



Technical Assistance Report

Project Number: 50004-001
Policy and Advisory Technical Assistance (PATA)
October 2016

People's Republic of China: Study on Natural Resource Asset Appraisal and Management System for the National Key Ecological Function Zones

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Asian Development Bank

CURRENCY EQUIVALENTS

(as of 20 October 2016)

Currency unit	–	yuan (CNY)
CNY1.00	=	\$6.7263
\$1.00	=	CNY0.1487

ABBREVIATIONS

ADB	–	Asian Development Bank
MEP	–	Ministry of Environmental Protection
NBS	–	National Bureau of Statistics
NDRC	–	National Development and Reform Commission
NKEFZ	–	national key ecological function zone
PRC	–	People's Republic of China
TA	–	technical assistance
TMO	–	technical assistance management office

NOTE

In this report, "\$" refers to US dollars.

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POLICY AND ADVISORY TECHNICAL ASSISTANCE AT A GLANCE

1. Basic Data		Project Number: 50004-001	
Project Name	Study on Natural Resource Asset Appraisal and Management System for the National Key Ecological Function Zones	Department /Division	EARD/EAER
Country	China, People's Republic of	Executing Agency	Ministry of Environmental Protection
2. Sector		ADB Financing (\$ million)	
✓ Agriculture, natural resources and rural development	Land-based natural resources management		0.40
		Total	0.40
3. Strategic Agenda		Climate Change Information	
Inclusive economic growth (IEG)	Pillar 2: Access to economic opportunities, including jobs, made more inclusive	Climate Change impact on the Project	Low
Environmentally sustainable growth (ESG)	Environmental policy and legislation Natural resources conservation		
Regional integration (RCI)	Pillar 4: Other regional public goods		
4. Drivers of Change		Gender Equity and Mainstreaming	
Governance and capacity development (GCD)	Institutional development	No gender elements (NGE)	✓
Knowledge solutions (KNS)	Knowledge sharing activities Pilot-testing innovation and learning		
5. Poverty and SDG Targeting		Location Impact	
Geographic Targeting	No	Nation-wide	High
Household Targeting	No		
SDG Targeting	Yes		
SDG Goals	SDG15		
6. TA Category:	B		
7. Safeguard Categorization	Not Applicable		
8. Financing			
Modality and Sources		Amount (\$ million)	
ADB		0.40	
Policy and advisory technical assistance: Technical Assistance Special Fund		0.40	
Cofinancing		0.00	
None		0.00	
Counterpart		0.00	
None		0.00	
Total		0.40	
9. Effective Development Cooperation			
Use of country procurement systems			No
Use of country public financial management systems			No

I. INTRODUCTION

1. The Government of the People's Republic of China (PRC) requested policy and advisory technical assistance (TA) from the Asian Development Bank (ADB) to support the Ministry of Environmental Protection (MEP) in developing guidelines for natural resource assets appraisal, accounting, monitoring, and management in the PRC's national key ecological function zones (NKEFZs). The TA is included in ADB's PRC country operations business plan, 2016–2018.¹ In September 2016, ADB and MEP reached an agreement on the TA's impact, outcome, outputs, implementation arrangements, cost, financing arrangements, and terms of reference.²

II. ISSUES

2. As part of its ecological civilization agenda, the government released the Integrated Reform Plan for Promoting Ecological Progress in September 2015.³ The plan contains institutional, governance, and economic reform objectives to strengthen property rights for natural resource assets, improve spatial planning and management of protected areas, enhance the role of market mechanisms in environmental governance and ecological conservation, and strengthen institutional responsibilities and accountability for environmental outcomes. The reforms are intended to be underpinned by improved environmental information to support evidence-based policies and decision-making. However, the architecture for compiling and evaluating environmental information remains weak, with inconsistent methods and capacity across provinces.

3. At the national level, MEP is required to develop a methodology for appraisal of natural resources that will facilitate the reforms, and to guide other government agencies in implementation and application. This policy and advisory TA will assist MEP in developing this environmental information system by supporting the development of guidelines for natural resource assets appraisal, accounting, monitoring, and management in the PRC's NKEFZs. The TA will help MEP to review gaps and consolidate ongoing efforts—including with other PRC agencies—to develop a methodology consistent with international best practice.

4. The NKEFZs have been identified through the PRC's spatial planning policy as critical in maintaining and enhancing many public goods and services delivered by natural ecosystems, such as water quality maintenance, flood regulation, nutrient cycling, food and fiber provision, climate mitigation, and adaptation functions.⁴ The PRC has 25 NKEFZs that represent substantial diversity in both geographic scale and natural assets. To validate the new methodology, the TA will use the new environmental information system to compile natural resource balance sheets in the Qinba Biodiversity Ecological Function Zone. This will also build provincial and local capacity.

5. The compilation of environmental information is not an end in itself, but a contribution to improved management of natural resources. Under the Integrated Reform Plan for Promoting Ecological Progress, the development of natural resource balance sheets is intended to inform

¹ ADB. 2016. *Country Operations Business Plan: People's Republic of China, 2016–2018*. Manila.

² The TA first appeared in the business opportunities section of the ADB website on 24 August 2016.

³ Government of the PRC, State Council. 2015. *Integrated Reform Plan for Promoting Ecological Progress*. Beijing. The concept of an ecological civilization first emerged in 2007, and has developed into a key national governance strategy for the PRC.

⁴ Government of the PRC, State Council. 2010. *National Main Functional Zoning Plan*. Beijing. The plan, issued as part of the PRC's national-level spatial planning, categorizes the "development-restricted regions" into the (i) NKEFZs and (ii) agricultural zones.

improved management interventions in the NKEFZs, as well as reforms in performance accountability for institutions and officials, and the potential use of market-based mechanisms, including transfer payments, eco-compensation, and penalties for ecological damage. As such, the TA will produce recommendations for applying the results of natural resource asset appraisal to these reform priorities.

6. The TA supports the environmental objectives of the PRC's Thirteenth Five-Year Plan⁵ and ADB's country partnership strategy, 2016–2020.⁶ ADB's support for environmentally sustainable growth in the PRC is increasingly focused on intensifying knowledge cooperation and institutional and governance reform. In 2013, ADB provided TA to the PRC to improve the institutional framework for environmental statistics, including preparing a road map for institutional reform. In 2015, ADB approved TA that will support the National Development and Reform Commission (NDRC) in testing the gross ecosystem product concept as a means to evaluate the effectiveness of eco-compensation schemes. In parallel and with the support of other development partners, the National Bureau of Statistics (NBS) has initiated preparing pilot environmental accounts, in a framework consistent with the international system of environmental–economic accounting. This TA will build on these efforts to improve the accessibility and reliability of environmental information, and will provide central and local governments with the tools and approaches necessary to gauge the quantity and quality of the NKEFZs' natural resource assets in a consistent and standardized framework. It will also enhance MEP's national and local capacity to (i) monitor the NKEFZs' natural resource assets and ecosystem services, (ii) design and implement management interventions that will ensure sustained provision of ecosystem services in the NKEFZs, and (iii) evaluate the performance of institutions and officials responsible for the NKEFZs' environmental management. The enhanced institutional capacity will lead to improved maintenance of the NKEFZs' natural capital assets and sustained provision of ecosystem services to the PRC's economy and society.

III. THE POLICY AND ADVISORY TECHNICAL ASSISTANCE

A. Impact and Outcome

7. The impact will be an improved system of monitoring, evaluation, and accountability for promoting ecological progress. The outcome will be enhanced national and local capacity for monitoring and managing natural resource assets within the NKEFZs of the PRC.

B. Methodology and Key Activities

8. Outputs will be the (i) development of a methodology for natural resource asset appraisal in the NKEFZs, (ii) demonstration of an approach to compiling natural resource balance sheets in pilot NKEFZs, and (iii) preparation of policy recommendations for applying natural resource asset appraisal results to management of the NKEFZs.

9. **Output 1: Methodology for natural resource asset appraisal in the national key ecological function zones developed.** This output will develop the methodology using gap analysis, literature review, and discussions between technical experts and partners. Proposed activities include the following:

⁵ Government of the PRC. 2016. *Thirteenth Five-Year Plan for National Economic and Social Development*. Beijing.

⁶ ADB. 2016. *Country Partnership Strategy: Transforming Partnership: People's Republic of China and Asian Development Bank, 2016–2020*. Manila.

- (i) review information and data gaps on natural resources in the NKEFZs, including work by other PRC agencies, particularly the NBS, NDRC, the Ministry of Land and Resources, and the Ministry of Water;
- (ii) conduct technical workshops and expert group meetings to discuss and refine the methodology; and
- (iii) prepare draft technical guidelines to include targeted assets, assessment tools, indicators, valuation, and data analysis.

10. **Output 2: Approach to compiling natural resource balance sheets in pilot national key ecological function zones demonstrated.** Based on the gap analysis and methodology developed under output 1, MEP and the TA consultants will implement the draft approach in the Qinba Biodiversity Ecological Function Zone, with other potential pilots in the Ruergai Wetlands and/or the Dabie Mountain Soil and Water Retention Zone to be explored, subject to timing and budget availability. Activities will include the following:

- (i) conduct workshops with sector agencies and local and provincial counterparts in the Qinba Biodiversity Ecological Function Zone to discuss the methodology and approach for the pilot studies;
- (ii) conduct the natural resource asset appraisal in the Qinba Biodiversity Ecological Function Zone with local and provincial counterparts;
- (iii) prepare detailed technical reports on the case studies, including results and implementation challenges; and
- (iv) organize national and local workshops to discuss the pilot studies' findings, and refine the evaluation methodology based on these studies.

11. **Output 3: Policy recommendations for applying natural resource asset appraisal results to management of the national key ecological function zones prepared.** The following recommendations for applying appraisal results to the NKEFZ policy and management priorities will be prepared:

- (i) ongoing institutional, administrative, and resource requirements at provincial and national levels for natural resource appraisal and monitoring;
- (ii) market-based mechanisms for natural resources management, such as transfer payments, eco-compensation, and ecological damage penalties; and
- (iii) end-of-office auditing of officials responsible for managing natural resources.

12. The details of the TA-developed methodology will require discussion between technical experts and policy makers. Engagement between MEP, technical experts, and stakeholders at national and provincial levels will be crucial to avoid the risk of disagreement on the methodological guidelines or policy recommendations (Appendix 1). The TA implementation will prioritize engaging stakeholders during inception and fine-tuning the approach.

C. Cost and Financing

13. The TA is estimated to cost \$500,000, of which \$400,000 will be financed on a grant basis by ADB's Technical Assistance Special Fund (TASF-other sources).

14. The government will provide counterpart support in the form of counterpart staff, office space, office supplies and equipment, secretarial assistance, domestic transportation, and other in-kind contributions.

D. Implementation Arrangements

15. MEP will be the executing agency and will establish a TA management office (TMO) in the MEP–Foreign Economic Cooperation Office to carry out day-to-day policy and advisory TA operations. The director of MEP–Foreign Economic Cooperation Office’s International Cooperation Division will serve as the TMO leader responsible for daily operational matters among ADB, the TA consultants, MEP, and other government agencies. The TMO will include representatives from MEP’s Department of Nature and Ecology Conservation and the Department of International Cooperation. The TMO will provide guidance on implementation issues and lead coordination with government agencies, including the NBS, NDRC, and the National Audit Office.

16. The TA will be implemented from 1 October 2016 to 31 March 2018. The TA is expected to require about 32 person-months of consulting services. The TA will require one international specialist (deputy team leader and environmental accounting specialist) and four national specialists (team leader and environmental assessment and management specialist, environmental economics and policy specialist, ecological services evaluation specialist, and remote sensing and geographical information system specialist) for implementation. The outline terms of reference for the consultants is provided in Appendix 3. The specialists will be engaged following ADB’s Guidelines on the Use of Consultants (2013, as amended from time to time) through a firm, using the quality- and cost-based selection method. The weighted ratio of technical to financial components will be 90:10. An output-based contract may be considered for negotiation with the successful firm. The TA disbursements will be made following ADB’s *Technical Assistance Disbursement Handbook* (2010, as amended from time to time). Any procurement under the TA will be made following ADB’s Procurement Guidelines (2015, as amended from time to time), with procured items to become MEP’s property upon TA completion.

17. The TA will follow the standard monitoring and supervision procedures for ADB-administered TA projects, including ADB review missions at the TA project’s inception, interim, and final stages. Implementation progress will be assessed against the targets and indicators in the design and monitoring framework (Appendix 1) and the terms of reference for the consulting contract, and reported in the TA progress reports. Methodologies and lessons will be disseminated through project reports, the TA workshops, and media releases.

IV. THE PRESIDENT’S DECISION

18. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$400,000 on a grant basis to the People’s Republic of China for the Study on Natural Resource Asset Appraisal and Management System for the National Key Ecological Function Zones, and hereby reports this action to the Board.

DESIGN AND MONITORING FRAMEWORK

Impact the TA is Aligned with			
System of monitoring, evaluation, and accountability for promoting ecological progress improved (State Council's 2015 Integrated Reform Plan for Promoting Ecological Progress) ^a			
Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
<p>Outcome National and local capacity for monitoring and managing natural resource assets within the national key ecological function zones (NKEFZs) of the People's Republic of China (PRC) enhanced</p>	<p>By 2018,</p> <p>a. Methodology for, and results of, pilot natural resource asset appraisal agreed by the Ministry of Environmental Protection (MEP) and provincial agency (2016 baseline: 0; target: 1)</p> <p>b. Technical guidelines for natural resource asset appraisal submitted by MEP to relevant national and provincial agencies (2016 baseline: 0; target: 1)</p> <p>c. Policy recommendations report for applying natural resource asset appraisal results to management of the NKEFZs submitted by MEP to relevant national and provincial agencies (2016 baseline: 0; target: 1)</p>	<p>a–c. MEP's annual report; technical assistance (TA) final review mission report</p>	<p>Lack of effective engagement between MEP and counterparts at the national and provincial levels</p> <p>Lack of consensus and approval within MEP on technical guidelines and/or policy recommendations</p>
<p>Outputs</p> <p>1. Methodology for natural resource asset appraisal in the NKEFZs developed</p> <p>2. Approach to compiling natural resource balance sheets in pilot NKEFZs demonstrated</p> <p>3. Policy recommendations for applying natural resource asset appraisal results to management of the NKEFZs prepared</p>	<p>1a. Technical workshops to discuss and refine the methodology conducted by month 3 (2016 baseline: 0; target: 1)</p> <p>1b. Methodology and approach paper developed by month 4 (2016 baseline: 0; target: 1)</p> <p>2a. Demonstration of natural resource asset appraisal completed in pilot NKEFZs by month 10 (2016 baseline: 0; target: 1)</p> <p>2b. Technical report on demonstration results, implementation challenges, and recommendations completed by month 11 (2016 baseline: 0; target: 1)</p> <p>3a. Workshop to disseminate the final methodology, pilot demonstration findings, and policy recommendations conducted by month 12 (2016 baseline: 0; target: 1)^b</p>	<p>1a–b. TA inception and interim technical and progress reports</p> <p>2a–b. TA interim and final technical and progress reports</p> <p>3a–b. TA final technical and progress reports</p>	<p>Technical experts, MEP, and provincial stakeholders unable to reach a consensus on methodology</p> <p>Climatic challenges, lack of data availability, and limited engagement with provincial agencies</p> <p>Insufficient data compiled through demonstration in pilot NKEFZs</p>

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
	3b. Final methodology, demonstration results, and policy recommendations prepared and submitted to the Asian Development Bank and MEP by month 14 (2016 baseline: 0; target: 1)		
<p>Key Activities with Milestones</p> <p>1. Methodology for natural resource asset appraisal in the NKEFZs developed</p> <p>1.1. Review international practices and relevant work in the PRC, particularly by the National Bureau of Statistics and the National Development and Reform Commission; and conduct a gap analysis for information requirements by first quarter (Q1) of 2017.</p> <p>1.2. Conduct and participate in workshops and expert group meetings to discuss and refine the methodology for natural resource asset appraisal in the NKEFZs by Q1 2017.</p> <p>1.3. Prepare draft technical guidelines for review by key government staff by Q2 2017.</p> <p>2. Approach to compiling natural resource balance sheets in pilot NKEFZs demonstrated</p> <p>2.1. Implement pilot studies for compiling natural resource balance sheets in targeted NKEFZs by Q4 2017.</p> <p>2.2. Compile detailed technical report on the case studies, including results and implementation challenges, by Q1 2018.</p> <p>2.3. Organize national and local seminars and workshops to discuss the pilot studies' findings, and refine the evaluation methodology based on these studies by Q1 2018.</p> <p>3. Policy recommendations for applying natural resource asset appraisal results to management of the NKEFZs prepared</p> <p>3.1. Prepare recommendations for application of results to the NKEFZ management by Q2 2018, including</p> <p>3.1.1. ongoing institutional, administrative, and resourcing requirements;</p> <p>3.1.2. opportunities for market-based mechanisms for natural resource management, such as transfer payments, eco-compensation, and ecological damage penalties; and</p> <p>3.1.3. end-of-office auditing of natural resource management officials.</p> <p>3.2. Present and share the final technical guidelines, results, and policy recommendations at workshops and seminars by Q2 2018.</p>			
<p>Inputs</p> <p>Asian Development Bank: \$400,000</p> <p>Note: The government will provide counterpart support in the form of counterpart staff, office space, office supplies and equipment, secretarial assistance, domestic transportation, and other in-kind contributions.</p>			
<p>Assumptions for Partner Financing</p> <p>Not applicable</p>			

^a Government of the PRC, State Council. 2015. *Integrated Reform Plan for Promoting Ecological Progress*. Beijing.

^b Workshop participants will include representatives from MEP, the National Bureau of Statistics, the National Development and Reform Commission, and provincial agencies responsible for management of the NKEFZs.

Source: Asian Development Bank.

COST ESTIMATES AND FINANCING PLAN

(\$'000)

Item	Amount
Asian Development Bank^a	
1. Consultants	
a. Remuneration and per diem	
i. International consultants	105.0
ii. National consultants	179.0
b. International and local travel	41.0
c. Reports and communications	5.0
2. Workshops, training, seminars, and conferences	15.0
3. Surveys and studies ^b	20.0
4. Miscellaneous administration and support costs	5.0
5. Contingencies	30.0
Total	400.0

Note: The technical assistance (TA) is estimated to cost \$500,000, 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 counterpart staff, office space, office supplies and equipment, secretarial assistance, domestic transportation, and other in-kind contributions. The value of government contribution is estimated to account for 20% of the total TA cost.

^a Financed by ADB's Technical Assistance Special Fund (TASF-other sources).

^b Include ecological field work and remote sensing analysis.

Source: ADB estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

A. Introduction

1. The technical assistance (TA) will require an estimated 32 person-months of consulting services, including one international and up to four national specialists. The specialists will be engaged through a firm, following the Guidelines on the Use of Consultants (2013, as amended from time to time) of the Asian Development Bank (ADB) and using the quality- and cost-based selection method. An output-based contract may be considered for negotiation with the successful firm. It is anticipated that consultants will be mobilized in the fourth quarter of 2016.

B. Scope of Services

2. The firm will report, through the assigned team leader, to the ADB project officer on day-to-day activities to be coordinated with the director of the International Cooperation Division of the Foreign Economic Cooperation Office under the Ministry of Environmental Protection (MEP). The firm will perform the following tasks:

- (i) Develop a methodology for natural resource asset appraisal in the national key ecological function zones (NKEFZs) by
 - (a) reviewing existing information and data gaps on natural resources in the NKEFZs, including international practices and work by other People's Republic of China (PRC) agencies, particularly the National Bureau of Statistics, the National Development and Reform Commission, the Ministry of Land and Resources, and the Ministry of Water;
 - (b) conducting technical workshops and expert group meetings to discuss and refine the methodology; and
 - (c) preparing draft technical guidelines to include targeted assets, assessment tools, indicators, valuation, and data analysis.
- (ii) Demonstrate the approach by compiling natural resource balance sheets in the Qinba Biodiversity Ecological Function Zone through
 - (a) conducting workshops with sector agencies and local and provincial counterparts in the Qinba Biodiversity Ecological Function Zone to discuss the pilot studies' methodology and approach;
 - (b) conducting the natural resource asset appraisal in the Qinba Biodiversity Ecological Function Zone in collaboration with MEP, and local and provincial counterparts;
 - (c) preparing detailed technical reports on the case studies, including results and implementation challenges; and
 - (d) organizing national and local workshops to discuss the pilot studies' findings and refine the evaluation methodology based on these studies.
- (iii) Prepare and present policy recommendations for applying natural resource asset appraisal results to management of the NKEFZs, including the following:
 - (a) ongoing institutional, administrative, and resourcing requirements at provincial and national levels for natural resource appraisal and monitoring;
 - (b) market-based mechanisms for natural resources management, such as transfer payments, eco-compensation, and ecological damage penalties; and
 - (c) end-of-office auditing of natural resources management officials.

C. Key Expertise Required

3. The proposing entities (firms) will determine the number, nature, and specific tasks of experts required to achieve the contract objectives following their proposed approach and methodology. However, ADB requires a minimum of one international and four national experts, one of whom will be expected to act as the team leader. The team proposed by the firm will be responsible for all outputs (para. 2), and detailed tasks for each expert will be confirmed during contract negotiations.

4. **Environmental assessment and management specialist and team leader** (national). The specialist should have (i) a doctorate in environmental assessment, environmental accounting, environmental planning, environmental management, or a related field; (ii) 10 or more years of research or policy experience in environmental management; (iii) demonstrated experience in NKEFZ management projects; (iv) experience in ecosystem service assessment or research; (v) demonstrated ability to supervise a team of experts; and (vi) proficiency in English. As team leader, the specialist will be responsible for overall coordination and delivery of the TA outputs, as well as team supervision. Specific tasks will include

- (i) taking responsibility for day-to-day liaison with MEP, the executing agency, and other national and provincial government agencies supporting TA-related work;
- (ii) developing a detailed implementation schedule and assigning tasks to team specialists in consultation with ADB and MEP;
- (iii) leading the team's activities to deliver the TA outputs; and
- (iv) compiling inputs from ADB, MEP, and team members to prepare the TA inception, interim, and final reports.

5. **Environmental accounting specialist and deputy team leader** (international). The specialist should have (i) a doctorate in environmental planning, environmental accounting, environmental management, or a related field; (ii) 10 or more years of experience in environmental policy and strategy, with an emphasis on environmental information, planning, and management; (iii) expertise in natural resource accounting and natural capital evaluation; and (iv) proficiency in written and spoken English. Experience in the PRC will be an advantage.

6. **Environmental economics and policy specialist** (national). The specialist should have (i) a postgraduate degree in environmental economics or a relevant field; (ii) 5 or more years' experience in environmental policy and economics, particularly in valuation of ecosystem services; (iii) demonstrated experience in environmental management at the PRC national and provincial levels; and (iv) proficiency in English.

7. **Ecological services evaluation specialist** (national). The specialist should have (i) a postgraduate degree in ecology, environmental science, or a related field; (ii) experience in environmental monitoring and evaluation and/or auditing; (iii) demonstrated experience with the PRC's accounting system for evaluating local administrations' performance; and (iv) proficiency in English.

8. **Remote sensing and geographical information system specialist** (national). The specialist should have (i) a postgraduate degree in geographic information systems and remote sensing or a related field, (ii) 5 years of experience in spatial data analysis and application to land-use policy and management in the PRC, and (iii) proficiency in English.

9. In addition to the required experts, the proposing entities should also include in their technical proposal, personnel work plan, and financial proposal all other non-key experts required to implement their proposed approach and methodology.

D. Reporting

10. The TA consultants will submit (i) an inception report within 1 month after mobilization, (ii) an interim report within 7 months after mobilization, (iii) a draft final report within 12 months after mobilization, and (iv) a final report 1 month after the final workshop. The inception report, revised interim report, revised draft final report, and revised final report should incorporate and address comments from ADB, MEP, the implementing agencies, and other invited reviewers.

11. All documents will be submitted in both English and Chinese to ADB and MEP as hard and electronic copies.