

Project Number: 52015-001 Knowledge and Support Technical Assistance (KSTA) August 2018

People's Republic of China: Improving the Design of the National Carbon Emissions Trading System

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Asian Development Bank

CURRENCY EQUIVALENTS

(as of 1 August 2018)

Currency unit	_	yuan (CNY)
CNY1.00	=	\$0.1468
\$1.00	=	CNY6.8112

ABBREVIATIONS

ADB	_	Asian Development Bank
ETS	_	emissions trading system
EU ETS	_	European Union Emissions Trading System
GHG	_	greenhouse gas
NDRC	_	National Development and Reform Commission
PRC	_	People's Republic of China
RGGI	_	Regional Greenhouse Gas Initiative
ТА	_	technical assistance
UNFCCC	_	United Nations Framework Convention on Climate Change

NOTE

In this report, "\$" refers to United States dollars.

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KNOWLEDGE AND SUPPORT TECHNICAL ASSISTANCE AT A GLANCE

4	Basic Data		ICAL AS		Project Number: 5	5001E 001
1.		Improving the Design of the National	Denertme	nt/Division	EARD/EATC	52015-001
	Project Name	Carbon Emissions Trading System	-	nt/Division		
	Nature of Activity	Policy Advice	Executing	Agency	Ministry of Ecology Environment forme Environmental Prot	r "Ministry of
	Modality	Regular				
	Country	China, People's Republic of				
2.	Sector	Subsector(s)			ADB Financing	(\$ million)
1	Public sector management	Public administration			Total	0.75
0	Otrata alla Amanda	Orthogonation	0			
3.	Strategic Agenda Inclusive economic	Subcomponents		hange Informatio		Low
	growth (IEG)	Pillar 2: Access to economic opportunities, including jobs, made more inclusive	Climate Cr	ange impact on t	ne Project	Low
4.	Drivers of Change	Components	Gender Ec	uity and Mainst	reaming	
	Governance and capacity development (GCD) Knowledge solutions (KNS) Partnerships (PAR)	Institutional development Organizational development Knowledge sharing activities Official cofinancing		elements (NGE)	loannig	J
		Regional organizations				
5.	Poverty and SDG Targ	geting	Location I	mpact		
	Geographic Targeting Household Targeting SDG Targeting SDG Goals	Yes No Yes SDG13	Nation-wid	e		High
6.	Risk Categorization	Low				
7.	Safeguard Categoriza	tion Safeguard Policy Statement does	not apply			
8.	Financing					
	Modality and Sources	3		An	nount (\$ million)	
	ADB				· · ·	0.75
		port technical assistance: Climate Chang	e Fund			0.75
	Cofinancing					0.00
	None					0.00
	Counterpart					0.00
	None					0.00
	Total					0.75

I. INTRODUCTION

1. The Government of the People's Republic of China (PRC) requested technical assistance (TA) from the Asian Development Bank (ADB) to support improvements to the design of its national carbon emissions trading system (ETS). Together with other policies, the national ETS is expected to operate as a cost-effective market mechanism to support the achievement of the PRC's climate change mitigation targets. The TA is included in ADB's country operations business plan, 2018–2020 for the PRC.¹

2. The knowledge and support TA will aid the PRC's Ministry of Ecology and Environment in formulating responsive carbon pricing measures and prudent market oversight measures, which will help the national ETS function effectively and efficiently.² The TA will develop three policy recommendations for consideration by the government on (i) auctioning of greenhouse gas (GHG) emission allowance;³ (ii) GHG emission credit management, such as banking; and (iii) ETS market risk identification and management.

II. ISSUES

3. On 30 June 2015, the government submitted its intended nationally determined contribution to the United Nations Framework Convention on Climate Change (UNFCCC), promising to achieve peak carbon dioxide emissions by 2030 or sooner and to lower carbon dioxide emissions per unit of gross domestic product by 60%–65% from 2005 levels.⁴ The PRC estimates that the country will hit peak emissions when its per capita gross domestic product is about 33% lower than the average of countries in the Organisation for Economic Co-operation and Development; its per capita emission level is forecast to be about 30% smaller than the average of those countries.⁵ An effective ETS to help reduce GHG mitigation costs and provide incentives to balance economic growth and climate change mitigation cost-effectively will be crucial for the PRC to meet its commitment. In all jurisdictions where an ETS has been implemented, ETS policies and measures such as carbon pricing and market oversight measures are at the core of ETS governance to ensure a safe and efficient trading environment, enhance market confidence, and reduce the overall cost of meeting ETS mitigation targets.

4. The PRC began testing ETSs through pilot programs in the municipalities of Beijing, Chongqing, Shanghai, Shenzhen and Tianjin; and in the provinces of Guangdong and Hubei in October 2011.⁶ ADB approved three TA projects to support ETS development in the PRC during the ETS pilot period, focusing on the basic design of an ETS at a pilot city or province.⁷ The first

¹ ADB. 2018. Country Operations Business Plan: People's Republic of China, 2018–2020. Manila. The TA first appeared in the business opportunities section of ADB's website on 17 August 2018.

² The PRC's National Development and Reform Commission (NDRC) proposed the TA. In March 2018, the first session of the 13th National People's Congress of the People's Republic of China decided to shift climate change management from the NDRC to the new Ministry of Ecology and Environment.

³ In an ETS, the government imposes a limit on the total emissions in one or more sectors of the economy. Companies in these sectors need to hold one allowance (or permit) for every ton of GHG emissions they release. There are two approaches to allocating permits: free allocation (based on past emissions or performance standards) or sold at an auction at a competitive public price.

⁴ United Nations Framework Convention on Climate Change. 2015. <u>Enhanced Actions on Climate Change: China's</u> <u>Intended Nationally Determined Contribution.</u> ADB recognizes the People's Republic of China as the official ADB member name.

⁵ World Bank. 2016. *Pursuing an Innovative Development Pathway: Understanding China's NDC*.

⁶ Government of the PRC, NDRC. 2012. <u>Notice on Launching the Pilot Work of Carbon Emission Trading</u>.

⁷ ADB. 2010. Technical Assistance to the People's Republic of China for the Study on Beijing Green Finance Development Strategy. Manila (TA 7589); ADB. 2011. Technical Assistance to the People's Republic of China for Developing Tianjin Emission Trading System. Manila (TA 7956); and ADB. 2012. Technical Assistance to the

TA supported Beijing in enhancing the capacity of the Beijing Environment Exchange by developing a road map for the establishment of a carbon finance center. The second TA supported Tianjin in developing a trading system, including trading rules and regulations, trading platform installation, and ETS registry setting. The third TA supported Shanghai in developing trading products and methods of sector benchmarks in GHG emission allocation. All pilot ETSs developed and implemented ETS rules and policies that covered aspects such as offsetting rules and market adjustment. For example, the Beijing pilot ETS issued rules on the use of emission-reduction credits to offset part of the emissions of the covered entities and on open market operations to ensure market stability and avoid price fluctuations.⁸ However, the pilot ETS rules and policies have been ineffective because many factors affecting ETS operations were not addressed appropriately. One example is the unscheduled revision to the offsetting rules and allowance banking rules in the Shanghai pilot ETS in response to the abundant use of offsetting credits and rapid plummeting of the allowance price.⁹

The European Union Emissions Trading System (EU ETS), which has been operating 5. since 2005, initially experienced stolen credits and high price volatility, which led the European Union to strengthen ETS market oversight by (i) applying rules governing financial markets to all segments of the ETS, (ii) establishing the market stability reserve, and (iii) limiting the use of emission-reduction credits generated from clean development mechanism projects. All other ETSs, including the Regional Greenhouse Gas Initiative (RGGI), the New Zealand ETS, and the California ETS, experienced an oversupply of GHG emission allowances and thus lower carbon trading prices, which made them reform and improve their ETS oversight system by introducing and refining the policies and measures to manage the supply of allowances and adjust market prices based on market conditions. These policies and measures helped avoid an oversupply of allowances and prevent price increases, thus keeping carbon prices at reasonable levels. For example, the RGGI adopted a flexibility reserve similar to the EU ETS in order to adjust the supply and its impact on carbon prices. Floor and cap prices are commonly used to manage carbon prices in the California, Québec, and RGGI systems.¹⁰ These experiences and lessons can be useful references for the PRC in developing its ETS policies and measures.

6. On 19 December 2017, the National Development and Reform Commission launched the PRC's national ETS through the Development Plan for National Carbon Emission Trading Market (Power Generation Sector) that was endorsed by the State Council, which laid out the national ETS development and operation plan.¹¹ Based on the development plan, Local governments following the guidance of the Ministry of Ecology and Environment are expected to assign GHG emission permits to power generation entities covered by the ETS in 2018, and trial permit trading will start in 2019. The national ETS will operate normally by 2020 and will gradually expand to reach other sectors.

People's Republic of China for Advancing Shanghai Carbon Market through Emissions Trading Scheme. Manila (TA 8178).

⁸ Beijing Municipal Development and Reform Commission. 2014. <u>Offsetting Management Measures in Beijing Emissions Trading System (Trial</u>); and Beijing Municipal Development and Reform Commission 2014. <u>Notice of the Beijing Municipal Bureau of Finance and Economic Development of the Beijing Municipal Development and Reform Commission on Printing and Distributing the Administrative Measures for the Open Market of Carbon Emissions <u>Trading in Beijing (Trial)</u>.</u>

⁹ Shanghai Municipal Development and Reform Commission. 2016. <u>Notice on the Banking of Allowances in the Pilot Emissions Trading System</u>; and Shanghai Municipal Development and Reform Commission. 2016. <u>Allowances Allocation Plan in Shanghai Emissions Trading System in 2016</u>.

¹⁰ ADB. 2016. <u>Emissions Trading Schemes and Their Linking: Challenges and Opportunities in Asia and the Pacific.</u> Manila.

¹¹ Government of the PRC, National Development and Reform Commission. 2017. <u>Development Plan for National</u> <u>Carbon Emission Trading Market (Power Generation Sector)</u>.

7. The PRC's national ETS is expected to be the biggest carbon market in the world with an annual emission volume exceeding 3 billion metric tons, dwarfing the EU ETS volume of about 1.8 billion metric tons in 2016.¹² This will make the PRC's national ETS one of the most influential in the world, and its effective operation will be vital to the success of global climate change campaign. Given the short history and complexity of the ETS, the government is careful in the national system design. The development plan stated that effective and strict oversight mechanisms involving all relevant authorities should be established. To support ETS operations, the government needs to formulate effective and efficient policies and measures in market oversight and market price management to address market volatility and any unintended adverse impacts such as market manipulation and other market misconduct. However, the development plan is only a framework, and ETS operational policies and measures—such as GHG emission allowance auctions, trading credit banking, and ETS market risk management—have not been developed yet.

III. THE TECHNICAL ASSISTANCE

A. Impact and Outcome

8. The TA is aligned with the following impact: the PRC's national ETS functioning and operational.¹³ The TA will have the following outcome: national ETS policies on allowance management and market oversight improved.¹⁴

B. Outputs, Methods, and Activities

9. The PRC's national ETS is more complex than the local pilot ETSs. The PRC needs to develop customized policies and measures to support the effective and efficient operations of the national ETS. The TA will provide vital inputs for developing policies, measures, and guidelines to strengthen the national ETS operation based on (i) the experience and lessons learned from the pilot ETSs, including the findings from the three ADB-assisted TA projects; and (ii) the lessons learned by other carbon markets, such as the EU ETS, the RGGI, the Québec–California–Ontario Carbon Market, and the New Zealand ETS. It also takes into account the special circumstances facing the PRC's national ETS. The TA will deliver the following outputs:

- (i) Output 1: Policy recommendations on allowance management and market oversight measures of the national emissions trading system developed. Based on the analysis of the factors influencing carbon market operations in the PRC and the experiences and lessons learned by the PRC pilot ETSs and the carbon markets in other countries, the TA team will draft policy recommendations on allowance management and market oversight measures of the PRC's national ETS. This output will have three parts:
 - (a) **Policy recommendation on allowance auction developed**. The TA team will develop a recommendation based on a review and assessment of available experience and lessons of allowance auction practices, and a study on the relationship between allowance prices and marginal abatement costs. The recommendation will include an implementation plan and a manual of management processes and procedures to help

¹² National Energy Administration. 2017. <u>Power Generation Industry Will Become the Main Force of the National</u> <u>Carbon Market</u>.

¹³ Government of the PRC, NDRC. 2017. China's Policies and Actions for Addressing Climate Change (2017). Beijing.

¹⁴ The design and monitoring framework is in Appendix 1.

implement the plan. It will also cover institutional and governance arrangements and how parties would carry out their responsibilities.

- (b) **Policy recommendation on managing allowance and offsetting credits developed**. The TA team will develop a policy recommendation based on research and analysis of different existing regulations related to the allowance and offsetting credit validity period, different banking lengths, the impact on market practitioners' trading behavior, and market risks.¹⁵
- (C) Recommendation on market oversight measures of the national operation emissions trading system developed. The recommendation will cover the objectives, scope, principles, roles and responsibilities, and general requirements of market oversight to manage the ETS operation system effectively (including GHG emission monitoring, reporting, and verification) and to minimize the impacts of potential market risks. It is expected to help in the early identification and assessment of market risks. Coordinating relevant policies, such as Energy Savings Trade and Green Electricity Certificate Trading, is needed for the national ETS to be effective. Hence, the recommendation will also address the impact of the policies of different agencies that may affect the ETS's effective operations. Finally, this output will recommend the applicable state-of-art technologies including blockchain technology as a pilot innovative measure of ETS market oversight, for the consideration by the government.
- (ii) Output 2: National capacity in emissions trading system management enhanced. The TA will support the executing agency in organizing two training workshops for local government officials and experts in ETS operational management. The training workshops will introduce the findings of this TA, international best practice in ETS, updated UNFCCC decisions on carbon markets, and national ETS policies and measures.

C. Cost and Financing

10. The TA is estimated to cost \$900,000, of which \$750,000 will be financed on a grant basis by the Climate Change Fund.¹⁶ The key expenditure items are in Appendix 2.

11. The government will provide counterpart support in the form of staff time, office space and supplies, and other in-kind contributions.

D. Implementation Arrangements

12. The Transport and Communications Division of ADB's East Asia Department will select, supervise, and evaluate consultants; organize training programs, seminars, workshops, and/or forums; and administer all other business of the TA. It will work closely with the Department of Climate Change of the PRC's Ministry of Ecology and Environment, the executing agency of this TA. The implementation arrangement is summarized in the table.

¹⁵ Compliance flexibility can be enhanced by the option of saving credits/allowances to future periods (banking). This option enhances cost-effectiveness and foster carbon price stability. In addition, banking provides incentives for early action, but also involves increasing risks of over-allocation of allowances/credits in subsequent periods.

¹⁶ Established by ADB.

Aspects	Arrangements		
Indicative implementation period	October 2018–September 2020		
Executing agency	Department of Climate Change, Ministry of Ecology and Environment, People's Republic of China		
Consultants	To be selected and engaged by ADB		
	Individual selection	International expertise (12 person-months)	\$240,000
	Individual selection	National expertise (44 person-months)	\$220,000
Disbursement	The technical assistance resources will be disbursed following ADB's <i>Technical Assistance Disbursement Handbook</i> (2010, as amended from time to time).		

Implementation Arrangements

ADB = Asian Development Bank.

Source: Asian Development Bank estimates.

13. **Consulting services**. The TA will need 56 person-months of consulting services from (i) a senior international carbon market specialist as team leader and carbon market specialist (12 person-months); and (ii) a senior national carbon market specialist as deputy team leader, a carbon market specialist for allowance auction, a carbon market specialist for credit validity, a carbon market specialist for market oversight, a securities market specialist, and a project coordinator (44 person-months). ADB will engage the consultants through individual selection to secure the best international and national experts in different aspects of ETS development,¹⁷ following the ADB Procurement Policy (2017, as amended from time to time) and its associated project administration instructions and/or staff instructions.¹⁸

14. ADB will implement the TA from 1 October 2018 to 30 September 2020. The consultants will need to submit timely TA deliverables, which are included in the terms of reference for consultants (footnote 18).

IV. THE PRESIDENT'S DECISION

15. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$750,000 on a grant basis to the Government of the People's Republic of China for Improving the Design of the National Carbon Emissions Trading System, and hereby reports this action to the Board.

¹⁷ ADB will consider output-based contracts for consulting services.

¹⁸ Terms of Reference for Consultants (accessible from the list of linked documents in Appendix 3).

The PRC's national E	TS functioning and operational ^a		
	Performance Indicators with	Data Sources and	
Results Chain	Targets and Baselines	Reporting Mechanisms	Risks
Outcome National ETS policies on allowance management and market oversight	By 2021: Three policies or measures on allowance management and market oversight of the national ETS issued by the MEE (2018 baseline: 0)	China's Policies and Actions for Addressing Climate Change, 2021– 2024	Possible shift in priorities of the government agencies may affect the adoption of
improved	D. 0000		policies and measures of the national ETS
Outputs 1. Policy recommendations on allowance management and market oversight measures of the national ETS developed	By 2020: 1a. Policy recommendation on allowance auction submitted to the MEE (2018 baseline: policy not drafted) 1b. Policy recommendation on managing allowances and offsetting credits submitted to the MEE (2018 baseline: policy not drafted) 1c. Policy recommendation on	1a–1c. MEE reports ^b	First-hand knowledge and lessons learned from operational ETSs may not be available to the TA team Recommendations and/or lessons from other jurisdictions may not work because of the
	market oversight of the national ETS operation submitted to the MEE (2018 baseline: policy not drafted)		special circumstance of the national ETS
2. National capacity in ETS management enhanced	2. 100 local government officials and experts trained and report skills improved on ETS operational management (2018 baseline: 0)	2. Feedback survey after training events	Frequent changes in personnel and responsibilities may lead to difficulty in training and retaining local officials and experts and can cause difficulties in enhancing the level of skills and knowledge on ETS management
national ETS of	nendations on allowance manage leveloped	-	ht measures of the
1.1.1 Collect and ana policy design (N	endation on allowance auction deve alyze national ETS feature data and November 2018–February 2019)	documents related to the a	
2019)	alyze the allowance auction policy of policy recommendation on allowar		

DESIGN AND MONITORING FRAMEWORK

1.1.3 Develop a draft policy recommendation on allowances auction (March–June 2019)

1.1.4 Conduct consultations to improve the recommendation (July–December 2019)

- 1.1.5 Circulate the draft policy recommendation to the MEE; other line ministries (CMA, CSRC, MOF, MOST, NDRC, and NEA); and experts for review and comments (January–March 2020)
- 1.2 Policy recommendation on managing allowance and offsetting credits developed
- 1.2.1 Collect and analyze national ETS feature data and documents related to managing allowance and offsetting credits (November 2018–February 2019)
- 1.2.2 Collect and analyze the allowance and offsetting credit management policy designs of other ETSs (November 2018–February 2019)
- 1.2.3 Develop a draft policy recommendation on managing allowance and offsetting credits (March–June 2019)
- 1.2.4 Conduct consultations to improve the recommendation (July–December 2019)
- 1.2.5 Circulate the draft policy recommendation to the MEE; other line ministries (CMA, CSRC, MOF, MOST, NDRC, and NEA); and experts for review and comments (January–March 2020)
- 1.3 Policy recommendation on market oversight of the national ETS operation developed
- 1.3.1 Collect and analyze national ETS feature data and documents related to the market oversight policy of the national ETS operation (November 2018–February 2019)
- 1.3.2 Collect and analyze the market oversight policy designs of other ETSs (November 2018–February 2019)
- 1.3.3 Develop a draft policy recommendation on market oversight of the national ETS operation (March– June 2019)
- 1.3.4 Conduct consultations to improve the recommendation (July-December 2019)
- 1.3.5 Circulate the draft policy recommendation to the MEE; other line ministries (CMA, CSRC, MOF, MOST, NDRC, and NEA); and experts for review and comments (January–March 2020)

2. National capacity in ETS management enhanced

- 2.1 Prepare materials for training local government officials and experts (August 2019–December 2019)
- 2.2 Organize the first training workshop in April 2020 (January 2020–April 2020)
- 2.3 Organize the second training workshop in July 2020 (May 2020–July 2020)

TA Management Activities

Mobilize a team of consultants by October 2018

Prepare draft inception report with detailed work plan and conduct inception workshop by January 2019 Prepare interim report and conduct interim workshop by December 2019

Conduct international training for the MEE in 2019 and by August 2020

Prepare draft final policy recommendations and conduct in-depth workshop by April 2020

Conduct workshop for training local government officers and experts in April and July 2020

Revise draft final policy recommendations and conduct policy dialogue and final workshop by July 2020

Prepare draft policy study publication based on all policy recommendations by July 2020

Submit draft policy recommendations to the government by August 2020

Inputs

Climate Change Fund: \$750,000

Note: The government will provide counterpart support in the form of staff time, office space and supplies, and other in-kind contributions.

Assumptions for Partner Financing

Not applicable

CMA = China Meteorological Administration, CSRC = China Securities Regulatory Commission, ETS = emissions trading system, MEE = Ministry of Ecology and Environment, MOF = Ministry of Finance, MOST = Ministry of Science and Technology, NDRC = National Development and Reform Commission, NEA = National Energy Administration, PRC = People's Republic of China, TA = technical assistance.

- ^a Government of the PRC, NDRC. 2017. *China's Policies and Actions for Addressing Climate Change (2017)*. Beijing (updated annually).
- ^b The official documents reporting the TA outputs can be found at the MEE website (Government of the PRC, MEE. <u>http://www.mep.gov.cn</u>).

Source: Asian Development Bank.

COST ESTIMATES AND FINANCING PLAN

Item		Amount
Climate Change Fund ^a		
1. Consultants		
a. Remuneration and p	er diem	
i. International c	onsultants	240.0
ii. {National cons	ultants}	220.0
b. Out-of-pocket expen	ditures	
i. International a	nd local travel	50.0
2. Printed external publicati	ons ^b	10.0
3. Training, seminars, work	shops, forum, and conferences ^c	180.0
4. Contingencies	• • •	50.0
0	Total	750.0

Note: The technical assistance is estimated to cost \$900,000, of which contributions from the Asian Development Bank (ADB) are presented in the table above. The government will provide counterpart support in the form of staff time, office space and supplies, and other in-kind contributions. The value of government contribution is estimated to account for 17% of the total technical assistance cost.

^a Established by ADB.

^b Includes translation costs.

^c Includes the travel costs of ADB staff acting as resource persons, interpretation, and translation costs. Source: Asian Development Bank estimates.

LIST OF LINKED DOCUMENTS http://www.adb.org/Documents/LinkedDocs/?id=52015-001-TAReport

1. Terms of Reference for Consultants