Project Administration Manual

Project Number: 47051-002
Loan Number: LXXXX
October 2015

People's Republic of China: Chemical Industry Energy Efficiency and Emission Reduction Project

CONTENTS

PROJECT ADMINISTRATION MANUAL PURPOSE AND PROCESS

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

The China National Chemical Corporation (ChemChina), the executing agency, and China Haohua Chemical Group (CHC), the implementing agency, are wholly responsible for the implementation of ADB financed projects, as agreed jointly between the borrower and ADB, and in accordance with Government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by ChemChina and CHC of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At Loan Negotiations, the borrower and ADB shall agree to the PAM and ensure consistency with the Loan agreement. Such agreement shall be reflected in the minutes of the Loan Negotiations. In the event of any discrepancy or contradiction between the PAM and the Loan Agreement, the provisions of the Loan Agreement shall prevail.

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

ABBREVIATIONS

ADB	=	Asian Development Bank
CCB	=	China Construction Bank
CGY	=	Zhonghao Chenguang Research Institute of Chemical Industry
CHC	=	China Haohua Chemical Group
ChemChina	=	China National Chemical Group
CO_2	=	carbon dioxide
DSC	=	Dezhou Shihua Chemical
EIA	=	environmental impact assessment
EMP	=	environmental management plan
ESCO	=	energy service company
ESMS	=	environmental and social management system
FMA	=	financial management assessment
GHG	=	greenhouse gas
GRM	=	grievance redress mechanism
HFC-23	=	fluoroform
Huatai	=	Beijing Zhonghao Huatai Energy Technology
ICB	=	international competitive bidding
IDA	=	interest differential account
LIBOR	=	London interbank offered rate
NCB	=	national competitive bidding
OLA	=	onlending loan agreement
PAM	=	project administration manual
PIU	=	project implementing unit
PRC	=	People’s Republic of China
PSC	=	project steering committee
PVC	=	polyvinyl chloride
REF	=	revolving escrow fund
SOE	=	statement of expenditure
SLA	=	subsidiary loan agreement
SPS	=	Safeguard Policy Statement
SUF	=	statement of utilization of funds
tce	=	tons of coal equivalent
VCM	=	vinylchloride monomer

I. PROJECT DESCRIPTION

A. Background and Rationale

1. The chemical industry is the second-largest industrial energy consumer in the People's Republic of China (PRC).[1] In 2013, it consumed about 457 million tons of coal equivalent (tce), or about 16.6% of the PRC's total industrial energy consumption. It is also one of the PRC's most energy-intensive industries. In 2013, its energy intensity of 1.78 tce per CNY10,000 output was about 5.5% below the 2010 level but still twice as high as the best international standards. The chemical industry is expected to make larger contributions to energy intensity improvement with a target of 20% during the 12th Five-Year Plan period (2011–2015) compared to the national target of 16%. And the Government of the PRC is expected to take a more stringent approach in the 13th plan period (2016–2020) and beyond, to slow the growth in coal consumption and overall energy demand by 2020, and achieve a peaking in its carbon dioxide (CO_2) emissions by 2030.

2. The PRC's chemical industry faces unique challenges to further reduce energy intensity because unlike other major chemical producers worldwide, it predominantly uses coal rather than petroleum or natural gas as feedstock and fuel.[2] Coal-based processes are inherently more energy intensive and produce significantly more greenhouse gas (GHG) emissions and local air pollution. Technology innovations and process transformations are essential to further improve energy efficiency and reduce emissions. Many such technologies and process transformations have been researched and successfully pilot tested in the PRC, but their commercial deployment has been delayed by various barriers (para. 5).

3. The PRC's chemical industry is a major emitter of air and other toxic pollutants, and GHGs. In 2013, the chemical industry discharged more wastewater, sulfur dioxide, and nitrogen oxides than any other industry in the country. Within the chemical industry, the production of plastics is highly energy and emission intensive. Fluoropolymer, a synthetic carbon-based plastic commonly used to provide corrosion-resistant coating, is the main source of emissions of fluoroform (HFC-23), a GHG that is 14,800 times more potent than CO_2.[3] HFC-23 incineration technologies are available but have not been deployed widely in the PRC because of inadequate regulation and incentives.[4]

4. More than 80% of polyvinyl chloride (PVC) production in the PRC uses coal-derived feedstock[5] and a catalyst based on mercury, a toxic chemical element, which persists in the environment once mobilized.[6] PVC production accounts for more than 70% of domestic and nearly 50% of global intentional use of mercury. Moreover, to provide mercury for this industrial use, mercury mining is still practiced in the PRC, posing a major threat to the environment and public health. In 2010, the government issued a notice to phase out the use of mercury in the

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1 The iron and steel industry is the PRC's largest industrial energy consumer.
2 Coal is preferred because it is abundantly available and holds a cost advantage in the domestic market.
3 In 2013, the PRC emitted nearly 9,500 tons of untreated HFC-23, nearly 140 million tons of CO_2 equivalent.
4 HFC-23 destruction involves an energy penalty at the plant level. Its inclusion among the Clean Development Mechanism (CDM)–eligible mitigation measures led to its use in some plants in the PRC and to disproportionately high CDM credits earned. But the decision of the European Union and other countries to stop buying such credits has drastically stalled the wider adoption of the measure.
5 Although it is more than twice as energy intensive as the petroleum-based process, the coal-based process is more cost effective in the PRC because of the lower price of coal (about one-third the price of petroleum).
6 In 2013, the country produced 12.5 million tons of PVC using the coal-based process and about 1,300 tons of mercury.

PVC industry. Research for an alternative catalyst was included in the National Basic Research Program 973, but so far no alternative catalyst has been demonstrated at commercial scale.

5. The China National Chemical Group (ChemChina) is the PRC's largest producer of fluoropolymer, PVC, synthetic resins, and fine chemicals. Potent technologies and process transformations that can improve energy efficiency and lead to deep cuts in emissions in the industry have been developed and pilot tested by ChemChina's research and development institutes, such as mercury-free PVC production. However, their scale-up has been difficult because of (i) perceived and real technical risks; (ii) the need for debt financing, which commercial financing institutions with their weak understanding of the financial viability of such projects are unable to provide; (iii) lack of strict regulatory requirements to incentivize investments as relevant technologies have not been demonstrated at commercial scale; and (iv) the lack of a suitable ESCO that can bring together technical know-how and suitable financing.

6. The ESCO sector, which has been effective in driving energy efficiency investments in other countries, is a priority for the government. ESCOs have grown rapidly in the PRC since 2006, numbering more than 5,000 and reaching a turnover of more than CNY165 billion by the end of 2013. But the ESCOs still lack (i) the capacity to finance and implement more complex and larger industrial energy efficiency projects; (ii) access to or knowledge of innovative, high-impact technologies; and (iii) the service standards needed to build trust among financiers and host industries. Also, there are no industry-specific ESCOs with technical expertise in the chemical industry.

B. The Project

7. ADB support will be crucial to address the key issues and barriers identified in paras. 5 and 6 and facilitate to commercial-scale demonstration of strategic technologies. ADB funding supports de-risking of investments and ADB due diligence and enhanced monitoring measures will ensure that technical and other associated risks are adequately managed. Moreover, the business models developed with ADB support will ensure timely replication. Because of the relatively shorter payback period (5 to 7 years) for typical industrial energy efficiency projects, the FIL modality was chosen to allow multiple rollover of the ADB loan over the loan tenor. By further leveraging commercial cofinancing with ADB funding, the project will target a higher impact in improving energy efficiency and emission reduction than would otherwise be possible with a project loan. The two subprojects in the first batch will scale up pilot-tested innovative technologies in selected ChemChina plants to (i) reduce energy consumption and eliminate mercury use in one of the largest PVC plants, and (ii) destroy HFC-23 at a major fluoropolymer plant.[8] Packaging HFC-23 destruction at the selected fluoropolymer plant with state-of-the-art energy efficiency measures will (i) support the financial viability of the investment even under a very weak incentive structure and despite the energy penalties for HFC-23 destruction, and (ii) demonstrate a new business model in the process. It will also directly support and demonstrate the commercial viability of industry-specific ESCO financing and services for such projects.

8. ADB has supported three other industrial energy efficiency and emission reduction projects in the provinces of Guangdong, Hebei, and Shandong.[9] The proposed project is a

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[8] The first batch of subprojects selected by ADB met the technical, financial, economic, social, and safeguards criteria explained in the Project Administration Manual (PAM) (accessible from the list of linked documents in Appendix 2). The same selection criteria will be used in selecting subsequent batches of subprojects.

[9] ADB. 2008. *Report and Recommendation of the President to the Board of Directors: Proposed Multitranche Financing Facility and Administration of Grant to the People's Republic of China for the Guangdong Energy Efficiency and Environment Improvement Investment Program.* Manila; ADB. 2011. *Report and Recommendation*

logical next step by focusing on one of the most energy- and emission-intensive industries and work with the largest state-owned enterprise in that industry to maximize replication and impact of ADB support. Lessons from the previous projects have been incorporated in the project design: (i) loan modality, terms and conditions have been adopted from previous designs as this mechanism proofed best suited for financing industrial energy efficiency projects and allow for scaling up impact of ADB assistance; (ii) loan approval has been synchronized with the first batch subprojects' readiness to avoid dropping out of one or more subprojects and to ensure timely disbursement; (iii) a professional ESCO with competent technical staff, access to relevant technologies has been chosen as project implementation unit to ensure effective selection and appraisal of future subproject. Unlike those projects, the proposed project has mainstreamed ESCO use from first batch subprojects and will use a part of the interest differential to gradually strengthen the ESCO equity base and increase the financing capacity of the ESCO.

9. The project is closely aligned with (i) ADB's Country Partnership Strategy (CPS), 2011–2015,[10] and the emerging priorities of the next CPS, which identifies environmental sustainability as a key pillar for ADB support in the PRC and emphasizes support for energy efficiency improvements as a priority area in the energy sector; and (ii) ADB's Energy Policy,[11] which defines energy efficiency as a key measure toward clean energy development.

10. **Financing energy efficiency projects with subloan repayments through the revolving escrow fund.** As already mentioned, the FIL modality will allow multiple rollover of the ADB loan over the loan tenor through the revolving escrow fund (REF) with the selected financial intermediary, given the short payback period of energy efficiency investments. The involvement of China Construction Bank (CCB), a commercial bank, in rolling over the funds will bring in sound banking expertise and governance in energy efficiency lending. It will also strengthen CCB's capacity for energy efficiency lending and will boost cooperation between the ESCO and the domestic financial institution, encouraging them to work together beyond the project and expand investments in this high-priority area for the government. Leveraging commercial cofinancing with ADB funding will make it possible for more energy efficiency investments to be implemented and greater impact to be achieved beyond the first two subprojects with the repayment flows of the loan. In addition, the selected financial intermediary can increase its knowledge of and capacity for the financial due diligence of energy efficiency investments. The environmental and social management system (ESMS) designed for the project will improve governance and safeguard compliance for energy efficiency investments beyond the first batch of subprojects.

11. CCB will onlend the loan proceeds to ChemChina and charge an onlending fee of 1%. ChemChina in turn will onlend the loan proceeds to China Haohua Chemical Group (CHC). CHC will entrust CCB with the management of the loan proceeds and will sign an REF account and an interest differential account (IDA) management agreement with CCB, which will establish an escrow account and an IDA and act as trustee of the ADB loan proceeds. The existence of the Chinese yuan REF account and the IDA will ensure that the ADB loan proceeds, as well as interest payments and principal repayments from the subborrowers, are not commingled with other funds administered by CCB. The account will be kept distinct from CCB assets and protected against adverse results from other CCB financial operations.

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of the President to the Board of Directors: Proposed Loan to the People's Republic of China for the Hebei Energy Efficiency Improvement and Emission Reduction Project. Manila; and ADB. 2011. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the People's Republic of China for the Shandong Energy Efficiency and Emission Reduction Project.* Manila.

[10] ADB. 2012. *Country Partnership Strategy: People's Republic of China*, *2011–2015.* Manila.

[11] ADB. 2009. *Energy Policy, 2009.* Manila.

12. The subloan interest rate will be the higher of (i) the interest rate payable by ChemChina to ADB through the Ministry of Finance (MOF), and (ii) 90% of the prime rate set by the People's Bank of China (PBoC) for commercial bank loans with the same terms as the subloans. [12] The loan term for each single subloan may not exceed 10 years, including a grace period no longer than that of a commercial bank loan. The submission of subloan agreement is a condition for the disbursement of ADB loan proceeds with respect to a particular subloan.

13. CHC will also establish a separate IDA to manage the interest differential between the interest levied on subloans (denominated in Chinese yuan) and the sum of the interest payments on the London interbank offered rate (LIBOR)–based ADB loan (denominated in US dollars) plus the CCB onlending fee and any applicable financing charges. Interest payments to ADB and interest receipts on subloans will be managed through the account. The accumulated cash balance in this account will be used as follows: (i) at least 40% of the amount, to increase the equity of Beijing Zhonghao Huatai Energy Technology (Huatai); (ii) up to 50%, to provide interest rebates for the timely completion of a subproject and the verified achievement of stated energy savings, as a reward mechanism; and (iii) up to 10%, to enable Huatai to hire external experts for the feasibility studies and particularly for the environmental screening, audit, and environmental impact assessment of future subprojects, for ADB project monitoring and reporting, and for the capacity development of Huatai staff in energy performance contracting and monitoring and verification.

14. Financing from the REF for any future subproject will be limited to 40% of the total investment cost of leveraging commercial bank financing for energy efficiency projects. The REF is expected to be fully revolved 1.2 more times beyond the first batch of subprojects, thus making available about $320 million in additional investments in energy efficiency and emission reduction projects in the chemical industry.

15. The second batch of subprojects, using reflows from the first batch to the REF account, will be selected before the closing of the ADB loan, in accordance with project selection criteria acceptable to ADB (see footnote 7)[13] and with the ESMS. ADB will review the subprojects to ensure compliance.

C. Impact, Outcome, and Output

16. The impact of the project will be enhanced environmental sustainability of the PRC's chemical industry. The outcome will be reduced energy intensity and emissions from PVC and fluoropolymer production within ChemChina.

17. The output will be (i) more efficient and less hazardous PVC technology demonstrated at commercial scale at the Dezhou Shihua Chemical (DSC) plant; and (ii) improved energy

[12] The PBoC publishes three reference rates, a 1-year, a up to 5-years and one beyond 5 years rate for loans to commercial banks. Depending on the loan term CHC will choose for a subloan, the applicable reference rate. For example a subloan with a proposed loan term of 5 years would carry an interest of 90% of PBoC's reference rate for loans to commercial banks of 1 to 5 years. This proposed subloan lending rate does not provide a significant subsidy over the market rates but will give subborrowers an incentive to invest in energy efficiency.

[13] The first batch of subprojects were selected by ADB using a set of technical, financial, economic, social, and safeguards criteria which are explained in Chapter X. Subsequent batches of subprojects will also be selected using the same selection criteria.

efficiency and GHG emissions avoided at the Zhonghao Chenguang Research Institute of Chemical Industry (CGY).[14]

18. The first subproject will demonstrate a scaled-up application of a successfully pilot-tested mercury-free catalyst to produce PVC at the DSC plant in Dezhou, Shandong Province.[15] After completion, by 2019, the subproject is expected to reduce energy consumption in the DSC plant by 388,521 tce per year, or by 34%. It will also eliminate 35 tons of intentional use of mercury per year by 2019 and avoid 1.359 million tons of CO_2 emissions. The successful demonstration of the new technology is likely to trigger the complete phase out of currently applied mercury-based technology within 5 years. The replication potential is therefore very large.[16]

19. Under the second subproject, comprehensive energy efficiency optimization measures will be implemented, and a real-time energy management system will be installed. These energy efficiency investments will reduce the energy consumption of the CGY plant in Zigong City, Sichuan Province by 10,888 tce per year. The measures will be combined with scaled-up plasma incineration of HFC-23 at the CGY plant.[17] The effective destruction of 890 tons of HFC-23 will avoid emissions of 13.1 million tons of CO_2 equivalent and 1,205 tons of organic fluoride.[18] Net energy savings from the subproject will be 8,905 tce.[19] The packaging of HFC-23 destruction with energy efficiency measures provides a business model for ESCOs that can be replicated in similar plants in the PRC.

20. A newly established ESCO, Beijing Zhonghao Huatai Energy Technology (Huatai), which is fully owned by CHC, will support the implementation of both subprojects in the first batch, and will identify and implement future subprojects applying predefined project selection criteria and the ESMS.[22] For the first subproject at DSC, its services will primarily involve hiring contractors and supervising their implementation.[23] For the other subproject at CGY, Huatai will also act as subborrower on the basis of an energy savings performance contract with CGY.[24] The first batch of subprojects will therefore test and strengthen different service aspects of the ESCO business and provide Huatai with valuable exposure. Huatai will be assisted in effectively facilitating financing, managing procurement, coordinating with and preparing reports to ADB,

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[14] DSC and CGY are wholly owned subsidiaries of China Haohua Chemical Group (CHC) of which ChemChina in turn has the majority ownership (69.2%).

[15] The technology was pilot-tested in three phases: (i) laboratory scale, (ii) small scale, and (iii) industrial pilot-scale testing of 2,000 tons per year. After validating the test results in August 2014, an independent panel of PVC experts from the PRC determined the technology to be of international standard and approved it for commercial scale-up.

[16] The PRC is party to the Minamata Convention on Mercury, which is aimed at eliminating the intentional use of mercury, and controlling and reducing global emissions of the toxic chemical. Article V of the Convention requires the phase out of mercury in the PVC sector once an alternative catalyst technology has been proven to be technically and commercially viable. See: www.mercuryconvention.org.

[17] CGY's pilot plant has an incineration capacity of 200 tons of HFC-23 per year. It was set up in 2007 and has since met all performance requirements reliably. Plasma incineration of HFC-23 has co-benefits in the form of avoided emissions of (i) toxic and carcinogenic dioxin, which can cause reproductive and developmental problems, and (ii) organic fluoride, a persistent and non-degradable poison that accumulates in soil, plants, wildlife, and humans.

[18] In 2014, all of ADB's clean energy investments combined avoided about 7 million tons of CO_2 emissions.

[19] The plasma incineration of HFC-23 has an energy penalty of 1,983 tce per year.

[22] The associated costs for the establishment of the ESMS and the required training of project entities will be covered by Huatai, CHC, and ChemChina.

[23] The engagement of Huatai through an energy savings performance contract is beyond the capacity of the first subproject at DSC, which will have a total investment cost of more than $200 million.

[24] Huatai's business plan, developed with ADB support during project preparation, identifies different business models for different energy efficiency projects. Huatai is expected to develop a platform for commercializing innovative energy efficiency technologies in ChemChina and beyond, on the basis of appropriate models.

and ensuring good governance and compliance with safeguards beyond the first batch of subprojects. Its capacity will be strengthened as a result.

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

21. ChemChina has formed a project steering committee (PSC) and CHC has established its own ESCO to act as project implementation unit (PIU) under the implementing agency. ChemChina has also chosen CCB as the financial intermediary. The two subprojects in the first batch have been selected. The feasibility studies, including the environmental impact assessment of the subprojects, have been prepared by the subborrowers and approved by the relevant agencies. The loan processing milestones are presented in Table 1.

Table 1: Loan Processing Milestones

Activity	Responsibility	Target Date/ Date Achieved
Financial intermediary selection	CHC	10 February 2015
Signing of MOU	ChemChina/CHC/ADB	27 March 2015
Approval of subprojects' environment impact assessment	Provincial EPBs	15 April 2015
Approval of feasibility studies	ChemChina/CHC	30 April 2015
Approval of Huatai's business plan	CHC	6 June 2015
Approval of advance contracting and retroactive financing at MRM	ADB	4 June 2015
Approval of FCUP	MOF/NDRC	20 August 2015
Loan negotiations	MOF/NDRC	7–8 September 2015
ADB Board consideration	ADB	30 October 2015
Loan signing	ChemChina/CHC	15 January 2016
Loan effectiveness	ChemChina/CHC	15 April 2016

ADB = Asian Development Bank, CHC = China Haohua Chemical Group, ChemChina = China National Chemical Corporation, EPB = environmental protection bureau, FCUP = foreign capital utilization plan, Huatai = Beijing Zhonghao Huatai Energy Technology, MOF = Ministry of Finance, MOU = memorandum of understanding, MRM = Management Review Meeting, NDRC = National Development and Reform Commission.

B. Overall Project Implementation Plan

22. Although the project implementation period is 15 years, the ADB loan will be implemented over a period of 5 years and is expected to close on 31 August 2021. The following achievements at loan closing are foreseen: (i) completion of the first batch of subprojects, (ii) selection of the second batch of subprojects, (iii) establishment of the operating procedures for the REF account created to revolve the repayment proceeds of subloans made for the first batch of subprojects, (iv) successful implementation of the first energy savings performance contract of Huatai and strengthening of Huatai's capacity for ESCO financing and business, and (v) finalization of the procedures for the use of the accumulated cash balance in the IDA. The cash balance is expected to be used to (i) increase the equity of CHC's ESCO, (ii) reward subborrowers under the first batch of subprojects that complete their subproject on time and achieve the projected energy and emission reduction savings, and (iii) finance feasibility studies for the preparation of subsequent subprojects. The loan implementation schedule is in Table 2.

Table 2: Loan Implementation Schedule

	2015 (Quarters)				2016 (Quarters)				2017 (Quarters)				2018 (Quarters)				2019 (Quarters)				2020 (Quarters)				2021 (Quarters)			
Overall Activities	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Project implementation	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
Project completion report																											■	■
Detailed Activities																												
Output 1: More efficient and environmentally sustainable PVC technology demonstrated at commercial scale																												
1.1 Implement process transformation in the first PVC production chain	■	■	■	■	■	■	■	■	■	■																		
1.2 Implement process transformation in the second PVC production chain					■	■	■	■	■	■	■	■	■	■														
Output 2: Improved energy efficiency and greenhouse gas abatement through ESCO approach at CGY																												
2.1 Construct and commission two plasma cracking furnaces with a treatment capacity of 1,000 tons of HFC-23	■	■	■	■	■	■																						
2.2 Replace 12 old vacuum dryers with one twin-screw extruder dryer for post treatment of 1,500 tpa of fluororubber	■	■	■	■	■	■	■	■	■	■																		
2.3 Replace 53 vapor steam dryers with two state-of-the-art far-infrared tunnel dryers for post treatment of 7,500 tpa of polytetrafluoroethylene	■	■	■	■	■	■	■	■	■	■																		
2.4 Install energy management control system and 150 intelligent digital meters	■	■	■	■	■	■	■	■	■	■	■																	
2.5 Retrofit energy-inefficient equipment including fans, ducts, chillers, air-handling units, air compressors, nitrogen purification unit, motors, and cracking-furnace burners	■	■	■	■	■	■	■	■	■	■	■	■																
2.6 Conduct study tour to increase knowledge of latest energy-efficient technologies in the chemical industry	■	■	■	■	■	■	■	■	■	■	■	■																
Management Activities																												
Procurement plan key activities—to procure contract packages	■	■	■	■																								
Recruitment of implementation consultants by the subproject companies from their own funds to implement the projects.					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
ESMS key activities including: ▪ confirmed categorization and subproject selection report ▪ environmental impact assessment report according to ESMS requirements ▪ annual environmental and social safeguard implementation report and monitoring reports for category A projects					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
Annual/Midterm review					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
Progress reports					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
Project completion report																											■	■

CGY = Zhonghao Chenguang Research Institute of Chemical Industry, ESCO = energy service company, ESMS = environmental and social management system, Huatai = Beijing Zhonghao Huatai Energy Technology, VCM = vinylchloride monomer.

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations: Roles and Responsibilities

23. ChemChina, the executing agency for the project, will be responsible for overall implementation. CHC will be the implementing agency, with responsibility for day-to-day project management including procurement and contract management, payment of contractors, operation and maintenance, and social and environmental monitoring. CHC will provide management support to its recently established ESCO, Huatai, in procurement, contract management, disbursement, REF management, and selection of future subprojects.

24. ChemChina has created a project steering committee comprising representatives of the executing agency, CHC, and CCB, to review the compliance of the PIU during project implementation and to endorse future subprojects. The PSC has specific responsibilities in guiding the implementation of the project.

25. CCB was selected by CHC through a competitive process to act as onlending bank and financial intermediary. It will be responsible for (i) providing a guarantee to the MOF; (ii) onlending the ADB loan proceeds to CHC through ChemChina; (ii) establishing and managing the REF account and the IDA; (iii) executing and implementing subloan agreements with subproject borrowers; (iv) managing disbursement, interest payment, and collection of principal; (v) facilitating timely reporting to ADB and auditing of the use of funds; (vi) conducting financial due diligence of future batches of subprojects in accordance with ADB guidelines,[25] including an assessment of the creditworthiness candidate subproject borrowers; and (vii) making suitable recommendations to the steering committee on subproject selection. CCB will provide parallel collaborative commercial cofinancing at its own risk and will have freedom in its loan pricing and approval decisions. CHC's choice of a cofinancier will depend on its best commercial interests.

26. Table 3 summarizes the implementation organization and Figure 1 (page 12) clarifies key implementation structure graphically.

Table 3: Roles and Responsibilities of Project Stakeholders

Organization	Management Roles and Responsibilities
Executing agency ChemChina	i. Provide a counterguarantee to CCB; ii. Assume overall responsibility for project implementation; iii. Onlend ADB loan proceeds from CCB to CHC on the same terms and conditions; iv. Cause CHC to execute and deliver the REF account and the IDA with CCB, and establish an ESMS; and v. Bear the residual credit risk of the project.
Implementing agency CHC	i. Execute and deliver a REF account and an IDA management agreement; ii. Be responsible for day-to-day loan management, and supervise and support Huatai; iii. Sign subproject agreements; iv. Assist in procuring goods for ADB-financed procurement packages; v. Endorse fund withdrawal applications to ADB and certify that disbursement milestones have been reached; vi. Provide overall direction and support in project preparation,

[25] ADB. 2005. Financial Management and Analysis of Projects. Manila.

Organization	Management Roles and Responsibilities
	and in subproject assessment and selection; vii. Endorse progress reports, annual audit reports, environmental management reports, and other reports to ADB; and viii. Establish the ESMS and see to it that Huatai secures compliance with environmental and social safeguards for subprojects in the first and future batches in accordance with ADB's Safeguard Policy Statement of 2009 (SPS) and the ESMS. ix. Identify and assess through Huatai, and propose subprojects, if deemed in compliance with ADB subproject selection criteria.
Project implementation unit Huatai	i. Manage procurement; ii. Prepare withdrawal applications in accordance with the agreed project milestones, submit these to CHC for endorsement, and coordinate with ADB and CCB to facilitate disbursement; iii. Identify potential future subprojects and assess with the help of external consultants to conduct a due diligence review of future subprojects and endorse the subproject proposals to the PSC; iv. Measure and verify energy savings and avoided emissions; v. Prepare quarterly progress reports for the project to be submitted to ADB in accordance with the project administration guidelines; vi. Retain the necessary financial information and evidence to support claims and payments; vii. Facilitate and organize annual audits and the submission of the audit reports and the project financial statements to ADB; viii. Supervise, monitor, and ensure the compliance of the first batch of subprojects environmental and social safeguards in accordance with ADB's SPS; ix. Implement the ESMS and monitor the compliance of subproject companies with the environmental and social safeguards; x. Sign energy savings performance contracts for the CGY project; xi. Hire external consultants to conduct feasibility studies, environmental and energy audits, and other due diligence of identified subprojects, and prepare the necessary documentation for the endorsement of the subprojects by the steering committee.
Project steering committee *Strategic level* (i) Headed by ChemChina GM and including ChemChina's directors of planning and finance *Executive level* (ii) Headed by CHC GM and including directors of planning, finance, and operations (iii) Huatai DG (iv) Designated CCB Beijing Branch, Anhui Subbranch staff	i. Review the compliance of the project implementation unit with project guidelines and standards; and ii. Endorse future subprojects (the executive level will endorse the projects proposed by Huatai) for approval at the corporate group level.

Organization	Management Roles and Responsibilities
First batch subproject companies	i. Manage funds disbursed to them from CCB and provide proof of payment of contracts ii. Sign ESPC with Huatai (for CGY); iii. Perform project operation, monitoring, and management role as provided in the approved feasibility study report and the ESPC; iv. Extend all cooperation needed for project implementation on their premises and facilitate mortgaging of project assets as security to CCB; v. Implement all corrective actions stated in approved EIAs; vi. Conduct monitoring and reporting for effective project reporting; and vii. Establish ESMS (for future subprojects).
Onlending bank, financial intermediary, REF and IDA manager, cofinancing bank China Construction Bank	i. Conclude onlending agreements with MOF and ChemChina, REF management agreement with CHC, an IDA agreement, and subloan agreements with subborrowers; and ii. As financial intermediary, be responsible for a. signing subloan agreements with subborrowers; b. managing disbursement, interest payment, and principal collection, and administering the subloan portfolio; c. conducting financial due diligence and assessment of the creditworthiness of future subprojects; d. making suitable recommendations to the implementing agency on subproject selection; e. managing counterguarantees, securitization, and collateral issues; f. managing exchange of foreign and domestic currencies; g. taking necessary action against nonperforming loans; h. providing monthly reports to CHC; i. ensuring yearly audits of accounts; and j. designating dedicated staff to manage and administer the trust/escrow account.
ADB	i. Act as development partner and provide guidance to ChemChina, CHC, and Huatai; ii. Review the implementation of the ADB loan project; and iii. Provide guidance and technical assistance as needed in selecting subprojects for future batches.

ADB = Asian Development Bank, CCB = China Construction Bank, CHC = China Haohua Chemical Group, ChemChina = China National Chemical Group, CGY = Zhonghao Chenguang Research Institute of Chemical Industry, DG = director general, ESMS = environmental and social management system, ESPC = energy savings performance contract, GM = general manager, Huatai = Beijing Zhonghao Huatai Energy Technology, IDA = interest differential account, MOF = Ministry of Finance, REF = revolving escrow fund, PSC = project steering committee.

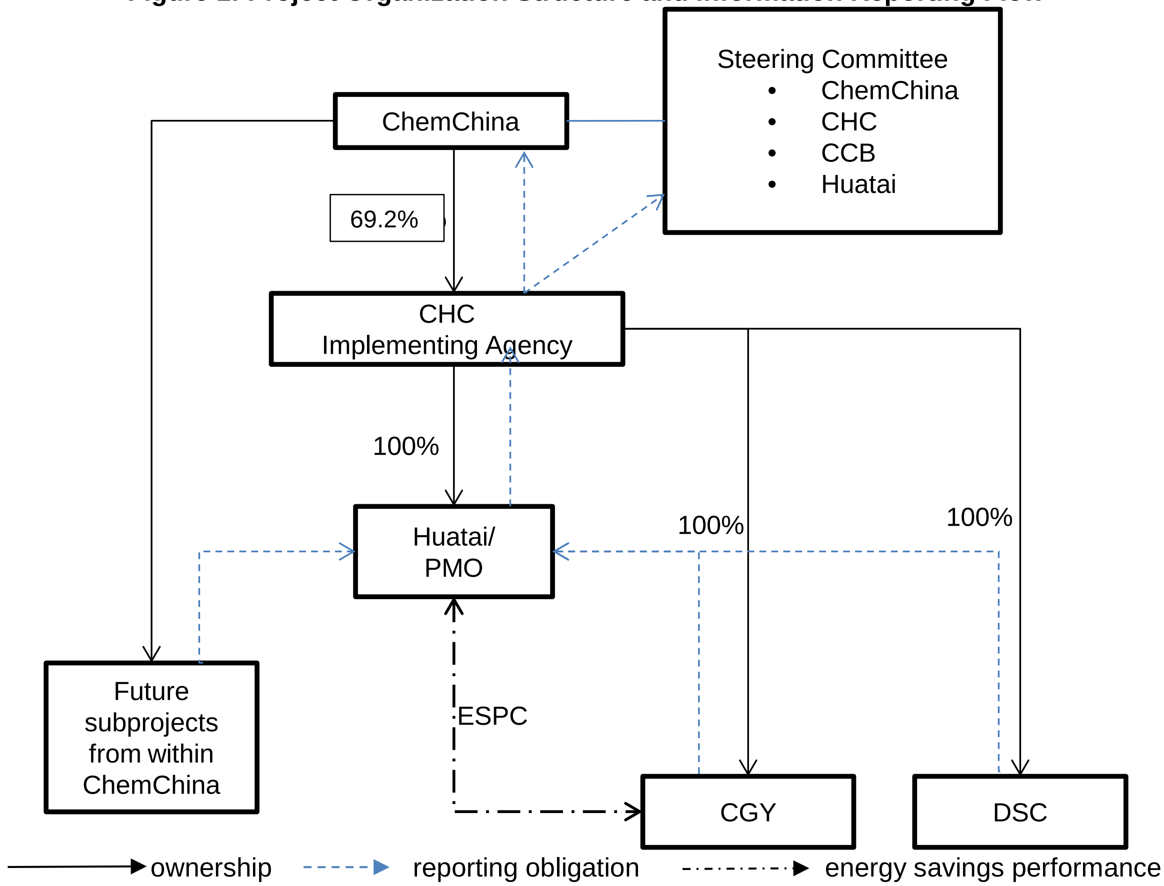
B. Key Persons Involved in Implementation

Institution	Contact Details
Executing agency China National Chemical Group	Name: (Mr.) YANG Xingqiang Position: General Manager Telephone: +86.10.82676665 E-mail: yangxingiang@chemchina.com Office address: #62 Fourth Ring Road, West Haidian District, Beijing 100080 Fax: +86.10. 82677879

Institution	Contact Details
Implementing agency China Haohua Chemical Group	Name: (Mr.) CHEN Hong Position: General Manager Telephone: +86.10.58650605 E-mail: chenhong@haohua.chemchina.com Office address: #19, Xiao Ying Road, Chaoyang District, Beijing 100101 Fax: +86.10.58650685
Project implementation unit Beijing Zhonghao Huatai Energy Technology	Name: (Mr.) LI Jianbin Position: General Manager Telephone: +86.10.58650603 E-mail: lijianbin@haohua.chemchina.com Office address: #19 Xiao Ying Road, Chaoyang District, 100101 Beijing Fax: +86.10.58650689
Onlending bank China Construction Bank (CCB headquarters)	Name: (Ms.) FENG Shan Position: Project Manager Telephone: +86.10.67596701 E-mail: fengshan.zh@ccb.com Office address: 1-1 Naoshikou Street, Xicheng District, Beijing 100033-33 Fax: +86.10.66275769
Financial intermediary CCB Beijing Branch	Name: (Mr.) CHEN Dong Position: Deputy Chief Manager Telephone: +86.10.67596762 E-mail: chendong.bj@ccb.com Office address: No. 4 Building 28, Xuanwumen Ave., West Beijing Fax: +86.10. 51990893
Subborrowers Dezhou Shihua Chemical	Name: (Mr.) YAN Jinghe Position: General Manager Telephone: +86.534.2277003 E-mail: Yanjinghe@dzshhg.com.cn Office address: #6 Shihua South Street, Tianqu Industrial Park, Decheng District, Dezhou City, Shandong Province 253000 Fax: +86.534.2625577
Zhonghao Chenguang Research Institute of Chemical Industry	Name: (Ms.) LI Jia Position: Director General Telephone: +86.813.7806027 E-mail: lijia03@haohua.chemchina.com Office address: #135 Chenguang Road, Fushun District, Zigong City, Sichuan Province 643201 Fax: +86.137201124
Asian Development Bank East Asia Department Energy Division Mission leader	(Mr.) Ashok Bhargava Director Telephone: +63.2.6326558 E-mail: abhargava@adb.org (Ms.) Annika Seiler Finance Specialist (Energy) Telephone: +63.2.6831513 E-mail: aseiler@adb.org

C. Project Organization Structure

Figure 1: Project Organization Structure and Information Reporting Flow



CCB = China Construction Bank, CHC = China Haohua Chemical Group, ChemChina = China National Chemical Group, CGY = Zhonghao Chenguang Research Institute of Chemical Industry, DSC = Dezhou Shihua Chemical, ESPC = Energy Service Performance Contract, Huatai = Beijing Zhonghao Huatai Energy Technology, PMO = project management office.

27. CHC will be responsible for day-to-day project implementation and will implement the project through the PIU established in its wholly owned ESCO, Huatai. Huatai, on behalf of CHC, will take responsibility for communicating and coordinating with the National Development and Reform Commission, MOF, and related local governments, as well as with ADB, CCB, ChemChina, and other institutions. CHC will supervise and support Huatai in project implementation and will also be responsible for ensuring the smooth implementation of the project by solving any major problems that occur during the period.

28. Huatai will manage project implementation on behalf of CHC, including the first batch as well as future batches of subprojects. Huatai will facilitate and support the procurement process and the preparation of withdrawal applications and ensure that procurement is done in accordance with ADB's Procurement Guidelines (2015, as amended from time to time) or with established commercial practices acceptable to ADB. Huatai will assume the coordinating role and ensure timely reporting to ADB; for this purpose, Huatai will see to it that (i) subproject companies follow documentation guidelines and conduct the necessary monitoring measures, and submit the necessary information on time; and (ii) reports are compiled and submitted on time to CHC for endorsement. Huatai will also manage auditing at the subproject level.

29. The companies with the first batch of subprojects, DSC and CGY, will be in charge of obtaining all the approval documents needed to secure construction permits for each subproject. They will implement the subprojects and supervise subcontracts. They will also undertake the necessary documentation for their respective subprojects.

30. Regarding procurement, the respective subborrowers will (i) sign contracts with contractors, (ii) manage project implementation to guarantee the quality of materials and services, and successful construction and operation; and (iii) undertake the necessary monitoring activities for complete and timely reporting to ADB.

IV. COSTS AND FINANCING

31. The government has requested a loan of $100.0 million from ADB's ordinary capital resources to help finance the project, including transportation and insurance costs, taxes, and duties.[26] The loan will have a term of 15 years, including a grace period of 10 years, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)–based lending facility, a commitment charge of 0.15% per year, a straight-line repayment option, and other terms and conditions set forth in the draft loan and project agreements. The average loan maturity is 12.75 years; therefore, no maturity premium will be payable to ADB. The subproject borrowers will finance $63.3 million through equity contributions. The China Construction Bank (CCB) will cofinance $81.7 million on a collaborative basis.

32. For the first batch of subprojects, ADB subloan amounts will not exceed 55% of the total subproject investment costs. For subsequent batches, financing from revolved ADB loan proceeds will be reduced to a maximum of 40% of the investment cost to encourage an increased share of cofinancing. Commercial cofinancing will match ADB funds at least a 1:1 ratio. Equity financing will not be less than 20%. As ADB loan proceeds are expected to be rolled over 1.2 more times during the loan tenor, additional lending of $240 million and total investments of $320 million for future subprojects can be mobilized.

A. Cost Estimate Preparation and Revisions

33. The cost estimates for the first batch of subprojects were prepared by ADB project preparatory technical assistance (PPTA) consultants on the basis of the subprojects' feasibility studies and procurement plan, and in accordance with ADB's guidelines for the preparation and presentation of cost estimates for ADB-financed projects and programs.[27] The cost estimate model and the procurement plan model handed over by the PPTA consultants are stored on the division's disk drive. A compact disc with both models is stored at the loan administration unit of ADB's Energy Division, East Asia Department.

34. The financial model may be updated during the implementation of the loan project if there are major changes in cost. Toward the end of the loan implementation period, when new subprojects are being identified for implementation, the financial model may be updated with regard to the modeling of the REF.

[26] The amount of taxes and duties was determined according to the following principles. The taxes and duties (i) should be consistent with the current Country Partnership Strategy of ADB; (ii) should not represent an excessive share of the project investment plan; and (iii) should apply only to ADB-financed expenditures. Moreover, the financing of the taxes and duties should be material and relevant to the success of the project.

[27] ADB. 2014. *Preparing and Presenting Cost Estimates for Projects and Programs Financed by the Asian Development Bank.* Manila.

B. Cost Categories for Subprojects

35. The cost categories are as follows:

Category	Description
Civil works	Subproject-related civil works
Equipment	Supply and installation of equipment
Consulting services	Recruitment of consultants to improve CHC's/PIU's capacity for energy-saving measures

CHC = China Haohua Chemical Group, PIU = project implementation unit.

C. Assumptions

36. The following key assumptions underpin the cost estimates and the financing plan:

(i) exchange rate: CNY6.24 = $1; and

(ii) price contingencies based on expected cumulative inflation over the implementation period, as follows:

Inflation Projection	2014	2015	2016	2017	After 2017
Domestic inflation rate	2.60%	3.00%	3.00%	3.00%	3.00%
International inflation rate	0.30%	0.30%	1.50%	1.40%	1.40%

Source: Asian Development Bank estimates.

D. Financial Intermediation Loan Modality

37. The FIL modality was chosen to allow multiple rollover of the ADB loan over the loan tenor through the REF. Leveraging commercial cofinancing with ADB funding will enable more energy efficiency investments and a larger impact with the repayment flows of the loan, beyond the first two subprojects. The selected financial intermediary can thus increase its knowledge of and capacity for financial due diligence of energy efficiency transactions.

E. Summary Cost Estimates and Financing Plan

38. The project investment cost, including estimated rollover of funds is about $565.0 million, of which $245.0 million is for the first batch of subprojects (Table 4). For the identified first batch of subprojects, the necessary financial due diligence was carried out and detailed cost estimates were prepared.

Table 4: Project Investment Plan for the First Batch of Subprojects
($ million)

Item	Amount[a]
A. Subproject 1[b]	
1. Base cost of selected subproject	174.3
2. Contingencies[c]	18.2
3. Financing charges during implementation[d]	13.2
Subtotal (A)	**205.7**
B. Subproject 2[e]	
1. Base cost of selected subproject	33.6
2. Contingencies[c]	3.2
3. Financing charges during implementation[d]	2.5
Subtotal (B)	**39.3**
Total (A+B)	**245.0**

[a] Includes taxes and duties of $19.66 million, of which $12.27 million will be financed from the ADB loan and $7.39 million by the cofinancing bank.
[b] Taxes for this subproject total $16.21 million, of which $9.59 million will be financed from the ADB loan.
[c] Physical contingencies were computed at 7% for civil works, and 7% for field research and development, training, surveys, and studies. Price contingencies were computed at 0.3% of foreign exchange costs for the first year of construction, 1.5% for the second year, and 1.4% for the third year, and for local currency costs, at 3% of domestic inflation. The stated amount includes provision for potential exchange rate fluctuations on the assumption that the exchange rate will be determined by purchasing power parity.
[d] Includes interest during construction and commitment charges during subloan implementation levied by China Construction Bank, estimated at 5.9% per year. Interest during implementation for the ADB loan was computed at the 3-year US dollar fixed swap rate corresponding to the construction period plus an ADB LIBOR-based loan spread of 0.50% and an onlending service fee of 1%. Commitment charges of 0.15% per year will be charged on the undisbursed amount of the ADB loan.
[e] Taxes for this subproject total $3.45 million, of which $2.68 million will be financed from the ADB loan.
Note: Numbers may not add up to the totals given because of rounding.
Source: Asian Development Bank estimates.

F. Relending and Onlending Arrangements

39. The PRC will be the borrower. MOF will onlend the loan proceeds to CCB headquarters on the terms and conditions stated in the loan agreement. CCB Beijing Branch will onlend the loan proceeds to ChemChina and charge an onlending fee of 1%, and ChemChina will further onlend the loan proceeds to CHC on the same terms and conditions (terms and conditions of ADB loan plus onlending fee of 1% by CCB Beijing Branch). CHC will establish the REF account and the IDA at CCB Anhui Subbranch under the REF and the IDA agreement.[28] CCB Anhui Subbranch will provide subloan agreements in a form and on terms and conditions acceptable to ADB.

G. Specific Terms of the Financial Intermediation Loan Modality

40. CCB Anhui Subbranch, subborrowers, and the guarantors of subloans, if any, will enter into subloan agreements for the subprojects. The onlending interest rate on subproject loans will be the higher of (i) the interest rate payable by ChemChina to the MOF, and (ii) 90% of the prime rate set by the PBoC for commercial bank loans having the same terms as the subloans. The proposed subloan lending rate does not provide a significant subsidy over the market rates but will give subborrowers an incentive to invest in energy efficiency investments.[29] ChemChina will bear the credit risk; subborrowers will bear the risks of currency exchange and interest rate fluctuations.

41. The financing plan for the first batch of subprojects is in Table 5.

[28] Anhui Subbranch is a wholly owned subbranch of CCB Beijing Branch.
[29] Subloans with have a shorter loan tenor adjusted to the subproject's payback periods and cash flow characteristics, allowing the rollover of ADB loan proceeds. As funds will be onlent at near commercial terms, a complementary IDA will need to be established.

42. To ensure that ADB loan proceeds, as well as interest payments and principal repayments from the subborrowers are not commingled with other funds in accounts of CHC administered by CCB Anhui Subbranch, a separate REF will be established by CHC at CCB Anhui Subbranch for all transactions related to the project and to the administration of the FIL. This arrangement will keep the account distinct from CHC's assets and protect it against adverse results from CCB Anhui Subbranch's other financial operations. Since the loan proceeds will not be re-lent to CCB Anhui Subbranch, the requirement to re-lend ADB proceeds to a financial intermediary on terms no more favorable than ordinary capital resources terms is not applicable. Rather than being re-lent, CHC will establish a REF account under a REF account management agreement between CHC and CCB Anhui Subbranch. The use of the interest differential will be reported as part of project performance reporting.

43. In using repayment reflows from the first batch of subprojects, CHC will have three options: (i) immediately redeploy funds for the implementation of additional investments; (ii) defer redeployment, in which case CHC may not use the funds for any other purpose and the funds will remain in the REF account and earn applicable deposit interest rates; or (iii) prepay the ADB loan, if Huatai is not able to identify suitable future subprojects.

Table 5: Financing Plan for the First Batch of Energy Efficiency Projects

Source	**Amount** ($ million)	**Share of Total** (%)
A. Subproject 1: Industrial energy efficiency project		
1. Asian Development Bank	80.0	38.9
2. counterpart financing		
a. equity	55.2	26.8
b. China Construction Bank loan	70.5	34.2
Subtotal (A)	**205.7**	**100.0**
B. Subproject 2: Energy service company project		
1. Asian Development Bank	20.0	50.9
2. counterpart financing		
a. ESCO	8.1	20.6
b. China Construction Bank loan	11.2	28.5
Subtotal (B)	**39.3**	**100.00**
Total (A+B)	**245.0**	

ESCO = energy service company.
Note: Numbers may not sum precisely because of rounding.
Sources: Asian Development Bank estimates

H. Detailed Cost Estimates, by Expenditure Category

Table 6: Detailed Estimates, by Expenditure Category

Item	Amounts in CNY Million FC	LC	Total[a]	Amounts in $ Million FC	LC	Total	% of Base Costs
A. Base Investment Costs [b]							
1. Civil works	**-**	**128.6**	**128.6**	**-**	**20.6**	**20.6**	**10**
a. Subproject 1							
i. VCM	-	58.6	58.6	-	9.4	9.4	5
ii. PVC	-	35.7	35.7	-	5.7	5.7	3
b. Subproject 2							
i. HFC-23 plasma pyrolysis	-	-	-	-	-	-	
ii. Fluoropolymer drying system EE retrofit	-	-	-	-	-	-	
iii. Energy system optimization	-	15.0	15.0	-	2.4	2.4	
iv. Auxiliary common-purpose facilities	-	19.3	19.3	-	3.1	3.1	
2. Equipment, installation, and materials	213.8	778.1	991.9	34.3	124.7	159.0	76
a. Subproject 1							
i. VCM	213.8	430.9	644.7	34.3	69.1	103.3	50
ii. PVC	-	199.9	199.9	-	32.0	32.0	15
b. Subproject 2							
i. HFC-23 plasma pyrolysis	-	26.4	26.4	-	4.2	4.2	
ii. Fluoropolymer drying system EE retrofit	-	78.2	78.2	-	12.5	12.5	
iii. Energy system optimization	-	34.1	34.1	-	5.5	5.5	
iv. Auxiliary common-purpose facilities	-	8.6	8.6	-	1.4	1.4	
3. Other investment Costs	**-**	**175.4**	**175.4**	**-**	**28.1**	**28.1**	**14**
4. Consulting services	**-**	**1.9**	**1.9**	**-**	**0.3**	**0.3**	
Subtotal (A)	**213.8**	**1,084.0**	**1,297.8**	**34.3**	**173.7**	**208.0**	**100**
B. Contingency [c]							
1. Physical	15.0	71.7	86.6	2.4	11.5	13.9	7
2. Price	2.7	43.9	46.6	0.4	7.0	7.5	4
Subtotal (B)	**17.6**	**115.6**	**133.2**	**2.8**	**18.5**	**21.3**	**10**
C. Financial Charges during Implementation[d]							
1. Interest during implementation	46.3	50.4	96.8	7.4	8.1	15.5	7
2. Commitment charges	1.1	-	1.1	0.2	-	0.2	0
3. Front-end fee	-	-	-	-	-	-	0
Subtotal (C)	**47.4**	**50.4**	**97.9**	**7.6**	**8.1**	**15.7**	**8**
Total Project Cost (A+B+C)	**278.8**	**1,250.0**	**1,528.8**	**44.7**	**200.3**	**245.0**	**118**

CNY = yuan, EE = energy efficiency, FC = foreign currency, HFC-23 = fluoroform, LC = local currency, PVC = polyvinyl chloride, VCM = vinylchloride monomer.

[a] Includes taxes and duties of $19.66 million, of which $12.27 million will be financed from the ADB loan and $7.39 million by the cofinancing bank.

[b] In April 2015 estimated prices.

[c] Physical contingencies were computed at 7% of base costs for both foreign and local costs; price contingencies, according to ADB's *Financial Management and Analysis of Projects Handbook* (2005).

[d] Includes interest during construction and commitment charges during subloan implementation levied by China Construction Bank. Interest during construction for the ADB loan was computed at the 3-year London interbank offered rate (LIBOR) fixed swap rate plus a loan spread of 0.5% and an onlending fee of 1%. Commitment charges for the ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

Source: Asian Development Bank estimates.

I. Allocation and Withdrawal of ADB Loan Proceeds

44. For the first batch of subprojects, the allocation of ADB funds per subloan is summarized in the table below.

Table 7: Allocation and Withdrawal of ADB Loan Proceeds

Item	Amount Allocated ($)	Percentage and Basis for Withdrawal from the Loan Account
Subloan to DSC for subproject 1*	80.0	100.00% of amount claimed
Subloan to Huatai for subproject 2*	20.0	100.00% of amount claimed
Total	**100.00**	

ADB = Asian Development Bank, DSC = Dezhou Shihua Chemical.

* Subject to the conditions for withdrawal described in para. 6 of Schedule 3 of the loan agreement, including the requirement that (i) the subproject agreements between China Haohua Chemical Group (CHC), Beijing Zhonghao Huatai Energy Technology (Huatai), and Zhonghao Chenguang Research Institute of Chemical Industry(CGY), and between CHC and Dezhou Shihua Chemical (DSC), have been duly executed and delivered; and (ii) the subloan agreements between China Construction Bank (CCB) and Huatai, and between CCB and DSC, have been duly executed and delivered.

J. Detailed Cost Estimates, by Financier, for the First Batch of Subprojects

Table 8: Detailed Cost Estimates, by Financier, for the First Batch of Subprojects ($ million)

	ADB		China Construction Bank		Government–ChemChina		Total[a]	
Item	**Amount**	**%**	**Amount**	**%**	**Amount**	**%**	**Amount**	**%**
A. Base Investment Cost[b]								
1. Civil works	**-**	**-**	**20.6**	**100.0**	**-**	**-**	**20.6**	**8.4**
a. Subproject 1								
i. VCM	-	-	9.4	100.0	-	-	9.4	7.6
ii. PVC	-	-	5.7	100.0	-	-	5.7	2.3
b. Subproject 2								
i. HFC-23 plasma pyrolysis	-	-	-	-	-	-	-	-
ii. Fluoropolymer drying system EE retrofit	-	-	-	-	-	-	-	-
iii. Energy system optimization	-	-	2.4	100.0	-	-	2.4	1.0
iv. Auxiliary common-purpose facilities	-	-	3.1	100.0	-	-	3.1	1.3
2. Equipment, installation, and materials	**99.7**	**62.7**	**58.5**	**36.8**	**0.8**	**0.5**	**159.0**	**64.9**
a. Subproject 1								
i. VCM	55.1	53.4	48.2	46.6	-	-	103.3	42.2
ii. PVC	24.9	77.6	7.2	22.4	-	-	32.0	13.1
b. Subproject 2								
i. HFC-23 plasma pyrolysis	4.0	93.5	0.3	6.5	-	-	4.2	1.7
ii. Fluoropolymer drying system EE retrofit	10.7	85.6	1.8	14.4	-	-	12.5	5.1
iii. Energy system optimization	4.5	81.8	0.2	4.4	0.8	13.8	5.5	2.2
iv. Auxiliary common-purpose facilities	0.5	38.7	0.8	61.3	-	-	1.4	0.6
3. Other investment costs[c]		**-**	**2.6**	**9.28**	**25.5**	**90.7**	**28.1**	**11.5**
4. Consulting services	**0.3**						**0.3**	
Subtotal (A)	**100.0**	**48.1**	**81.7**	**39.3**	**26.3**	**12.6**	**208.0**	**84.9**
B. Contingencies								
1. Physical	-	-	-	-	13.9	100.0	13.9	5.7
2. Price	-		-	-	7.5	100.0	7.5	3.0
Subtotal (B)	**-**	**-**	**-**	**-**	**21.3**	**100.0**	**21.3**	**8.7**
C. Finance Charges during Construction[d]								**-**
1. Interest during construction	-	-	-	-	15.5	100.0	15.5	6.3
2. Commitment charges	-	-	-	-	0.2	100.0	0.2	0.1
Subtotal (C)	**-**	**-**	**-**	**-**	**15.5**	**0.01**	**15.7**	**6.4**
Total Project Cost (A+B+C)	**100.0**	**40.8**	**81.7**	**33.4**	**63.3**	**25.8**	**245.0**	**100.0**

ADB = Asian Development Bank, EE = energy efficiency, HFC-23 = fluoroform, PVC = polyvinyl chloride, VCM = vinylchloride monomer.

[a] Includes taxes and duties of $19.66 million, of which $12.27 million will be financed from the ADB loan and $7.39 million by the cofinancing bank. The following principles were followed in determining the taxes and duties to be financed by ADB: (i) the amount must be within a reasonable threshold for the country; (ii) the amount must not constitute an excessive share of the project investment plan; (iii) the taxes and duties must apply only to ADB-financed expenditures; and (iv) the financing of the taxes and duties must be relevant to the success of the project.

[b] In April 2015 prices.

[c] Other engineering cost includes: supply and installation of energy management control system; conduct of engineering surveys and design; project management; third-party review of detailed designs; preparation of construction drawings and as-built drawings; site preparation and construction of temporary facilities; engineering insurance; and special equipment safety supervision and inspection fee.

[d] Includes interest during construction and commitment charges during subloan implementation levied by China Construction Bank. Interest during construction for the ADB loan was computed at the 3-year forward London interbank offered rate (LIBOR) plus an ADB margin of 0.5% and an onlending fee of 1%. Commitment charges for the ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

Source: Asian Development Bank estimates.

K. Detailed Cost Estimates, by Output/Subproject

Table 9: Detailed Cost Estimates, by Output/Subproject

Item	Total Cost ($ million)[a]	Subproject 1 Amount ($ million)[a]	Subproject 1 % of Cost Category	Subproject 2 Amount ($ million)[a]	Subproject 2 % of Cost Category
A. Base Investment Cost[b]					
1. Civil works	**20.6**	**15.1**	**73.3**	**5.5**	**26.7**
2. Equipment and materials	**159.0**	**135.4**	**85.1**	**23.6**	**14.9**
a. Subproject 1					
i. VCM	103.3	103.3	100.0	-	-
ii. PVC	32.0	32.0	100.0	-	-
b. Subproject 2					
i. HFC-23 plasma pyrolysis	4.2	-	0.0	4.2	100.0
ii. Fluoropolymer drying system EE retrofit	12.5	-	0.0	12.5	100.0
iii. Energy system optimization	5.5	-	0.0	5.5	100.0
iv. Auxiliary common-purpose facilities	1.4	-	0.0	1.4	100.0
3. Other engineering cost[c]	**28.1**	**23.9**	**84.9**	**4.2**	**15.1**
4. Consulting services	**0.3**	**-**	**0**	**0.3**	**100.0**
Subtotal (A)	**208.0**	**174.3**	**83.8**	**33.7**	**16.2**
B. Contingencies[d]					
1. Physical	13.9	12.2	87.9	1.7	12.1
2. Price	7.5	6.0	79.8	1.5	20.2
Subtotal (B)	**21.3**	**18.2**	**85.0**	**3.2**	**15.0**
C. Finance Charges during Construction[e]					
1. Interest during implementation	15.5	13.0	84.0	2.5	16.0
2. Commitment charges	0.2	0.1	83.4	0.0	16.6
Subtotal (C)	**15.7**	**13.2**	**84.0**	**2.5**	**16.0**
Total Project Cost (A+B+C+D)	**245.0**	**205.7**	**83.9**	**39.3**	**16.1**

EE= energy efficiency, HFC-23 = fluoroform, PVC = polyvinyl-chloride, VCM = vinylchloride monomer.

[a] Includes taxes and duties of $19.66 million of which $12.27 million will be financed from ADB loan and $7.39 million from the cofinancing bank. The following principles were followed in determining the amount of taxes and duties to be financed by ADB: (i) the amount is within reasonable country thresholds; (ii) the amount is not an excessive share of the project investment plan; (iii) the taxes and duties apply only to ADB-financed expenditures; and (iv) the financing of the taxes and duties is relevant to the success of the project.

[b] In April 2015 prices.

[c] Other engineering cost includes: supply and installation of energy management control system; engineering surveys and design; project management, third party review of detailed designs; construction drawings; as-built drawings; site preparation and temporary facilities; engineering insurance; special equipment safety supervision and inspection fee.

[d] Physical contingencies have been computed at 7% of base costs for both foreign and local costs. Price contingencies have been computed as per ADB's Financial Management and Analysis of Projects Handbook, 2005.

[e] Includes interest during construction and commitment charges during implementation of subloans levied by China Construction Bank. Interest during construction for ADB loan has been computed at the 3-year forward London interbank offered rate (LIBOR) plus an ADB margin of 0.5% and an onlending fee of 1%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

Source: Asian Development Bank estimates.

L. Detailed Cost Estimates, by Year

Table 10: Detailed Cost Estimates, by Year
($ million)

Item	Total Cost[a]	2015	2016	2017
A. Base Investment Cost[b]				
1. Civil works	**20.6**	**6.2**	**11.3**	**3.0**
a. Subproject 1				
i. VCM	9.4	2.8	5.6	0.9
ii. PVC	5.7	1.7	3.4	0.6
b. Subproject 2				
i. HFC-23 plasma pyrolysis	-	-	-	-
ii. Fluoropolymer drying system EE retrofit	-	-	-	-
iii. Energy system optimization	2.4	0.7	1.0	0.7
iv. Auxiliary common-purpose facilities	3.1	0.9	1.3	0.9
2. Equipment, installation, and materials	**159.0**	**58.2**	**85.2**	**15.5**
a. Subproject 1				
i. VCM	103.3	34.2	59.3	9.8
ii. PVC	32.0	10.7	18.7	2.6
b. Subproject 2				
i. HFC-23 plasma pyrolysis	4.2	2.5	1.4	0.3
ii. Fluoropolymer drying system EE retrofit	12.5	7.1	4.3	1.2
iii. Energy system optimization	5.5	3.1	1.0	1.4
iv. Auxiliary common-purpose facilities	1.4	0.6	0.5	0.3
3. Other engineering cost[c]	**28.1**	**8.7**	**15.6**	**3.8**
a. VCM/PVC	23.9	7.2	14.3	2.4
b. HFC-23 and energy efficiency	4.2	1.5	1.3	1.4
4. Consulting services	**0.3**	**0.3**	**-**	**-**
a. VCM/PVC	-			
b. HFC-23 and energy efficiency	0.3	0.3		
Subtotal (A)	**208.0**	**73.4**	**112.2**	**22.4**
B. Contingencies[d]				
1. Physical	13.9	4.3	7.9	1.7
2. Price	7.5	0.8	4.8	1.9
Subtotal (B)	**21.3**	**5.1**	**12.7**	**3.5**
C. Financing Charges During Implementation				
1. Interest during construction	15.5	1.5	5.5	8.4
2. Commitment charges	0.2	0.1	0.1	0.0
Subtotal (C)	**15.7**	**1.7**	5.6	**8.4**
Total Project Cost (A+B+C)	**245.0**	**80.2**	**130.4**	**34.4**
% of Total Project Cost	**100.0**	**32.7**	**53.2**	**14.1**

EE= energy efficiency, HFC-23 = fluoroform, PVC = polyvinyl-chloride, VCM = vinylchloride monomer.

[a] Includes taxes and duties of $19.66 million, of which $12.27 million will be financed from the ADB loan and $7.39 million by the cofinancing bank. The following principles were followed in determining the taxes and duties to be financed by ADB: (i) the amount must be within a reasonable threshold for the country; (ii) the amount must not represent an excessive share of the project investment plan; (iii) the taxes and duties must apply only to ADB-financed expenditures; and (iv) the financing of the taxes and duties must be relevant to the success of the project.

[b] In April 2015 prices.

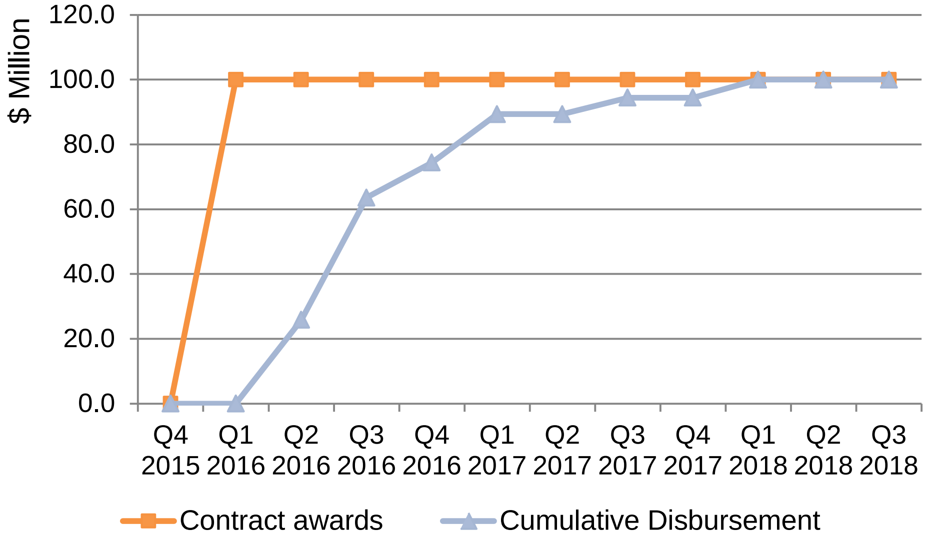
[c] Other engineering cost includes: supply and installation of energy management control system; conduct of engineering surveys and design; project management; third-party review of detailed designs; preparation of construction drawings and as-built drawings; site preparation and construction of temporary facilities; engineering insurance; and special equipment safety supervision and inspection fee.

[d] Physical contingencies were computed at 7% of base cost for both foreign and local costs. Price contingencies were computed according to ADB's *Financial Management and Analysis of Projects Handbook* (2005).

Source: Asian Development Bank estimates.

M. Contract Awards and Disbursements S-Curve

Figure 2: Contract Awards and Disbursements S-Curve ($ million)



Source: Asian Development Bank estimates.

Table 11: Contract Awards and Disbursements

	Q4 2015	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018
Contract awards	0.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cumulative Disbursement	0.0	0.0	25.8	63.6	74.4	89.3	89.3	94.4	94.4	100.0	100.0	100.0

Source: Asian Development Bank estimates.

N. Agreement Flow and Funds Flow Diagram

45. Figure 3 shows (i) the lending, relending, and onlending agreements between ADB, MOF, CCB, ChemChina, and CHC; (ii) the engagement of CCB Anhui Subbranch as financial intermediary to manage the REF; (iii) the cofinancing arrangement; (iv) the flow of ADB loan proceeds to be disbursed directly to the REF; and (v) the repayment flow. The agreement flow, funds flow and disbursement arrangements are as follows:

(i) ADB will provide the loan to MOF, and the latter will sign a subsidiary loan agreement (SLA) with CCB headquarters and onlend ADB loan proceeds on the same terms and conditions. CCB, for the term of the project loan, will pledge its liquidity held at the PBoC equivalent to 1.5 times the loan amount, as counterguarantee.

(ii) According to the SLA between MOF and CCB headquarters, and on the basis of their onlending loan agreement (OLA1), CCB Beijing Branch will onlend to ChemChina the ADB loan proceeds it receives in US dollars, on the same terms and conditions, in the same amount, and at the same interest rate as those provided in the ADB loan agreement between MOF and ADB, except that CCB

Beijing Branch can charge an agreed onlending fee of 1% per year for the onlending and the cost of the pledge it provides to MOF.[30]

(iii) ChemChina will use its creditability as a kind of guarantee for repaying principal and interest to CCB. CCB will not require ChemChina, which bears the final credit risk, to provide any fixed assets or charging rights as collateral. Given the AAA credit rating granted by CCB to ChemChina and the asset scale of ChemChina, CCB has set-up an overall credit line of about CNY40 billion for ChemChina without any fixed assets or charging rights as collateral. The outstanding balance of the proposed $100 million ADB loan will form part of that credit line for the whole loan term; this means that the $100 million ADB loan onlent by CCB to ChemChina is basically a credit loan.

(iv) ChemChina will onlend (OLA2) to CHC the ADB loan proceeds it receives in US dollars, on the same terms, in the same amount ,and at the same interest rate as those provided in the ADB loan agreement between MOF and ADB, plus the onlending fee charged by CCB, and will provide a counterguarantee to CCB.

(v) CHC will subsequently sign a trust agreement with CCB Anhui Subbranch entrusting the CCB Anhui Subbranch, with the provision of designated trustee services and the management of the REF account and the IDA. CCB is expected to create a US dollar account and a Chinese yuan account at CCB and to convert a portion of the ADB loan proceeds into Chinese yuan to fund domestic procurement as required by CHC. As trustee, CCB will be responsible for (a) signing subloan agreements with subborrowers; (b) managing disbursement, interest payment, and principal collection, and administering the subloan portfolio; (c) managing counterguarantees, securitization, and collateral issues; (d) managing the exchange of foreign and domestic currencies; (e) taking necessary action against nonperforming loans; (f) providing monthly reports to CHC on the use of the funds; and (g) facilitating the annual audit.

(vi) ChemChina will make lending and pricing decisions, through CHC, and bear the credit risk of the subproject.

(vii) CCB Anhui Subbranch will sign subloan agreements with subproject companies in US dollars for the loan amount agreed on with CHC, but, before making any disbursements to the subproject companies, CCB will convert the ADB funds into Chinese yuan on the day the funds are deposited into the US dollar trust account. The subloan borrowers (DSC and Huatai) will have to repay the equivalent of the US dollar amount borrowed and thus carry the exchange rate risk.

(viii) All subloan agreements will be based on the subsidiary OLA concluded with ADB. The first batch of subloans will be signed by CHC, the subloan borrowers, and CCB. The interest rate of OLA3 will be close to the commercial bank loan rate available to the subloan borrowers (at a 10% discount off the PBoC prime loan rate for commercial banks of the same term as the subloans [footnote11]).

(ix) Through the REF account of CHC, CCB will sign future subloan agreements with other borrowers, subject to the approval of CHC.

(x) CHC will also open an IDA to collect interest payments from the subloan borrowers, and repay the ADB interest in the US dollar equivalent into CHC's Chinese yuan account, to be converted to US dollars and then paid to ADB from CHC's US dollar account. Once a year, or as otherwise agreed on with CHC in

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[30] As onlending bank, CCB functions as a channel—a practice that has been successfully applied in previous ADB sovereign SOE loans to the PRC (ADB. 2010. *Tianjin Integrated Gasification Combined Cycle Power Plant Project.* Manila).

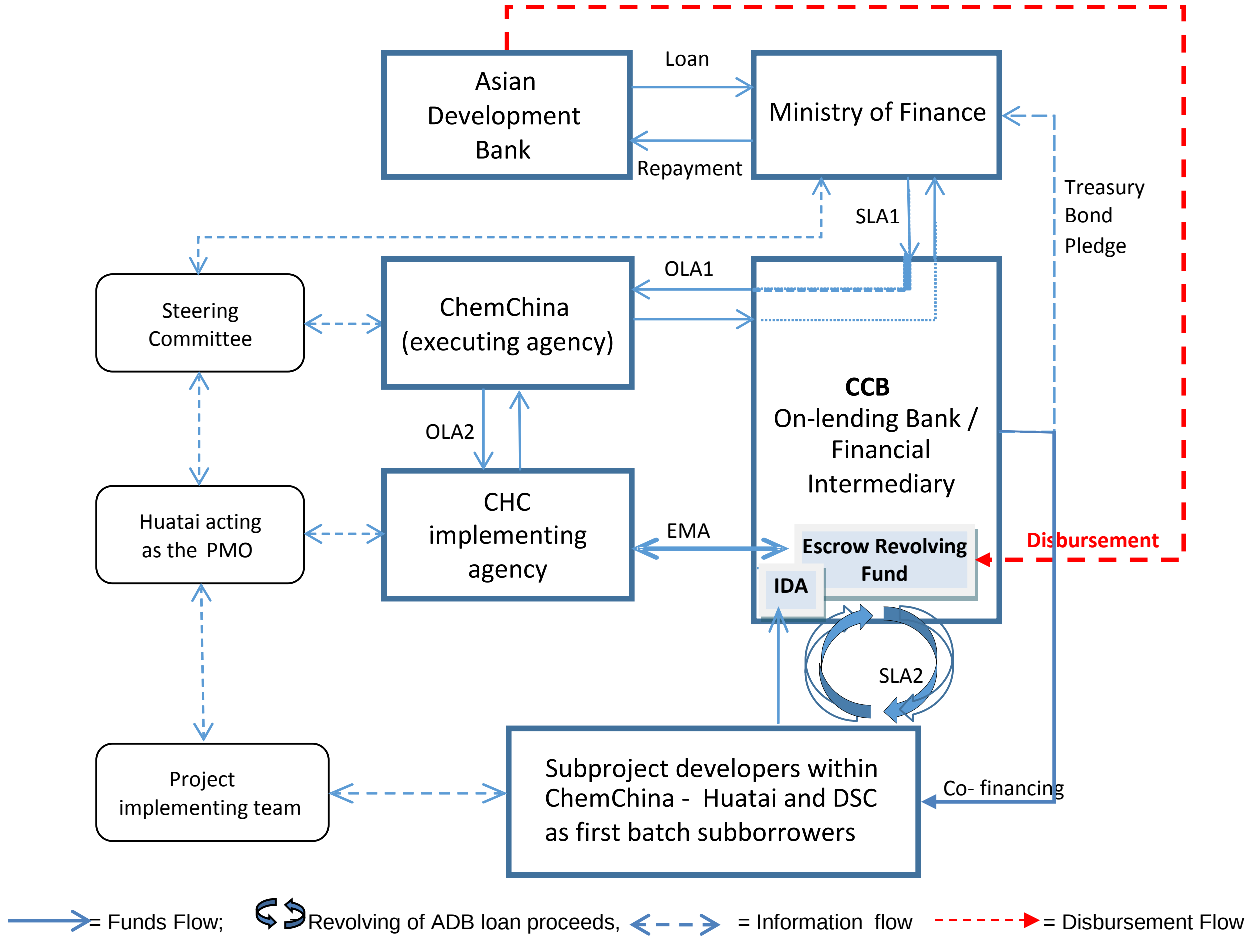
its REF and IDA management agreement, CCB will allocate the interest differential in accordance with the determined use. The accumulated cash balance in this account will be used as follows: (a) at least 40%, to increase the equity of Huatai; (b) up to 50%, to provide interest rebates to subborrowers to reward them for the timely completion of subprojects and the verified achievement of the stated energy savings; and (c) up to 10%, to allow Huatai to hire external experts to prepare feasibility studies and, in particular, to prepare environmental screening, audits, and environmental impact assessments (EIA) of future subprojects, as well to monitor and report on the ADB project, and to develop the capacity of Huatai staff for energy performance contracting and for monitoring and verification.

(xi) First batch subborrowers will be responsible for paying their “share” of the ADB commitment fee in accordance with their share of the ADB loan amount.

(xii) Periodic subloan repayments will replenish the REF account and CCB Anhui Subbranch will continue to onlend subsequent batches of subloans as approved by CHC, adopting the same procedures as those used for the first batch. To maximize subproject impact, it is not necessary for the entire loan amount to be paid back.

(xiii) For future subprojects, a project steering committee chaired by ChemChina and with representatives of CHC, CCB Anhui Subbranch, and Huatai as members will be established. Huatai, the ESCO, will identify future subprojects, screen them on the basis of the selection criteria agreed on with ADB and the ESMS, and present the list of subprojects to the steering committee. The steering committee members will approve subprojects on a non-objection basis. As part of the due diligence and project selection process, CCB Anhui Subbranch will be responsible for (a) conducting financial due diligence of future subprojects, including an assessment of the creditworthiness of potential subborrowers; and (b) making appropriate recommendations to the steering committee with regard to subproject selection. CCB will have the right to raise objections with regard to the financial capability of potential subborrowers or the selection standards applied.

Figure 3: Agreements Flow and Funds Flow Diagram



CCB = China Construction Bank, CHC = China Haohua Chemical Group, ChemChina = China National Chemical Group, DSC = Dezhou Shihua Chemical, EMA = Escrow Management Agreement, Huatai = Beijing Zhonghao Huatai Energy Technology, IDA = interest difference account, OLA = onlending agreement, PMO = project management office, SLA = subsidiary loan agreement.

V. FINANCIAL MANAGEMENT

46. **Scope.** The financial management assessment (FMA) of the executing and implementing agencies, the subborrowers (Huatai and DSC), and the financial intermediary (CCB Beijing Branch through its Anhui Subbranch), was conducted in accordance with ADB's project financial management and analysis guidelines[31] and procedures for the conduct of financial due diligence.[32] The FMA was done to assess the financial capacity of the entities involved. In addition, an integrity due diligence of the financial intermediary was carried out.

A. Financial Management Assessment of China Construction Bank

47. CCB Beijing Branch through its Anhui Subbranch will manage the REF account, the IDA, and onlending to subborrowers. Accordingly, CCB, particularly its Anhui Subbranch of CCB Beijing Branch, underwent a due diligence assessment.[33]

48. **Background.** Founded on 1 October 1954 and headquartered in Beijing, CCB is one of the PRC's four biggest national commercial banks. It had its initial public offering (IPO) on the Hong Kong Stock Exchange on 27 December 2005, and was listed on the Shanghai Stock Exchange on 25 September 2007. By the end of 2014, it was the second largest bank in the world, with a asset value amounting to $2,736.4 billion and a total of 368,410 employees, 57% of them with bachelor's degrees or higher.

49. CCB has 14,663 branches and subbranches, including 13 located abroad—in Hong Kong, China, as well as in Ho Chi Minh City, Seoul, Singapore, Tokyo, Osaka, Frankfurt, Johannesburg, New York City, and other cities. In the PRC, the bank is represented in all major, second-tier, and third-tier cities. It controls 39 subsidiaries with 181 branches and 7,662 employees.

50. At the end of 2014, CCB ranked second among the world's top 1,000 banks in terms of tier-1 capital, according to *The Banker* (UK), and second in the magazine's ranking of Chinese banks. It ranked 38th in the Fortune Global 500 and second in the Forbes Global 2000. CCB is also the Asian Banker's Best Large Retail Bank in China for 2015.[34] All this acclaim attests to the excellence of CCB's large-scale banking business.

51. **Capitalization and shareholders.** CCB's registered capital at the end of September 2014 was CNY250.01 billion ($40.1 billion) and it had net equity of CNY1,208 billion ($193.6 billion). The top five shareholders together held more than 95% of its shares. Table 12 gives details of these top five shareholders.

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[31] ADB. 2005. Guideline on the Financial Management and Analysis of Projects. Manila. http://www.adb.org/documents/financial-management-and-analysis-projects.

[32] ADB. 2009. *Financial Due Diligence: A Methodology Note.* Manila. http://www.adb.org/documents/financial-due-diligence-methodology-note.

[33] Financial Management Assessment of China Construction Bank (accessible from the list of supplementary documents in Appendix 2 of the Report and Recommendation of the President to the Board of Directors).

[34] http://www.ccb.com/en/newinvestor/upload/20150330_1427710199/20150330181024641129.pdf.

Table 12: Top 10 Shareholders of CCB (as of 30 September 2014)

No.	Name of shareholder	Nature of shareholder	Proportion
1	Central Huijin Investment Ltd	State-owned	57.26%
2	Hong Kong Securities Clearing Company Nominees Ltd.	Foreign legal person	29.86%
3	Temasek Holdings (Private) Ltd. of Singapore	Foreign legal person	6.39%
4	State Grid	State-owned legal person	1.08%
5	Baosteel Corp	State-owned legal person	0.91%
6	China Ping'an Life Insurance-traditional common insurance product	Domestic non-state owned legal person	0.86%
7	China Yangtze Power Co., Ltd.	State-owned legal person	0.41%
8	Yijia Investment Co., Ltd.	Foreign legal person	0.34%
9	China Ping'an Life Insurance-traditional high return insurance policy product	Domestic non-state owned legal person	0.24%
10	China Securities Finance Corp. Ltd.	State-owned legal person	0.11%
	SUM		97.46%

52. **Findings of the integrity due diligence.** CCB is committed to business integrity and international standards of modern corporate governance, and recognizes the need to adopt modern corporate governance practices in order to accomplish its objective of becoming one of the most internationally competitive commercial banks. In line with this objective, CCB has been restructured as a joint-stock commercial bank with limited liability and has embraced a modern corporate governance framework that balances authorities and responsibilities among the general meeting of shareholders, the board of directors, the board of supervisors, and senior management for the proper segregation of duties and powers among all stakeholders.

53. CCB has developed important anti–money laundering, know-your-customer, and anticorruption policies. During project preparation, ADB reviewed these policies and confirmed their acceptability to ADB. These policies are audited annually by the China Banking Regulatory Commission, the State Auditing Administration, the People's Bank of China, and the external auditor and have been found adequate.

54. An integrity due diligence of the directors, senior management, and supervisors of CCB and its Anhui Subbranch was carried out. Politically exposed persons were identified on the basis of records provided in relevant websites and databases,[35] and given these persons' (i) affiliation with (i) the Communist Party of China, or (ii) former leadership positions in state corporations. But the integrity due diligence uncovered no evidence of any involvement of these politically exposed persons in illegal activities.

55. **CCB accounting.** CCB prepares accounting statements according to the Generally Accepted Accounting Principles (CGAAP), runs banking operations strictly in line with regulatory requirements, and is well versed in risk management with control measures such as segregation of duties, proper authorization of transactions, payroll controls, regular bank reconciliations, establishment of subsidiary accounts for interest differential accumulation, and computerized transaction software.

56. **External audit.** In addition to internal audits by the bank's own staff, annual external audits acceptable to the stock exchange and the government regulatory bodies are performed for the bank by the world-renowned auditing firm PricewaterhouseCoopers (PwC).

[35] Including, among others, the websites of the Central Commission for Discipline Inspection, chinalawinfo.com, Dow Jones, Baidu, and Lexis Diligence.

57. **Capability to manage onlending arrangements.** To implement the onlending loan, CCB has formed a strong team headed by the general manager of the corporate banking department at the Beijing headquarters, who will take charge of overall coordination within the bank. The president of the Anhui Subbranch will manage project preparation and implementation. The subbranch has also designated four staff members to run daily operations related to the loan. ADB loan accounts will be set up for ChemChina, CHC, and Huatai at CCB's Anhui subbranch, which will handle the disbursement and repayment of the ADB loan. The Anhui subbranch has some experience in managing disbursements from projects funded by foreign governments or international financial institutions (IFIs),[36] and is fully conversant with the management of foreign exchange risk. But its staff lack experience in implementing ADB-funded projects and still need training in ADB's financial management standards and procedures.

58. **FMA findings regarding CCB.** The FMA found that CCB has satisfactory financial management capability to accomplish the designated tasks, notably to (i) record required financial transactions and balances, (ii) provide reliable financial progress reports and monitoring reports, (iii) safeguard financial assets, (iv) submit to auditors the required financial documents according to arrangements acceptable to ADB, and (v) manage the REF and the IDA.

B. Financial Management Assessment of Executing and Implementing Agencies and Subproject Borrowers

59. ChemChina was incorporated in May 2004 and is directly administered by the PRC's State-Owned Assets Supervision and Administration Commission. It owns more than 100 industrial firms throughout the PRC with total assets of CNY244 billion and 140,000 employees.

60. The FMA results for ChemChina, CHC, and subproject companies show that financial management systems and procedures for proper financial management and reporting are in place. These entities also have adequate accounting systems for ADB loan implementation. Entity-related governance risks are low or moderate with regard to (i) accounting policies and procedures, (ii) staffing, (iii) reporting and monitoring, (iv) information systems, (v) internal audit, and (vi) external audit.

61. ChemChina, the largest chemical company in the PRC, and CHC, the largest among ChemChina's six specialized groups of companies, both have extensive experience in implementing industrial projects and have worked successfully with international finance organizations. CHC is implementing an energy efficiency and emission reduction project financed by the European Investment Bank. Earlier, it guided DSC in the successful delivery of an energy efficiency and emission reduction project financed by the World Bank. But neither ChemChina nor CHC has worked previously with ADB. A tendering agency with extensive previous ADB project experience will therefore be engaged to strengthen the financial management capacity of CHC to implement the project.

62. The staff at the PIU, established by CHC, have been trained in ADB disbursement procedures but still need training in procurement, reporting, and other procedures during project processing. They will also undergo continuous capacity-building training during project implementation. The overall control risks before mitigation are considered moderate.

[36] In 2008, CCB onlent a €49.5 million loan from the German development bank KfW to the Sinohydro Group. Loan implementation was smooth and posed no onlending issues.

C. Disbursement

63. The disbursement of the loan proceeds will conform to ADB's Loan Disbursement Handbook (2015, as amended from time to time)[37] and detailed arrangements agreed on between the government, ChemChina, and ADB. Project staff are encouraged to avail themselves of online training in ADB's disbursement policies and procedures at http://wpqr4.adb.org/disbursement_elearning to help ensure efficient disbursement and fiduciary control.

64. The loan proceeds will be paid through CHC's REF account (US dollar–denominated escrow account) to be set up by CHC at CCB's Anhui Subbranch once the loan takes effect. After receiving the funds, CCB Anhui Subbranch will convert these to Chinese yuan and transfer them to the specified Chinese yuan account. Within 3 working days of receipt of the loan proceeds, CHC will instruct CCB Anhui Subbranch to distribute the funds to the subborrowers, and CCB must transfer the funds in Chinese yuan to the subborrowers' account maintained at CCB unless the following agreements have been duly executed and delivered, to the satisfaction of ADB: (i) the subproject agreements between CHC and Huatai, and between CHC and DSC; and (ii) the subloan agreements between CCB and Huatai, and between CCB and DSC.

65. Although disbursement procedures for financial intermediation loans will be applied, if a non-Chinese contractor is selected for an international competitive bidding (ICB) contract, the subborrower for subproject 1 (DSC), may request ADB to use the direct payment procedure on account of foreign exchange rate concerns. The contract, including the non-Chinese contractor's payment instruction, must be approved by ADB before disbursement.

66. Each subproject must be approved by ADB before a withdrawal application for a particular subloan is submitted. Subprojects 1 and 2 after ADB loan approval are deemed to have been approved by ADB. Any future subproject must meet ADB subproject selection criteria and must go through thorough due diligence.

67. The special disbursement guidelines applicable to this FIL are described in the disbursement guidelines (Appendix 1). ChemChina will submit withdrawal requests after confirming the achievement of milestones specified in each subloan agreement (Annex 2 of Appendix 1). The withdrawal request for a particular subloan will be submitted together with a statement of expenditure for financial intermediation loans. Several withdrawal applications may have to be submitted for each subloan, depending on its disbursement schedule.

68. Retroactive financing will be considered for eligible expenses of subborrowers under contract packages that are eligible for financing from the ADB loan, and for which advance contracting has been approved in the procurement plan. The amount of retroactive financing will be limited to 20% of the total ADB loan amount and to expenses incurred within 12 months of the signing of the ADB loan agreement. The amount of retroactive financing sought will be shown separately in the withdrawal application.

[37] http://www.adb.org/documents/loan-disbursement-handbook.

D. Accounting

69. The PIU and each subborrower will maintain, or cause to be maintained, separate accounts and records by funding source for all expenditures incurred on the project, following accrual-based accounting consistent with the International Accounting Standards–equivalent national accounting standards published by MOF. CCB Anhui Subbranch will submit monthly financial reports to ChemChina and CHC. CHC, through Huatai, will prepare a consolidated statement of use of funds (SUF) in accordance with the government's accounting laws and regulations, which must conform to international accounting principles and practices.

E. Auditing and Public Disclosure

70. ChemChina will have the detailed consolidated project accounts audited in accordance with international standards for auditing, by an auditor acceptable to ADB. CHC will submit the audited accounts in the English language to ADB within 6 months of the end of each fiscal year. An annual audit of the (i) SUF, and (ii) SOE procedures for FIL will also be conducted.

71. The PIU and CCB Anhui Subbranch will facilitate and organize the annual audit and submit the audit report to ADB with the CHC's endorsement. The SUF audit report will include a management letter and the auditor's opinion regarding whether (i) the SUF presents a true and fair view or is presented fairly, in all material respects, in accordance with the applicable financial reporting standards; (ii) the proceeds of the loan were used only for the project.

72. Compliance with financial reporting and auditing requirements will be monitored by review missions and during normal program supervision, and followed up regularly with all concerned, including the external auditor. ChemChina, CHC, Huatai, and DSC will be required to share the audited financial statements with ADB during relevant quarters.

73. The government, ChemChina, CHC, and the PIU have been made aware of ADB's policy for delayed submissions, and the required quality of audited project financial statements.[38] ADB reserves the right to compel a change of auditor (in a manner consistent with the constitution of the borrower), or the provision of additional support to the current auditor, if the required audits are not performed in a manner satisfactory to ADB or are substantially delayed. ADB also reserves the right to verify the project's financial accounts to ensure that its share of ADB's financing is being used according to ADB's policies and procedures.

74. Public disclosure of the audited SUF, including the auditor's opinion, will be guided by ADB's Public Communications Policy (2011).[39] After its review, and no later than 14 days after ADB's confirmation of their acceptability, ADB will disclose the audited statements and the opinion of the auditors on the SUF by posting them on the ADB website. The management

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[38] ADB's approach and procedures regarding the delayed submission of audited project financial statements are as follows:
- (i) When the audited SUF and other audit opinions are *not received by the due date*, ADB will write to the executing agency advising the latter that the audit documents are overdue.
- (ii) When audited project financial statements *are not received within 6 months after the due date*, ADB will withhold the processing of requests for new contract awards and disbursement. ADB will also (a) inform the executing agency of ADB's actions; and (b) advise the executing agency that the loan may be suspended if the audit documents are not received within the next 6 months.
- (iii) When audited project financial statements *are not received within 12 months after the due date*, ADB may suspend the loan.

[39] http://www.adb.org/documents/pcp-2011?ref=site/disclosure/publications

letter, any additional auditor's opinion, and financial statements of the audited entity will not be disclosed.[40]

[40] This type of information would generally be considered exceptions to the disclosure rule under the policy. (ADB. 2011. *Public Communications Policy*. Paragraph 97[iv] and/or 97[v])

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting and Retroactive Financing

75. To expedite project implementation, ChemChina has requested advance contracting and retroactive financing for the procurement of goods and related services. All advance contracting and retroactive financing will conform to ADB's Procurement Guidelines (2015, as amended from time to time)[41] and ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).[42]

76. An assessment of the procurement capacity of the PIU and the subborrowers has confirmed that, with the capacity building provided by the PPTA consultants, the PIU and the subborrowers have adequate capacity to undertake advance contracting and retroactive financing. The borrower and the executing and implementing agencies have nonetheless been advised that approval of advanced contracting and retroactive financing does not commit ADB to finance the project.

77. **Advance contracting**. Advance contracting is to be carried out for all first-batch subprojects mentioned in the procurement plan. The issuance of invitations for bids and the draft bidding documents under advance procurement action must be approved by ADB.

78. **Retroactive financing**. Except as otherwise stated, expenditures incurred by any of the approved subproject owners in procuring equipment or civil works under contract packages to be financed by ADB will be eligible for retroactive financing provided that (i) the expenses are incurred before loan effectiveness, but no more than 12 months before the signing of the ADB loan agreement; and (ii) the amount of retroactive financing does not exceed $20 million, 20% of the total amount of the ADB loan.

B. Procurement of Goods

79. During project preparation, a procurement plan was prepared for the first-batch subprojects, and the procurement risk for the project entities—the executing agency (ChemChina), the implementing agency (CHC), and the subproject companies (Huatai and DSC)—and the procurement agent was assessed. The assessment showed that CHC (i) has sufficient experience in procuring large contract packages, and (ii) has well-established procurement practices and procedures in line with the PRC's procurement laws. Since 2010, CHC has procured goods, works, and consulting services totaling CNY10 billion ($1.6 billion) in accordance with ChemChina's established commercial procedures and the Government Procurement Law. CHC applies the following principles in procurement: (i) openness, (ii) fairness, (iii) standardized procedures, and (iv) conformity to legal provisions. As the procurement capacity of CHC is already adequate and will be strengthened further through the hiring of an independent procurement agent, it is proposed that procurement for the project be done in accordance with ADB's Procurement Guidelines (2015, as amended from time to time) or with established commercial practices acceptable to ADB. ADB's standard bidding documents for the procurement of goods will be used in the procurement and supply of towers under an ICB contract amounting to $34 million, and there will be prior review by the Energy Division of ADB's East Asia Department (EAEN), the Operational Services and Financial

[41] http://www.adb.org/documents/procurement-guidelines.
[42] http://www.adb.org/documents/guidelines-use-consultants-asian-development-bank-and-its-borrowers.

Management Department (OSFMD), and the Office of the General Counsel (OGC), in view of the exceptional size and complexity of the contract.

80. The 18-month procurement plan in section C indicates the thresholds and review procedures acceptable to ADB for goods, works, and consulting services contract packages.

81. For future batches of subprojects, procurement by the beneficiaries will also conform to established commercial practices acceptable to ADB.

82. All procurement must be made from ADB member countries. Subborrowers will be encouraged to procure goods through competitive bidding or shopping when such procedures are most appropriate in the interest of economy and efficiency. The procurement manual in Appendix 3 describes special procurement procedures for future subprojects, which should be followed by CHC. In case of noncompliance, CCB must refrain from financing the contract package. EAEN will undertake an acceptability check of procurement activities during loan review missions.

83. Based on the procurement plan there is one contract of exceptional size and nature, for procurement of towers with an estimated amount of $34 million. This contract will be procured in accordance with ADB Procurement Guidelines, using ADB's standard bidding documents for procurement of good with prior review by ADB (EAEN, OSFMD, and OGC).

C. Procurement Plan

Table 13: Basic Project Data

Project Name: Chemical Industry Energy Efficiency and Emission Reduction Project	
Project Number: 47051-002	**Approval Number**: xxxx
Country: People's Republic of China	**Executing Agency**: China National Chemical Corporation
Project Procurement Classification: B	**Implementing Agency:** China Haohua Chemical Group
Procurement Risk: Moderate	
Project Financing Amount: **$** 245.01 million **ADB Financing: $**100.00 million **Non-ADB Financing: $**145.01 million	**Project Closing Date:** 31 August 2021
Date of First Procurement Plan: 22 March 2015	**Date of This Procurement Plan**: 8 Sept 2015

1. Procurement Methods and Thresholds, and 18-Month Procurement Plan

a. Procurement Methods and Thresholds

84. Except as ADB may otherwise allow, the methods and process thresholds given in Tables 14 and 15 shall apply to the procurement of goods, works, and consulting services.

Table 14: Methods and Thresholds for the Procurement of Goods

Method	Threshold	ADB Prior or Post Review[1]
ICB for goods	$10,000,000 or above	Prior review by ADB (EAEN, OSFMD, OGC)
Domestic procedure (DP) for goods	Below that stated for ICB, goods	Acceptability check by EAEN during loan review mission

ADB = Asian Development Bank, EAEN = Energy Division, East Asia Department, ICB = international competitive bidding, OGC = Office of the General Counsel, OSFMD = Operations Services and Financial Management Division.

[1] The first contract package for goods and works is subject to prior review by ADB. The subsequent international and national competitive bidding procurement documents can be reviewed before or after approval.

Table 15: Method of Procurement of Consulting Services

Method	Comments
Selection based on consultants' qualifications	Subject to prior review

b. 18-Month Procurement Plan (as of 16 May 2015)

85. **Goods and works contracts costing $1 million or more.** Table 16 lists goods and works contracts for which the procurement activity is either ongoing or expected to start within the next 18 months.

Table 16: Goods and Works Contracts Costing $1 Million or More

Package Number	General Description	Estimated Value	Procurement Method	Review [Prior / Post/Post (Sample)]	Bidding Procedure	Advertisement Date (quarter/year)	Comments
1D (master doc.)	Fixed-bed reactor for VCM phase 1	5,384,000	DP		1S1E	Q2 2015	Goods
2D	Polymerization unit for PVC	8,616,000	DP		1S1E	Q2 2015	Goods
3D	Specific towers for VCM phase 1 / PVC	3,910,000	DP		1S1E	Q3 2015	Goods
4D	Centrifugal separator for PVC unit	2,154,000	DP		1S1E	Q3 2015	Goods
5D	Towers for VCM phase 1	34,262,000	ICB	Prior	1S1E	Q4 2015	Goods
6D	PVC drying system	1,023,000	DP		1S1E	Q4 2015	Goods
7D	Compressor unit for VCM phase 1	1,292,000	DP		1S1E	Q1 2016	Goods
8D	VCM phase 1 Chemical reaction gas purification unit	1,122,000	DP		1S1E	Q1 2016	Goods
9D	Piping installation for VCM phase 1	9,270,000	DP		1S1E	Q1 2016	Goods
10D	Piping installation for PVC	7,009,000	DP		1S1E	Q2 2016	Goods
11D	Instrument control for VCM phase 1	1,522,000	DP		1S1E	Q1 2016	Works
12D	Instrument control for PVC	1,480,000	DP		1S1E	Q2 2016	Works
1C (master doc.)	Plasma incinerator	3,958,000	DP		1S1E	Q2 2015	Goods
2C	Fluorubber (FKM) drying system	3,269,000	DP		1S1E	Q4 2015	Goods
3C	Drying system for polytetrafluoro-ethylene (PTFE)	7,468,000	DP		1S1E	Q4 2015	Goods
4C	Lot 1: Instrument control	531,000	DP		1S1E	Q4 2015	Goods
	Lot 2: Energy management	2,055,000					
5C	Ventilation system for production lines	1,588,000	DP		1S1E	Q4 2015	Goods

1S1E = single-stage, one-envelope procedure; DC = direct contracting; DP = domestic procedure; ICB = international competitive bidding, PVC = polyvinyl chloride, VCM = vinylchloride monomer.

86. **Consulting services contracts costing $100,000 or more.** Table 17 lists consulting services contracts for which the recruitment activity is either ongoing or expected to begin within the next 18 months.

Table 17: Consulting Services Contracts Costing $100,000 or More

Package Number	General Description	Estimated Value ($)	Recruitment Method	Review (Prior / Post)	Advertisement Date (Quarter/Year)	Type of Proposal	Comment
1	Building of capacity to implement energy-saving measures in the chemical industry (study tour)	300,000	Domestic	Prior	Q3 2015	BTP and CQS	2 person-months

BTP = biodata technical proposal, CQS = consultants' qualification selection.

87. **Goods and works contracts costing less than $1 million and consulting services contracts costing less than $100,000 (smaller-value contracts).** Table 18 groups together smaller-value contracts for goods, works, and consulting services for which the activity is either ongoing or expected to begin within the next 18 months.

Table 18: Goods and Works Contracts Costing Less than $1 Million

Package Number	General Description	Estimated Value	Number of Contracts	Procurement Method	Bidding Procedure	Advertisement Date (Quarter/ Year)	Comments
13D	Heat exchangers VCM phase 1	934,000	1	DP	1S1E	Q1 2016	Goods
14D	Tanks for VCM phase 1/ PVC	662,000	1	DP	1S1E	Q1 2016	Goods
15D	Standard pumps for VCM phase 1	94,000	1	DP	1S1E	Q1 2016	Goods
16D	Compressor for VCM phase 1	264,000	1	DP	1S1E	Q1 2016	Goods
17D	Gas recycling fans for VCM phase 1	18,000	1	DP	1S1E	Q1 2016	Goods
18D	EDC pumps for VCM phase 1/ PVC	984,000	1	DP	1S1E	Q1 2016	Goods
6C	Nitrogen–oxygen station modification	365,000	1	DP	1S1E	Q3 2015	Goods
7C	Vinylidene fluoride (VDF) cracking furnace	37,000	1	DP	1S1E	Q4 2015	Goods
	Electric motor	429,000					

1S1E = single-stage, one-envelope procedure, PVC = polyvinyl chloride, VCM = vinylchloride monomer.

2. Indicative List of Packages Required under the Project

88. Tables 19 and 20 provide an indicative list of goods, works and consulting services contracts over the life of the project, other than those mentioned in previous sections (i.e., those expected beyond the current period).

Table 19: Indicative List of Good and Works Packages Required under the Project

Package Number	General Description	Estimated Value (Cumulative)	Estimated Number of Contracts	Procurement Method	Review (Prior / Post/Post [Sample])	Bidding Procedure	Comments

Table 20: Indicative List of Consulting Services Packages Required under the Project

Package Number	General Description	Estimated Value (Cumulative)	Estimated Number of Contracts	Recruitment Method	Review (Prior / Post)	Type of Proposal	Comments

3. Awarded and Ongoing, and Completed Contracts

89. Tables 21 and 22 list the awarded and ongoing contracts, and completed contracts.

Table 21: Awarded and Ongoing Goods and Works Contracts

Package Number	General Description	Estimated Value	Awarded Contract Value	Procurement Method	Advertise-ment Date (Quarter/ Year)	Date of ADB Approval of Contract Award	Comments

Table 22: Completed Goods and Works Contracts

Package Number	General Description	Estimated Value	Contract Value	Procurement Method	Advertise ment Date (Quarter/ Year)	Date of ADB Approval of Contract Award	Date of Completion	Comments

4. Non-ADB Financing

90. Tables 23 and 24 list goods, works, and consulting services contracts over the life of the project, financed from sources other than ADB.

Table 23: Goods and Works Contracts (Not Financed by ADB)

Package Number	General Description	Estimated Value	Estimated Number of Contracts	Procurement Method	Comments
N1D	Reactor fabrication according to technical specifications and drawings provided	5,385,000	1	DP	Domestic bank
N2D	Fabrication of different towers (acetylene drying, product recycling, ethylene dichloride [EDC] dehydration, etc.) according to technical specifications and drawings provided	22,580,000	1	DP	Domestic bank
N3D	Fabrication of different heat exchangers according to technical specifications and drawings provided	625,000	1	DP	Domestic bank
N4D	Fabrication of different tanks according to technical specifications and drawings provided	154,000	1	DP	Domestic bank
N5D	Fabrication of compressors	94,000	1	DP	Domestic bank
N6D	Fabrication of compressors for gas recycling	172,000	1	DP	Domestic bank
N7D	Fabrication of recycling fans according to technical specifications and drawings provided	18,000	1	DP	Domestic bank
N8D	Supply of different pumps	224,000	1	DP	Domestic bank
N9D	Supply and installation of piping, and operation and control equipment, for VCM unit phase 2	5,470,000	1	DP	Domestic bank
N10D	Operation and control equipment for PVC and VCM phase1 unit	15,252,000	1	DP	Domestic bank
N11D	Installation of electric meter	5,380,000	1	DP	Domestic bank
N12D	VCM phase 1 and PVC: construction cost	7,256,000	1	DP	Domestic bank
N13D	VCM phase 2: Construction cost	7,854,000	1	DP	Domestic bank
N14D	Technical support and VCM implementation	10,484,000	1	DP	Equity
N1C	Civil engineering for water supply and sewerage works	3,098,000	1	DP	Domestic bank
N2C	Civil engineering for energy management center	2,404,000	1	DP	Domestic bank

Package Number	General Description	Estimated Value	Estimated Number of Contracts	Procurement Method	Comments
N3C	Pipeline	274,000	1	DP	Domestic bank
N4C	Electrical engineering	1,799,000	1	DP	Domestic bank
N5C	Construction unit management fees, etc.	2,508,000	1	DP	Domestic bank
N6C	Recycling system equipment	755,000	1	DP	Equity
N7C	Civil engineering and electrical and communications engineering	840,000	1	DP	Domestic bank
N8C	Supply of variable frequency drives for existing pumps	240,000	1	DP	Domestic bank
N9C	Supply and installation of instrument control	100,000	1	DP	Domestic bank

DP = domestic procedure, PVC = polyvinyl chloride, VCM = vinylchloride monomer.

Table 24: Consulting Services Contracts (Not Financed by ADB)

General Description	Lot Number	Estimated Value (Cumulative)	Estimated Number of Contracts	Recruitment Method	Comments
Project management and consulting services	9	13,375,000	9	DP	Equity
Survey and design		1,638,000		DP	Equity

DP = domestic procedure.

5. National Competitive Bidding

91. The Borrower's Law of Tendering and Bidding of the People's Republic of China, promulgated by Order No. 21 of the President of the People's Republic of China on 30 August 1999, requires the following clarifications for compliance with the guidelines:

(i) All invitations to prequalify or to bid shall be advertised in the national press or official gazette, or on a free- and open-access website in the borrower's country. Such advertisement shall be made with sufficient time for prospective bidders to obtain prequalification or bidding documents, and to prepare and submit their response. In any event, a minimum preparation period of 30 days shall be allowed. The preparation period shall start (a) on the date of advertisement, or (b) when the documents are available for issue, whichever date is later. The advertisement and the prequalification and bidding documents shall specify the deadline for such submission.

(ii) The qualification requirements for bidders and the method of evaluating the qualifications of each bidder shall be specified in detail in the bidding documents, and in the prequalification documents if the bidding is preceded by a prequalification process.

(iii) If bidding is preceded by a prequalification process, all bidders that meet the qualification criteria set out in the prequalification document shall be allowed to bid and there shall be no limit on the number of prequalified bidders.

(iv) All bidders shall be required to provide a performance security in an amount sufficient to protect the borrower or project executing agency in case of breach of contract by the contractor, and the bidding documents shall specify the required form and amount of such performance security.

(v) Bidders shall be allowed to submit bids by mail or by hand.

(vi) All bids shall be opened in public. All bidders shall be afforded an opportunity to be present (either in person or through their representative) at the time of bid opening, but bidders shall not be required to be present at the bid opening.

(vii) All bid evaluation criteria shall be disclosed in the bidding documents and quantified in monetary terns or expressed in the form of pass-or-fail requirements.

(viii) No bid may be rejected solely because the bid price falls outside any standard contract estimate, or the margin or bracket of average bids established by the borrower or project executing agency.

(ix) Each contract shall be awarded to the lowest-evaluated responsive bidder, that is, the bidder that meets the appropriate standards of capability and resources and whose bid has been determined (a) to be substantially responsive to the bidding documents, and (b) to offer the lowest evaluated cost. The winning bidder shall not be required, as a condition of award, to undertake responsibilities for work not stipulated in the bidding documents or otherwise to modify the bid as originally submitted, unless exceptions of the law are used.

(x) Each contract financed with the proceeds of the loan shall provide that the suppliers and contractors shall permit ADB, at its request, to inspect their accounts and records relating to the performance of the contract and to have said accounts and records audited by auditors appointed by ADB.

(xi) Government-owned enterprises in the borrower's country may bid if they can establish that they (a) are legally and financially autonomous, (b) operate under commercial law, and (c) are not a dependent agency of the borrower or project executing agency.

(xii) Rebidding shall not be allowed solely because there are fewer than three bids.

VII. SAFEGUARDS

92. **Environment.** The project is category "FI". First batch subprojects are classified as category A for environment. A project environment impact assessment (EIA) and due-diligence report was drafted in accordance with ADB's policies and requirements including ADB's Safeguard Policy Statement (2009). The draft report was disclosed from 22 May 2015. Environmental due diligence of existing facilities revealed CGY's demonstrated strong management commitment and its excellent system management and practices in environmental management and occupational health and safety. DSC, while having in place all necessary precondition and is relatively well management, however, needs to improve its environmental, health, and safety management and practices. Among the corrective actions proposed for DSC in the audit report was obtaining certification of its environmental management system, and occupational health and safety management systems. The EIA of the component subprojects identified the following potential adverse impact: (i) limited impact except for construction noise and dust during construction, and (ii) air source emissions and fugitive emissions, and handling of chemicals and hazardous materials during operation. A comprehensive environmental management plan would mitigate and avoid the anticipated impact. In case of unanticipated impact, ADB's Safeguard Policy Statement (2009) would apply. The climate change risk posed by the project is classified as medium, according to initial climate risk screening with the help of the AWARE tool. Further assessment by a climate change expert (see Supplementary Document 19) showed the risk to be low for both subprojects. The risk, which relates mainly to flooding, will be considered in the engineering design and in the choice of new technologies to be financed under the project. No additional assessment of climate risk and vulnerability is required. For future subprojects under the FIL project, ChemChina, CHC, CCB, and Huatai will develop and adopt an environmental and social management system (ESMS) to ensure the proper selection of subprojects. Prospective subprojects classified as category A for the environment will not be excluded. These project entities will continually strive to ensure and enhance effective environmental and social management practices in all subprojects, including the effective implementation of the ESMS, the environmental management plan, the environmental monitoring plan, and the grievance redress mechanism. For the successful implementation of the environmental and social safeguards, an extensive capacity-building and training program is being developed for the project entities and subprojects.

93. **Involuntary resettlement and indigenous peoples.** The project is categorized category as financial intermediary "FI". The first batch subprojects will not require involuntary resettlement and will have no impact on indigenous peoples and ethnic minorities (category C). They will be implemented within the existing borders of the industrial facilities; no new land will have to be acquired to accommodate expansion. Future subprojects will be screened in accordance with the ESMS. Subprojects categorized as A or B for involuntary resettlement and indigenous peoples will be excluded. The screening checklist and procedures are provided in the ESMS.

94. **Environmental and social management system.** The ESMS to be established and maintained as part of CHC's and Huatai's overall management system in relation to ADB's loan project will ensure that subprojects meet national laws and ADB's environmental and social requirements for the project in accordance with ADB's Safeguard Policy Statement (SPS). An ESMS guidance document was drafted by ADB to guide the PIU in establishing the ESMS as it takes on the responsibility of appraising and approving future subprojects under the FIL project. CHC and Huatai have (i) agreed to finalize the ESMS for ADB approval before the loan takes effect; (ii) agreed to establish and fund a full-time position for an environmental and social safeguards manager in the PIU to see to it that the final ESMS arrangement is enforced

throughout the 15-year term of this FIL project; and (iii) committed themselves to enforcing the environmental monitoring plan, a key component of the ESMS developed for each identified subproject, to facilitate ADB's initial examination process during project implementation.

95. **Commitment to environmental safeguards.** CHC will require Huatai to establish a separate environmental management unit, whose staffing should be acceptable to ADB. This unit will conduct the necessary monitoring and reporting and coordinate with the industry to obtain the information needed for effective reporting to ADB. The unit will also hire external environmental auditors and experts to conduct the necessary screening, assessment, and due diligence of prospective subprojects in accordance with the selection criteria and the ESMS.

96. **Unanticipated impact.** The SPS will apply in the case of unanticipated impact, and any environmental impact not established in the EIA will be dealt with.

97. **Prohibited investment activities**. ADB's SPS forbids the use of ADB funds for activities included in the ADB Prohibited Investment Activities List (Appendix 5 of the SPS and Appendix 4 of this PAM). All financial institutions in the project must ensure that their investments comply with applicable national laws and regulations, and must be guided by the Prohibited Investment Activities List in carrying out the subprojects financed by ADB.

98. ChemChina and CHC shall, and shall cause the PIU to ensure that (a) no proceeds of the Loan are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of the SPS; and (b) if ozone depleting substances, as listed in the Montreal Protocol, are involved in the Project, they are (i) entirely used as the feedstock for the fluoropolymer production; and (ii) there is no increase in the amount of controlled substances used in the production process as a result of the Subproject.

VIII. GENDER AND SOCIAL DIMENSIONS

99. The project will have positive social impact by reducing GHG emissions and facilitating the elimination of mercury use and the phase out of mercury mining. It will thus contribute to climate change mitigation and help reduce the hazardous health effects of mobilizing mercury in the environment. However, being a retrofit project confined to the boundary of the industrial plants, the project will not directly benefit low-income households and communities by reducing poverty and will not make a direct contribution to the promotion of gender equity or the empowerment of women, and hence is classified as having no gender elements.

100. ChemChina and CHC will ensure that the core labor standards and the PRC's applicable laws and regulations are complied with during the project and subprojects implementation by ensuring that:

(i) the PRC's applicable labor law, regulations and applicable workplace occupational safety norms are complied with;
(ii) child labor is not used;
(iii) workers are not discriminated against in respect of employment and occupation;
(iv) forced labor is not used;
(v) freedom of association is allowed and the right to collective bargaining is effectively recognized; and
(vi) information on the risks of sexually transmitted diseases, including HIV/Aidss, disseminated, or appropriate service providers are engaged to disseminate, to the employees of contractors engaged under the project and the members of the local communities surrounding the project area, particularly women.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING, AND COMMUNICATION

A. Project Design and Monitoring Framework

Impact the Project is Aligned with:
Environmental sustainability of the PRC's chemical industry enhanced (Guidelines on Energy Conservation and Emission Reduction in the Petroleum and the Chemical Industry Sectors [a])

Project Results Chain	Performance Indicators with Targets and Baselines	Data Sources or Reporting Mechanisms	Risks
Outcome Energy efficiency in and emissions from PVC and fluoropolymer production within ChemChina reduced	By 2022: a. 70% of PVC production of ChemChina uses mercury free, energy efficient technology (2013 baseline: 0%) b. HCF-23 emissions from ChemChina fluoropolymer reduced to 0% (2013 baseline: 85%) c. Revolving escrow fund invests at least an additional $100 million in second batch ChemChina subprojects (2015 baseline: not applicable)	a. ChemChina Sustainability Report b. Huatai Annual Report c. CGY Annual Report d. CHC Annual Report	New technologies below performance standards Industry-specific ESCO model not operational within this time frame Insufficient incentive mechanisms to adopt energy efficiency Commercial cofinancing not forthcoming
Outputs 1. More efficient and less hazardous PVC technology at commercial scale at DSC plant demonstrated	By 2019, DSC: 1a. DSC reduces energy consumption in the PVC production process by 388,521 tce per year (2013 baseline: 1.18 million tce) 1b. DSC eliminates 35 tons of intentional use of mercury per year (2013 baseline: 35 tons) 1c. DSC avoids 1.359 $MtCO_2e$ of related CO_2 emissions (2013 baseline: 3.192 $MtCO_2e$)	1. Environmental monitoring report, loan review missions and project performance reports, and operations statistics	Poor performance of new catalyst, cost overrun, and implementation delay Industry-inherent accident risk with potentially substantial hazards for workers, local population, and the environment as a consequence of an accident

Project Results Chain	Performance Indicators with Targets and Baselines	Data Sources or Reporting Mechanisms	Risks
2. Energy efficiency and greenhouse gas abatement measures at CGY plant implemented	By 2018: 2a. CGY plant incinerates 1,090 tons of HFC-23 per year to avoid emissions of at least 13.1 $MtCO_2e$ per year (2013 baseline: 200 tons per year), and to avoid 1,205 tons of organic fluoride emissions per year (2013 baseline: 1,205 tons per year) 2b. CGY's annual energy consumption is reduced by 8,905 tce (2013 baseline: 75,696 tce per year) 2c. CGY adopts ESCO model for investing in energy efficiency (2015 baseline: 0)	2a. Production statistics, data from the project's environmental monitoring report, and loan review mission and project performance reports 2b. Loan review missions and project performance reports	Energy efficiency gains and emission reduction lower than expected

CHC = China Haohua Chemical Group, CGY = Zhonghao Chenguang Research Institute of Chemical Industry, ChemChina = China National Chemical Group, CO_2 = carbon dioxide, DSC = Dezhou Shihua Chemical, ESCO = energy saving company, HFC-23 = fluoroform, Huatai = Beijing Zhonghao Huatai Energy Technology, $MtCO_2e$ = million tons of CO_2 equivalent, PVC = polyvinyl chloride, tce = tons of coal equivalent.

[a] Ministry of Industries and Information Technology. 2013. *Guidelines on Energy Conservation and Emission Reduction in the Petroleum and the Chemical Industry Sectors*. Beijing.

B. Monitoring

101. **Project performance monitoring.** Project performance will be monitored and evaluated through the project performance and monitoring system (PPMS), as ChemChina and ADB have agreed. The project implementation period is 15 years and the loan implementation period is 5 years from the date of loan effectiveness. The estimated loan closing date is 31 August 2021 and the project completion date is 28 February 2021. With the support of and under the supervision of CHC, Huatai will establish the PPMS, in a form acceptable to ADB, to monitor the progress in project implementation during the loan implementation period. The PPMS will ensure the monitoring of project impact, outcomes, and output with respect to the performance targets set forth in the Design and Monitoring Framework. As the project uses the FIL modality to foster energy efficiency financing, the progress reports will also include a separate section on the use of the REF, the interest rate differential accumulated, and the use of the interest rate differential to evaluate the effectiveness of the mechanism.

102. With the support of and under the supervision of CHC, Huatai will prepare quarterly progress reports, in a format acceptable to ADB, and submit these reports within 30 days of the end of each quarter after their endorsement by CHC. These reports will provide (i) a narrative description of progress in project implementation, (ii) any changes in the subproject's implementation schedule, (iii) problems and difficulties encountered in the implementation, (iv) work to be carried out during the next half year in each of the component subprojects, and

(v) compliance with the ESMS and the environmental management plans (EMPs) prepared for subprojects. The progress report will also report summary statements of the REF interest differential account and any new subloans approved.

103. **Compliance monitoring.** The compliance status of loan and project covenants, including provisions with the ESMS and the EMP, will be reported and assessed through the quarterly progress reports and verified by ADB review missions.

104. **Safeguards monitoring**. During construction, the contractors or environmental monitors for subprojects will prepare environmental and social records, as required, in accordance with the monitoring plan defined in the project-specific EMP and submit these to the subproject companies, and then to Huatai. Huatai will contract an independent and external monitor to conduct (if necessary) or verify environmental impact monitoring at subprojects in accordance with the monitoring plan defined in the EMPs. The independent and external monitor will review and verify environmental records from contractors or environmental monitors for subprojects, conduct site visits, assess project progress and compliance with the EMPs, and prepare semiannual and annual environmental and social monitoring reports during construction and operation, respectively, and submit these to ADB through Huatai, CHC, and ChemChina. Huatai will prepare an annual ESMS report to show the implementation status of the ESMS and submit it to ADB through CHC and ChemChina.

105. **Gender and social dimensions monitoring.** Huatai will monitor and report on any labor, occupational health and safety or community social issues in the environmental and social monitoring reports, in accordance with the EMP.

C. Evaluation

106. ADB and the government will review project implementation jointly at least once a year. In addition, ADB and the government will undertake a comprehensive midterm review 3 years after the start of project implementation. This midterm review will include a detailed evaluation of the scope, implementation arrangements, achievement of scheduled targets, progress in engaging second batch of subprojects, and establishment of a guarantee facility and rollover funds. Within 6 months of physical completion of the project, ChemChina will require CHC to submit a project completion report to ADB.[43]

D. Reporting

107. During loan implementation, Huatai will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting standards; (ii) consolidated annual reports covering (a) progress achieved by output as measured through the performance targets for each indicator, (b) key implementation issues and solutions, (c) the updated procurement plan, and (d) the updated implementation plan for the next 12 months (the template to be used in preparing quarterly and annual progress reports is in Appendix 5 of this PAM); and (iii) a project completion report within 6 months of physical completion of the project. ChemChina will delegate to CHC the responsibility for ensuring that a simplified annual progress report, in a format to be agreed on with ADB, is provided to ADB, indicating the achievement of performance indicators for project impact and outcome until project completion. To ensure that the subprojects continue to be both viable and sustainable, project accounts and subborrowers'

[43] Project completion report format is available at:
http://www.adb.org/sites/default/files/institutional-document/33431/pai-6-07a.pdf

audited financial statements, together with the associated auditor's report, should be reviewed adequately.

108. Table 25 summarizes the reporting requirements during project implementation.

Table 25: Summary of Key Reporting Requirements during Implementation

Name of Report/Document	Time of Reporting
Quarterly progress reports on project implementation, with the fourth quarter reports serving as the annual reports for the years concerned	Every 3 months until loan completion
Environmental and social monitoring reports; may also include some social data reporting	Until loan completion —every 6 months during project construction; and —annually during operation
Audited financial statements and audited project accounts	Before 30 June of each year from 2016 throughout the implementation period, i.e., APFS prepared from loan effectiveness until loan closing date
Auditor's report (including auditor's opinion) on statement of expenditures	
Project completion report	Within 6 months after project and loan completion

APFS = Annual project financial statements.

E. Stakeholder Communication Strategy

109. Project information will be communicated through public consultation, the information disclosure mechanism on ADB's and the government's website, meetings, interviews, focus group discussions, and community consultation meetings, in accordance with the requirements stated in ADB's information disclosure policy.

110. **Non-safeguard-related grievance redress mechanism.** ChemChina and CHC shall set up a grievance redress mechanism (GRM) acceptable to ADB for non-safeguards complaints, within 90 days following the loan effectiveness date, and shall require Huatai to see to its establishment. The GRM shall be used to (i) review and document eligible complaints of the project stakeholders; (ii) proactively address grievances; (iii) provide the complainants with notice of the chosen mechanism or action; and (iv) prepare and make available to ADB upon request periodic reports to summarize (a) the number of complaints received and resolved, (b) chosen actions, and (c) final outcomes of the grievances, and make these reports available to ADB upon request. Eligible non-safeguard complaints are those related to the project, the subprojects, any of the service providers, or any person responsible for carrying out the project or subprojects; complaints on misuse of funds and other irregularities; and gender issues.

111. **Safeguard-related grievance redress mechanism.** Public grievances will most likely relate to environmental issues encountered during the implementation of the subprojects, in both the construction and operation phases. All complaints will be recorded systematically by the designated GRM staff at all subprojects under the FIL project. At the subproject level, detailed steps of the GRM will be provided. At the FIL project level, the designated person at Huatai will be the main focal person for the FIL project's GRM, and will also ensure effective GRM implementation through close cooperation and communication with the subprojects.

112. If any grievance is not effectively solved at the subproject level, Huatai, with support from CHC and ChemChina, will further facilitate the development of a reasonable, effective, and satisfactory resolution.[44]

113. **Public disclosure of environmental impact assessment and due-diligence documents.** For the first batch of subprojects, the local environmental protection bureau and ADB shall disclose the project's environmental information, as follows: (i) the EIA of both subprojects is disclosed at www.adb.org; (ii) the domestic Chinese EIAs are disclosed on the website of the local environmental protection bureau; and (iii) the semiannual EMP progress and monitoring reports, ESMS report as well as the annual EMP verification reports, will be disclosed at www.adb.org. Public disclosure of the EIA and due diligence for future subprojects will be in accordance with the ESMS.

114. **Public disclosure of project documentation on ADB website.** Public disclosure of all project documents, including the project data sheet, design and monitoring framework, consolidated EIA, and the report and recommendation of the President to the Board of Directors, will be done on the ADB website. Environmental and social monitoring reports will be disclosed during project implementation.

[44] The proposed grievance redress mechanism is provided in Linked Document 11: Environmental Impact Assessment and Due Diligence Report, accessible through Appendix 2 of the Report and Recommendation of the President to the Board of Directors.

X. SUBPROJECT SELECTION CRITERIA

A. Selection Procedure

115. The first batch of subprojects has been assessed under Asian Development Bank (ADB) project preparatory technical assistance.[45] For subprojects to be included in the subsequent batches, the applicable national and provincial laws, regulations, and procedures will apply in selecting the subprojects. The energy service company, Beijing Zhonghao Huatai Energy Technology (Huatai), will be responsible for screening, evaluating, and preparing projects for implementation. It will conduct necessary technical, economic, environmental, and social assessments in accordance with ADB guidelines, the Environmental and Social Management System, and ADB's Safeguard Policy Statement (2009) prepared Huatai, and the procurement manual. China Construction Bank will be responsible for the preparation of the financial due diligence, including financial analysis of potential subprojects and creditworthiness assessment of subborrowers. The proposed future batch subprojects will be presented to the project steering group consisting of representatives of China National Chemical Group (ChemChina), China Haohua Chemical Group, and China Construction Bank for endorsement. China Construction will have an objection right with regard to the financial performance criteria for selection of a proposed project. After the endorsement of proposed future batch subprojects, ChemChina will inform the National Development and Reform Commission on a non-objection basis.

116. All subprojects of future batches must meet the technical, financial, economic, environmental, and social criteria as presented below. These criteria will ensure that the selected subprojects lead and demonstrate energy efficiency and emission reduction with advance technology, prompt returns, and presents substantial benefits to the economy, society, and environment. The steering committee may approve, on special occasions, certain subprojects that meet most but not all the criteria, contingent on ADB's review and formal endorsement in writing.

B. Subproject Technical Criteria

117. All subprojects must be technically viable. In particular:

- (i) All subprojects must use pilot-tested proven technologies with high energy efficiency. The energy efficiency and emission reduction of greenhouse gases and other pollutants mainly carbon dioxide, sulfur dioxide, nitrogen oxide and/or total particulate matter results shall be reliable, measurable and verifiable.
- (ii) Funds shall not be used for expansion of production capacities or extension of the uses of old and inefficient equipment. Any investment that improves energy efficiency and emission reduction by at least 10% from the base case should be considered under this project.
- (iii) All subprojects should address particular issues of the chemical industry or provide solutions from the chemical industry for other energy and pollution intensive industries.

[45] ADB. 2013. T*echnical Assistance to the People's Republic of China for Preparing Chemical Industry Energy Efficiency and Emission Reduction Project*. Manila (TA 8383-PRC, approved on 17 June, for $700,000).

C. Subproject Financial Criteria

118. All subprojects must be financially viable. The financial analysis should be prepared in accordance with ADB Financial Management and Analysis of Projects guidelines. In particular:

(i) The estimated subproject investment and operations costs, as well as cash in-flows, must be clearly presented and must be reasonable.
(ii) The financial internal rate of return shall be greater than the weighted average cost of capital.
(iii) The financial internal rate of return must be robust under various sensitivity scenarios, such as (i) a cost overrun of 10%; (ii) an implementation delay of 1 year; (iii) an increase in operation and maintenance costs of 10%; and (iv) reduced sales revenues of 10%.
(iv) The payback period shall match the repayment period.
(v) The average debt–service coverage ratio shall be at least 1.2.

D. Subborrower Financial Criteria

119. All subborrowers must be financially creditworthy and does not have poor credit record, as recorded in the PBoC credit history database. The subborrower, as well, should meet the following financial performance indicators:[46]

(i) total debt/equity ratio not more than 80/20,
(ii) overall debt–service coverage ratio 1.2, and
(iii) overall current ratio at least 1.1.

120. The subborrowers must contribute a minimum of 20% of the total subproject investment cost as counterpart financing.

121. In case Huatai will act as borrower, it will sign an energy savings performance contract, which is consistent with the standard energy savings performance contract as published by the Government of the People's Republic of China.

122. In case the subproject company does not belong to the ChemChina, Huatai will also sign an energy savings performance contract. This energy savings performance contract may take the form of a shared savings performance contract or a guaranteed savings performance contract; both contractual arrangements should be consistent with the standard energy savings performance contract published by the National Development Reform Commission.

E. Subproject Economic Criteria

123. All subprojects must meet the following criteria, in particular:

(i) For all the proposed subprojects, the total economic benefits must exceed the total economic costs. The economic internal rate of return of the subproject must be greater than the discount rate of 12%, and must be viable under adverse sensitivity scenarios.
(ii) The subborrowers shall commit to enhance capacities in project planning, financing, implementing and monitoring during the subproject preparation and implementation periods.

[46] In the event a subborrower does not meet these indicators but the projected energy savings are considerably higher than average, it should provide acceptable collateral and/or loan guarantee for the amount of the subloan or as agreed with the financial intermediary.

F. Subproject Social and Environmental Safeguards Criteria

124. All subprojects must meet the following criteria, in particular:

(i) A subproject must not involve any land acquisition, temporary land occupation or demolition of residential or private commercial buildings. The subproject proposal will be screened through an involuntary resettlement impact screening checklist (Appendix 5 of this environmental and social management system [ESMS]). The checklist will be submitted to ADB for approval to confirm that there are no involuntary resettlement impacts, as defined by ADB's SPS. If a subproject is categorized as A or B for involuntary resettlement, the subproject will be excluded.

(ii) A subproject must not have adverse impacts on ethnic minorities. The subproject proposal will be screened through an ethnic minorities impact screening checklist (Appendix 5 of ESMS). The checklist will be submitted to ADB for approval to confirm that there are no adverse impacts on ethnic minorities. If a subproject is categorized as A or B for ethnic minorities, the subproject will be excluded.

(iii) A subproject must not be located in any designated environmental protection zone.

(iv) A subproject that involves existing facilities must hold proper approvals from proper national and provincial authorities in charge, must possess all the relevant environment permits, and have complied with all relevant domestic environment regulations and standards and relevant domestic occupational health and safety standards.

(v) A subproject must be designed, constructed, and operated in accordance with relevant national and provincial social and environmental laws and regulations.

(vi) A subproject company that involves existing facilities and/ or plan future facilities where a potential subproject be located and implemented will have demonstrated strong management commitment and have excellent environmental, occupational health and safety systems in place. It will have a flawless track record in environmental, occupational health and safety management. A GB/T 24001 (equivalent to ISO 14001) Environmental Management Systems and GB/T 28001:2001 (equivalent to OHSAS 18001) Occupational Health and Safety Management Systems certification would be beneficial.

(vii) Subproject must meet requirements of the ESMS developed for the loan project.

(viii) A subproject should not result in labor retrenchment and labor redundancies.

XI. ANTICORRUPTION POLICY

125. ADB reserves the right to investigate, directly or through its agents, any violations of its Anticorruption Policy relating to the project.[47] All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all project contractors, suppliers, consultants, and other service providers. Individuals or entities on ADB's anticorruption debarment list are ineligible for participation in ADB-financed activities and may not be awarded any contracts under the project.[48] The PIU and CHC are encouraged to obtain access to the ADB sanctions list to avoid delays in contract awards and implementation.[49]

126. To support these efforts, relevant provisions are included in the loan agreement and the bidding documents for the project. ChemChina, through CHC and the PIU, shall also see to it that periodic inspection of contractors is undertaken to ensure that fund withdrawal and settlement procedures are followed, and that CCB maintains proper internal controls in its operations, and shall require CCB to adopt an acceptable computerized accounting and management information system and to prepare financial statements and reports in accordance with national accounting standards.

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[47] Available at http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf.
[48] ADB's Integrity Office website is available at http://www.adb.org/integrity/unit.asp.
[49] They may sign up at http://sanctions.adb.org.

XII. ACCOUNTABILITY MECHANISM

127. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make a good-faith effort to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.[50]

[50] For further information see: http://www.adb.org/site/accountability-mechanism/main.

XIII. RECORD OF CHANGES IN THE PROJECT ADMINISTRATION MANUAL

128. All revisions and updates during implementation should be retained in this section to provide a chronological history of changes in implemented arrangements recorded in the PAM.

SPECIAL DISBURSEMENT GUIDELINES APPLICABLE TO THE FINANCIAL INTERMEDIATION LOAN

1. These special disbursement guidelines applicable to this financial intermediation loan have been prepared in accordance with the *Loan Disbursement Handbook* (2015, as amended from time to time) of the Asian Development Bank (ADB). For the first batch of subprojects, each withdrawal application is based on the project milestones achieved.

2. Each withdrawal application is signed by the borrower's duly authorized representative. The borrower's representative designated in the loan agreement will furnish sufficient evidence of the authority of the person(s) who signed the withdrawal application, together with the authenticated specimen signatures (Annex 1). The evidence must reach ADB before the borrower submits the first withdrawal application.

3. Disbursements for both subloans in the first batch will be made to China Haohua Chemical Group (CHC) revolving escrow fund (REF) at China Construction Bank (CCB). The first withdrawal application (Annex 2) with respect to a particular subloan will be supported by the following:

- (i) the Statement of Expenditures (SOE) for Financial Intermediation Loans (Annex 3)[1] form, which lists the individual payment milestones under the subloan agreement covered in the withdrawal application;
- (ii) certification from CCB Anhui Subbranch that the subloan and subproject agreements for the subproject have been executed between CCB Anhui Subbranch and the related subborrower, and between CHC and the related subborrower, respectively, in accordance with the terms and conditions specified in the related legal agreements with ADB, and the subloan agreement has become effective and legally binding;
- (iii) a copy of the subloan agreement between CCB Anhui Subbranch, CHC, and the subborrower;
- (iv) a certificate from the project implementation unit (PIU) that the milestone covered in the withdrawal application has been achieved; and
- (v) if retroactive financing is claimed, a list of the payment invoices under each contract package for which retroactive financing is claimed.

4. Subsequent withdrawal applications will be disbursed to CHC's REF account and must be supported by the following:

- (i) the SOE for Financial Intermediation Loans form, which lists the individual payment milestones under the subloan agreement covered in the withdrawal application;
- (ii) a certificate from the PIU that the milestone covered in the withdrawal application has been achieved; and
- (iii) bank transfer slips for previous payments from the CCB account to beneficiaries' accounts, to ensure that the funds were transferred within 3 working days.

[1] Appendix 9C of the *Loan Disbursement Handbook*.

5. The subloan for the pilot energy service company (ESCO) project will be disbursed against the energy savings performance contracts entered into by the ESCO and approved by CHC. Detailed instructions for preparing the withdrawal application form are in Annex 4.

6. To ensure that the loan proceeds are used for eligible expenses for the procurement of goods and services in accordance with the procurement plan, subborrowers are required to maintain records and documentation and to make these readily available for review by ADB's disbursement and review mission or upon ADB's request for the submission of supporting documents on a sampling basis, and for independent audit.

7. Disbursement for each procurement contract, applying ADB international competitive bidding (ICB) procedures according to ADB's Procurement Guidelines (2015, as amended from time to time), will be made to the selected contractor through direct payment procedure owing to foreign exchange concerns. The withdrawal application (Annex 2) with respect to this ICB contract will be supported by the following:

(i) Summary Sheet for Direct Payment (Appendix 7B of the *Loan Disbursement Handbook*); and
(ii) required supporting documents, e.g., supplier's invoice, purchase order, or delivery receipts (indicating date, amount, and bank account details).

8. The responsibilities of ChemChina, CHC, Huatai, and CCB with respect to disbursements are presented below.

Loan Disbursement Responsibilities

Responsible Person/Unit	Activity
ChemChina (executing agency)	Delegates review and control of withdrawal applications and countersigning to CHC.
CHC (Implementing agency)	(i) Reviews, controls and countersigns withdrawal application for submission to ADB. (ii) Supports Huatai in the preparation of withdrawal applications and all other tasks.
Huatai (Project Management Office)	(i) Completes a withdrawal application for each payment in each currency. (ii) Completes the corresponding summary sheet, using separate forms for each subborrower. (iii) Attaches bank statements for the REF account. (iv) Attaches the certification and subloan agreements. (v) Discusses with the subproject companies and estimates the disbursement requirement for each subloan for every 6 months on the basis of the payment schedule for contract packages eligible for ADB financing. (vi) Prepares the withdrawal application in accordance with agreed project milestones and submits it to CHC for endorsement.
Host Company	Supports Huatai in the preparation of disbursement requirements.
China Construction Bank (onlending bank, escrow agent, cofinancing bank)	(i) Reviews and verifies estimates of the disbursement requirements with respect to each subloan. (ii) Sees to it that investment tranches are managed by an adequate number of staff.

Responsible Person/Unit	Activity
Asian Development Bank	(i) Serves as development partner and provides guidance to ChemChina, CHC, and Huatai. (ii) Reviews the implementation of the ADB loan project. (iii) Provides guidance and technical assistance, as needed, in the selection of future batches of subprojects.

ADB = Asian Development Bank, CHC = China Haohua Chemical Group, ChemChina = China National Chemical Group, Huatai = Beijing Zhonghao Huatai Energy Technology, REF = revolving escrow fund.
Source: Asian Development Bank.

9. For information about the loan, ChemChina, CCB, and the PIU may request access to ADB's Loan Financial Information System (LFIS) website (http://lfis.adb.org). To obtain access to the LFIS website, a request form for LFIS web access (Annex 5) must be filled out and submitted to ADB. Upon receipt of the application, ADB will e-mail the confidential user ID and password to the requesting user. Further information about the website is available in Chapter 14 of the *Loan Disbursement Handbook*.

EVIDENCE OF AUTHORITY TO SIGN WITHDRAWAL APPLICATIONS
(This model form is used when a blanket authorization has not been provided.)

[Letterhead of
The representative of the Borrower/Recipient]
[Street address]
[City] [Country]

[DATE]

Asian Development Bank
6 ADB Avenue
Mandaluyong City
1550 Metro Manila
Philippines

Attention: Controller's Department, Loan Administration Division (CTL/CTLA)

Dear Sir/Madam:

Subject: Loan {Grant} No. ____-___ (Project Name)

I refer to the Loan {Grant} Agreement (the "Agreement") between the Asian Development Bank ("ADB") and [name of borrower {recipient}] (the "borrower" {the "recipient"}), dated _______, providing the above Loan {Grant}. For the purposes of Article [put appropriate Article number] as defined in the Agreement, the person(s) whose authenticated specimen signature(s) appear below is authorized on behalf of the borrower {recipient} to sign withdrawal application(s) and applications for issuance of commitment letter(s) under this Loan {Grant}:

[Name], [position] Specimen Signature: ____________ ____________ ____________

[Name], [position] Specimen Signature: ____________ ____________ ____________

[Name], [position] Specimen Signature: ____________ ____________ ____________

(Stipulate if more than one person needs to sign withdrawal applications, and how many or which positions, and if any thresholds apply.)

Yours faithfully,

/ signed /
____
Signed by:
[Title of the Borrower/Recipient's
Designated Representative,
as provided in the Loan {Grant} Agreement]

WITHDRAWAL APPLICATION FOR DIRECT PAYMENT AND REIMBURSEMENT

Asian Development Bank ADB

ADB Loan No. ________

Application No. ☐☐☐☐☐

Type of Disbursement

☐ Direct Payment

☐ Reimbursement

Date: ________

To: Asian Development Bank
6 ADB Avenue, Mandaluyong City
1550 Metro Manila, Philippines

Attention: Loan Administration Division, Controller's Department (CTLA)

Sir/Madam:

1. In connection with the Loan Agreement dated ________ between the Asian Development Bank and the ________ (Borrower), please pay from the Loan Account:

Currency	Amount to be paid (in figures)	Amount to be paid (in words)

The said amount is required for payment or reimbursement of eligible expenditures in the said currency as described in the attached summary sheet(s) or the statement of expenditures (SOE).

2. The undersigned certifies and agrees as follows:
   a. These expenditures were/are/will be made for the purposes specified in the Loan Agreement and the undersigned has not previously withdrawn from the Loan Account or obtained or will obtain any other loan, credit, or grant for the purpose of fully or partially meeting these expenditures.
   b. The goods or services have been procured in accordance with the Loan Agreement and the cost and terms of the purchase thereof are reasonable and in accordance with the relevant contract(s).
   c. The goods or services were or will be produced in and supplied by a member country of ADB as specified in the attached summary sheets(s) or SOE, unless specifically permitted otherwise by ADB's Board of Directors.
   d. For expenditures claimed under SOE or a certificate for force account works (FAW) procedures, all authenticating documents have been retained in the location shown on the individual SOE and will be made available for examination by auditors and ADB representatives upon request.
   e. As of the date of this application, there is no existing default under the Loan Agreement, the Project Agreement or the Guarantee Agreement, if any.
   f. If any funds withdrawn pursuant to this application are returned, the current value of such funds will be applied as credit to the Loan Account or, if the amount is small, applied to the next loan service payment due.

3. **Payment Instructions:**

   A. Payee's Name and Address
      Payee's Name ________
      Payee's Address ________

   B. Name and Address of Payee's Bank and Account No.
      Bank Name ________
      Bank Address ________
      Payee's Account No. ________
      SWIFT Code (see note 11 of Appendix 7A) ________

   C. Correspondent Bank *(If payee's bank is not located in the country whose currency is claimed, enter the name and address of their bank's correspondent in the country whose currency is to be paid.)*
      Bank Name ________
      Bank Address ________
      Account No. of Payee's Bank ________
      SWIFT Code (see note 13 of Appendix 7A) ________

   D. Special Payment Instructions and Other References
      ____
      ____

4. This application consists of _______ pages including ____ pages of summary sheets or SOE.

From:

____
Signature of Authorized Representative(s)

____
Printed Name/Position Title of Authorized Representative(s)

ADB Form No. ADB-DRP/RMP

Asian Development Bank ADB

Statement of Expenditures (SOE) for Financial Intermediation Loans

This form is intended to be used under financial intermediation loans to list individual payments for subloans.

SOE for: ☐ Liquidation/Replenishment of Advance ☐ Reimbursement

SOE Sheet No.:		ADB Loan No.:			Application No.:				Date:			
Subloan No.	Sub-Borrower	Industry Sector/ ISIC Code	Project Purpose and Description	Country of Origin	Subproject Cost	Subloan Amount Approved	ADB's Disbursement %	Subloan Amount to be Financed by ADB	Amount of Individual Payment Claimed	Date Paid	Cumulative Amount of Disbursement for the Subloan	Remarks (a)
1	2	3	4	5	6	7	8	9	10	11	12 (should be = or < column 9)	13

ADB = Asian Development Bank, SOE = statement of expenditures, ISIC = International Standard Industrial Classification Code

TOTAL CLAIM ____________

CERTIFICATION

It is hereby certified that (i) the above amounts have been incurred and paid for proper execution of project activities under the terms and conditions of the Loan Agreement, (ii) all documentation authenticating these expenditures has been retained by the Borrower and will be made available for examination by auditors and ADB representatives upon request, and (iii) payments have not been split to enable them to pass through any applicable SOE ceiling.

____

Representative[b] Signature, Name, and Position

Notes:

(a) Other information such as maturity, grace period, interest rate, security taken, and any other relevant data may be indicated.
(b) Representative of executing/implementing agency that prepared the SOE.

INSTRUCTIONS FOR PREPARING THE WITHDRAWAL APPLICATION FORM

A. General Instructions

1. Submit the original withdrawal application form to the Asian Development Bank (ADB).
2. Number withdrawal applications consecutively, with the number not exceeding five digits or characters.
3. When the application is completed, verify the completeness of supporting documentation and the accuracy of details before passing the application to the authorized representative(s) for signature. Mistakes and omissions result in delayed payment.

B. Withdrawal References

1. **Date.** Enter the date the withdrawal application was signed by the authorized representative(s), not the date it was prepared.
2. **Loan number.** Show the ADB loan number clearly.
3. **Application number.** Number withdrawal applications consecutively. If the project has more than one subloan projects, the project coordinator should assign an alphanumeric identification to each subloan, for example, A0001 to A9999 for subloan no. 1, and B0001 to B9999 for subloan no. 2.
4. **Type of disbursement.** Indicate in the appropriate box the type of withdrawal application claim, whether for direct payment or for reimbursement procedure.

C. Payment Instructions

1. **Payee's name and address.** Indicate the full name and address of the payee for identification of payment.
2. **Name and address of payee's bank and account number.** Indicate the full name and address of the payee's bank, which may include a banker or branch designation. The account number is important. Give the SWIFT code if the payee's bank is a member of SWIFT.
3. **Correspondent bank.** When payment is to be made to a bank not located in the country of currency to be paid, indicate its full name and address. Provide SWIFT code if the bank is a SWIFT member.
4. **Special payment instructions.** Indicate any particulars, special instructions, or references to facilitate payment or identification of payment.
5. **Name of borrower.** Provide the name as it appears in the loan agreement.
6. **Authorized representative(s).** Pass this application only to authorized representative(s) for signature. Check if the list of authorized representative(s) has been changed.

ADB

Request for LFIS / GFIS / LAS Web Access Definition / Renewal / Termination
Website: https://lfis.adb.org

Instructions:
1. A separate form must be filled out for each applicant.
2. An **AUTHORIZED LOAN / GRANT SIGNATORY** must sign the form.
3. Request details must be typewritten.

Important:
- The access to LFIS / GFIS Web is valid for 1 year.
- Notify CTOC-SSG promptly if there is a need to revoke access due to resignation, staff movement, etc.

DATE: DD – Month – Year

TO: ASIAN DEVELOPMENT BANK
6 ADB Avenue, Mandaluyong City
1500 Metro Manila, Philippines

ATTENTION: Webmaster
Systems Support Group (CTOC-SSG)
Controller's Department
Fax: +632 636 2606
Email: LfisGfisLas@adb.org

Indicate a request type:

[ ] **New** [ ] **Access Renewal** [ ] **Termination**

Completely fill out the following access details:

User Details

First Name [ ] Mr. [ ] Ms. ______________________
Last Name ______________________
Email Address ______________________
Organization or Executing Agency Name ______________________
Address ______________________
____
Fax Number ______________________

Access Details
Fill this out only if request is for **New Access** or **Access Renewal**

Indicate the applicable box:
[ ] LFIS Web [ ] GFIS Web [ ] LFIS and GFIS Web [ ] LAS Web*
[ ] LFIS and LAS Web* [ ] LFIS, GFIS, and LAS Web*

*For LAS Web requests, indicate the applicable box:
[ ] **Install eC-LAS only**
[ ] **Install eC-LAS and request data of specific loan(s) listed below****
**ADB provides historical accounting data at loan level only.

Select the level of access. Indicate the applicable box.

Note: 1. The display of loan / grant data and downloading of reports will depend on the access.
2. LFIS / GFIS Web displays *active* loans and grants; LAS Web displays *all* loans.

[ ] **Country Level** (can view loans and grants under the county portfolio)
This must be signed by an authorized signatory from the finance department or ministry.

[ ] **Executing Agency Level** (can view loans and grants under specific state, province, organization, or executing agency [EA] name)
Access request under a specific state, province, or organization must be signed by an authorized signatory from the finance department or ministry.
Access request under an EA must be signed by an authorized signatory from the finance department or ministry, or the EA.

[ ] **Specific Loan or Grant** (can view specific loans and grants)
This must be signed by an authorized signatory from the finance department or ministry, or the EA.

Loan / Grant No.	**Project Name**

(Attach a separate sheet if there are more loan and/or grant records requested.)

Authorized by:

____
Signature over Printed Name of Authorized Signatory

____
Name of Borrower / Recipient or Executing Agency

DISBURSEMENT MILESTONES FOR IDENTIFIED SUBPROJECTS
($ million)

		2015		2016				2017				2018
Subproject	**ADB Amt**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**
Subproject 1: Dezhou Shihua Chemical	80.0											
M1: Signing of Pack 1, Pack 2, and Pack 5, and Pack 1 reactor delivery					19.8							
M2: Pack 5 delivery						37.8						
M3: Piping installation completion for Pack 10								14.9				
M4: Pack 5 guarantee release										5.1		
M5: All contracts guarantee release												2.4
Subproject 2: Zhonghao Chenguang Research Institute of Chemical Industry	20.0											
M1: Pack 1, Pack 2, and Pack 3 contract signing					6.0							
M2: Pack 1 and 3 delivery							10.8					
M3: Work completion								3.2				

ADB = Asian Development Bank.

PROCUREMENT MANUAL

1. This procurement manual governs the procurement activities of the Chemical Industry Energy Efficiency and Emission Reduction Project. This manual applies as well to all procurement activities for the future batches of subprojects. The procurement activities must follow the approved procedures outlined in the procurement manual. In case of noncompliance, the project implementation unit (PIU) and China Haohua Chemical Group (CHC) must refrain from financing the contract package.

2. **Preparation and approval of bidding documents**

(i) The template of bidding documents acceptable to ADB will be followed for all procurement under the project.
(ii) All procurement, under the project, will be managed by procurement agents acceptable to ADB and the PIU, on behalf of the subproject owners.
(iii) Upon full consultation with the PIU and owner, it has been agreed that the tendering agent will take charge of preparing the business, commercial, and contractual sections of the bidding documents, and the owner and its technical consultants will be responsible for the preparation of the technical specifications and sections of the invitation for bid.
(iv) The procurement agent will integrate the commercial and contractual sections and the other sections of the bidding documents, and will be responsible for the final quality in compliance with the National Procurement Law, local procurement regulations, this manual, and international best practice.

3. **Review procedures of the Asian Development Bank.** Contract packages may be subject to review by ADB during a loan review mission. Therefore, the PIU will maintain the bid documents, list of bidders, any written clarifications provided to the bidders, and minutes of pre-bid meetings, bid opening records, bid evaluation reports, and signed contracts for review by ADB post review missions.

4. **Submission and approval of bidding documents**

(i) The procurement agent will submit the bidding documents to the PIU and the owner for confirmation.
(ii) The procurement agent will be responsible for answering questions about business issues related to the bid from relevant domestic authorities, and meanwhile will assist the PIU and the owner in answering technical questions.
(iii) Any questions concerning the bidding documents will be clarified and answered jointly by the tendering agent, the PIU, and the owner.

5. **Announcement and sale of bidding documents**

(i) The procurement agent will be responsible for drawing up the bidding announcement and publishing it in national periodicals and media. The announcement draft and the date of publication will be submitted a week in advance to the PIU and the owner for confirmation. The PIU will submit the announcement to the provincial finance department for recording.
(ii) The invitation for bids will be published in newspapers and on websites. The announcement will appear once in daily newspapers, and until the opening date of the bid on websites.

(iii) The period from the bid sales starting date, specified in the bid announcement to the deadline of bidding document submission, will be no less than 30 days, during which the bidding documents will be on sale.

(iv) The site for bidding document sale will generally be in the location of the tendering agent. However, it could also be in the owner's location, depending on the actual project situation.

6. **Clarification, amendment, and pre-bid meeting**

(i) Once the sale of bidding documents begins, the procurement agent will be responsible for clarifying business-related questions raised by bidders and will assist the PIU and the owner in clarifying technical questions. The tender agent will send out clarification or amendment documents, no later than 15 days before the bidding document submission deadline.

(ii) If necessary, the tendering agent will invite bidders to a pre-bid meeting or site survey.

(iii) If necessary, the procurement agent will preside over the pre-bid meeting and answer business-related questions raised by bidders during the meeting or site survey, while the owner answers the corresponding technical questions. The tendering agent will be in charge of modifying the business section of the bidding document and the owner will be responsible for the modification of the technical section. The procurement agent and the owner will send the modification and amendment document to all bidders who purchased the bidding documents, no later than 15 days before the deadline for submitting the bidding documents.

7. **Preparation for bid opening and evaluation.** According to the regulations of related national authorities and after consultations with the PIU and the owner, it has been agreed that the procurement agent will, before bid opening and monitored by the PIU and government agencies concerned, select on relevant bidding websites experts in the relevant specialty, to form the bid evaluation committee. (Note: The bid evaluation committee will comprise no fewer than five experts. The number of external experts appointed shall occupy no less than two-thirds of the total members of the committee.)

8. **Opening of bid.** The procurement agent will be responsible for the following:

(i) presiding over the bid opening meeting,
(ii) receiving all bidding documents,
(iii) reading out and recording bids, and
(iv) submitting the bid reading record to the PIU on the day of bid opening, for examination.

9. **Bid evaluation**

(i) The procurement agent, together with the PIU and the owner, will organize the bid evaluation by the bid evaluation committee.

(ii) The procurement agent and the owner will be jointly in charge of bid clearing in the early phase of bid evaluation.

(iii) If necessary, the bid evaluation committee will, in the process of evaluation, send clarification to bidders in written form through the means of contact provided, but such clarification will not deal with the substantial content of the bidding documents.

(iv) The procurement agent will assist the bid evaluation committee in drawing up and summarizing the evaluation report. Contracts should be awarded only to the lowest-evaluated and substantial responsive bid. Other evaluation methods are not acceptable.

10. **Submission and approval of bid evaluation report.** The tendering agent will submit the bid evaluation report to the PIU and the owner for review and approval. If necessary, the bid evaluation results will be publicly disclosed on the website by the tendering agent in accordance with relevant stipulations in the Order of the Ministry of Commerce of China, No. 13 (2004).

11. The procurement agent will notify the bid winners and will issue notices of contract award to them.

12. **Contract negotiation**

(i) The contract signing time and place will be set as required by the PIU and the owner, and based on actual needs. The procurement agent will invite the bid winners for contract negotiation.
(ii) During the above-mentioned process, the procurement agent will examine the bid validity and the bid guarantee validity, and ask the bidder to extend its bid validity, if necessary.

13. **Signing of contract**
(i) The procurement agent will integrate the contract documents.
(ii) The procurement agent, together with the PIU and the owner, will examine and confirm the content of the contract.
(iii) The procurement agent, the owner, and the bid winner will jointly sign the contract.

14. **Approval of contract.** The procurement agent will provide original and duplicate copies of the contract to the PIU and the owner, as required.

15. **Entry into force of contract.** The tendering agent is responsible for the following:

(i) examining the performance guarantee provided by bid winners; and
(ii) informing the PIU, the owner, and the bid winner of the contract's entry into force.

16. **Contract performance**.[1] The owner will be responsible for contract performance. In case of bidding-related problems in contract performance, the tendering agent will provide coordination and solution. If necessary, from the day the contract starts to the end of the quality guarantee period, the tendering agent will represent the owner in lodging and handling claims, and will seek to solve disputes with bidders and bid winners through negotiation.

[1] The procurement manual can be revised at any time according to the project requirements after the approval of CHC, the PIU, and ADB.

ADB PROHIBITED INVESTMENT ACTIVITIES LIST

The following do not qualify for Asian Development Bank financing:

(i) production or activities involving harmful or exploitative forms of forced 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) trans-boundary trade in waste or waste products;[9]
(iii) production of or trade in weapons and munitions, including paramilitary materials;
(iv) production of or trade in alcoholic beverages, excluding beer and wine;[10]
(v) production of or trade in tobacco;[10]
(vi) gambling casinos and equivalent enterprises;[10]
(vii) production of or trade in radioactive materials,[11] including nuclear reactors and their components;
(viii) production of, trade in, or use of unbonded asbestos fibers;[12]
(ix) commercial logging operations or the purchase of logging equipment for use in primary tropical moist forests or old-growth forests;
(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; and
(xi) production or activities that impinge on lands owned, or claimed under adjudication, by indigenous peoples, without the full documented consent of such peoples.

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[1] Forced labor means all work or services not voluntarily performed, that is, work or services extracted from individuals under threat of force or penalty.
[2] Child labor means the employment of children whose age is below the host country's statutory minimum age of employment, or the employment of children in contravention of International Labor Organization Convention No. 138, "Minimum Age Convention" (www.ilo.org).
[3] A list of pharmaceutical products subject to phase outs or bans is available at http://www.who.int
[4] A list of pesticides and herbicides subject to phase outs or bans is available at http://www.pic.int
[5] The chemical compounds that react with and deplete stratospheric ozone, resulting in the widely publicized ozone holes, are listed in the Montreal Protocol, together with target reduction and phase out dates. Information is available at http://www.unep.org/ozone/montreal.shtml
[6] A group of highly toxic chemicals, polychlorinated biphenyls are likely to be found in oil-filled electrical transformers, capacitors, and switchgear dating from 1950 to 1985.
[7] A list of hazardous chemicals is available at http://www.pic.int
[8] A list is available at http://www.cites.org
[9] As defined by the Basel Convention; see http://www.basel.int
[10] This does not apply to project sponsors that are not substantially involved in these activities. "Not substantially involved" means that the activity concerned is ancillary to a project sponsor's primary operations.
[11] This does not apply to the purchase of medical equipment, quality control (measurement) equipment, and any other equipment for which ADB considers the radioactive source to be trivial or adequately shielded.
[12] This does not apply to the purchase and use of bonded asbestos cement sheeting where the asbestos content is less than 20%.

QUARTERLY/ANNUAL PROGRESS REPORT TEMPLATE

Basic Information

Project Name: Chemical Industry Energy Efficiency and Emission Reduction Project	
Country: People's Republic of China	**Executing Agency:** China National Chemical Group
Loan Amount: $100 million	**Loan (Grant) Number:** LXXX –PRC
Date of Loan Effectiveness: MM/DD/YY	**Closing Date:** MM/DD/YY
Period of This Report: MM/DD/YY to MM/DD/YY	**Date of This Report Submission:** MM/DD/YY

I. PROJECT BRIEF INTRODUCTION

1. This is the XXth quarterly/annual (of YY) progress report of the Chemical Industry Energy Efficiency and Emission Reduction Project, prepared by the project management office, to cover the period MM/DD/YY to MM/DD/YY. (This quarterly progress report also serves as the annual progress report for YY).

2. The project supports high-impact energy efficiency and emission reduction investments in selected plants of ChemChina. The first batch of subprojects has two component subprojects:

(i) Industrial Energy Efficiency Subproject; and
(ii) Energy Service Company Subproject.

3. The loan and project agreements for the Energy Efficiency and Emission Reduction Project was signed by the Ministry of Finance of the People's Republic of China (PRC) and the Asia Development Bank (ADB) on MM/DD/YY, and the loan took effect on MM/DD/YY.

4. The project will extend over the 15-year loan term using the financial intermediation loan modality. The borrower of the ADB loan is the Government of the PRC and the loan proceeds will be onlent from the Ministry of Finance to China Construction Bank (CCB). CHC has established a a revolving escrow fund (REF) and an interest differential account at CCB Anhui Subbranch of CCB Beijing Branch, which was selected as the financial intermediary, for the use of the ADB loan proceeds. The ADB loan proceeds have initially been re-lent to two subprojects (first batch of subprojects), which were selected and approved by the relevant agencies of China National Chemical Group (ChemChina) and China Haohua Chemical Group (CHC).

5. This quarterly/annual progress report template refers to the ADB loan implementation period. A progress report on subsequent project implementation under the REF will be prepared separately before the midterm review.

II. FINANCIAL AND WITHDRAWAL AND PAYBACK PROGRESS

6. For the first year of the loan implementation period to the fifth, the quarterly/annual progress reports will summarize the subloan withdrawals using Table 1.

Table 1: Withdrawal Progress of Subprojects (First batch of subprojects)

Period:

					Withdrawal Progress						
Subproject	**Total Investment Cost**	**ADB Loan**			**Cumulated Up to the End of Last Period**		**Amount This Period**		**Accumulated Amount**		**%**
	CNY	**%**	**CNY**	**US$**	**CNY**	**US$**	**CNY**	**US$**	**CNY**	**US$**	
Subproject 1											

Subproject	Total Investment Cost	ADB Loan			Withdrawal Progress						
					Cumulated Up to the End of Last Period		Amount This Period		Accumulated Amount		%
Subproject 2											
Total											

7. After the fifth year of the quarterly/annual progress report, the subloan payback will be summarized as in Table 2.

Table 2: Payback Progress of Subprojects (First Batch of Subprojects)

Period:

Subproject	Name of Sub-borrower	Name of Subproject	Total Investment Cost	ADB loan			Payback Progress						
							Cumulated Up to the End of Last Period		Amount This Period		Accumulated Amount		%
			CNY	%	CNY	US$	CNY	US$	CNY	US$	CNY	US$	
Subproject 1													
Subproject 2													
Total													

III. PROGRESS OF IMPLEMENTATION, BY SUBPROJECT

8. A narrative description of the progress in project implementation, including the progress of each subproject, will cover the following:

(i) procurement and contracting progress, from advertisement to contract award;
(ii) subproject construction progress, from construction to completion;
(iii) effectiveness of the REF; and
(iv) interest differential accumulated and interest differential used.

9. The narrative will also support the implementation of a REF account and IDA for the implementation of future subprojects.

IV. ACTIONS PLANNED FOR THE NEXT 6 MONTHS

10. The following are the key project implementation actions planned for the next 6-month period:

(i) procurement activities,
(ii) construction and installation activities of subprojects,
(iii) resolution of project management issues with respect to subproject implementation,
(iv) monitoring and verification of energy savings achieved,
(v) implementation of activities in the environmental management plan under the environmental and social management system (ESMS) for subprojects, and
(vi) selection of subsequent batches of subprojects.

V. PROGRESS REVIEW OF ACTIONS/ACTIVITIES PLANNED IN THE LAST PERIOD

11. This section of the report consists of a progress review of actions and activities planned in the progress report for the last period.

VI. PROGRESS IN IDENTIFYING, SCREENING, ASSESSING, AND SELECTING FUTURE SUBPROJECTS

12. The next quarterly report should also provide information about progress made in identifying, screening, assessing, and selecting future subprojects.

VII. PROBLEMS AND ACTIONS

13. This section covers the problems or difficulties encountered, and work to be carried out in the next quarter with respect to each subproject.

VIII. ADDITIONAL INFORMATION TO BE PROVIDED IN THE NEXT QUARTERLY REPORT

14. In addition, the next quarterly report for the year would also serve as the annual report containing the following:

(i) for relevant quarters, audited financial statements of ChemChina, CHC, Beijing Zhonghao Huatai Energy Technology (Huatai), Dezhou Shihua Chemical, and Zhonghao Chenguang Chemical Industry Research Institute;
(ii) progress achieved against project output performance indicators, by subproject, as follows:

(a) Subproject 1

i. progress in the construction of polyvinyl chloride (PVC) demonstration subprojects (as a percentage of total construction value);
ii. annual energy savings and carbon dioxide savings achieved by the transformation project, in the following format:

	Estimated Savings		Actual Savings	
Subproject	**Energy (tce)**	**CO_2 (tons)**	**Energy (tce)**	**CO_2 (tons)**

(b) Subproject 2: Energy Service Company Projects

i. total number and contract value of energy service contracts entered into by Huatai,
ii. progress in finalizing the operational guidelines and institutional arrangements for providing credit guarantees for ESCO projects,
iii. value of energy savings performance contracts entered into by ESCOs taking part in the credit guarantee scheme, and
iv. commercial bank financing provided to ESCO companies under the credit guarantee program;

(iii) updated procurement plan;
(iv) updated implementation plan for the next 12 months;
(v) environmental monitoring plan progress (according to the environmental management plan), in the format provided in the ESMS; and
(vi) accumulated interest and use of the interest differential. A narrative on the effectiveness of the interest differential in achieving its targeted objectives should be provided. It should deal notably with (a) providing incentives to future subborrowers; (b) increasing the equity capitalization of Huatai; and (c) supporting the screening and the environmental and social management of the present batch of subprojects, and due diligence of future subprojects.