also active in sustainable development including charitable donation to social welfare and has received awards from provincial and ministerial level government agencies.

48. **International cooperation.** CERT has cooperated with international organizations and worked on projects financed by ADB and the World Bank. CERT has also worked on few high-profile projects, such as planning environmental assessment of the 2022 Winter Olympics–Yanqing venue and planning environmental assessment of Sino-German Qingdao Ecological Park.

D. Applicable Environmental and Social Regulations in the PRC

49. The PRC has established a comprehensive environmental laws and regulations for new construction projects as well as operations of existing facilities. A list of PRC national laws and regulations concerning environmental, health, safety, labor, and other social issues of existing facilities as well as new construction projects is provided in **Appendix 1**, supplemented by relevant ordinances, circulars and technical standards, and guidelines as published from time to time. In addition, the governmental agencies in Greater BTH region may establish regulations and policies to supplement the national laws and regulations.

50. New construction projects are required to complete the following key assessments, which incorporate the PRC EHS regulatory requirements:

(i) Feasibility study of new projects;
(ii) EIAs for all projects;
(iii) Safety impact pre-assessments, if applicable;
(iv) Occupational health/disease hazard assessment, if applicable;
(v) Energy conservation assessment; and
(vi) Required approvals and permits.

III. ENVIRONMENTAL AND SOCIAL MANAGEMENT POLICY AND APPLICABLE REQUIREMENTS

51. This chapter of the ESMS describes environmental and social management policies and applicable requirements that will be used for the Project.

A. ESMS Policy

52. CECEP is committed to ensuring environmental and social sustainability of the subprojects financed under the Project. In this context, the goal of the ESMS is to promote the sustainability of subproject outcomes by protecting people and the environment from subprojects' potential adverse impacts. The objectives of the ESMS policy are to:

(i) avoid adverse impacts of subprojects on the environment and affected people, where possible;
(ii) minimize, mitigate, and/or compensate for adverse subproject impacts on the environment and affected people when avoidance is not possible; and
(iii) maximize opportunities for environmental and social benefits including development of subprojects' capacity to manage environmental and social risks.

53. The ESMS includes policy objectives and principles for four areas: (i) the environment; (ii) involuntary resettlement; (iii) ethnic minority communities; and (iv) labor retrenchment.

54. **The environmental objectives** adopted for all selected subprojects are to (i) ensure the environmental soundness and sustainability of each subproject, (ii) support the integration of environmental considerations into the subproject decision-making process, and (iii) achieve CO_2 emission reductions and other pollutants in the subproject areas and/or broader regions. The **environmental policy principles** adopted for all selected subprojects are as follows:

(i) Use a screening process for each subproject, as early as possible, to determine the appropriate extent and type of environmental assessment and/or audit required so that appropriate studies are undertaken commensurate with the significance of the subprojects' potential environmental and social impacts and risks.
(ii) Conduct an environmental assessment and/or environment audit[10] for subprojects to identify potential direct, indirect, cumulative, and induced impacts and risks to physical, biological, socioeconomic (including impacts on livelihood through environmental media, health and safety, vulnerable groups, and gender issues), and physical cultural resources in the context of the subproject's area of influence. Assess potential transboundary and global impacts, including climate change impact.
(iii) Examine alternatives to the subproject's location, design, technology, and components and their potential environmental and social impacts and document the rationale for selecting a particular alternative. The no-subproject alternative should also be considered.
(iv) Avoid, and where avoidance is not possible, minimize, mitigate, and/or offset adverse impacts and enhance positive impacts by means of environmental planning and management. Prepare a corrective action plan (CAP)[11] and/or an environmental management plan (EMP), including appropriate mitigation

[10] Environmental audit needs to be performed if a subproject involves existing activities or facilities that are already exist or under construction to determine the existence of any areas where the project may cause or is causing environmental risks or impacts.

[11] If environmental audit identifies any non-compliance or area of concern, a corrective action plan will be developed to provide appropriate corrective actions for each area of concern including costs and schedule.

measures, environmental monitoring and reporting requirements, related institutional or organizational arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicators. Key considerations for EMP preparation include mitigation of potential adverse impacts to the level of no significant harm to the environment and people, and the polluter pays principle.

(v) Disclose information to the public and carry out meaningful consultation[12] with affected people and facilitate their participation. Ensure women's participation in the consultation process. Involve stakeholders, including affected people and concerned non-government organizations, early in the subproject preparation process and ensure that their views and concerns are made known to and understood by decision makers and taken into account. Continue consultations with stakeholders throughout project implementation as necessary to address issues related to environmental and social impacts. Establish a grievance redress mechanism (GRM) to receive and facilitate resolution of the affected people's concerns and grievances regarding the subprojects' environmental impact and performance.

(vi) For environment Category B subprojects, disclose the initial environmental examination (IEE), including the EMP and/or CAP on ADB website in a timely manner before subproject approval, and in an accessible place and in a form and language(s) understandable to affected people and other stakeholders. Disclose the final IEE and its updates, if any, on ADB website and to affected people and other stakeholders.

(vii) Implement the EMP/CAP and monitor its effectiveness. Document monitoring results, including the development and implementation of corrective actions, and disclose environmental and social monitoring reports.

(viii) Do not implement subproject activities in areas of critical habitats or legally protected areas. In an area of natural habitats, there must be no significant conversion or degradation demonstrated through environmental assessment. Use a precautionary approach to the use, development, and management of renewable natural resources.

(ix) Apply pollution prevention and control technologies and practices consistent with international good practices as reflected in internationally recognized standards such as the World Bank Group's Environmental, Health, and Safety Guidelines.[13] Adopt cleaner production processes and good energy efficiency practices. Avoid pollution, or, when avoidance is not possible, minimize or control the intensity or load of pollutant emissions and discharges, including air emissions, discharges to water or soils, noise, direct and indirect greenhouse gases emissions (if not, prepare offset measures), waste generation, and release of hazardous materials from their production, transportation, handling, and storage. Avoid the use of hazardous materials subject to international bans or phase-outs. Purchase, use,

[12] Meaningful consultation is a process that (i) begins early in the project preparation stage and is carried out on an ongoing basis throughout the project cycle; (ii) provides timely disclosure of relevant and adequate information that is understandable and readily accessible to affected people; (iii) is undertaken in an atmosphere free of intimidation or coercion; (iv) is gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups; and (v) enables the incorporation of all relevant views of affected people and other stakeholders into decision making, such as project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues.

[13] http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/our+approach/risk+management/ehsguidelines

and manage pesticides based on integrated pest management approaches and reduce reliance on synthetic chemical pesticides.

(x) Provide workers with safe and healthy working conditions and prevent accidents, injuries, and disease. Provide safety training to workers during construction as well as operation of the project. Establish preventive and emergency preparedness and response measures to avoid, and where avoidance is not possible, to minimize adverse impacts and risks to the health and safety of local communities in conjunction with them.

(xi) Conserve physical cultural resources and avoid destroying or damaging them; do not implement subproject activities in areas where support physical cultural resources or "chance-find" physical cultural resources are expected to be found.

55. The **involuntary resettlement policy objectives** are to avoid involuntary resettlement. The involuntary resettlement policy principles are:

(i) Screen any subproject early on to identify past, present, and future involuntary resettlement impacts and risks. And

(ii) Avoid involuntary resettlement, do not undertake any subproject that involves involuntary resettlement, has recently required involuntary resettlement, or has serious social legacy issues.

56. The **ethnic minority policy objectives** are to design and implement subprojects in a way that fosters full respect for ethnic minority peoples' identity, dignity, human rights, livelihood systems, and cultural uniqueness as defined by the ethnic minority communities themselves so that they (i) receive culturally appropriate social and economic benefits, (ii) do not suffer adverse impacts as a result of the subprojects, and (iii) can participate actively in subprojects that affect them. The ethnic minority policy principles of the Project include:

(i) Screen any subproject early on to determine:

  (a) whether ethnic minority communities are present in, or have collective attachment to, the subproject area, and

  (b) whether project impacts on ethnic minority communities are likely.

(ii) Do not undertake any subproject that adversely impacts an ethnic minority community.

57. The **labor retrenchment policy objective** is to design and implement subprojects to avoid labor retrenchment and redundancies. The labor retrenchment policy principle of the Project is to screen all subprojects for potential labor retrenchment and redundancies and those which will be found to have potential for such will be excluded for financing.

58. 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.

59. The **gender and social dimension objective** is 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 subcontractors/employees; (vii) implement human trafficking awareness activities; (viii) provide necessary measures to ensure the safety and health of its subcontractors/employees; and (ix) observe local customs concerning acceptable behavior towards the local population.

60. The environmental and social management policy of the Project was approved and/or signed by CECEP and the Management Company.

61. The Management Company will ensure and enhance effective environmental and social management practices in all subprojects financed under the Project with a special focus on the following:

(i) Ensuring that applicable environmental and social safeguard requirements, as defined in this ESMS are met for all subprojects;
(ii) Providing finance only when the subprojects are expected to be designed, constructed, operated, and maintained in a manner consistent with applicable environmental and social safeguard requirements, as defined in this ESMS;
(iii) Integrating environmental and social risks into its internal risk management analysis;
(iv) Ensuring that design changes/adaptation options prescribed in the climate risk and vulnerability assessment (CRVA) will be taken into account in the final design of greenfield subprojects if applicable;
(v) Ensuring transparency in the subborrowers' activities;
(vi) Ensuring subborrowers to conduct meaningful consultation with affected people, local communities and the general public;
(vii) Working together with the subborrowers' management to put into practice applicable environmental and social safeguard requirements; and
(viii) Promoting investments with environmental and social benefits.

62. This policy will be communicated to all staff and operational employees associated with the Project as well as subborrowers.

B. Environmental and Social Safeguard Requirements for the Project

63. The Management Company will ensure that:

(i) All subprojects financed by ADB under the Project are screened against the Prohibited Investment Activities List (PIAL) in SPS 2009 (**Appendix 2**), and that any subprojects involving activities included in the PIAL will not be supported by the Project (using the ADB funds);
(ii) All subprojects financed by ADB under the Project are reviewed and evaluated against Safeguard Requirement 1 of ADB's SPS 2009 (**Appendix 3**);
(iii) All subprojects financed by ADB under the Project are reviewed and evaluated against the PRC laws, regulations, and standards on environment, pollution management, occupational health, safety, involuntary resettlement and land acquisition, ethnic minorities, biodiversity, and physical cultural resources to confirm that they are in compliance;

(iv) All subprojects will have no involuntary resettlement (IR) and indigenous people (IP) impacts within the meaning of SPS 2009 (Appendix 6); and

(v) All subprojects financed by ADB throughout the entire implementation period of the Project are screened against and meet the selection criteria including technical, financial, economic, environmental, and social criteria presented in **Appendix 4** of this ESMS.

IV. ENVIRONMENTAL AND SOCIAL MANAGEMENT PROCEDURES[14]

64. This ESMS sets out screening, categorization, and appraisal procedures for all new subprojects (including equity investments and entrusted loans) to be financed using ADB loan. Subprojects to be financed by ADB under the Project shall comply with all environmental and social safeguard requirements under the ESMS. It is important to note that the ESMS is a living document, which can be revised if necessary. This version of the ESMS will be effective for at least 1 year after the project loan effectiveness. Its effectiveness will be reviewed by ADB after 1 year and can be revised by the Management Company subject to ADB approval.

65. While the ESMS shall be applied during the entire implementation of the Project, the processes involving ADB described in this ESMS will remain active until the Project is closed, after which only processes involving the Management Company will be applied.[15]

A. Screening and Categorization

66. The Management Company will announce the financial opportunities under the Project to potential interested parties through various channels. These parties can acquire information about the Project, selection criteria, and prepare application documents for consideration. Once the applications from potential subprojects are received, the procedure described below will be followed for subproject screening and categorization.

67. At an initial stage of identifying potential qualified subprojects, the ESMS manager (or other designated staff) of the Management Company will cross check with ADB's PIAL. If the subproject involves a prohibited activity on the PIAL, the subproject company will be informed that it will not be considered under the Project. Otherwise, the ESMS manager (or other designated staff) at the Management Company will inform the subproject company that the subproject is eligible for further consideration.

68. At the subproject identification stage, the subproject company will be requested by the ESMS manager (or other designated staff) at the Management Company, to first prepare and submit to the Management Company, and CERT (i) detailed description of the subprojects, including company description, business activities, subproject location, description of existing and associated facilities of the subprojects, indication on subproject status whether construction already started, indication on level of domestic EIA requirements and EIA approval status; and (ii) rapid assessment of the likely environmental and involuntary resettlement impacts, effects on ethnic minorities, and labor retrenchment of the subprojects by using the attached sample rapid environmental assessment (REA) checklist,[16] including a checklist for preliminary climate risk screening (**Appendix 5**), and social safeguard screening checklists (**Appendix 6**). These checklists are developed to assist the determination on the significance of potential environmental and social impacts/risks associated with the subprojects.

69. The subproject company shall prepare and submit (i) detailed subproject description; (ii) rapid environment and social assessment checklists; and (iii) evidence/proof that the investment (including existing and associated facilities when the investment involves these) are in compliance

[14] The environmental and social management procedures apply to all subprojects including those with investment below the free limit of €80 million.

[15] The Project implementation period is 15 years. The Project construction period is 5 years starting from loan effectiveness, and operation period from the 6th year to the closure of the Project.

[16] Specific sector REA checklists will be provided to ESMS manager, ESMS staff of the Management Company, and designated specialists from CERT.

with applicable national laws and regulations to the ESMS manager (or other designated staff) at the Management Company. More specifically, if any subproject involves financing for, addition or modification of existing facilities, the designated specialists from CERT, entrusted by the ESMS manager (or other designated staff) at the Management Company, will request the subproject company to provide the following documents prior to the site visit: (i) EIA approval(s); (ii) Approval of Occupational Hazard Control Effect Assessment report; (iii) Approval of Safety Acceptance Assessment; (iv) environmental performance acceptance report(s); (v) environmental emission and discharge permit(s), if required by authorities; (vi) environmental monitoring data acceptable to a local environmental authority for at least the last 3 years; (vii) land use permit/certificate (if land has been acquired); (viii) other applicable permits and approvals, demonstrating full compliance with all applicable national and ESMS requirements; and (ix) information on whether or not the subproject has an ongoing environmental and social dispute, any pending court case, unresolved land acquisition and resettlement case, and/or any record of violations, relevant to the existing facilities where the investment is taking place or the investment is linked to and/or related to (for equity investment, existing facility refers to the entire company operations, for the entrusted loan for specific subproject, existing facility refers to the specific subproject facilities).

70. After receiving these completed documents from the subproject company, the designated specialists from CERT entrusted by the ESMS manager (or other designated staff) at the Management Company will go for an initial site visit to each subproject (including existing and associated facilities as appropriate), check whether the information provided in the completed forms are correct. If incorrect, information shall be corrected during the site visit and the rapid assessment will then be considered complete. If there is any environmental and social safeguard issue raised by the local authority, the issue should be investigated during the site visit by designated specialists from CERT with results documented as an attachment to the checklist.

71. If any subproject involves associated facilities, the subproject company will be requested to submit a copy of the environmental performance acceptance report(s) of the associated facilities to the ESMS manager at the Management Company. After receiving these completed documents from the subproject company, the designated specialists from CERT entrusted by the ESMS manager (or other designated staff) at the Management Company, will perform the following tasks during the site visit to the subproject and associated facilities:

(i) confirm that the information included in the checklist that could influence environmental and social categorizations (e.g., all potential environmental and social impacts/risks of the subproject) is comprehensive and correct;
(ii) verify that any existing facility (for equity investment, existing facility refers to the entire company operations; for entrusted loan for specific subproject, existing facility refers to the specific subproject facilities) is in full compliance with applicable PRC laws and regulations;
(iii) check whether any existing facility has GB/T 24001 (equivalent to ISO 14001) Environmental Management Systems, and/or GB/T 28001:2001 (equivalent to OHSAS 18001) Occupational Health and Safety Management Systems certifications; and check the status of corrective actions for the findings in the most recent GB/T 24001 and/or GB/T 28001 audit(s) if applicable;
(iv) identify potential operational EHS risks associated with the operational practices observed at any existing facility as refers to project activity;
(v) conduct brief environmental and social consultation through interviews with employees, residents and/or local environmental authorities including the environmental protection bureau (EPB);
(vi) present and discuss a subproject-level GRM, including GRM information disclosure;

(vii) verify whether there has been recent land acquisition (in the past 2 years) by the host company and whether there are any outstanding compensation payment issues or disputes;
(viii) check whether environment and social due diligence of other related, associated or linked facilities would be required;
(ix) confirm boundaries of potential adverse impacts, particularly in respect of environmental receptors;
(x) check whether there are any ethnic minority communities within these boundaries; and
(xi) check for potential labor retrenchment and redundancies.

72. Once the checklists and the verification work are completed by the designated specialists from CERT, the environmental and social categorizations of the subproject shall be prepared based on the ADB's categorization system concerning the significance of the subproject's potential impacts (described below and also in **Appendix 3**). Categorization will be documented on the attached Environmental Safeguard Screening Checklists including detailed project description (**Appendix 5**) and the attached Social Safeguard Screening Checklists (**Appendix 6**).

73. The Management Company's ESMS manager or designated staff shall submit environmental and social categorization documents of all subprojects to ADB with the categorization results (checklists) attached in a letter to ADB project officer for review and concurrence prior to notification to the potential subprojects to process their loan applications with further due diligence. Potential subproject's category is determined by the category of its most environmentally sensitive component, including direct, indirect, cumulative, and induced impacts in the subproject's area of influence. This area of influence encompasses: (i) the primary project site(s) and related facilities that the investment company (including its contractors) develops or controls, such as power transmission corridors, pipelines, canals, tunnels, access roads, borrow pits and disposal areas, and construction camps; (ii) associated facilities that are not funded as part of the investment (funding may be provided separately by the investment company or by third parties), and whose viability and existence depend exclusively on the investment and whose goods or services are essential for successful operation of the investment; (iii) areas and communities potentially affected by cumulative impacts from further planned development of the investment, other sources of similar impacts in the geographical area, any existing project or condition, and other project-related developments that are realistically defined at the time the assessment is undertaken; and (iv) areas and communities potentially affected by impacts from unplanned but predictable developments caused by the investment that may occur later or at a different location. The area of influence does not include potential impacts that might occur without the investment or independently of the investment.

74. Each subproject is scrutinized as to its type, location, scale, and sensitivity and the magnitude of its past, current (if a subproject involves existing facilities), and potential future environmental impacts. It shall be assigned to one of the following three categories, which are in alignment with ADB SPS 2009:

(i) **Category A.** A subproject is classified as category A for environment if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works.
(ii) **Category B.** A subproject is classified as category B for environment if its potential adverse environmental impacts are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A

subprojects. An initial environmental examination (IEE) needs to be prepared in Chinese for a category B subproject and shall be disclosed at ADB, the Management Company, and subproject company's websites. ADB can request an English translated version of IEEs for selected subprojects.

(iii) **Category C.** A subproject is classified as category C if it is likely to have minimal or no adverse environmental impacts. No environmental assessment is required although environmental implications need to be reviewed and documented by the Management Company.

75. The following factors (not an exclusive list) that might trigger significant impacts of a subproject shall be considered for the determination on category A and B subproject, if the subproject:

(i) is domestically categorized as A.
(ii) discharges directly into a protected zone (e.g., drinking water, fisheries) or water conservancy area (e.g., irrigation).
(iii) discharges to a waterbody for which adequate assimilative capacity may not be available or close to exceeding or already exceeds standards for its designated use.
(iv) treats greater volumes of wastewater than already discharges (at a lower level of treatment) into the same receiving body.
(v) generates hazardous waste under PRC laws and regulations.
(vi) could be a source of nuisance (e.g., odor, noise) to the local community during operation.
(vii) could expose workers and/or community to health and safety risks during operation.
(viii) has environmental sensitive receptors (natural habitat, physical cultural resources) within 500 meters from the subproject.
(ix) needs new land for the construction.
(x) is located in airshed close to exceeding or already exceeds ambient standards for its designated use.
(xi) is located within 10 km of a critical habitat, legally protected area, a protected zone (e.g., drinking water, fisheries) or water conservancy area (e.g., irrigation)
(xii) extracts any water from a surface or groundwater source identified as being water stressed or is not already designated for drinking water or is extracting greater volumes of water than are already licensed for extraction for drinking water.
(xiii) involves major hazard sources of hazardous chemicals, fuel storage or production, or explosives.
(xiv) involves metal smelting or metal production process.
(xv) involves organic or inorganic chemical production process.
(xvi) involves fertilizer production process.
(xvii) involves pesticide production process.
(xviii) involves pharmaceutical production process.
(xix) involves coking works.
(xx) involves thermal power plant >50 MW or exceeds the "Small Combustion Facilities Emissions Guidelines" of the World Bank's EHS guidelines on air emissions.
(xxi) involves incineration of waste and other types of biomass.
(xxii) involves landfill.

76. Under the Project, no environment category A subprojects will be considered for financing.

77. As for involuntary resettlement, the categorization will be determined whether or not a potential subproject involves involuntary resettlement, including restrictions on land use or access to common properties (e.g., environmental protection buffer zone). The degree of impact shall be determined by (i) the scope of physical and economic displacement, and (ii) the vulnerability of the affected persons. Category A refers to project activities with potential significant involuntary resettlement impact. Category B refers to project activities that have involuntary resettlement impact but not significant. Category C refers to project activities that do not have any impact on involuntary resettlement.

78. As for indigenous peoples safeguard, the categorization will be determined whether or not a subproject has potential adverse impacts on ethnic minority communities. The degree of impact is determined by evaluating (i) the magnitude of the impact on ethnic minority customary rights of use and access to land and natural resources; socioeconomic status; cultural and communal integrity; health, education, livelihood systems, and social security status; or indigenous knowledge; and (ii) the vulnerability of the affected ethnic minority people or communities. Category A refers to project activities with potential significant impact on ethnic minorities. Category B refers to project activities that have impact but not significant impact on ethnic minorities. Category C refers to project activities that do not have any impact on ethnic minorities.

79. Once the safeguard categorizations are completed for the subprojects, while reconfirming the subprojects meet all the specific selection criteria (**Appendix 4**), candidate subproject will be screened out (excluded) or pre-selected for carrying out further applicable environmental due diligence under the ESMS. As indicated in **Appendix 6**, any subproject that is (i) categorized as A for environment, (ii) categorized as A or B for involuntary resettlement and/or ethnic minorities, (iii) had recently land acquisition and resettlement with outstanding issue, and (iv) cause labor retrenchment and redundancies will not be financed under the Project. The ESMS manager (or other designated staff) at the Management Company will present the pre-selection list of the potential subprojects and submit it to the Management Company subproject selection committee who can review and approve the pre-selected subprojects being taken forward to due diligence.

B. Due Diligence for Subprojects

80. Once the pre-selected subprojects are identified and categorized by the Management Company, the subproject will be informed on the decision and the subproject will be subject to carry out further procedures of comprehensive due diligence. The Management Company will perform financial, technical as well as environmental due diligence of these pre-selected subprojects. If a pre-selected subproject is categorized B for environment, an IEE needs to be prepared in Chinese in accordance with ADB's SPS 2009. ADB can request an English translation of the IEE for review.

81. At the environmental due diligence stage, the designated specialists from CERT entrusted by the ESMS manager (or designated staff) at the Management Company, will provide the information request list and sample survey questionnaire that can be used by the pre-selected subprojects to conduct meaningful public consultation (**Appendix 9**). If a subproject is categorized as B, at least one meaningful public consultation needs to be performed and recorded in environmental due diligence report.

82. The ESMS manager (or designated staff) at the Management Company will also inform the pre-selected subprojects to proceed with domestic EIA preparation, communicate closely with the pre-selected subprojects, and instruct them to ensure domestic EIA preparation to meet the PRC requirements and, as applicable, the ADB SPS requirements (**Appendix 3**). The approvals

of the domestic EIA report shall be one of the conditions for the final approval of the subprojects to be financed by the Management Company under the Project.

83. For a greenfield subproject, environmental due diligence work will include reviewing EIA reports and approvals (if available), other supporting documents, site visits, information confirmation and additional information/data collection and verification. If a greenfield subproject is identified as medium or high in preliminary climate risks screening, a CRVA also needs to be prepared. If the subproject is a brownfield project, climate risks need to be considered and mitigation/adaptation measures shall be incorporated in the subproject design.

84. If the pre-selected subprojects involve existing facilities, due diligence will require environmental audits, in addition to environmental impact assessments of the subprojects under consideration. Information provided at screening and categorization stage should be sufficient for due diligence of category C existing facilities, hence no further environmental audits requirement. The audit aims to determine the existence of any areas where the facilities of the subprojects may cause or is causing risks or negative impacts to the environment, workers, and local communities. The facilities will be required to provide additional information as specified in **Appendix 8.**

85. The scope of the environmental audit includes assessing the EHS performance and compliance related to the existing facilities where the subproject is taking place or the subproject is linked to and/or related to. The audit activities shall include site observations, interviews of stakeholders, and review of relevant documents, including EHS documents and records, EHS training, environmental monitoring procedures and results, emission testing reports, accident reports, incident responses, third party EHS audit reports, and others relevant information. During the environmental audit, the EHS auditor will carry out a series of interviews with facility personnel, such as the plant manager, EHS manager, EHS staff and other workers at the facility, as well as other stakeholders, such as local EHS authorities including EPB(s), local environmental monitoring stations, and nearby residences and businesses, if needed. EHS and other social concerns, such as local community concerns and labor issues (i.e., confirm compliance with national labor standards), will be covered in the interviews. ADB can also request the subproject to provide incident reports and/or corrective and preventive action reports of the existing facilities, if any. Some sample interview questions are provided in **Appendix 9**.

86. The auditor(s) will then prepare an environmental audit report for each facility audited. A typical environmental audit report includes the following major elements: (i) executive summary; (ii) facilities description, including both past and current activities; (iii) summary of national, local, and any other applicable environmental laws, regulations, and standards; (iv) audit and site investigation procedure; (v) findings and areas of concern with supporting photos as necessary; and (vi) CAP that provides the appropriate corrective actions for each area of concern, including costs and schedule. It will also include a list of people interviewed and key supporting documents.

87. If the subproject is category B for environment, a Chinese version of IEE report needs to be prepared in accordance with ADB's SPS 2009 and disclosed at ADB, the Management Company, and subproject company's websites. ADB can request an English translation of the IEE if needed. If the subproject involves existing facilities and/or business activities already exist or are under construction, environmental audit report needs to be prepared and included in the IEE. If the subproject is a greenfield project and preliminarily assessed as medium or high in climate risks, a CRVA shall also be conducted and a Chinese version of CRVA report shall be included in the IEE report. The results and recommendations of the CRVA shall be incorporated during the subproject design phase. If the subproject is a brownfield project, climate risks need to be considered and shall be incorporated during the subproject design phase.

88. In reviewing the IEE, environmental audit report, and due diligence report, the designated specialists from CERT on behalf of ESMS manager of the Management Company will check the following prior to submission to the Management Company and/or to ADB: (i) all key potential social and environmental impacts and risks of the subproject are identified; (ii) effective measures to avoid, minimize, mitigate, or compensate for the adverse impacts are incorporated into the CAP, EMP, Environmental monitoring plan (EMoP), PRC EIA, and/or subproject design; (iii) all applicable emission/discharge standards are achieved by the subproject design;[17] (iv) the subproject proponent/entity understands the ESMS policy principles and requirements and has the necessary commitment and capacity to manage social and environmental impacts and/or risks adequately; and (v) meaningful consultations with affected people have been conducted and recorded in accordance with ESMS requirements.

C. Selection of Subprojects

89. Based on results of environmental and social due diligence as well as financial and technical due diligence, the ESMS manager (or designated staff) at the Management Company will prepare a final list of subprojects for the Management Company management to decide if financing will be provided or not. The Management Company will share the final list of subprojects with ADB.

90. Any subprojects which are not in accordance with the environmental requirement of this ESMS or will (i) entail permanent or temporary land acquisition, and physical displacement or economic displacement, (ii) have impact on ethnic minorities, (iii) entail labor retrenchment, and (iv) classified as environment category A will not be considered for financing under the Project. Also, due diligence for any subproject which acquired the land within 2 years at the subproject identification stage should be conducted to confirm that there is no outstanding issue on land acquisition process. If there is any outstanding issue, any of such subprojects shall not be considered for financing under the Project.

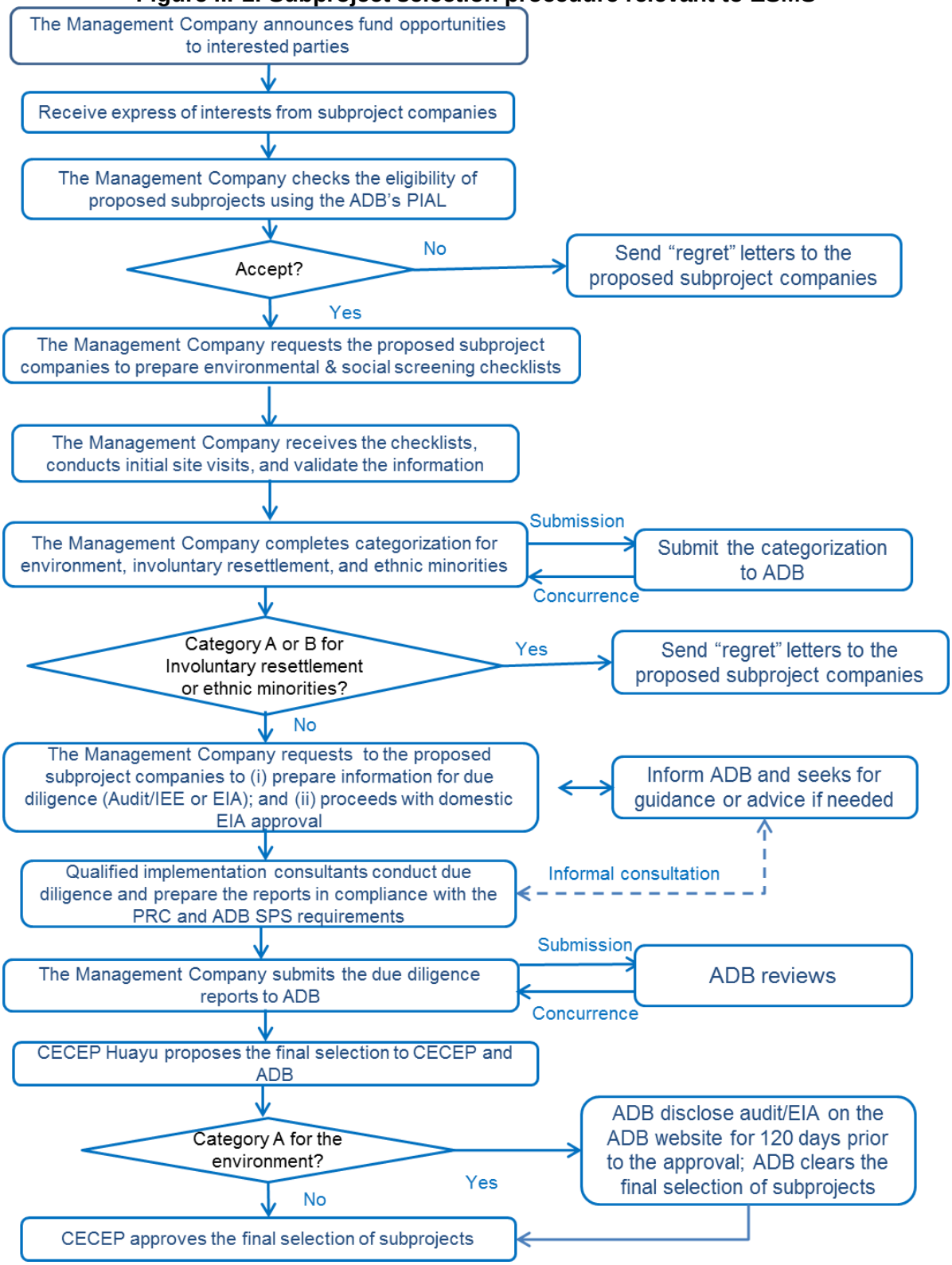
91. All subproject loan agreements will contain appropriate environmental and social covenants requiring investments to be in compliance with ADB's SPS 2009 requirements, including the PIAL; PRC environmental and social laws and regulations; this ESMS; if applicable, CAP, EMP, and EMoP; and GRM.

92. A free limit of €80 million has been set. CECEP is free to approve subprojects amounting to less than the free limit without seeking ADB's no objection. CECEP shall submit the screening results and safeguard due diligence reports to ADB for review prior to subproject approval.

93. The detailed procedures for subproject selection are shown in Figure III-1.

[17] The applicable PRC emission standards must be met by the subproject. The applicable World Bank EHS guideline standards must also be met by the subproject with B or deviation from them fully justified per paragraph 33 of Appendix 1 of SPS 2009.

Figure III-1: Subproject selection procedure relevant to ESMS



ADB = Asian Development Bank, CECEP = China Energy Conservation and Environment Protection Group, EIA = environmental impact assessment, ESMS = environmental and social management system, IEE = initial environmental examination, PIAL = prohibited investment activities list, PRC = People's Republic of China, SPS = Safeguard Policy Statement.

D. Compliance Monitoring and Reporting

94. After a subproject with category B for the environment is approved, the ESMS manager of the Management Company (or other designated staff) with the support from the designated specialists from CERT (if needed), shall (i) make regular visits to the site to monitor the subproject on ESMS implementation; (ii) confirm quarterly that the subproject is undertaking the obligations of compliance with all applicable environmental and social safeguard requirements, including the PIAL, PRC regulations, CAP, EMP, EMoP, ESMS, and GRM; and (iii) document and promptly report to ADB any actual or potential breach of the compliance requirements, and will work with the subproject company to bring the subproject back into compliance.

95. Environmental and social performance of all subprojects will be evaluated on a semi-annual basis by the Management Company during project implementation stage (first 5 years after loan effectiveness) and on an annual basis in the following 10 years. The benchmark for performance will be the ongoing compliance against the applicable environmental and social safeguard requirements in the subproject loan agreement, IEE, audit report, GRM, applicable CAP, EMP, EMoP, ESMS, and any other safeguard documents. The EHS team at the Management Company will ensure that category B subprojects prepare and submit semi-annual environmental and social monitoring reports (**Appendix 11**), and will review and assess the subproject's performance on environmental and social safeguard issues.

96. All the subproject level environmental monitoring reports must contain the information on energy savings, CO_2 emissions, and emission reductions of other air pollutants that are induced by the subproject components as well as a report on progress with the CAP and the environmental monitoring data required by the EMoP, as applicable. In case any environmental incident related to subproject activities/area during reporting period, the subproject shall prepare an incident report and attach it to the environmental and social monitoring report using an incident report form (**Appendix 12**) including identification of corrective action. In the event of an unanticipated impacts or major changes in subproject scope, the categorization will be reconfirmed and it may be necessary to update the IEE and EMP, and prepare a CAP in accordance with ADB's SPS 2009 requirements.

97. Based on the review of the environmental and social monitoring reports for Category B subprojects prepared by the subproject companies, the EHS team at the Management Company with support from the designated specialists from CERT will prepare (i) consolidated semi-annual environmental and social monitoring reports in English during Project implementation stage and annual reports in the following 10 years, and submit them to ADB; and (ii) ESMS implementation reports after the loan effectiveness semi-annually during project implementation stage and annually in the following 10 years, and submit them to ADB. A template form for the ESMS implementation report is attached in **Appendix 13**.

E. Information Disclosure

98. For information disclosure, the Management Company will submit to ADB the following documents for disclosure on ADB's website:

(i) For category B subprojects, a full Chinese copy of the IEE;
(ii) Semi-annual consolidated environmental and social monitoring reports during project implementation stage and annual consolidated reports in the following 10 years, including environmental performance and other social issues such as community concerns and internal labor issues in English; and

(iii) Semi-annual ESMS implementation reports during project implementation stage and annual reports in the following ten years in English.

99. The Management Company will ensure that all the subprojects will provide relevant environmental and social safeguards information, including information from the above documents, in a timely manner, in an accessible place and in a form understandable to affected people, surrounding local communities, and other stakeholders before subproject approval and during subproject implementation.

F. Grievance Redress Mechanism

100. Public grievances will most likely relate to environmental and social issues encountered during the implementation of the subprojects, both in construction and operation phases. Therefore, the Management Company needs to develop and operate the project level GRM to ensure that a proper GRM at all levels is established and operated, so that all complaints under the Project will be recorded and addressed systematically. At the subproject level, regardless of environmental categorization, all subprojects must establish the following five main steps of GRM and implement them accordingly. At the project level, the designated ESMS manager at the Management Company will be the main focal person of the GRM and will ensure effective GRM implementation and GRM information disclosure through close cooperation and communications with subprojects.

101. If any grievance was not effectively solved at the subproject level, the Management Company will facilitate the development of a reasonable, effective, and satisfactory resolution. The following describes the five main steps of the project level GRM.

(i) **Step 1**: **Resolution at Subproject Level.** If a concern arises, the affected person (AP) may try to resolve the issue of concern with the GRM designated staff at the subproject or complain to the local authorities, such as the local EPB. If the concern is resolved successfully by the subproject, no further follow-up is required. Nonetheless, the GRM designated staff at the subproject shall record any complaint and actions taken to resolve the issues and report the results to the GRM designated staff at the Management Company. If no solution is found within 15 working days or if the complainant is not satisfied with the suggested solution, proceed to Step 2.

(ii) **Step 2: Official Complaint to the Management Company.** The AP will submit the grievance directly, or via the GRM designated staff at the subproject, to the GRM designated staff at the Management Company who must assess the eligibility of the complaint, including whether Step 1 has been implemented properly, identify a solution in conjunction with the subproject, and give a clear reply within 15 working days to the complainant and to the GRM designated staff at the subproject with the suggested solution. The subproject company shall implement the redress solution and convey the outcome to the Management Company within 7 working days.

(iii) **Step 3: Stakeholder Meeting**. If no solution is identified or if the complainant is not satisfied with the suggested solution under Step 2, the GRM designated staff at the subproject will organize, within 15 days, a multi-stakeholder meeting where all relevant stakeholders, including the complainant, the GRM designated staff at the subproject or other representative(s), the GRM designated staff at the Management Company, and local EPB will be invited. The meeting will aim to find in a solution acceptable to all parties, and identify responsibilities and an action

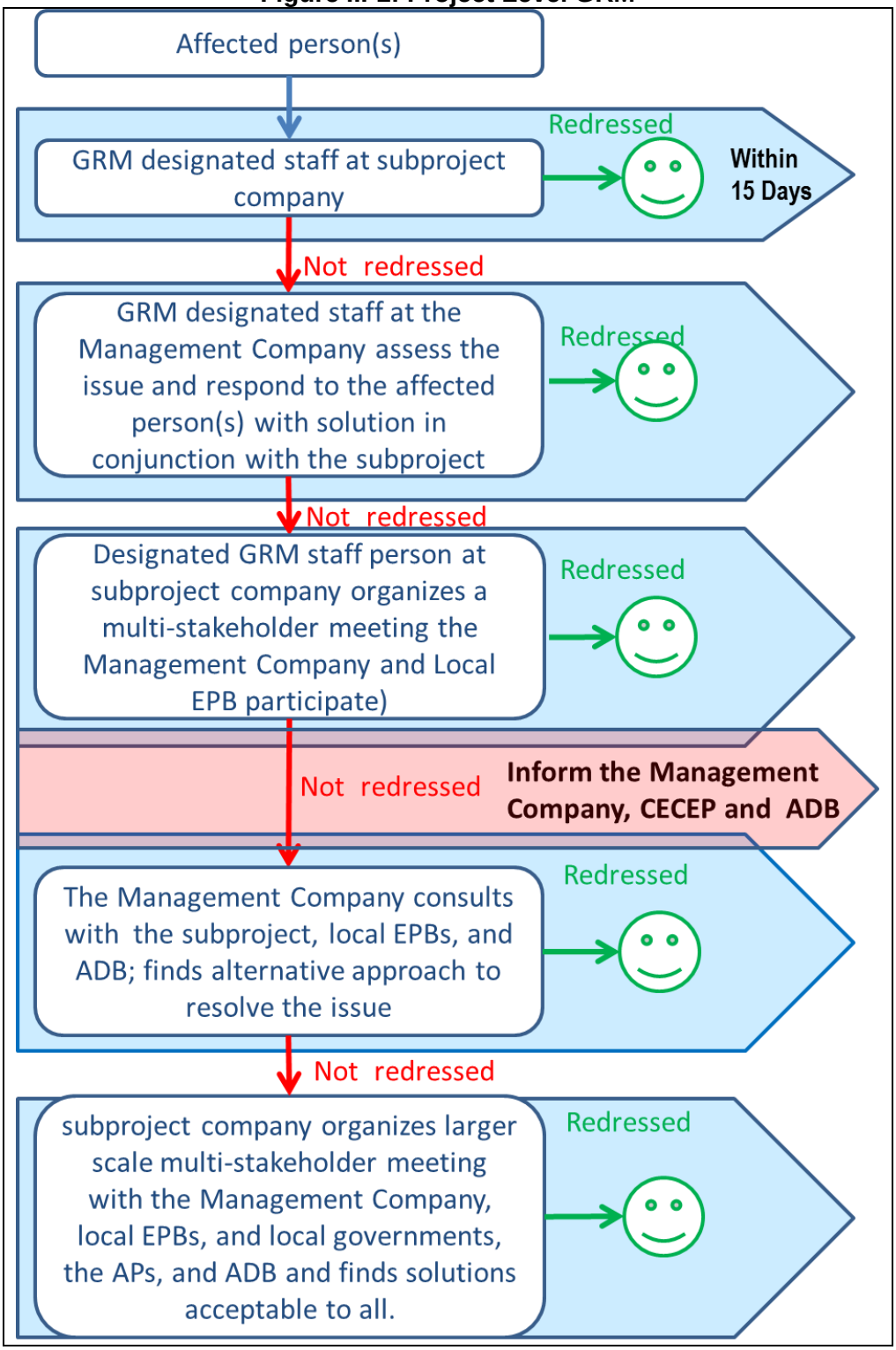
plan. The subproject company will implement the agreed-upon redress solution and convey the outcome to the Management Company within 7 working days.

(iv) **Stage 4: Special consultation.** If the multi-stakeholder hearing process under Step 3 cannot resolve the complaint successful, the Management Company in consultation with the subproject company, the relevant EPBs, and ADB, will review the situation and attempt to develop an alternative approach to resolve the complaint within 15 working days.

(v) **Step 5: Large Scale Stakeholder Meeting.** If the complainant is not satisfied with the suggested solution under Step 4, the subproject company, the Management Company, relevant EPBs, and other local government authorities, shall organize another multi-stakeholder hearing process within 15 days and shall find a solution acceptable to all parties. Based on the agreement, an action plan shall be developed and implemented by the subproject company within the agreed timeframe.

102. The GRM designated staff at the subproject company and the Management Company shall accept the complaints/grievances lodged by the APs free of charge. Any cost incurred in dealing with a complaint/grievance should be covered by the subproject. The grievance procedures will remain valid throughout the duration of subproject construction and until subproject closure. Figure III-2 shows the project level GRM procedures.

Figure III-2: Project Level GRM



ADB = Asian Development Bank, AP = affected person, CECEP = China Energy Conservation and Environment Protection Group, EPB = environmental protection bureau, GRM = grievance redress mechanism.

V. INSTITUTIONAL RESPONSIBILITY, STAFFING AND TRAINING

A. Organization and Responsibilities

103. CECEP will exercise fiduciary oversight over the Project and ensure adequate resources are available to the Management Company to undertake environmental and social management on all subprojects.

104. The ESMS Manager (or other designated staff) at the Management Company will (i) oversee environmental and social issues on all subprojects, (ii) undertake or ensure adequate resources are made available for undertaking environmental and social screening, categorization and due diligence on all subprojects, including requirements for environmental audit/IEE and development of subproject specific CAP, EMP, EMoP, ESMS, and GRM, and submit the required information to ADB as applicable; (iii) undertake or ensure adequate resources are made available for undertaking supervision and monitoring of environmental and social management performance of all subprojects, including subproject specific CAP, EMP, EMoP ESMS, and GRM, as applicable; (iv) ensure all the subprojects fulfill environmental monitoring requirements; (v) consolidate subprojects' environmental monitoring reports and submit them to ADB in a timely manner; and (vi) prepare and submit semi-annual ESMS implementation reports in English to ADB during the Project implementation stage, and annual reports in the following 10 years. The Management Company shall ensure that ADB is notified if and when the responsible staff at the Management Company has been changed or replaced with new staff. Only suitably qualified and experienced staff shall be appointed as the ESMS Manager.

B. Capacity and Resources

105. **Staffing.** An ESMS team consisting of a full-time ESMS manager and 4 supporting staff will be established at the Management Company. A team of five environmental assessment and management specialists from CERT will be designated to provide technical support to the ESMS manager at the Management Company so that the ESMS can be fully operational prior to signing of the loan agreement. Other specialists will be provided by CERT on a needed basis during the implementation of the Project. Training on SPS 2009 and the ESMS requirements have been conducted by the ADB environmental specialist and consultants during loan processing.

106. The Management Company will also maintain a pool of qualified environmental and social consultants who can be called upon to assist in conducting environmental audit, preparing IEE, conducting environmental and social reviews including conducting due diligence on the past land acquisition and involuntary resettlement and/or trainings, as appropriate.

107. **Tasks for CERT.** The Management Company will enter into an agreement with CERT to provide professional environmental services and to: (i) screen potential subprojects to be financed by the ADB loan; (ii) review and evaluate the subprojects against the ADB's SPS 2009; (iii) conduct site visits and perform environmental due diligence; (iv) conduct environmental training; and (v) monitor environmental performance and prepare reports. The specific tasks are outlined in the following paragraphs.

108. At the subproject identification stage, the Management Company and/or CERT will review the rapid assessment of the likely environmental and social impacts using the environmental and social assessment checklist submitted by subproject companies, including a checklist for preliminary climate risk screening.

109. CERT will conduct preliminary environmental and social due diligence during the initial site visit of each subproject and specifically perform the following:

(i) confirm the information included in the checklists that could influence environmental and social categorizations (e.g., all potential environmental and social impacts/risks of the subproject have been identified);
(ii) verify that the subproject has proper domestic EIA approval(s) and discharge permits, covering its entire production lines within its premise;
(iii) identify potential operational EHS risks associated with the operational practices observed at the facilities as related to the subproject;
(iv) conduct brief environmental and social consultation through interviews with employees, local residents and/or local environmental authorities including the EPB;
(v) confirm boundaries of potential adverse impacts, particularly in respect of environmental receptors as related to the subproject; and
(vi) revise the initial assessment provided by the subproject if necessary.

110. CERT will prepare environmental categorization using ADB's categorization system for each subproject and submit it to the Management Company's ESMS Manager who will then submit to ADB. A potential subproject's category is determined by the category of its most environmentally sensitive component, including direct, indirect, cumulative, and induced impacts in the subproject's area of influence.

111. CERT will provide support to the Management Company for the following tasks:

(i) Participate in an additional meaningful public consultation if needed, including survey with representatives of affected communities (neighboring residents and businesses), who are located within the area of influence of the subproject;
(ii) Provide recommendations to the Management Company on the subproject in terms of environmental impacts;
(iii) Monitor the subprojects and confirm that the subprojects are undertaking the obligations of compliance with all applicable environmental and social safeguard requirements, including the PRC regulations, GRM, CAP, EMP, and EMoP as applicable;
(iv) Visit each subproject site semi-annually during project implementation stage and annually in the following 10 years for category B subproject, to monitor the implementation of subproject-specific GRM, and applicable CAP, EMP, and EMoP;
(v) Document and promptly report to the Management Company any actual or potential breach of the compliance requirements of any subprojects;
(vi) Prepare consolidated semi-annual environmental and social monitoring reports during the Project implementation stage and consolidated annual reports in the following ten years. The reports shall contain the information on energy savings, greenhouse gas emissions, emission reductions, progress with the CAP and the environmental monitoring data required by the EMoP;
(vii) In the event of an unanticipated impact or major change in subproject scope, update the IEE and prepare a CAP in accordance with SPS requirements; and
(viii) Prepare semi-annual ESMS implementation reports during the project implementation stage and annual reports in the following 10 years, and submit them to the Management Company.

112. **Estimated ESMS implementation budget.** The ADB loan is expected to be paid within 15 years. The estimated costs for implementing ESMS during construction phase as well as operation phase are summarized in Table V-1. The total estimated cost is about $1,721,500.

113. **Training.** The ESMS Manager (and/or a designated staff) at the Management Company, the designated specialists at CERT, and subprojects will take a series of capacity building measures before the first disbursement of ADB loan. In addition, ADB's Environment Safeguard Specialist together with Social Safeguard Specialist have provided training on environment and social safeguard screening process to the ESMS manager and more training will be provided before the first disbursement of ADB loan. Future subproject companies will take these training courses before the first disbursement of their subloans. The training on ESMS and occupational health and safety management systems is essential. Table V-2 presents the training program on environmental and social management and associated costs.

Table V-1: Estimated Budget for Implementing ESMS

No.	EMP Item	Unit	Unit Cost	Category B		Category C		Sub-total
				No of units	Cost	No of units	Cost	
	Implementation phase							
	Mitigation Measures				**Included in the EA budget**			
1	Independent Environmental Monitoring	6-month	$3,000	40	$120,000	0	$0	$120,000
2	Training	Program	$4,000	50	$200,000	3	$12,000	$212,000
3	Public Consultation	Survey	$2,000	70	$140,000	0	$0	$140,000
4	Compliance Audit		$4,000	70	$280,000	20	$80,000	$360,000
5	Environmental Due Diligence		$4,000	70	$280,000	20	$80,000	$360,000
	Subtotal							$1,192,000
	6th–15th years							
	Mitigation Measures	**Annual Cost**			**Included in the EA budget**			
1	Independent Environmental Monitoring	Quarterly	$3,000	15	$45,000	0	$0	$45,000
2	Training	Program	$4,000	15	$60,000	0	$0	$60,000
3	Public Consultation	Survey	$2,000	10	$20,000	0	$0	$20,000
4	Compliance Assessment	Program	$4,000	60	$240,000	2	$8,000	$248,000
	Subtotal							$373,000
	Contingency							$156,500
	Total							$1,721,500

EA = executing agency, EMP = environment management plan, ESMS = environmental and social management system.

Table V-2: Capacity building training on environmental and social management

Training Topic	Trainer	Attendee	Contents	Times	Period (days) per time	# of Persons per time	Budget (USD)	Source of Funds
ADB Safeguard Training	ADB environment specialist, ADB consultant	CECEP, the Management Company, CERT, Subproject companies (Note: All subprojects must receive this training prior to subproject implementation)	**ADB and PRC EHS laws, regulations and policies** • The project's ESMS policy and requirements including links to ADB's SPS (2009), policy principles, policy delivery process, environmental and social safeguard requirements, and others, • Subproject categorization and requirements of IEE • Environmental and social due diligence and compliance audit • Fund applicable PRC EHS laws, policies, standards and regulations • International environmental, health and safety management practice in civil constructions including World Bank EHS Guidelines • Climate risk screening and preparation/review of CRVA **GRM** • GRM structure, responsibilities, and timeframe • Types of grievances and eligibility assessment **Implementation of EMP and EMoP** • Impacts and mitigation measures during construction, operation, and decommissioning • Monitoring and auditing mechanism • Reporting requirements **Construction phase EMP** • Implementation of Construction Phase EMP Plan • Plan descriptions • Roles and responsibilities **Implementation of ESMS** • ESMS objectives, contents, subproject criteria, other issues regarding ESMS	15	2	20	Course material development and course evaluation report $700 x 15 times = $10,500 Course Delivery (fees and per diem, lump sum fixed cost): $700/day x 2(days) x 15 (times) = $21,000 Logistics costs for trainees $400 (per person) x 2 (days) x 20 (persons) x 15 (times) =$240,000	ADB loan, the Management Company environment investment budget
						Total		**$271,500**

ADB = Asian Development Bank, CECEP = China Energy Conservation and Environment Protection Group, CERT = China Environmental Resources Technology Co., Ltd., CRVA = Climate Risk and Vulnerability Assessment, EHS = environmental, health and safety, ESMS = environmental and social management system, EMP = environmental management plan, EMoP = environmental monitoring plan, GRM = grievance redress mechanism, IEE = initial environmental examination, PRC = People's Republic of China, SPS = ADB Safeguard Policy Statement.

VI. ASSURANCES OF THE FACILITY

114. The following assurances of the project are agreed among CECEP and ADB.

(i) The Management Company will ensure that all subprojects of future batches must meet the technical, financial, economic, environmental, and social criteria presented in this ESMS (**Appendix 4**).

(ii) The Management Company will ensure that all subprojects approved will improve energy efficiency and reduce emissions.

(iii) The Project will not support expansion of production capacities or extension of the use of old and inefficient equipment.

(iv) The Project will not support subprojects that are included in the ADB's PIAL (**Appendix 2**), including subprojects that involve the production of or trade in any product or activity deemed illegal under the PRC laws or regulations or international conventions and agreements or subject to international phase-outs or bans.

(v) The Management Company will have dedicated staff to provide supervision and management support for the Project including sufficient dedicated suitable qualified and experience staff to ensure satisfactory ESMS implementation.

(vi) The Management Company will hire a full-time qualified and experienced ESMS manager and other relevant staff, and/or contract out with a qualified EIA institute to enable satisfactory ESMS implementation throughout the entire project.

(vii) The Management Company will ensure that all the subprojects will provide to AP and other stakeholders relevant environmental and social safeguards information in Chinese, in a timely manner, in an accessible place and in a form understandable to AP and other stakeholders.

(viii) At least one round of meaningful public consultation with the Management Company's participation will be conducted during the preparation of the due diligence for subprojects for Category B subprojects.

(ix) Greenfield subprojects with medium or high climate risk will be required to prepare a CRVA report, which needs to be incorporated in their applicable environmental due diligence reports. And the result of CRVA should be incorporated with the subproject design.

LIST OF APPLICABLE NATIONAL ENVIRONMENTAL, HEALTH AND SAFETY REGULATIONS

Category	Title of Regulation	Regulator	Edition
Construction Projects	Labor Law (2008)	Standing Committee of National People's Congress	2008, revised in Sep 2009
	Rules on the Labor Protection of Female Staff (2012)	State Council	2012
	Rules on the Types of Work Prohibited for Women (1990)	Ministry of Labor and Social Security (now Ministry of Human Resources and Social Security)	1990
	Classification of Intensity of Physical Work (GB3869-1997)	State Bureau of Technical Supervision	1997
	Law on Production Safety (2014)	Standing Committee of National People's Congress	2014
	Safety Signs and Guideline for the Use (GB2894-2008)	General Administration of Quality Supervision, Inspection and Quarantine and the Standardization Administration	2008
	Regulation on the Safety Supervision of Special Equipment (2009)	State Council	2009
	Interim Provisions for Supervising and Administrating the Occupational Health at the Workplace (2009)	State Administration of Work Safety	2009
	Regulation on the Management of Construction Projects (2000)	State Council	2000
Occupational noise	Norms on Hearing Protection for Workers at Industrial Facilities (1999)	Ministry of Health	1999
Electricity	Rules of Electrical Safety Management (1986)	Ministry of Machinery Industry	1986
	General Guide for Safety of Electric User (GB/T 13869-2008)	General Administration of Quality Supervision, Inspection and Quarantine and the Standardization Administration	2008
Emergency	Guidelines for Enterprises to Develop Emergency Response Plan for Work Place Accidents (GB/T 29639-2013)	State Administration of Work Safety	2013
	Rules of Reporting and Investigation of Work Place Accidents (2007)	State Council	2007
	Interim Rules on Inspection and Removal of Potential Risks of Work Place Accidents (2007)	State Administration of Work Safety	2007
	Measures for the Administration of Emergency Response Plans (2013)	State Administration of Work Safety	2013
	Provisions on Radioactive Accidents (2001)	Ministry of Health and Ministry of Public Security	2001
Fire Protection	Fire Safety Signs (GB13495-1992)	State Bureau of Technical Supervision	1992
	Provisions on Safety for Workplaces with Explosion Risks (1995)	Labor Department	1995
	Firefighting Surveillance and Inspection Rules for Building Construction (2012)	Ministry of Public Security	2012
	Maintenance for Fire Equipment in Building (GA 587-2005)	Ministry of Public Security	2005
	Provisions of Fire Prevention in Building Design (GB 50016-2014)	Ministry of Construction and General Administration of Quality Supervision, Inspection and Quarantine	2014
	Fire Prevention Technology Requirements for Residential, Production, Operation or Storage Mixed-Use Areas (GA 703-2007)	Ministry of Public Security	2007

Category	Title of Regulation	Regulator	Edition
	Safety Regulation for Dust Explosion Prevention (GB 15577-2007)	General Administration of Quality Supervision, Inspection and Quarantine and Standardization Administration	2007
	Code for Acceptance and Inspection of Extinguisher Distribution in Buildings (GB 50444-2008)	Ministry of Housing and Urban-Rural Development	2008
Hygiene standards	Hygienic Standards for the Design of Industrial Enterprises (GBZ 1-2010)	Ministry of Health	2010
	Hygiene Standards for Domestic Drinking Water (GB 5749-2006)	Ministry of Health and Standardization Administration	2006
Insurance	Work-related Injury Insurance Regulation (2010)	State Council	2010
Lifting	Lifting Appliances Periodical Inspection Regulation (TSG Q7015 -2016)	General Administration of Quality Supervision, Inspection and Quarantine	2016
	Cranes Service Administration Regulation (TSG Q5001-2009)	General Administration of Quality Supervision, Inspection and Quarantine	2009
Occupational Health and Disease	Law of Occupational Disease Prevention	Standing Committee of National People's Congress	2016
	Management Measures on Occupational Disease Diagnosis and Appraisal (2013)	Ministry of Health	2013
	Measures on Investigation of and Dealing with Occupational Diseases Risk Accidents (2002)	Ministry of Health	2002
	Measures on Occupational Health Care (2002)	Ministry of Health	2002
	Warning Signs for Occupational Disease Hazards in Workplaces (GBZ 158-2003)	Ministry of Health	2003
	Provisions on Management of Occupational Disease Hazard Classification in Construction Projects (2012)	State Administration of Work Safety	2012
Personal Protective Equipment (PPE)	Personal Fall Protection Systems (GB 6095-2009)	General Administration of Quality Supervision, Inspection and Quarantine, and Standardization Administration	2009
	Code of Practice for Selection of Personal Protective Equipment (GB/T 11651-2008)	General Administration of Quality Supervision, Inspection and Quarantine and State Standardization Administration Committee	2008
	Provisional Regulation of the Use of Personal Protective Equipment for Construction Personnel (2007)	Ministry of Construction	2007
Reporting (statutory) asbestos hazardous dangerous explosive radioactive	Basic Standards for Protection Against Ionizing Radiation and for the Safety of Radiation Sources (GB 18871-2002)	General Administration of Quality Supervision, Inspection and Quarantine and State Standardization	2002
	Provisions on Preventing Environmental Pollution Caused by Electrical Equipment Containing Polychlorinated Biphenyls (PCBs) and Related Wastes (1991)	State Environmental Protection Administration (Now Ministry of Environmental Protection) and Ministry of Energy	1991
	Control Standard on Polychlorinated Biphenyl Wastes (GB 13015-91)	State Environmental Protection Administration	
	Management Measures on Transportation Safety Permitting of Radioactive Substances (2016)	Ministry of Environmental Protection	2016
	Rule for Storage of Chemical Dangers (GB 15603-1995)	State Bureau of Technical Supervision	1995

Category	Title of Regulation	Regulator	Edition
	Regulations on the Management of the Controlled Chemicals (2011)	State Council	2011
	Provisions on Safe Use of Chemicals in Workplaces (1996)	Ministry of Labor and Ministry of Chemical Industry	1996
	Provisions on Pesticides Management in China (2017)	State Council	2017
	Management Measures on Registration of Dangerous Chemicals (2012)	State Administration of Work Safety	2012
	General Rules for Classification and Hazard Communication of Chemicals (GB 13690-2009)	General Administration of Quality Supervision, Inspection and Quarantine and State Standardization Administration	2009
Training	Notion on Safe Production Training Examination for the Principals of Production and Operating Entity, Management Personnel and Other Practitioners (2002)	State Administration of Work Safety	2002
	Provision on Safety Training for Manufacturing and Operations Facilities (2013)	State Administration of Work Safety	2013
	Management Provisions on Examining Safety Technical Training of Special Operation Personnel (2015)	State Administration of Work Safety	2015
Work equipment	Safety in Welding and Cutting (GB 9448-1999)	State Bureau of Quality and Technical Supervision	1999
	Safety Nets (GB 5725-2009)	General Administration of Quality Supervision, Inspection and Quarantine, and Standardization Administration	2009
	Technical Safety Code for Management, Operation, Inspection, and Maintenance of Hand-held Motor-operated Electric Tools (GB/T 3787-2006)	General Administration of Quality Supervision, Inspection and Quarantine, and Standardization Administration	2006
	Safety of Hand-held Motor-operated Electric Tools-Part 1: General Requirements (GB 3883.1-2005)	General Administration of Quality Supervision, Inspection and Quarantine and Standardization Administration	2005
	Safety of Transportable Motor-operated Electric Tools-Part 2: Particular Requirements for Bench Grinders (GB 13960.5-2008)	General Administration of Quality Supervision, Inspection and Quarantine and Standardization Administration	2008
Workplace and welfare	Labor Protection Regulations for Workplaces Where Toxic Substances are Used (2002)	State Council	2002
General Environmental	Regulation on the Administration of Construction Project Environmental Protection (2017)	State Council	2017
	Law of the People's Republic of China on Environmental Impact Assessment (2016)	Standing Committee of the National People's Congress	2016
	Law of the People's Republic of China on Environmental Protection (2015)	Standing Committee of the National People's Congress	2015
	Law of the People's Republic of China on Land Management (1986; last amended 2004)	Standing Committee of the National People's Congress	2004
	Environmental Protection Management Measures for Electromagnetic Radiation (1997)	State Environmental Protection Administration	1997

Category	Title of Regulation	Regulator	Edition
	Measures for the Disclosure of Environmental Information (Trial Implementation) (2007)	Ministry of Environmental Protection	2007
	Law of the People's Republic of China on Prevention and Control of Pollution from Environmental Noise	Standing Committee of the National People's Congress	1997
	Management Measures on Automatic Monitoring and Inspection of Pollution Sources (2005)	Ministry of Environmental Protection	2005
	Measures on Management of Pollution Sources Monitoring (1999)	State Environmental Protection Administration	1999
Water	Law of the People's Republic of China on Water (1988; last amended 2016)	Standing Committee of the National People's Congress	2016
	Provisions on the Administration of the Prevention and Control of Pollution in the Protected Zones of Drinking Water Sources (2010)	Ministry of Environmental Protection	2010
	Management Measures on the Monitoring of Pollutant Discharge Outlets Entering Rivers (2004)	Ministry of Water Resources	2004
	Management Regulations for Water Extraction Permitting and Collection of Water Resource Fees (2006)	State Council	2006
	Management Measures on Handling of Water Pollution Within a Specified Period (Trial Implementation) (2009)	Ministry of Environmental Protection	2009
	Integrated Wastewater Discharge Standard (GB 8978-1996) (GB 18466-2005, GB 20426-2006, GB 20425-2006 partly replace GB 8978-1996)	State Environmental Protection Administration	1996
	Technical Guidelines for Environmental Impact Assessment—Groundwater Environment (HJ 610-2016)	Ministry of Environmental Protection	2016
	Quality Standard for Groundwater (GB/T 14848-93, last amended 2014)	State Bureau of Technical Supervision	2014
	Wastewater Quality Standards for Discharge to Municipal Sewers (GB/T 31962-2015)	State Environmental Protection Administration and General Administration of Quality Supervision, Inspection and Quarantine	2015
	Environmental Quality Standard for Surface Water (GB 3838-2002)	State Environmental Protection Administration and General Administration of Quality Supervision, Inspection and Quarantine	2002
	Law on Prevention and Control of Water Pollution (1984; last amended 2008)	Standing Committee of the National People's Congress	2008
	Implementing Rules of the Law on the Prevention and Control of Water Pollution (2000)	State Council	2000
	Discharge standard of pollutants for livestock and poultry breeding (GB 18596-2001)	Ministry of Environmental Protection	2001
	Discharge standard of pollutants for municipal wastewater treatment plant (GB18918-2002)	Ministry of Environmental Protection	2002
	Discharge standard of water pollutants for iron and steel industry (GB 13456-2012)	Ministry of Environmental Protection	2012
Air	Measures on the Administration of Urban Smoke-Dust Controlling Zones (1987)	Environmental Protection Committee of the State Council	1987

Category	Title of Regulation	Regulator	Edition
	Law of the People's Republic of China on the Prevention and Control of Air Pollution (1987; last amended 2015)	Standing Committee of the National People's Congress	2015
	Management Regulations on ODS (2010)	State Council	2010
	Emission Standards for Odor Pollutants (GB 14554-1993)	State Environmental Protection Administration	1993
	Integrated Emission Standard for Air Pollutants (GB 16297-1996)	State Environmental Protection Administration	1996
	Technical Guidelines for Fugitive Emission Monitoring of Air Pollutants (HJ/T 55-2000)	State Environmental Protection Administration	2000
	Ambient Air Quality Standard (GB 3095-2012) (last amended 2012)	Ministry of Environmental Protection and General Administration of Quality Supervision, Inspection and Quarantine	2012
	Emission standard of pollutants for coking chemical industry (GB 16171-2012)	Ministry of Environmental Protection	2012
	Emission standard of air pollutants for boiler (GB 13271-2014)	Ministry of Environmental Protection	2014
	Emission standard of pollutants for ceramics industry (GB 25464-2010)	Ministry of Environmental Protection	2010
	Emission Standard of Coalbed Methane/Coal Mine Gas (on trial) (GB 21522-2008)	Ministry of Environmental Protection	2008
	Emission standard of air pollutants for industrial kiln and furnace (GB 9078-1996)	Ministry of Environmental Protection	1996
	Emission standard of pollutants for magnesium and titanium industry (GB 25468-2010/XG1-2013)	Ministry of Environmental Protection	2013
Hazardous Materials	Classification of Radioactive Waste (GB 9133-1995)	State Bureau of Technical Supervision	1995
	Management Measures on Environmental Protection from Electromagnetic Radiation (1997)	State Environmental Protection Administration	1997
	Law on the Prevention and Control of Radioactive Pollution (2003)	Standing Committee of the National People's Congress	2003
	Environmental Management Measures on New Chemical Substances (2010)	Ministry of Environmental Protection	2010
Construction Projects	Provisions on Environmental Protection Design of Construction Projects (1987)	State Planning Commission and State Council Environmental Protection Committee	1987
	Management Procedures on Environmental Protection of Construction Projects (1990)	State Environmental Protection Administration	1990
	Regulations on Management of Environmental Protection of Construction Projects (1998)	State Council	1998
	Classified Directory for Environmental Protection Management of Construction Projects (2015)	Ministry of Environmental Protection	2015
Emergency Planning	Interim Provision on Management of Emergency Plan for Abrupt Environmental Accidents (2015)	Ministry of Environmental Protection	2015
Energy Efficiency	Interim Measures of Energy Conservation Assessment and Audit for Capital Asset Investment Projects (2010)	National Development and Reform Commission	2010
	Law of the People's Republic of China on Energy Conservation (last amended 2016)	Standing Committee of the National People's Congress	2016

Category	Title of Regulation	Regulator	Edition
	Measures on Supervision and Management of Energy Conservation of Specialized Equipment with High Energy Consumption (2009)	General Administration of Quality Supervision, Inspection and Quarantine	2009
Waste	Circular Economy Promotion Law of the People's Republic of China (2009)	Standing Committee of the National People's Congress	2009
	Law on the Prevention and Control of Environmental Pollution by Solid Wastes (2016)	Standing Committee of the National People's Congress	2016
	Measures on the Administration of Hazardous Wastes Operating License (2004)	State Council	2004
	Management Measures on Environmental Pollution Prevention and Control of Electronic Wastes (2007)	State Environmental Protection Administration	2007
	National Catalogue of Hazardous Wastes (2016)	Ministry of Environmental Protection	2016
	Measures on the Management of Hazardous Waste Manifests (1999)	State Environmental Protection Administration	1999
	Standard for Pollution Control on Hazardous Waste Storage (GB 18597-2001) (last amended 2013)	Ministry of Environmental Protection	2013
	Standard for Pollution Control on the Storage and Disposal Site for General Industrial Solid Wastes (GB 18599-2001) (last amended 2013)	Ministry of Environmental Protection	2013
	Management Measures on Environmental Pollution Prevention and Control of Electronic Wastes (2007)	State Environmental Protection Administration	2007
	Waste Electrical and Electronic Product Disposal and Recycling Management Regulations (2009)	State Council	2009

ASIAN DEVELOPMENT BANK 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 labor[1] 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 biphenyls[6] 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) transboundary 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 components thereof;

(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.

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[1] Forced labor means all work or services not voluntarily performed, that is, 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 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 phaseouts or bans is available at http://www.who.int.

[4] A list of pesticides and herbicides subject to phaseouts or bans is available at http://www.pic.int.

[5] A list of the chemical compounds that react with and deplete stratospheric ozone resulting in the widely publicized ozone holes is listed in the Montreal Protocol, together with target reduction and phaseout 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 who 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 equipment for which ADB considers the radioactive source to be trivial and 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%.

ADB SAFEGUARDS POLICY STATEMENT

ADB's Safeguard Policy Statement (2009) can be downloaded from the following link:
https://www.adb.org/documents/safeguard-policy-statement?ref=site/safeguards/main

The Chinese version of the Safeguard Policy Statement (2009) can be downloaded from the following link:
https://www.adb.org/zh/documents/safeguard-policy-statement

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 PAM.[1] 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) region[2] 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 consumption[3] and emissions comparing to the current situation where the Subprojects are located, including carbon dioxide (CO_2), sulfur dioxide (SO_2), nitrogen oxide (NO_x), and airborne particulate matter (PM_{10} 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.

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[1] Loan Agreement, Project Agreement, and Project Administration Manual (accessible from the list of linked documents in Appendix 2 of the main text of the report and recommendation of the President).

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

[3] 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. [4]
(viii) The subprojects must not have any negative impacts on ethnic minorities.[5]

[4] The subproject proposal will be screened through an involuntary resettlement impact screening checklist which is included in Appendix 6, in accordance with procedures contained in the project's ESMS.
[5] 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.[6]

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.[7]
(v) The Qualified Subborrowers must be in compliance with relevant domestic occupational health and safety standards.
(vi) The Qualified Subborrowers' debt service coverage ratio,[8] taking into account the proposed debt investment for the relevant Subproject, calculated as per the related ADB guidelines, [9] 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 the company's operations. Money from the Facility or a Fund for an Equity Investment must be

[6] Process for changes in to the selection criteria for any subproject should follow ADB's Project Administration Instructions (PAI 5.02).
[7] 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.
[8] Debt Service Converge Ratio = annual cash flow from operations divided by annual debt service obligations (interest and principal).
[9] ADB *Financial Due Diligence: A Methodology Note* (2009, as amended from time to time).

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 finance 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 Investment[10] 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

[10] 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.

ENVIRONMENTAL SAFEGUARD SCREENING CHECKLISTS

1. SAMPLE RAPID ENVIRONMENTAL ASSESSMENT CHECKLIST[1]

Instructions:

(i) The subproject shall complete this checklist to support the environmental classification of the subproject.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Subproject Title:

(General)

Screening Questions	Yes	No	Remarks
A. SUBPROJECT SITING Is the subproject area adjacent to or within any of the following environmentally sensitive areas? (Identify environmentally sensitive areas within the area of influence of the subproject area and state distance to subproject area)			
1) Environmental protection zone			
2) Cultural heritage site			
3) Legally Protected Area			
4) Wetland			
5) Mangrove			
6) Estuarine			
7) Coast			
8) Mountain			
9) Forest			
10) Buffer zone of legally protected area			
11) Special area for protecting biodiversity			
12) Areas with high biodiversity value (critical habitat)			
13) Densely populated area			
14) Locale in which ambient quality standards are already exceeded			
B. POTENTIAL ENVIRONMENTAL IMPACTS Will the subproject cause…			

[1] Sector-specific REA checklists will be provided to the Management Company ESMS manager, staff and CERT specialists.

Screening Questions	Yes	No	Remarks
15) impairment of historical/cultural monuments/areas, and loss/damage to these sites?			
16) disfiguration of landscape or potential loss/damage to physical cultural resources?			
17) disturbance to precious ecology (e.g. sensitive or protected areas)?			
18) degradation of land and ecosystems (e.g. loss of wetlands and wild lands, coastal zones, watersheds and forests)?			
19) interference with other utilities and blocking access to buildings; nuisance areas due to noise and odor?			
20) dislocation or involuntary resettlement of people?			
21) disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?			
22) air pollution resulting from emissions of hydrocarbons or other pollutants from process equipment, fugitive emissions, venting or flaring, accidents, inadequate equipment maintenance, and poor planning?			
23) dangers to a safe and healthy working environment due to physical, chemical, biological, and radiological hazards during subproject construction and operation?			
24) noise and dust from construction activities or operation?			
25) air pollution resulting from emissions from production process, accidents, and poor equipment maintenance?			
26) pollution of water bodies and aquatic ecosystem resulting from chemical spillage, process wastewater, production wastes, utility operations, sanitary sewage, and miscellaneous discharges?			
27) contamination of soil and groundwater from chemical spillage, solid wastes from water treatment sludges, cafeteria or lunchroom wastes, ashes and incineration residues, etc.?			
28) large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?			
29) social conflicts if workers from other regions or countries are hired?			

Screening Questions	Yes	No	Remarks
30) risks to community health and safety during construction and operation caused by chemical spills, from road accidents and possible groundwater contamination?			
31) risks to community health and safety (e.g. from fire, explosion or chemical leak) due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?			
32) community safety risks due to both accidental and natural hazards, especially where the structural elements or components of these are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?			

2. SUBPROJECT DESCRIPTION AND ENVIRONMENTAL CATEGORIZATION

Subproject Title:

Detailed Subproject Description:

Overall conclusion on Environment Category (circle one):

A B. C

Reason for conclusion:

Notes:

Prepared by: _____(subproject)
Date: _____
Reviewed by: _____(CERT)
Date:
Endorsed by: _____(The Management Company's ESMS Manager)
Date: _____

A Checklist for Preliminary Climate Risk Screening

Subproject Title:

Screening Questions		Score	Remarks[2]
Location and Design of subproject	Is siting and/or routing of the subproject (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the subproject design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc.)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s)?		
Performance of subproject outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of subproject output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk subproject. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the subproject will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk subproject.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____
_____

Prepared by: _____**(subproject)**
Date: _____
Reviewed by: _____**(CERT)**
Date: _____
Endorsed by: _____**(The Management Company's ESMS Manager)**
Date: _____

[2] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

SOCIAL SAFEGUARD SCREENING CHECKLISTS

1. Land Acquisition and Involuntary Resettlement Impact Pre-Screening Checklist

Date: _____

A. Subproject Data Subproject Title _____				
Probable Involuntary Resettlement Effects	**Yes**	**No**	**Instruction**	**Remarks**
B. Involuntary Acquisition of Land				
1. Will there be land acquisition?			If "Yes" in any of question 1 to 4, the project is NOT eligible for financing.	
2. Will there be residential house demolition causing loss of shelter to people/workers due to land acquisition or construction activities?				
3. Will there be any temporary occupation of land that affects the land, housing, assets or livelihoods/business of people.				
4. Will there be restrictions on land use or access to common properties (e.g. environmental buffer zone)?				
5. Has the land been acquired recently (within 2 years)?			If "Yes", please go to below question B-6. If "No", the project will be category C, and can be eligible for the potential financing.	
B. Outstanding issue on Acquired Land and Involuntary Resettlement within 2 years				
6. Is there any outstanding issue (e.g. outstanding payment of compensation, complains from affected people and/or communities)			If "Yes, please conduct due diligence following "Guidance for Information and Data Collection, and Report Outline for Land Acquisition and Resettlement Due Diligence Report". If "No", the project is category C, and can be eligible for the potential financing.	

Prepared by:

Name and Position:_____
Date:_____

Overall conclusion on Involuntary Resettlement Category (circle one):

NOT C C

1. Ethnic Minorities Impact Pre-Screening Checklist

Date: _____

A. Subproject Data Subproject Title _____				
KEY CONCERNS (Please provide elaborations on the Remarks column, if necessary)	**YES**	**NO**	**Instruction**	**Remarks**
B. Ethnic Minorities Identification				
Prepared by:				
Name and Position				
Date:				

Overall conclusion on Indigenous Peoples Category (circle one):

NOT C C

2. Labor Retrenchment Impact Pre-Screening Checklist

Date: _____

A. Subproject Data Subproject Title _____				
KEY CONCERNS (Please provide elaborations on the Remarks column, if necessary)	**YES**	**NO**	**Instruction**	**Remarks**
B. Labor Retrenchment Impact Identification				
1. Are there any labor retrenchment (labor lay-off) due to the project?			If "Yes", the project is NOT eligible for financing. If "No", the project will be "No Impact", and, can be eligible for the potential financing.	
Prepared by:				
Name and Position				
Date:				

Overall conclusion on Labor Retrenchment (circle one):

Has Impact No Impact

4. Guidance for Information and data collection, and report outline for a Land Acquisition and Resettlement Due Diligence Report (DDR)–(prior impacts within 2 years)

(i) Project impact on land acquisition
  (a) amount of land acquisition, affected village, number of affected household and person
  (b) amount of residential house demolition, affected village and displaced household and person
  (c) amount of non-residential house demolition, including institute, enterprise and small shop
  (d) affected vulnerable group (including include non-registered persons and non-registered property)
  (e) affected facilities and ground attachment

(ii) Implementation of land acquisition, housing demolition and resettlement
  (a) Institutional structure-including organization, staff and their responsibilities, and contacts
  (b) Detail schemes and procedures of land acquisition and housing demolition
  (c) Commencement and completion dates of land acquisition, housing demolition, and resettlement
  (d) Information disclosure (including notices for land acquisition, housing demolition, and resettlement, public hearing, (if any)
  (e) Grievances and redress procedures
  (f) Resettlement cost and its composition
  (g) Disbursement of compensation and procedures
  (h) Issues and complaints from affected people during implementation, and any outstanding issues/complaints

(iii) Relevant laws and regulations for Land Acquisition, Housing Demolition and resettlement
  (a) Policies for land acquisition, housing demolition and resettlement of the project
  Others:
    (1) Samples of land acquisition agreement, housing demolition agreement,
    (2) Official documents, including approval of project, land use pre-examination and approval of land use by land resource department,
    (3) Any documents of land acquisition and resettlement progress monitoring and reporting.

Outline of Land Acquisition and Resettlement Due Diligence Report

1 SUMMARY
- 1.1 Background
- 1.2 Resettlement Due Diligence
  - 1.2.1 Methodology
  - 1.2.2 Scope

2 RESETTLEMENT IMPLEMENTING ORGANIZATION
- 2.1 Organization
- 2.2 Capacity of Organization
- 2.3 Conclusion

3 RESETTLEMENT POLICIES AND COMPENSATION RATES
- 3.1 Policy Framework (Land and House)
- 3.2 Compensation Policy and Rates
- 3.3 Conclusion

4 LAND ACQUISITION, HOUSING DEMOLITION AND RESETTLEMENT IMPLEMENTATION
- 4.1 Land Acquisition Impacts and Analysis
- 4.2 Land Acquisition and Resettlement Plan/Schemes and Implementation Steps and Timing
- 4.3 Housing Demolition and Relocation Plan/Schemes and Implementation Steps and Timing
- 4.4 Resettlement Cost and Disbursement of Resettlement Funds
  - 4.4.1 Resettlement compensation
  - 4.4.2 Disbursement Process
  - 4.4.3 Compensation Payment
- 4.5 Conclusion

5 INFORMATION DISCLOSURE AND GRIEVANCE REDRESS
- 5.1 Information Disclosure and Consultation
- 5.2 Grievance Redress
- 5.3 Evaluation

6 CONCLUSIONS
- 6.1 Summary of Evaluations
- 6.2 Outstanding Issue (if applicable)
- 6.3 Complaints from Affected People (if applicable)
- 6.4 Corrective Actions to Resolve Outstanding Issue and Complain from Affected People (if applicable)

APPENDICES (local regulations/standards; maps; photos; census of affected household)

ADB IEE REQUIREMENTS

1. Each subproject applying for a loan under the Project will need to prepare an environmental impact assessment (EIA) in accordance with the People's Republic of China's (PRC) EIA laws and regulations and all subprojects must obtain relevant approvals according to these laws and regulations. This Appendix of the environmental and social management system (ESMS) summarizes the specific requirements for initial environmental examination (IEE) report per Asian Development Bank's (ADB) Safeguard Policy Statement (SPS) 2009 requirements. As described in this ESMS, an IEE report will be required for all environment category B subprojects. The level of detail and comprehensiveness of the IEE is commensurate with the significance of potential environmental and social (community and occupational health and safety) impacts and risks of the proposed subprojects. A typical IEE report contains the following major elements, and it may have a narrower scope depending on the nature of the subproject.

A. Executive Summary

2. This section describes concisely the critical facts, significant findings, and recommended actions in the IEE.

B. Policy, Legal, and Administrative Framework

3. This section discusses the PRC's national and local legal and institutional framework within which the environmental assessment is carried out. It also identifies subproject-relevant international environmental agreements to which the PRC is a party.

C. Description of the Project

4. The proposed subproject needs to be described in this section. Its major components, ecological, social, and temporal context, including any associated facility[1] required by and for the subproject will also be included in this section. In addition, drawings and maps showing the subproject's layout and components, the subproject site, and the subproject's area of influence should be included in this section.

D. Description of the Environment

5. This section should include description of relevant physical, biological, and socioeconomic conditions (baseline data) within the study area. It also looks at current and proposed development activities within the subproject's area of influence, including those not directly connected to the project.

E. Anticipated Environmental Impacts and Mitigation Measures

6. This section predicts and assesses the project's likely positive and negative direct and indirect impacts to physical, biological, socioeconomic (including occupational health and safety, community health and safety, vulnerable groups and gender issues, and impacts on livelihoods through environmental media, and physical cultural resources in the subproject's area of influence, in quantitative terms to the extent possible; identifies mitigation measures and any residual negative impacts that cannot be mitigated; explores opportunities for enhancement;

[1] Associated facility refers to facilities that are not funded as part of the project (funding may be provided separately by the subproject company or by third parties), and whose viability and existence depend exclusively on the subproject and whose goods or services are essential for successful operation of the subproject.

identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions and specifies topics that do not require further attention; and examines global, trans-boundary, and cumulative impacts as appropriate.

7. When a proposed subproject involves expansion or modifications of existing activities or facilities, qualified external experts should be hired to perform a comprehensive environmental audit of the entire facility, not limited to the scope of the proposed subproject, to determine the existence of any areas where the subproject and the facility may cause or is causing environmental risks or impacts and environmental audit report should be prepared by the external experts.

F. Analysis of Alternatives

8. The environmental assessment reports prepared under the PRC EIA laws and regulations typically do not conduct analysis of alternatives but this is required for IEE reports prepared for ADB financing. This section should examine alternatives to the proposed project site, technology, design, as well as operation in terms of their potential environmental and social (community and occupational health and safety) impacts, and the feasibility of mitigating these impacts. The no subproject alternative should be analyzed as one of the alternatives. It also states the basis for selecting the particular subproject design proposed, and justifies recommended emission levels and approaches to pollution prevention and abatement.

G. Information Disclosure, Consultation, and Participation

9. This section should: (i) describe the process undertaken during subproject design and preparation for engaging stakeholders, including information disclosure and consultation with affected people and other stakeholders; (ii) summarize comments and concerns received from affected people and other stakeholders and how these comments have been addressed in the subproject design and mitigation measures, with special attention paid to the needs and concerns of vulnerable groups, including women, the poor, and Indigenous Peoples; and (iii) describes the planned information disclosure measures (including the type of information to be disseminated and the method of dissemination) and the process for carrying out consultation with affected people and facilitating their participation during the subproject implementation.

10. If meaningful consultation has not already been conducted in accordance with ADB's SPS 2009 for the domestic EIA, or if it has been done but the Management Company/ADB representative was not able to participate for the pre-selected subprojects, the ESMS team at the Management Company in conjunction with the pre-selected subproject company shall carry out additional meaningful consultation, as part of IEE preparation, including survey with representatives of affected communities (neighboring residents and businesses), who are located within or near the anticipated boundaries of potential adverse impacts of a subproject. A template questionnaire for the environmental, health, and safety (EHS) and social survey during public consultation is provided in **Appendix 9**. The results and analyses shall be included in the IEE report to be submitted to ADB for review.

H. Grievance Redress Mechanism (at Subproject Level)

11. This section describes the grievance redress framework (both informal and formal channels), setting out the time frame and mechanisms for resolving complaints about environmental performance.

1. Objective

12. A grievance redress mechanism (GRM), consistent with the requirements of the ADB SPS 2009 and relevant PRC requirements, will be established to prevent and address community concerns, reduce risks, and assist the project to maximize environmental and social benefits. In addition to serving as a platform to resolve grievances, the GRM is designed to help achieve the following objectives: (i) open channels for effective communication, including the identification of new environmental and social (community and occupational health and safety) issues of concern arising from each subproject; (ii) demonstrate concerns about community members and their environmental well-being; and (iii) prevent and mitigate any adverse environmental impacts on communities caused by project implementation and operations. The GRM will be accessible to all members of the community.

2. Approach

13. With instruction and support from the Management Company, each subproject to be financed by the Project will establish an appropriately staffed GRM at subproject company prior to construction to deal with complaints from affected person (AP) throughout implementation of each subproject, including construction and operation phases. At the subproject level, detailed steps of GRM will be provided in the subproject specific IEE. At the Fund level, the designated person at the Management Company will be the main focal person of the Fund's GRM and will ensure effective GRM implementation through close cooperation and communications with all subprojects.

14. The designated staff at subproject company will be the key contact point for AP(s) who have an issue they would like to discuss. The designated staff at subproject company will maintain a complaints database and communicate with contractors, supervision engineers, the local environmental protection bureaus (EPB) and other relevant local government agencies.

3. GRM Steps and Timeframe

15. Each subproject will be required to develop and implement a subproject specific GRM. Complains and grievances should be resolved at the subproject level as much as possible. If any grievance was not effectively solved at subproject level, the Management Company, with support from specialists of CERT (if needed), will further facilitate the development of reasonable, effective, and satisfactory resolution of any grievance.

I. Environmental Management Plan

16. Environmental management plan (EMP) is an important part of the IEE. The EMP should include the set of mitigation and management measures to be taken during project implementation to avoid, reduce, mitigate, or compensate for adverse environmental impacts (in that order of priority). It may include multiple management plans and actions. It includes the following four key components (with the level of detail commensurate with the subproject's impacts and risks):

1. Mitigation

17. Mitigation measures should be included in the EMP and they should:

(i) identify and summarize anticipated significant adverse environmental impacts and risks;

(ii) describe each mitigation measure with technical details, including the type of impact to which it relates and the conditions under which it is required, together with designs, equipment descriptions, and operating procedures, as appropriate; and
(iii) provides links to any other mitigation plans required for the subproject.

2. Monitoring

18. Monitoring and reporting of EMP should be included in the EMP and they should:
(i) describe monitoring measures with technical details, including parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits and definition of thresholds that will signal the need for corrective actions; and
(ii) describe monitoring and reporting procedures to ensure early detection of conditions that necessitate mitigation measures and document the progress and results of mitigation.

3. Implementation Arrangements

19. The arrangements for implementing the EMP should:
(i) specify the implementation schedule showing phasing and coordination with overall project implementation;
(ii) describe institutional or organizational arrangements, namely, who is responsible for carrying out the mitigation and monitoring measures, which may include one or more of the following additional topics to strengthen environmental management capability: technical assistance programs, training programs, procurement of equipment and supplies related to environmental and social (community and occupational health and safety) management and monitoring, and organizational changes; and
(iii) estimate capital and recurrent costs and describes sources of funds for implementing the environmental management plan.

4. Performance indicators

20. The EMP should include desired outcomes as measurable events, such as performance indicators, targets, or acceptance criteria that can be tracked over defined time periods should be described.

J. Conclusion and Recommendation

21. The last section of the EIA/IEE report should draw conclusions from the environmental assessment and provides recommendations.

A SAMPLE LIST OF INFORAMTION AND DOCUMENTS REQUIRED FOR ENVIRONMENTAL AUDIT OF EXISTING FACILITY

1. The following sample list of information is provided below to the Management Company for the environmental and social management system (ESMS) implementation, which can be modified based on the relevance to a subproject.

2. In accordance with the Asian Development Bank's Safeguard Policy Statement 2009, an environmental audit is required for any subproject that involves existing facilities. The Management Company with the support of China Environmental Resources Technology Co. (CERT) will perform environmental audit to determine the existence of any areas where the subproject may cause or is causing environmental and social (community and occupational health and safety) risks or impacts. The following list of information and documents need to be prepared by the subproject company prior to the environmental audit and submitted to the Management Company. The environmental audit will assess whether the subproject has sufficient capacity, institutional setup, system set-up, and sufficient resources for environmental, health, and safety (EHS) management, including occupational and community health and safety; emergency response and management procedure, including communities' response to accidents and emergency; whether the existing facilities are fully complied with the applicable national environmental, health and safety regulations, and internally recognized EHS measures and standards, including the World Bank Group's EHS Guidelines; and others. The following comprises a checklist of relevant availability of information and documents prior to the audit visit. During the audit visit, interviews with local environmental protection bureau (EPB) and Environmental Monitoring Station Management who are familiar with the facility will be conducted.

Information and/or Document	Yes	No	Remarks
Location map indicating site in relation to surrounding residential and industrial properties, streams, rivers, conservation areas, etc.			
A copy of the land use permit; a summary of land use history, including the year the land is re-zoned from agricultural or residential to industrial land and the year the land is acquired by the current company			
Summary of current site activities (including simplified process flow diagram, if available) and assess compliance with applicable environmental and social safeguard requirements			
Organizational chart indicating who is responsible for environmental matters at the facility			
General housekeeping of the premises			
Adherence to health and safety requirements for industrial premises.			
Principal sources of energy and annual consumption			
Details of water use, including: Sources of water used for industrial use, and domestic use, and drinking water (e.g. mains, well); Amount of water usage; and Amount of water discharge			

Information and/or Document	Yes	No	Remarks
Plant layout to show locations of: (i) Hazardous chemicals, solvents, and oil storage, with details of storage arrangements (ii) Stacks and vents (iii) Proposed area for subproject components to be built; (iv) Buried services (pipes, drains, sewers); (v) Buried tanks (vi) Sumps and pits (vii) Lagoons and any points of wastewater discharge (viii) Onsite waste disposal areas (ix) Accident pools			
Descriptions of pollution control equipment at the facility (e.g., effluent treatment and air pollution control equipment)			
Planning permissions/operation permits.			
Details of consent agreements and licenses for: (i) Effluent discharges; (ii) Air emissions; and (iii) Waste disposal			
Copies of applicable national and local standards on ambient air, source emissions, fugitive emissions, effluent discharge standards, and specific approval conditions			
Monitoring results last 3 years, which were produced by the facility, the regulatory authorities or by a third party on: Ambient air with projected areas with maximum concentrations and at nearest environmental receptors and/or downwind receptors; Source emissions; Fugitive emissions; Wastewater discharge before treatment and after treatment, if any; Noise impacts at the boundaries of the plant and at nearest environmental receptors; Integrity testing (underground tanks) Soil and groundwater testing; Types and amount of solid and hazardous wastes, including treatment methods; Records of wastes removed by contractors			
Correspondence with authorities relating to any environmental violations and pollution incidents (air, waste, effluent, wastes, and noise).			
Inventory and annual quantities used/generated of Chemicals, solvents, oils, etc., and Waste materials			
Details of storage arrangements: Volumes and contents of bulk storage tanks; Ages and monthly throughput of storage tanks; Alarms, vent pumps and cathodic protection fitted to bulk tanks; and			

Documented procedures for filling and unloading bulk storage tanks			
Information and/or Document	**Yes**	**No**	**Remarks**
Surveys/disposal records of polychlorinated biphenyls and asbestos			
Records of environmental and safety incidents and remedial steps taken			
Recent third party audit reports on EMS and OHSAS indicating any gaps with respect to environmental, health, and safety requirements and recommendations on corrective actions			
Copies of environmental impact assessment approvals, environmental emission permits (environmental acceptance approvals), production safety impact assessment report and approval/permit (if applicable), and occupational disease hazard assessment report and approval			
Details and outcome of complaints if any (plus correspondence)			
Documented procedures and operating manuals relating to environmental matters (e.g., emergency response, spill containment, waste handling and disposal)			
Copy of domestic EIA for the proposed subproject component, if any			

A SAMPLE ENVIRONMENTAL, HEALTH, AND SAFETY AND SOCIAL CONSULTATION INTERVIEW QUESTIONNAIRE

1. The following sample questionnaire is provided below to support the Management Company for the environmental and social management system implementation, which can be adjusted based on the relevance to a subproject.

2. For each of the environmental, health and safety and social areas, meaningful public consultation must be performed in accordance with Asian Development Bank's Safeguard Policy Statement 2009. Meaningful public consultation must include affected people and communities, especially including residents and businesses within 300 meters or as deemed appropriate due to the anticipated boundaries of potential adverse impacts. During the public consultation, more detailed survey and/or interviews should extend to representatives of neighboring residents/ businesses. The following is the sample questions to be asked to obtain better understanding of public concern.

Note: Survey questions should not be only limited to the following sample questions			
Question	**Choices**	**Yes**	**Comments**
1. In your opinion, what are the major environment pollution issues in your areas?	Ambient air		
	Noise		
	Surface water		
	Ground water		
	Soil		
	Solid waste		
	Odor		
	Risks associated with chemicals and hazardous chemicals		
	Other concern		
2. Which are the impacts to surrounding environment by [name of subproject plant] during existing production process?	Ambient air		
	Noise		
	Surface water		
	Ground water		
	Soil		
	Solid waste		
	Odor		
	Risks to community health and safety		
	Other concern		
3. Are you satisfied with environment protection measures of [name of subproject plant]?	Very satisfied		
	Satisfied		
	Barely satisfied		
	Very disappointed		
	Do not understand		
4. Are you aware of chemical risks to the community associated with existing process of [name of subproject plant]?	Yes		
	No		
5. If any emergency, such as chemical spill, leaks, and explosion, occurs, do you know how to respond?	Yes		
	No		

6. Do you consider the impacts of existing production process of [name of subproject plant] to surrounding environment and your lifestyle are acceptable?	Yes		
	No		
	I do not know		
7. Before the survey, did you hear about the proposed subproject components by of [name of subproject plant]?	Yes		
	No		
8. Before the survey, did you understand environmental impacts associated with the proposed subproject components by of [name of subproject plant]?	Understand		
	Barely understand		
	Do not understand		
9. After knowing about the EIA findings, is it clear to you all the potential positive and adverse impacts of the proposed subproject components by of [name of subproject plant]?	Clearly understand		
	Somewhat understand		
	Barely understand		
	Do not understand		
10. In your opinion, what should be the most critical area that the subproject should focus on?	Exhaust air efficiency treatment		
	Controlling fugitive emissions		
	Wastewater treatment		
	Groundwater protection		
	Soil protection		
	Chemicals handling		
	Odor control		
	Make use of recyclable resources to reduce solid waste		
	Noise disturbing to residents		
	Protection for community health and safety		
	Protection to workers health and safety		
	Others		
11. Do you understand the potential adverse impacts during the construction of the proposed subproject components?	Clearly understand		
	Somewhat understand		
	Barely understand		
	Do not understand		
12. What do you think about the subproject construction? Do you think it is necessary?	Necessary		
	Barely necessary		
	Not necessary		
	It does not matter		
13. What would be the major impacts during project construction?	Noise		
	Dust		
	Solid waste		
	Traffic congestion		
	Others		
	No major impacts		

14. Without mitigation measures, do you accept anticipated construction phase impacts?	Accept		
	Barely accept		
	Do not accept		
	Have no idea		
15. After learning about mitigation measures during the construction, do you accept anticipated construction phase impacts?	Accept		
	Barely accept		
	Do not accept		
	Have no idea		
16. Do you agree with project construction after comprehensive consideration?	Yes		
	No		
	I do not know		
17. Do you understand all the anticipated environmental adverse impacts of the subproject during operation?	Clearly understand		
	Somewhat understand		
	Barely understand		
	Do not understand		
18. Do you understand all the anticipated health and safety adverse impacts of the subproject during operation?	Clearly understand		
	Somewhat understand		
	Barely understand		
	Do not understand		
19. Do you understand the proposed mitigation measures during the subproject operation?	Clearly understand		
	Somewhat understand		
	Barely understand		
	Do not understand		
20. Do you accept the impacts to ambient air quality by this subproject?	Accept		
	Barely accept		
	Do not accept		
	Have no idea		
21. Do you accept the impacts to surface water quality by this subproject?	Accept		
	Barely accept		
	Do not accept		
	Have no idea		
22. Do you accept the impacts to ground water quality by this subproject?	Accept		
	Barely accept		
	Do not accept		
	Have no idea		
23. Do you accept the impacts to acoustic environment quality by this subproject?	Accept		
	Barely accept		
	Do not accept		
	Have no idea		
24. Do you accept the impacts to solid waste pollution by this subproject?	Accept		
	Barely accept		
	Do not accept		
	Have no idea		
25. Do you accept the impacts to ecological environment by this subproject?	Accept		
	Barely accept		
	Do not accept		
	Have no idea		
26. Do you accept environmental, health, and safety risks caused by this subproject?	Accept		
	Barely accept		
	Do not accept		
	Have no idea		
27. What are the major concerns of this subproject	Ambient air		
	Noise		

	Surface water		
	Ground water		
	Soil		
	Solid waste		
	Odor		
	Risks associated with chemicals and hazardous chemicals		
	Other concern		
28. Which is your top concern of this subproject?	Ambient air		
	Noise		
	Surface water		
	Ground water		
	Soil		
	Solid waste		
	Odor		
	Risks associated with chemicals and hazardous chemicals		
	Other concern		
29. Do you support the subproject?	Yes		
	No		
	I do not know		

INTERVIEW QUESTIONNAIRE WITH LOCAL ENVIRONMENTAL PROTECTION BUREAU AND ENVIORNMENTAL MONITORING STATIONS DURING ENVIRONMENTAL AUDIT

1. The following sample interview questionnaire is provided below to support the Management Company for the environmental and social management system implementation, which can be adjusted based on the relevance to a subproject.

2. During the audit visit of existing facilities, interviews shall be conducted with local environmental protection bureau and Environmental Monitoring Station staff, who are familiar with the facility. In addition, interview with a plant manager, and an environmental, health, and safety manager, and some workers would be necessary. The following is sample questions, but not limited to, for the interviews.

Questions	Yes/No	Additional Remarks
Environmental (Attendants:)		
(i) whether the subproject company paid pollution charges or fines/penalties for noncompliance in the last 2 years in accordance with national laws. (ii) whether the subproject company is exposed to potentially significant liabilities, such as those arising from known or suspected land/groundwater contamination, major accidents and incidents related to the company's past or ongoing operations. (iii) state further actions required/planned by the subproject, in particular actions to address any non-compliance problems and liabilities. (iv) whether there are complaints from the public or local communities regarding the subproject company's environmental performance (v) whether there are complaints from the public or local communities regarding any accidents caused by the subproject company.		
Safety (Attendants:)		
(i) whether the subproject company paid safety or fire code related fines/penalties for noncompliance in the last 2 years in accordance with national laws. (ii) whether the subproject company has had any major safety accidents and incidents related to the company's ongoing operations or in the past 2 years. (iii) state further actions/mitigation measures required/planned by the subproject, in particular actions to address any noncompliance problems and liabilities. (iv) whether there are complaints from the employees, public or local communities regarding the subproject company's safety performance.		
Health (Attendants:)		
(i) whether the subproject company paid occupational health related fines/penalties for non-compliance in the last two years in accordance with national laws. (ii) whether the subproject company has had any major occupational health accidents and incidents related to the company's ongoing operations or in the past two years. (iii) state further actions/mitigation measures required/planned by the subproject, in particular actions to address any non-compliance problems and liabilities.		

(iv)	Whether the facility conduct regular health exams for employees (if yes, please provide records for review).		
(v)	whether there are complaints from the employees regarding the subproject company's occupational health performance.		
(vi)	Whether the subproject company involves local communities for drills		
Human Resources or Plant Manager			
(i)	Would the proposed subproject create redundancy? If yes, how would you reassign or compensate the redundant workers?		
(ii)	What is the total number of employees in the facility? What is the number of female employees in the facility? What is the number of ethnic minority employees?		
(iii)	With the proposed subproject, would you tend to use more or fewer female employees?		
(iv)	How many NEW long-term job positions do you expect to create as a result of this subproject.		

SUGGESTED SCOPE FOR ENVIRONMENTAL AND SOCIAL MONITORING REPORT FOR SUBPROJECT COMPANY

Environment and Social Monitoring Report
-Reporting Period-

(Indicative Outline)

I. INTRODUCTION

1. Describe scope of report and reporting period, and overall project implementation progress.

II. EMISSION REDUCTIONS

III. PROGRESS IN IMPLEMENTING ENVIRONMENTAL MANAGEMENT PLAN/ENVIRONMENTAL MONITORING PLAN/ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM

IV. COMPLIANCE WITH ADB LOAN COVENANTS AND APPLICABLE GOVERNMENT LAWS, REGULATIONS AND REQUIREMENTS

V. SIGNIFICANT EVENTS OR ISSUES ENCOUNTERED, OR CHANGES IN PROJECT SCOPE AND CORRESPONDING SAFEGUARD MEASURES UNDERTAKEN, IF APPLICABLE (SEE ATTACHMENT TO THIS APPENDIX)

V. SUMMARY OF MONITORING REPORT FINDINGS

VI. FOLLOW-UP ACTIONS REQUIRED (IF ANY)

VII. SUMMARY/CONCLUSION

- The report should include the name, signature, position and contact address of the person submitting the report to ADB.

Notes:

- Above outline is indicative and could be tailored-fit to the subproject.

ENVIRONMENTAL INCIDENT REPORT FORM

	Name of Company	
	Environmental Incident Report	

An environmental incident is an unexpected event that may result in harm to the environment and requires some action to minimize the impact or restore the environment. See page 2 of this form for guidance notes.

Business unit:

Subproject name: | Subproject number:

Incident details (Site manager to complete—Subproject Development Manager, Works Supervisor or Team Leader)

Incident report number (ESMS Coordinator to complete)

Date of incident: | Time (24:00 format):

Exact location of the incident, including Region. (see note 1)

What type of activity was the team engaged in when the incident occurred?

Who notified you of the incident? (e.g. employee, local authority, member of public):

Name and phone no. of complainant:

Nature and level of the incident ☐ Major ☐ Minor (see note 2)

☐ Chemical spill (incl. fuel) ☐ Air emission ☐ Noise complaint ☐ Unauthorized removal of vegetation

☐ Contaminated water discharged (Not muddy water) ☐ Erosion & sedimentation Other: (specify)

Description of the incident (see note 3)

Estimated quantity, volume or area involved (include unit of measure) ☐See pages attached

Immediate actions taken and control measures implemented (See note 4)

☐See pages attached

Proposed corrective (or preventive) action (see note 5)

☐See pages attached

Sign | **Print name** | **Position** | **Date**

After signing, forward to senior manager for further action

Further action

Other authorities notified

Senior manager to complete—Subproject Director, Subproject Development Manager

(see note 6)

Sign:

Follow up actions undertaken (see note 7)

☐See pages attached

Guidance Notes for Incident Reporting

Note 1: Exact location of Incident

Provide details of the location of the incident in relation to the subproject site. Include:

(i) the name of the region.
(ii) distances from environmentally sensitive areas (e.g., watercourses, conservation reserves).
(iii) landmarks, cross streets, etc.

Note 2: Major or Minor Incident?

A major incident has occurred if:

(i) material has escaped from site, or
(ii) clean-up requires external assistance (Fire brigade or other emergency services).

If neither of these conditions apply, the incident is rated 'minor'.

Note 3: Description of Incident

Provide a brief, succinct, factual description of the incident including:

(i) what happened leading up to the incident.
(ii) the material involved (if a leak or spill).
(iii) the estimated volume of spilled or leaked material.
(iv) the area of land or water affected.
(v) who was affected by the incident.

Note 4: Immediate Actions and Control Measures

Describe the actions taken immediately to minimize the impact of the incident.

Note 5: Corrective and Preventive Action

Provide details of actions implemented to clean up and remediate the affected area and actions implemented to prevent the incident from occurring again.

Note 6: Other Authorities Notified

Other authorities you might need to notify:

(i) Fire brigade or other emergency services.
(ii) local government if incident occurs within the local drinking water catchment area.

Note 7: Follow-up Actions

(i) Include any actions undertaken or proposed to be undertaken as a result of the incident (e.g., additional training, purchasing new plant, using alternative materials).
(ii) Forward a copy of the incident report to the Management Company following company management review.

OUTLINE OF AN ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM IMPLEMENTATION REPORT

ESMS Implementation Report

Subproject		Subproject number	

Report prepared by		Month and year	

Item	Details, comments
Institutional Aspects: Whether there have been any changes to the ESMS, staffing of environment unit at Huayu, budget available for ESMS implementation) Whether there have been any major difficulties in implementing ESMS and if so the remedial actions taken.	
Due diligence and/or audits undertaken during the year (List the number and type of investigations undertaken.)	
Exclusion of subprojects which have impacts on involuntary resettlement and ethnic minority (If there were subprojects assessed that have potential involuntary resettlement and ethnic minority impacts that were excluded from financing)	
Non-conformances report (NCR) and corrective actions report (CAR) Whether the subprojects regularly submit the environment and social reports and the status of compliance of subprojects with EMP and other relevant environment and social requirements. If there are major gaps or defects, the remedial actions taken by Huayu.	
Environmental Incidents (Any incidents reported by subborrowers, provide details)	
Training delivered	
Other environmental including health and safety or social issues (if any) (Describe any other issues arising)	