



Completion Report

Project Number: 40685-013
Loan Number: 2838
Grant Number: 0311
September 2020

People's Republic of China: Jiangsu Yancheng Wetlands Protection Project

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Asian Development Bank

CURRENCY EQUIVALENTS

Currency unit – yuan (CNY)

		At Appraisal (18 November 2011)	At Project Completion (29 July 2019)
CNY1.00	=	\$0.1574	\$0.1454
\$1.00	=	CNY6.3519	CNY6.8792

ABBREVIATIONS

ADB	–	Asian Development Bank
DFF	–	Dafeng Forest Farm
EIA	–	environmental impact assessment
EIRR	–	economic internal rate of return
EMP	–	environmental management plan
GAP	–	gender action plan
GEF	–	Global Environment Facility
IPM	–	integrated pest management
IUCN	–	International Union of Conservation Nature
JEED	–	Jiangsu Provincial Ecology and Environment Department
JPFA	–	Jiangsu Provincial Forestry Administration
JPG	–	Jiangsu Provincial Government
NNR	–	national nature reserve
OMP	–	operational management plan
PIA	–	project implementing agency
PIU	–	project implementation unit
PMO	–	project management office
PPMO	–	provincial project management office
PRC	–	People's Republic of China
UNESCO	–	United Nations Educational, Scientific, and Cultural Organization
YFF	–	Yancheng Forest Farm

WEIGHTS AND MEASURES

ha	–	hectare
km	–	kilometer
m ²	–	square meter
<i>mu</i>	–	a <i>mu</i> is a Chinese unit of measurement (1 <i>mu</i> = 666.67 m ²)

NOTE

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

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CONTENTS

	Page
BASIC DATA	i
I. PROJECT DESCRIPTION	1
II. DESIGN AND IMPLEMENTATION	2
A. Project Design and Formulation	2
B. Project Outputs	3
C. Project Costs and Financing	5
D. Disbursements	6
E. Project Schedule	6
F. Implementation Arrangements	7
G. Consultant Recruitment and Procurement	7
H. Gender Equity	8
I. Safeguards	8
J. Monitoring and Reporting	9
III. EVALUATION OF PERFORMANCE	9
A. Relevance	9
B. Effectiveness	10
C. Efficiency	11
D. Sustainability	11
E. Development Impact	12
F. Performance of the Borrower and the Executing Agency	13
G. Performance of the Asian Development Bank	13
H. Overall Assessment	14
IV. ISSUES, LESSONS, AND RECOMMENDATIONS	14
A. Issues and Lessons	14
B. Recommendations	15
APPENDIXES	
1. Design and Monitoring Framework	16
2. Project Cost and Financing	21
3. Disbursement of ADB Loan and Grant Proceeds	24
4. Chronology of Main Events	26
5. Contract Awards of ADB Loan and Grant Proceeds	27
6. Implementation of Gender Action Plan	29
7. Environmental Analysis	36
8. Land Acquisition and Resettlement	40
9. Status of Compliance with Loan/Grant Covenants	43
10. Economic and Financial Reevaluation	52
11. Grant Terminal Evaluation Report	56

BASIC DATA

A. Loan and Grant Identification

1.	Country	People's Republic of China
2.	Loan/grant number and financing source	Loan 2838—ordinary capital resources; Grant 0311—Global Environment Facility
3.	Project title	Jiangsu Yancheng Wetlands Protection Project
4.	Borrower/Recipient	People's Republic of China
5.	Executing agency	Jiangsu Provincial Government
6.	Amount of loan and grant	Loan: \$36.9 million; Grant: \$2.25 million
7.	Financing modality	Project loan and grant

B. Loan and Grant Data

1.	Loan fact finding	
	– Date started	31 July 2011
	– Date completed	7 August 2011
2.	Loan negotiations	
	– Date started	15 November 2011
	– Date completed	16 November 2011
3.	Date of Board approval and grant approval	16 December 2011 (loan) 18 September 2012 (grant)
4.	Date of loan agreement	22 March 2012
	Date of grant agreement	31 October 2013
5.	Date of loan effectiveness	
	– In loan agreement	20 June 2012
	– Actual	23 August 2012
	– Number of extensions	1
	Date of grant effectiveness	18 December 2013
6.	Project completion date	
	– Appraisal	30 June 2017
	– Actual	31 January 2019
7.	Loan closing date	
	– In loan agreement	31 December 2017
	– Actual	31 January 2019
	– Number of extensions	1 (13 months)
	Grant closing date	
	– In grant agreement	31 December 2017
	– Actual	31 January 2019
	– Number of extensions	1 (13 months)
8.	Financial closing date	
	– Actual (loan)	29 July 2019
	– Actual (grant)	29 July 2019
9.	Terms of loan	
	– Interest rate	London interbank offered rate-based
	– Maturity	20 years
	– Grace period	5 years

10. Disbursements

a. Dates

Loan

Initial Disbursement 29 April 2013	Final Disbursement 29 November 2018	Time Interval 68 months
Effective Date 23 August 2012	Actual Closing Date 29 July 2019	Time Interval 84 months

Grant

Initial Disbursement 19 December 2014	Final Disbursement 4 December 2018	Time Interval 48 months
Effective Date 18 December 2013	Actual Closing Date 29 July 2019	Time Interval 68 months

b. Amount (\$) – Loan

Loan Category	Original Allocation (1)	Increase/Decrease during Implementation (2)	Cancellation during Implementation (3)	Last Revised Allocation (4=1+2+3)	Amount Disbursed (5)	Undisbursed Balance (6 = 4–5)
01. Civil Works						
01A. Wetlands Protection at YRBNNR	19,100,000	(360,000)	(4,300,000)	14,440,000	12,543,349	1,896,651
01B. Wetlands Protection at DMNNR	470,000	480,000	0	950,000	906,867	43,133
01C. Coastal Forest Improvement at YFF	6,900,000	0	(600,000)	6,300,000	5,704,358	595,642
01D. Coastal Forest Improvement at DFF	3,520,000	0	(1,120,000)	2,400,000	1,873,555	526,445
Subtotal (A)	29,990,000	120,000	(6,020,000)	24,090,000	21,028,129	3,061,871
02. Goods						
02A. Wetlands Protection at YRBNNR	3,560,000	360,000	(820,000)	3,100,000	2,620,631	479,369
02B. Wetlands Protection at DMNNR	2,480,000	(480,000)	0	2,000,000	1,614,129	385,871
02C. Coastal Forest Improvement at DFF	320,000	0	0	320,000	270,813	49,187
Subtotal (B)	6,360,000	(120,000)	(820,000)	5,420,000	4,505,574	914,426
03. Institutional strengthening and training (C)	550,000	0	(160,000)	390,000	253,071	136,929
Total (A+B+C)	36,900,000	0	(7,000,000)	29,900,000	25,786,774	4,113,226

() = negative, DFF = Dafeng Forest Farm, DMNNR = Dafeng Milu National Nature Reserve, YFF = Yancheng Forest Farm, YRBNNR = Yancheng Rare Birds National Nature Reserve.

Amount (\$) – Grant

Grant Category	Original Allocation (1)	Increase/Decrease during Implementation (2)	Cancellation during Implementation (3)	Last Revised Allocation (4=1+2+3)	Amount Disbursed (5)	Undisbursed Balance (6 = 4–5)
1. Consulting Services	1,182,700	0	0	1,182,700	977,115	205,586
2. Surveys and Studies	246,000	0	0	246,000	249,550	(3,550)
3. Equipment	98,800	0	0	98,800	96,991	1,809
4. Workshops, Seminars, and Training	417,000	0	0	417,000	96,490	320,510
5. Reports and Communications	108,000	0	0	108,000	21,106	86,894
6. Unallocated	197,500	0	0	197,500	0	197,500
Total	2,250,000	0	0	2,250,000	1,441,251	(808,748)

() = negative.

C. Project Data

1. Project cost (\$ million)

Item	Appraisal Estimate	Actual
Base cost	71.2	53.9
Contingencies	6.2	0.0
Financing charges during implementation	1.3	3.8
Total	78.7	57.7

Note: Numbers may not sum precisely because of rounding.

2. Financing plan (\$ million)

Source	Appraisal Estimate	Actual
Borrower financed	39.5	30.5
ADB financed	36.9	25.8
GEF financed	2.3	1.4
Total	78.7	57.7

Note: Numbers may not sum precisely because of rounding.

3. Cost breakdown by project subproject (\$ million)

Subproject	Appraisal Estimate	Actual
A. Base Cost		
1. YRBNNR subproject	46.1	32.9
2. DMNNR subproject	5.6	5.2
3. YFF subproject	11.2	11.1
4. DFF subproject	6.0	2.7
5. Provincial Project Management Office	2.3	2.1
Subtotal (A)	71.2	53.9
B. Contingencies (B)	6.2	0.0
C. Financing charges during implementation (C)	1.3	3.8
Total (A+B+C)	78.7	57.7

Note: Numbers may not sum precisely because of rounding.

4. Project implementation schedule

Item	Appraisal Estimate	Actual
Date of contract with consultants	Q1 2012	Q2 2013
Civil works contract		
Date of award	Q1 2012	Q1 2014
Completion of work	Q4 2017	Q1 2019
Equipment and supplies		
First procurement	Q1 2012	Q3 2013
Last procurement	Q4 2017	Q1 2019
Completion of equipment installation	Q4 2017	Q1 2019

Q = quarter.

Source: executing agency's completion report.

5. Project performance report ratings

Implementation Period	Ratings
From 23 August 2012 to 30 September 2012	Potential problem
From 1 October 2012 to 31 March 2013	On track
From 1 April 2012 to 31 December 2013	Potential problem
From 1 January 2014 to 31 March 2014	Actual problem
From 1 April 2014 to 30 June 2016	Potential problem
From 1 July 2016 to 30 September 2016	Actual problem
From 1 October 2016 to 31 December 2016	Potential problem
From 1 January 2017 to 31 March 2017	Actual problem
From 1 April 2017 to 30 September 2017	Potential problem
From 1 October 2017 to 31 December 2019	On track

D. Data on Asian Development Bank Missions

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members
Loan fact finding	31 July–9 Aug. 2011	6	60	a, b, c, e, f, h
Inception ^a	10–14 Dec. 2012	4	20	b, e, h, j
Review 1	8–13 Oct. 2013	6	23	b, c, d, f, j, k
Review 2	3–7 Nov. 2014	4	18	b, d, f, h
Review 3	7–11 Dec. 2015	2	10	b, h
Midterm review	26–30 Sept. 2016	5	21	b, d, f, g, h
Special review	19–23 June 2017	3	12	b, h, i
Review 4	29 Oct–2 Nov. 2018	2	10	b, h
Completion review	11–15 Nov. 2019	3	18	b, e, h

a = economist, b = project manager, c = finance specialist, d = procurement specialist, e = environment specialist, f = resettlement specialist, g = financial control analyst, h = project analyst, i = deputy country director, j = project officer, k = social specialist

^a Project administration was transferred to the Asian Development Bank Resident Mission in the People's Republic of China on 29 November 2012.

Source: Asian Development Bank.

I. PROJECT DESCRIPTION

1. The Jiangsu Yancheng Wetlands Protection Project covers about 291,300 hectares (ha) in the Yancheng coastal wetlands of Jiangsu Province, the People's Republic of China (PRC).¹ The region is considered the world's largest intertidal wetland system. It's in the East Asian–Australasian Flyway, with 415 recorded bird species, of which 29 are on the International Union of Conservation Nature (IUCN) Red List of threatened species. The project area includes two national nature reserves (NNRs) and two forest farms. The Yancheng Rare Birds NNR offers the largest wintering ground for 40%–80% of the global population of the red-crowned crane, which is rated as endangered on the IUCN Red List. The Dafeng Milu NNR is home to 70% of the world's population of milu deer, which is extinct in the wild according to the IUCN Red List. The two NNRs are accredited on the List of Wetlands of International Importance under the Ramsar Convention, recognizing the uniqueness of these wetland ecosystems and the species biodiversity that they harbor. The two surrounding forest farms provide additional ecological protection for the two nature reserves and are part of the national coastal ecological protection forest network.

2. In addition to their great biodiversity significance, the Yancheng wetlands provide important ecosystem services to local communities. Local livelihoods are sustained through the gathering and aquaculture of marine and estuarine plants and fish species. They protect against coastal erosion, tsunamis, and storm surges, and improve water quality by assimilating some municipality's pollution flowing from households and industry. Meanwhile, the two NNRs and the two forest farms attract significant tourists from around the world, generating employment and income for local communities. The ecological services are therefore directly linked to economic development, poverty reduction, and livelihood enhancement for local communities.

3. Despite their local, national, and global significance, the Yancheng coastal wetlands suffered from rapid degradation, wildlife habitat loss and fragmentation, and loss of biodiversity. The main threats included: (i) reclamation of land for agriculture, aquaculture, industry, and urban expansion; (ii) habitat degradation, especially in the core and buffer zones; (iii) the rapid spread of invasive species, particularly *Spartina alterniflora*; (iv) dehydration; and (v) pollution from terrestrial sources. From 1980 to 2010, more than half of the wildlife habitat vanished, while the area for fishponds and built-up land expanded by eight times. The project was designed to support the government's plans to improve management of the Yancheng coastal wetlands to preserve their valuable ecosystem functions. The project was cofinanced through a Global Environment Facility (GEF) grant and was included under the China Biodiversity Partnership Framework.²

4. At appraisal, the project impact was improved ecosystem health and services in the coastal wetlands of Yancheng. The outcome was improved capacity of the local government to manage and protect wetland ecosystems in Yancheng and improved livelihoods for local people. The expected outputs were: (i) wetlands protection at the Yancheng Rare Birds NNR, (ii) wetlands protection at the Dafeng Milu NNR, (iii) coastal forest improvement at Yancheng Forest Farm (YFF),³ (iv) coastal forest improvement at Dafeng Forest Farm (DFF), and (v) project management and capacity development.

¹ ADB. 2011. *Report and Recommendation of the President to the Board of Directors: Proposed loan to the People's Republic of China for the Jiangsu Yancheng Wetlands Protection Project*. Manila.

² The China Biodiversity Partnership Framework was a 10-year (2007–2017) program that adopted integrated and programmatic approaches to biodiversity conservation by coordinating the actions of governments, local communities, development institutions, land users, and other stakeholders. The Global Environment Facility funded the program and the Ministry of Environment Protection was the executing agency.

³ As per the change of the provincial government's administration divisions in 2012, Yancheng Forest Farm replaced Sheyang Forest Farm in name, which was shown in the approved project documents.

II. DESIGN AND IMPLEMENTATION

A. Project Design and Formulation

5. The project was consistent with the Asian Development Bank (ADB) country partnership strategy for the PRC, 2011–2015,⁴ which supported the government's goal to build a harmonious and moderately prosperous society under three strategic pillars: inclusive growth, environmentally sustainable development, and regional cooperation initiatives. The project was also in line with the strategic objectives of the GEF and contributed to the Global Environmental Benefits of biodiversity conservation, such as coastal wetland restoration, ecosystem and habitat integrity and improvement, species protection, invasive species control, biodiversity supportive infrastructure improvements, and public education.⁵

6. The project supported the PRC's sustainable development agenda for an environment-friendly, resource-efficient, and harmonious society, as outlined in the PRC's Twelfth Five-Year Plan, 2011–2015.⁶ The wetlands that the project targeted are included as one of 15 national priority areas in the PRC Biodiversity Conservation Strategy and Action Plan, 2011–2030.⁷ The two NNRs are included in the national implementation plan for wetland protection.⁸ Meanwhile, the wetlands covered under the project are prioritized in Jiangsu provincial wetland protection plans.⁹ The project adopted an integrated approach to address constraints on wetland protection, which involves not only engineering measures but also policy and social development (i.e. livelihoods and community participation) interventions. The project fit well into the government campaign of promoting ecological civilization.¹⁰

7. During project preparation, the executing agency engaged the Jiangsu Provincial Environmental Science and Research Institute to carry out the environmental impact assessment (EIA) for each of the project outputs. The consolidated EIA report for the whole project was prepared based on the EIA and was posted on the ADB website in August 2011. The executing agency prepared a resettlement plan in November 2011. ADB formulated a gender action plan (GAP) to maximize gender benefits, and a summary poverty reduction and social strategy. During implementation, ADB approved a minor scope change in February 2015.¹¹

⁴ ADB. 2011. *Country Partnership Strategy: People's Republic of China, 2011–2015*. Manila.

⁵ Global Environment Facility. 2012. *Request for CEO Endorsement of Jiangsu Yancheng Wetland Protection Project*. Washington D.C.
https://www.thegef.org/sites/default/files/project_documents/2-8-12%2520-%2520Endorsement%2520request_0.pdf

⁶ The State Council. 2011. *National Economic and Social Development Twelfth Five-Year Plan, 2011–2015*. Beijing.

⁷ The State Council. 2010. *PRC Biodiversity Conservation Strategy and Action Plan, 2011–2030*. Beijing.

⁸ State Forestry Administration. 2017. *National Implementation Plan for Wetland Protection during the Thirteenth Five-Year Plan*. Beijing.

⁹ These include: (i) Jiangsu Wetlands Protection Plan, 2015–2030, released jointly by Jiangsu Development and Reform Commission (JDRC) and Jiangsu Provincial Forestry Administration (JPFA) in May 2015; and (ii) Jiangsu Provincial Implementation Plan for Wetland Protection during the 13th Five-Year Period, released jointly by JPFA, JDRC, and Jiangsu Finance Department in January 2018.

¹⁰ Jiangsu Provincial Government. 2013. *Jiangsu Eco-civilization Development Plan, 2013–2022*. Nanjing. Ecological civilization is a term that describes the final goal of social and environmental reform within a given society. It implies that the changes required in response to global climate disruption and social injustices are so extensive as to require another form of human civilization, one based on ecological principles. Broadly construed, ecological civilization involves a synthesis of economic, educational, political, agricultural, and other societal reforms toward sustainability. Although the term was first coined in the 1980s, it did not see widespread use until 2007, when ecological civilization became an explicit goal of the PRC's government.

¹¹ The changes involved: (i) loan reallocation for Dafeng Milu National Nature Reserve to upgrade and improve public education facilities using loan savings from activities that had been funded by the government; and (ii) removal of a pump station under Dafeng Forest Farm because the location conflicted with a government development plan.

8. The United Nations Educational, Scientific, and Cultural Organization (UNESCO) enlisted the Yancheng wetlands as a World Heritage natural site in July 2019.¹² The project contributed to this great achievement directly, as the two nature reserves that the project supported share more than 60% of the total area of the heritage site.

B. Project Outputs

9. Output 1: Wetlands protection at the Yancheng Rare Birds National Nature Reserve.

At appraisal, the output indicators were: (i) restoring 540 hectares (ha) of degraded wetland in the experimental zone; (ii) rehydrating 1,630 ha of dehydrated wetland in the core zone; (iii) converting 1,435 ha of fishponds into wetlands; (iv) piloting the control of invasive species, particularly 400 ha of *Spartina alterniflora*; (v) improving wetland protection infrastructure, including 38.1 kilometers (km) of patrol roads and stations and waste-management facilities; (vi) improving wildlife protection with the establishment of a rescue, breeding, and disease control center; (vii) establishing a wetland and biodiversity research laboratory and monitoring sites; and (viii) building a public education center and a community co-management center. At completion, the expected outputs had been almost fully achieved. Actual outputs were: (i) 540 ha of degraded wetlands were restored in the experimental zone through landscape regulating, habitat creation, and revegetation; (ii) 1,630 ha of dehydrated wetlands were rehydrated in the core zone through water regulating using pumps; (iii) 1,435 ha of fishponds were converted into wetlands; (iv) pilots of invasive species control were implemented on 207 ha;¹³ (v) 40 km of patrol roads and four stations, and seven eco-toilets, solid wastes transfer station, and wastewater treatment facilities were constructed and put into operation in December 2017; (vi) a rescue, breeding, and disease control center was established with a total space of 800 square meters (m²) and was put into operation in October 2018; (vii) a laboratory for wetland and biodiversity research was established and equipped with appropriate testing instruments; monitoring facilities were built and put into operation in July 2018, including 204 surveillance sites (24 for bird observation) and 10 birdwatching houses (including hides); and (viii) a 13,000 m² public education center was built and put into operation in 2016;¹⁴ a 3,700 m² community co-management center was established and became functioning in December 2017; and a 3,100 m² environment education and research center was built up and put in service in December 2017.

10. **Output 2: Wetlands protection at the Dafeng Milu National Nature Reserve.** At appraisal, the output indicators were: (i) creating 24.7 ha of drinking water ponds for milu deer; (ii) establishing 45 ha of grazing and resting ground and 220 ha of fodder ground, including 50 ha for rotation grazing; (iii) controlling ticks on 426.4 ha, erecting or rehabilitating 24 km of biological fences, improving 18.5 km of patrol roads, and establishing a patrol station; (iv) establishing a milu deer research lab and habitat surveillance system; and (v) constructing the education and audio–video center. At completion, the outputs included: (i) more than 25 ha of drinking water

¹² The site's official name is Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of the People's Republic of China (Phase I). The sanctuaries are situated in the largest intertidal wetland system in the world and one of the most biologically diverse. The property is an irreplaceable and indispensable hub for birds migrating along the East Asian-Australasian Flyway, which spans some 20 countries across two hemispheres from the Arctic to South-East Asia and Australasia. The two components of the property cover (1) Dafeng National Nature Reserve, the southern section and Dongsha Experimental Zone of Yancheng National Nature Reserve and the Tiaozini area (totaling 173,110 ha including a buffer zone of 28,271); and (2) the middle section of Jiangsu Yancheng National Nature Reserve (95,589 ha including a buffer zone of 51,785 ha). The total area of the two components is 188,643 ha plus a buffer zone of 80,056 ha. <https://whc.unesco.org/en/decisions/7358/>

¹³ *Spartina alterniflora* was introduced from the United States in the 1980s to control erosion along shorelines. The main purpose of controlling this invasive species is to maintain natural bird habitats. During the final design, 209 ha was available for engineering interventions as per the revised nature reserve zoning plan (footnote 27).

¹⁴ The center was built using the government funds, of which the project financed interior presentation and decorations.

ponds for milu deer; (ii) 45 ha of grazing and resting ground and 242 ha of fodder ground (119.5 ha for rotational closure and grazing) established; (iii) ticks under control on 430 ha,¹⁵ 26.9 km of steel biological fences erected/rehabilitated, 18.5 km of patrol roads paved, and a patrol station established; (iv) a milu deer research laboratory and habitat surveillance system established; and (v) a 1,945 m² public education and audio–video surveillance center constructed.

11. Output 3: Coastal forest improvement at Yancheng Forest Farm. At appraisal, the output targets were: (i) rehabilitating 185 ha of forest bird habitat; (ii) establishing 285.2 ha of nurseries for Chinese fir and evergreen trees, floral plants, and foliage seedlings; (iii) establishing a 83.5 ha agroforestry demonstration area; (iv) rehabilitating 51.4 km of drainage canals; (v) establishing a forest fire early warning and response system; and (vi) establishing an integrated pest management (IPM) system. At completion, the output had delivered: (i) 185 ha of forests rehabilitated for bird habitat; (ii) 302 ha of seedling nurseries established for Chinese fir and evergreen trees, floral plants, and foliage seedlings; (iii) an agroforestry demonstration area of about 300 ha established; (iv) 53.8 km of drainage canals rehabilitated; (v) forest fire early warning and response system established, including four watching towers, 16 check points, one fire engine (put into operation in July 2018), and the rehabilitation of 52 km of fire protection access roads; and (vi) an IPM system established, including 200 pest-capturing lamps and five pest-monitoring sites.

12. Output 4: Coastal forest improvement at Dafeng Forest Farm. At appraisal, the output targets were: (i) improving 860 ha of coastal wetland protection forest, (ii) restoring or rehabilitating 122.7 ha of coastal wetlands, (iii) improving 174 km of drainage canals, (iv) rehabilitating 20.9 km of fire protection access roads and establishing a fire prevention and response system, and (v) establishing an IPM system. At completion, the project had achieved the following: (i) 870 ha of coastal wetland protection forest improved; (ii) 174 km of drainage canals improved; (iii) 20.9 km of fire prevention access roads rehabilitated and a fire prevention and response system, including seven check points and one monitoring tower (in operation since October 2018), established; and (iv) an IPM system established, including 130 pest-capturing lamps and a high-range sprayer. The planned intervention to restore 122.7 ha of coastal wetlands through freshwater pumping was removed from the project scope because the location of the proposed pump station conflicted with a national canal improvement project (footnote 11).¹⁶

13. Output 5: Project management and capacity development. At appraisal, the output indicators were (i) establishing provincial, municipal, and county project management offices (PMOs) with at least 30% representation by women; (ii) establishing project implementation units (PIUs) at the two nature reserves and two forest farms; (iii) helping the Jiangsu Provincial Government formulate a policy framework on eco-compensation;¹⁷ and (iv) train 100 PIU and PMO staff, at least 30% of them women. During implementation, (i) a provincial PMO (PPMO) was established under the Jiangsu Provincial Ecology and Environment Department (JEED) in 2011.¹⁸ The Yancheng Municipal Government and the local governments (i.e. the Tinghu District

¹⁵ Ticks (i.e. *Haemaphysalis*) are a kind of parasites living on plants of Chinese pennisetum. The project proposed originally to use vacuum cleaners to clear ticks. As the method was yet to be proved effective, the vacuum cleaners were not purchased in the end. Alternatively, ticks are controlled through firing the fields as adopted extensively and effectively where the ticks live. Meanwhile, ticks reduced significantly due to the great loss of the plants from heavily treading by the growing population of the milu herds. Consequently, the ticks are under control.

¹⁶ The designated function of the wetlands was not affected, which is a natural habitat for milu deer about 300-400 heads in the wild condition.

¹⁷ Eco-compensation is an incentive system that supports sustainable ecosystems, provides stable financing for conservation, and can address livelihood issues for rural communities.

¹⁸ The department was renamed from Jiangsu Provincial Environment Protection Department in line with the government organizational restructuring in 2018.

and Dafeng City governments) established their own PMOs in 2011. PMOs at various levels engaged 19 staff, of which 60% were women; (ii) PIUs were set up at the two nature reserves and the two forest farms in 2011; (iii) PPMO produced a policy framework on eco-compensation with consultant assistance in June 2018; and (iv) trainings were provided for PIU and PMO staff totaling 418 persons (193 for women). The project engaged 234.4 person-months of national and 18 person-months of international consultant to support project implementation and institutional capacity development.

14. **Activities funded by the Global Environment Facility grant.** With support from the GEF grant, outputs 1 and 2 were expanded to include enhanced management and improved financial sustainability of the two NNRs and the establishment an ecological monitoring system. Outputs 3 and 4 were expanded to include enhanced livelihood opportunities for communities in the buffer and experimental zones of the nature reserves through piloting of schemes related to payments for ecosystem services. Environmental governance and communications were added to output 5, including capacity development for PIUs of wetland conservation and public communications with local communities. At completion, management of the two NNRs had been strengthened through interventions under output 1 and 2; management improvements included the introduction of operational management plans (OMPs), a training-of-trainer program for nature reserve managers, and study tours. Policy recommendations for eco-compensation were made to enhance financial sustainability for the protected areas management. PPMO established an integrated monitoring system for the two NNRs, which was put it into operation in 2018. Under outputs 3 and 4, the two forest farms piloted and introduced sustainable livelihood and agricultural practices, including agroforestry, organic rice paddy, and homestay ecotourism. Consulting services for environment governance and communication was carried out. In total, consultants produced 13 technical reports covering nine thematic subjects.¹⁹ With the consultant assistance, PPMO produced a knowledge product highlighting key findings and discussions about integrated ecosystem management of the Yancheng wetlands based on these technical reports and published in January 2019.²⁰

15. The project design and monitoring framework summarizing project achievements is in Appendix 1.

C. Project Costs and Financing

16. The estimated project cost at appraisal was \$78.65 million (CNY499.4 million equivalent). At completion, the total project cost was about \$57.74 million (CNY396.7 million equivalent). The loan amount cancelled at closing was \$11,113,226.30 and \$808,748.66 was cancelled under the grant at closing. The reduced project cost resulted mainly from (i) overestimation of project costs during appraisal and low bidding prices, (ii) cancellation of project activities that could not be implemented because of changes in the government development plan, and (iii) depreciation of the yuan during project implementation.

17. The original financing plan at appraisal included a \$36.9 million loan from ADB (about 47.0% of the project cost), a \$2.25 million grant funded by GEF (2.8%), and \$39.5 million from government counterparts (50.2%). At loan and grant closing, \$25.8 million of the ADB loan (44.7%

¹⁹ The nine topics included: (i) wetland ecology, nature reserve management, and ecological monitoring; (ii) control of invasive spartina; (iii) ecological agriculture; (iv) environment governance; (v) birds and habitat monitoring; (vi) milu deer management and protection; (vii) impact assessment of wind farms on birds; (viii) geographic information systems and database management; and (ix) ecotourism and visitor management.

²⁰ Jiangsu Ecology and Environment Department. 2019. *Integrated Ecosystem Management of the Yancheng Coastal Wetlands*. Beijing: China Ocean Press.

of the project cost) and \$1.44 million of the GEF grant (2.5% of the project cost) had been disbursed. Government counterparts covered the balance of \$30.5 million.

18. Appendix 2 details the project costs at appraisal and the actual project costs.

D. Disbursements

19. Loan proceeds were disbursed from 29 April 2013 to 29 November 2018. The loan closing date was 31 January 2019. The last transaction was made on 29 July 2019 to refund the outstanding loan advance account. Liquidating the advance account took 6 months after the loan closing date. Out of the loan amount of \$36.9 million approved originally, \$25.8 million was disbursed and \$11,113,226.30 was cancelled.²¹ ADB made the initial advance payment of \$2.0 million to the advance account on 29 April 2013, for which Jiangsu Finance Department made the final liquidation (\$4.51 million) on 24 June 2019.

20. ADB disbursed the grant from 19 December 2014 to 4 December 2018. The grant closing date was 31 January 2019. The last transaction was made on 29 July 2019 for refund of the outstanding grant advance account. Liquidating the grant advance account took 6 months after the grant closing date of 31 January 2019. Out of the total grant amount of \$2.25 million approved originally, \$1.44 million was disbursed.²² A total of \$0.98 million of the grant proceeds went toward consulting services, \$0.02 million was for communications and reports, \$0.09 million was for equipment, \$0.10 million was for workshops and training, and \$0.25 million was for surveys and studies.

21. Disbursements were made using advance account and direct payment procedures. Separate advance accounts were established for the loan and the grant. The ceiling of both accounts was removed in November 2018 to facilitate liquidation toward the loan and grant closing. The advance accounts proved useful and facilitated effective project disbursements. ADB's disbursement process was efficient. Appendix 3 shows the projected and actual disbursements.

E. Project Schedule

22. The loan was approved on 16 December 2011 and the loan and project agreements were signed on 22 March 2012. The loan became effective on 23 August 2012. The GEF chief executive officer endorsed the GEF grant on 30 April 2012 and ADB approved it on 18 September 2012. The GEF grant agreement was signed on 31 October 2013 and became effective on 18 December 2013.

23. The original implementation schedule was from July 2012 to June 2017. The inception mission took place in December 2012 and the midterm review was conducted in September 2016. The original closing date for the loan and the grant of 31 December 2017 was extended by 13 months, to 31 January 2019. The loan and grant were closed financially in July 2019. Appendix 4 includes a chronology of main milestones.

²¹ A partial loan cancellation of \$7.0 million was approved on 1 June 2018. The remainder (including the cancelled grant proceeds) was cancelled after liquidation.

²² Savings of the grant were mainly from: (i) consulting services for evaluation, which were financed using staff consultant resources; (ii) expenses of meetings and workshops, which government budgets covered; and (iii) unallocated amount of \$197,500.

F. Implementation Arrangements

24. The Jiangsu Provincial Government (JPG) was the executing agency. A leading group provided the overall guidance for the project plan and coordination across relevant government agencies and local government.²³ The PPMO under the JEED coordinated overall project administration, including procurement, disbursement, and consultant management.²⁴ The project implementing agencies (PIAs) included the JEED, the Jiangsu Provincial Forestry Administration (JPFA), the Yancheng Municipal Government, and Dafeng City Government. The PIUs (i.e. the Yancheng Rare Birds NNR, the Dafeng Milu NNR, YFF, and DFF) undertook project activities and looked after daily administrative matters. The provincial finance department managed the advance accounts and was responsible for withdrawal applications. The implementation arrangements were appropriate. The participating agencies played effectively their designated roles in managing and/or coordinating project implementation. During implementation, the head manager of the Yancheng Rare Birds NNR was changed four times, which led to delay in implementing output 1.

G. Consultant Recruitment and Procurement

25. Under the loan, the total inputs of consulting services comprised 2.73 person-months of international and 41.77 person-months of national. During appraisal, a quality- and cost-based (QCBS) package was planned under the loan for consulting services (8 person-months of international and 34 person-months national), to support project implementation. During implementation, the QCBS package was changed to individual selection to meet PPMO and PIUs' emerging needs for specific expertise to mobilize the project. A national wetland expert (4 person-months) and an international ecosystem project management specialist (2 person-months) were recruited immediately after inception in January 2013.²⁵ Three individual national consultants were recruited in January 2014 (16 person-months for a project performance monitoring specialist, 8 person-months for an environmental safeguard expert, and 8 person-months for a social development expert).

26. Under the GEF grant, 15.5 person-months of international and 68 person-months of national consultants were planned originally to support institutional capacity covering wetlands management, environment governance, and eco-compensation. At completion, total inputs for consulting services were 180.5 person-months of national and 21.28 person-months of international. Recruitment packages included: (i) a QCBS package for environment governance and wetland management comprising 20.6 person-months of international and 132.5 person-months of national; (ii) four packages for thematic studies or research comprising 44 person-months of national in total recruited using consultants' qualifications selection method;²⁶ and (iii) two individual consultants for ecosystem project management comprising 0.68 person-months of international and 4 person-months of national.

²³ The leading group was chaired by the provincial vice-governor and comprised the provincial development and reform commission, finance department, environment protection department, and forestry department.

²⁴ The PPMO was hosted by Nature Management Division at the outset and was transferred to International Projects Management Center in 2015. Jiangsu Environment Protection Department was renamed as Jiangsu Ecology and Environment Protection Department in October 2018, in line with the government organizational realignment. The renamed entity saw no change in its mandate or its ADB project management and coordination responsibilities.

²⁵ The international ecosystem project management specialist supported project start-up, including setting up the project performance monitoring framework and baseline database and preparing the GEF work program. The national wetland expert reviewed and improve the engineering designs of wetland protection and restoration works.

²⁶ These included: (i) 12 person-months for ecological agriculture pilots; (ii) 12 person-months for development of ecological monitoring systems; (iii) 12 person-months for operationalization of eco-compensation; and (iv) 8 person-months for training-of-trainers program.

27. The PPMO and PIUs managed procurement and administered contracts generally well. During implementation, ADB awarded 43 contracts totaling \$29.0 million equivalent under the loan and 18 contracts totaling \$1.55 million equivalent under the GEF grant. The contract packages were procured following ADB's Procurement Guidelines (2010, as amended from time to time). Procurement methods included national competitive bidding and shopping. No international competitive bidding was used.

28. The original contract award projections were higher than the actual awarded amounts (Appendix 5). The over-projections were mainly caused by PIU's overestimation of contract bids and slow procurement process at the beginning of the project implementation. For example, the first contract was not awarded until 1 year after project inception in December 2013 because the engineering design process was prolonged. Although advance contracting and retroactive financing were proposed during processing, no contracts were able to apply. The overall performance of consultants, contractors, and suppliers was satisfactory. There were no significant delays in contract implementation despite the loan extension. Equipment suppliers also performed well and provided training on operation and maintenance for PIUs.

H. Gender Equity

29. The project was classified *effective gender mainstreaming* for gender equality. During appraisal, the GAP was prepared to maximize gender benefits, including (i) prioritizing women's employment; (ii) promoting the effective inclusion of women in all project activities, particularly women's participation in off-farm skills development; and (iii) monitoring gender targets and implementation. During implementation, the PPMO engaged a social development consultant to advise the PIUs of GAP implementation and monitoring. The monitoring results showed that the project had positive impacts on women: (i) increased employment opportunities and income, (ii) increased awareness and knowledge of ecological conservation and environmental protection in their communities and households, and (iii) improved urban–rural environment and quality of life.

30. The project achieved its GAP targets successfully. As per the GAP, 12 activities (100%) were carried out and 24 (96%) quantitative targets were fully achieved. The key achievements in relation to gender equity included: (i) 2,903 person-years of off-farm job opportunities were created, 49% for women, (ii) 66% female participation in eco-agricultural skills training under the YFF component, (iii) 60% female participation in eco-fish farming skills training, (iv) women made up 73% of project management staff, (v) 46% female participation in eco-compensation training; and (vi) 32% female participation in project management training. The GAP contributed positively to attaining the project outcome. Details of the GAP achievements are in Appendix 6.

I. Safeguards

31. **Environment.** The project was classified category A for environment following ADB's Safeguard Policy Statement (2009). In compliance with the environment management plan as set out in the EIA, measures to mitigate environmental risks were undertaken effectively during construction, and environmental monitoring was adequate. Specifically, measures were undertaken in accordance with Safeguard Policy Statement requirements for work in protected areas, including compliance with the protected area management plan (e.g., using low-noise equipment and strictly controlling access to natural habitats). Monitoring during implementation identified no major adverse environmental harms. The detailed environmental analysis is in Appendix 7.

32. **Resettlement.** The project was categorized A for involuntary resettlement, as outputs 1 and 2 involved economic displacement of 493 persons in 156 households because of nonrenewal of lease of land associated with project activities. The Yancheng Rare Birds NNR and YFF implemented the resettlement plan effectively during project implementation. The PPMO recruited a resettlement expert (consultant) to assist it in overseeing the resettlement plan implementation. An institute engaged by PPMO monitored the resettlement plan implementation and prepared six monitoring and evaluation reports covering the whole implementation period. By the project completion, the PPMO submitted eight social and resettlement progress reports to ADB. Appendix 8 summarizes details of the resettlement plan implementation.

J. Monitoring and Reporting

33. The loan and grant covenants were adequate, and the major covenants complied with (Appendix 9). The JPG allocated sufficient counterpart funds to deliver the project activities. All project interventions for the two NNRs were consistent with national regulations for nature reserve management. The provincial government revised and updated zoning plans for the two NNRs in line with national regulations for nature reserve management.²⁷ The PIUs undertook adequate measures implementing the EMP, GAP, and resettlement plans and maintained a good compliance with the safeguard requirements.

34. The consultant helped PPMO establish a project performance monitoring system in 2013, covering performance indicators for the loan and the GEF grant. the PPMO reported to ADB the baseline data and updates periodically through semiannual progress reports. ADB monitored and documented activities funded under the GEF grant semiannually through project implementation reports throughout the implementation period. With consultant assistance, the PPMO prepared and submitted a project completion report for the loan and a grant completion report after the loan and grant closing.

35. The China National Audit Office audited the project accounts for the loan and the grant annually in accordance with auditing standards acceptable to ADB. The JPG submitted to ADB seven audit reports, all on time. No major issues were found in relation to the use of loan and grant proceeds or compliance with financial covenants.

III. EVALUATION OF PERFORMANCE

A. Relevance

36. The project is rated *relevant*, as it was relevant at both appraisal and completion. The project outcomes were aligned strategically with the government's development agenda and ADB's country partnership strategy (para. 5). As a biodiversity hotspot with global significance, the Yancheng coastal wetlands were included as priority regions in the government wetland protection plans (para. 6). The project contributed directly to the success of the Yancheng wetlands being enlisted on the UNESCO World Heritage List. With the project support, 4,554 ha of wetlands were restored and/or rehabilitated to provide healthy, critical habitat for many important bird and animal species. Infrastructures and management facilities were improved in the two NNRs and surrounding forest farms significantly. Institutional capacity for wetlands

²⁷ The revised zoning plan for the Yancheng Rare Birds NNR involved a change in boundary for experimental zones and was approved by the State Council in July 2013. The updated zoning plan for the Dafeng Milu NNR defined different zones (i.e. core, experimental, and buffer zones) and was approved by Ministry of Environment Protection in June 2015.

protection and habitats management were strengthened considerably. Meanwhile, local communities benefited from the project through sustainable associated with wetlands and biodiversity conservation and extensive technical training conducted for them. The measures and approaches applied under the project have been replicated in wetland protection programs funded by the government.²⁸ The project loan modality was appropriate to the finance the planned wetland protection measures. Meanwhile, the GEF grant supported institutional capacity, which further enhanced the wetland management of the project area and ensured the project's contribution to the global environmental benefits (para. 5).

B. Effectiveness

37. The project is rated *effective* in achieving its intended outcome of improving capacity of the local government to manage and protect wetland ecosystems in Yancheng and improving livelihoods for local people. The project outcome targets were all attained adequately, with the target for employment exceeded. In terms of the performance indicators, wetland degradation of the project intervention areas in both NNRs was halted in 2018, 1 year later than the original target (2017), in line with the overall project implementation progress. The indicator related to employment of local people was achieved in 2018, with 2,903 person-years employed against a target of 2,000 person-years. Most output targets were met, with several targets exceeded.

38. **Wetlands protection.** The project has achieved the expected outputs for wetlands protection adequately. In the Yancheng Rare Birds NNR, 3,812 ha of wetlands (95% of the targeted area) were put under appropriate protection through engineering interventions and improved infrastructures or facilities (para. 9). In the Dafeng Milu NNR, 742 ha (104% of the targeted area) of wetlands were under adequate protection as critical habitats for milu deer, and management facilities were improved (para. 10). GEF-supported activities also strengthened the two NNRs' capacity for wetlands and biodiversity management. These interventions directly contributed to the project outcome regarding the wetland degradation control. Meanwhile, the project generated substantial employment opportunities for local communities, such as ecotourism to experience wetlands and biodiversity sceneries in the project area. This further contributes to the project outcome in relation to local people's livelihoods.

39. **Coastal forest improvement.** The expected outputs for coastal forest improved have been achieved effectively through interventions at the two forest farms (paras. 11–12). Meanwhile, nursery operation, agroforestry, forest-based ecotourism businesses improved the livelihoods of local communities. Institutional capacity development activities improved management of the habitats, which effectively complement the wetland conservation of the two NNRs and thus contributed to the project outcome.

40. **Institutional capacity development.** The interventions strengthened the two NNRs' institutional capacity significantly, in particular by developing OMPs, conducting extensive training, and introducing a comprehensive ecological monitoring system. Management capacity of the two forest farms was also improved largely through forestry management plans and staff training. Beyond the project coverage, institutional capacity development was extended to provincial institutions for wetlands and biodiversity management through study tours to learn good practices from developed countries. Two knowledge products were produced, including one documenting experiences and practices from the project (published in Chinese—footnote 20) and

²⁸ Jiangsu Provincial Forestry Administration, Jiangsu Development and Reform Commission, and Jiangsu Finance Department. 2018. *Jiangsu Provincial Implementation Plan for Wetland Protection throughout the 13th Five-Year Period*. Nanjing.

an overview of biodiversity in Jiangsu.²⁹ In addition, a policy note on operationalizing eco-compensation policies was prepared and presented to JEED for considering.

41. **Safeguards and gender.** During implementation, all safeguards and GAP measures were implemented effectively. The implementation of the GAP improved women's capacity to manage and protect wetland ecosystems and improved their livelihoods through skills development training and economic empowerment. The project complied with all safeguard requirements.

C. Efficiency

42. The project is rated *efficient*. The reevaluated economic internal rate of return (EIRR) ranges from 12.5% to 22.8% by component while the EIRR of the whole project is 14.7%, close to the appraisal estimate of 14.9%. The project implementation was originally planned for 5 years, from July 2012 to June 2017, with incremental benefits starting from 2016. However, because of the start-up delay and prolonged implementation (para. 23), the project was completed in January 2019, with the incremental benefits starting from the same year. The 2-year delay of the project benefits affected the economic reevaluation results. Although the actual investment cost was 74% of the appraisal estimate, this advantage was offset by the delayed incremental benefits. Sensitivity analysis indicated that the overall project remains economically viable although YFF may have an EIRR slightly below 12% given a 10% decrease in its economic benefits. Details of the economic and financial reevaluation are provided in Appendix 10.

D. Sustainability

43. The project is rated *likely sustainable*. The wetlands associated with the two NNRs are included as priority areas in the Jiangsu provincial wetlands protection plans (para. 6). The JPG has allocated sufficient budget funds (i.e. about CNY150,000 per ha of wetland area) to implement identified projects under the wetland protection plans. Meanwhile, the provincial government allocates the operational budgets of the two NNRs and local governments allocate funds for the two forest farms. These budgets are sufficient to cover staff salaries and regular operational expenses. In addition to fixed operational budgets from government resources, the NNRs and the forest farms consistently receive government funds via ecological conservation programs,³⁰ which will further enhance the sustainability of the project outcome to protect wetlands. The financial reevaluation confirmed a very low risk of the ADB loan default. Therefore, the project outcome can be sustained financially.

44. As the Yancheng coastal wetlands have been enlisted as a World Heritage natural site, the JPG has committed politically and financially to improve and sustain wetlands management. The JPG enacted the Jiangsu Provincial Wetlands Protection Regulations, a provincial law, in 2017, which provides a powerful enabling environment for wetland conservation in the province. In line with organizational reforms initiated by the central government, management of the Yancheng Rare Birds NNR was transferred to the JPFA from the JEED in October 2018. This put both NNRs under the management of the JPFA and makes the integrated management of wetlands very much likely from an institutional perspective. The two NNRs in particular have

²⁹ Jiangsu Ecology and Environment Department. 2018. *Biodiversity in Jiangsu*. Nanjing.

³⁰ The funds also include transferred payments for eco-compensation, which are integrated with overall public funds according to government policies (i.e. Jiangsu Provincial Government. 2013. *Provisional Arrangements for Transferred Payments for Eco-compensation in Jiangsu Province*. Nanjing). The provincial government is formulating specific rules for wetland eco-compensation according to the Jiangsu Provincial Regulations for Wetlands Protection, a provincial law put into force in 1 January 2017.

adequate institutional establishments and staff resources for biodiversity research and NNR management in place. In this regard, the project is very likely to be institutionally sustainable.

45. Several project approaches have proven effective and will support project sustainability. Rotational grazing of milu deer with fences has improved its habitats' quality and living conditions dramatically. Rehabilitation, drainage, rehydration and/or restoration of fishing ponds have improved wetland bird habitats significantly. Well-equipped monitoring and surveillance infrastructure and systems, such as patrol facilities, have improved the effectiveness of wetlands management and biodiversity conservation. Many project interventions are being upscaled through subsequent government-funded programs or projects. The project's extensive training and community participation components will also enhance the sustainability of project outputs. Overall, the project outcome and outputs are likely sustainable technically.

E. Development Impact

46. The development impact is rated *satisfactory*. The project has achieved its core development goal initially to improve wetlands protection and biodiversity conservation in the Yancheng coastal wetlands. In terms of the impact indicators, the wintering red-crowned crane population in the NNR was about 604 during 2017 to 2018 (including 128 bred at the NNR), about 101% of the target. The annual mortality rate of young milu deer was 1.9% in 2018 and kept about 2% in recent years, consistent with the target indicator.³¹ The project contributed directly to the success of the Yancheng wetlands being designated a UNESCO World Heritage natural site. The project contributed greatly to the global environmental benefits for biodiversity conservation (para. 5). The GEF terminal evaluation report presented details of achievements made mainly through GEF-funded activities (Appendix 11), which was prepared by the consultant following ADB's Guidance Note for GEF-Cofinanced Projects.

47. **Environmental impacts.** The project achieved significant environmental benefits in terms of wetlands protection, biodiversity conservation, and forestry improvement. Biodiversity has become significantly richer in the nature reserves as a result of the project. Monitoring conducted by the Yancheng Rare Birds NNR suggested that the number of bird species in the wetlands increased by 52% from 2016 to 2018, from 25 types to 38 types, while the bird population increased by 24%, from 33,316 birds to 41,163 birds, over the same period. The bird population in the core zone of the Yancheng Rare Birds NNR grew by 365%, from 3,173 birds to 14,747 birds, over the same period. The population of milu deer reached 5,016 heads (1,350 in the wild) by 2019, accounting for more than 70% of the world population. This was an increase of 179% compared with 2012 (1,800 heads). Improving 1,055 ha of forest land further improved habitats, in particular for forest birds, in addition to providing shelter protection for the coastal wetlands. The project also created positive climate change benefits by expanding wetland carbon sinks, increasing forest biomass, and lessening air pollution.

³¹ However, the two indicators were scientifically inadequate to meaningfully gauge the project impact, as they are dependent on many factors besides ecosystem health. The wintering crane population is affected not only by natural habitat patterns but also by weather conditions (e.g., global warming). For instance, a large number of red-crowned cranes (about 150) stopped at Shandong in 2015 for wintering and did not continue south to Yancheng because of higher temperatures in the north. In addition, human activities such as wind farming and air pollution can impede the birds from reaching their end destination in the Yancheng wetlands during the winter migration. As for milu deer mortality, the target annual mortality rate of Milu deer (2.0%) is unreasonably low according to science literature and the review undertaken by a milu deer specialist engaged under the project. Also, habitat condition is just one of many factors that affect animal mortality; other factors are herd density, birth rate, and disease.

48. **Social impacts.** The project created employment opportunities for more than 2,900 people from local areas (49% for women). The project benefited local communities through improved ecological farming and fishing practices and expanded opportunities for ecotourism businesses. For example, 15 restaurants and 25 hotels have been built and opened in the project area since 2017, which provides employment for more than 550 people and brings in total revenue of more than CNY80.0 million annually. Both NNRs have become popular tourism destinations, attracting more than 1 million visitors annually. The Dafeng Milu NNR in 2015 was upgraded to a national 5-star tourism site, the highest level in the country and is expecting more visitors in the future. The two NNRs are also officially recognized bases for public education in environment and biodiversity and receive more than 30,000 school students annually. Employment opportunities were created during project construction (1,896 person-years, including 47% for women) and operation (1,007 person-years, including 52% for women). Project beneficiaries were trained in eco-farming and fishing skills, with women accounting for more than 60% of trainees. These trainings strengthened awareness of local farmers and built their skills in wetland-friendly farming and fishing practices.

49. **Institutional impact.** The project created long-term institutional impact from capacity development of the two NNRs (paras. 13, 14 and 40). The strengthened capacity supported adequate management of the Yancheng wetlands and will contribute sustainably to provincial and local government efforts to maintain the World Heritage natural site status by meeting international standards. PPMO prepared a policy note on operationalizing eco-compensation policies and submitted to the JEED in 2018 for consideration.

F. Performance of the Borrower and the Executing Agency

50. The performance of the borrower and the executing agency was *satisfactory*. The borrower and the executing agency held strong ownership of the project and committed to improving wetlands protection and biodiversity conservation continuously. They provided adequate support for project preparation and fulfilled their obligation to make the loan and the grant effective in a timely manner. The adequate implementation arrangements ensured the effectiveness of the project (para. 24). As the executing agency, the JPG allocated the loan proceeds on a grant basis to the two NNRs and provided them with sufficient counterpart funds to implement the project. During implementation, the executing agency coordinated effectively with the PIAs to fulfill the compliance requirements set out in the loan and project agreements, including those related to safeguards, auditing, and financial management. JPG and the PIAs have taken effective measures to ensure the project's sustainability.

G. Performance of the Asian Development Bank

51. ADB's performance is rated *satisfactory*. ADB fielded eight review missions during implementation, including a midterm review mission in September 2016. ADB fielded review missions timely and adequately to review the project implementation progress and to address outstanding issues such as contract variations. During missions, ADB gave necessary training to PIU and PPMO staff on ADB's policies and guidelines related to procurement, financial management, disbursement, safeguards and gender. In addition, ADB responded to the executing agency and PIU's actual demands for expertise support at the beginning stage of implementation by modifying and approving the consultant selection method timely (para. 25). ADB's review and approval of bidding and contract awards were sufficient and timely. ADB processed withdrawal applications from the PPMO and made disbursement high efficiently. As the implementing agency of the GEF grant, ADB administered the grant effectively.

H. Overall Assessment

52. The project is rated *successful*. It was (i) *relevant* to government and ADB development strategies (paras. 5, 6, and 36), (ii) *effective* in achieving its outcome (paras. 37–40), (iii) *efficient* in achieving outcome and outputs (para. 42), and (iv) *likely sustainable* (paras. 43–45). The project was implemented successfully and delivered its outputs effectively. It achieved its outcome to increase the local government's capacity to manage and protect the Yancheng wetlands and improve livelihoods for local people. It contributed directly to the Yancheng wetlands being enlisted successfully as a World Heritage natural site.

Overall Ratings	
Criteria	Rating
Relevance	Relevant
Effectiveness	Effective
Efficiency	Efficient
Sustainability	Likely sustainable
Overall Assessment	Successful
Development impact	Satisfactory
Borrower and executing agency	Satisfactory
Performance of Asian Development Bank	Satisfactory

Source: Asian Development Bank.

IV. ISSUES, LESSONS, AND RECOMMENDATIONS

A. Issues and Lessons

53. **Lesson 1: Cost efficiency.** Although the project was generally implemented well and has delivered its expected outputs, about \$11.1 million of the loan proceeds (30%) and \$0.8 million of the grant proceeds (36%) were cancelled in the end (paras. 16–17). Overestimating these amounts was a major reason for the significant cost reduction (para. 28). A more accurate cost estimation during appraisal would have prevented this issue. The project team first identified the savings during the midterm review mission in late 2016 and suggested that the potential savings be used to purchase complementary equipment to support the monitoring system of the Yancheng Rare Birds NNR. The PIU, with consultant assistance, prepared a proposal to use the loan savings in late 2017, but failed to obtain an endorsement from the provincial development and reform commission and finance department.

54. **Lesson 2: Implementing capacity.** The Yancheng Rare Birds NNR saw frequent replacement of its head manager during implementation, who was also the PIU head for this component (para. 24). This delayed decisions on implementation matters such as contract management and withdrawal applications, weakening the performance of this PIU in general. Because this component was such a major part of the overall project, the weak performance of this PIU delayed overall project implementation to a certain extent.

55. **Issue related to milu deer herd density.** Because of improved grazing management, the population of milu deer grew 179% from 2012 to 2019 (para. 47). Exclusive of the herds in the wild (which accounted for about 1,350 heads in 2019), the herd density in the Dafeng Milu NNR exceeded its natural carrying capacity, which is about 2,000 heads within its two fenced closures and one open grazing field (with a total area of about 2,700 ha). High herd densities pose potential risks in terms of disease and increased adult fatality. To mitigate these risks, about 2,000 heads of deer were transferred to graze in a larger wetland area beyond the Dafeng Milu NNR boundary,

with permission from the JPFA and the Yancheng Municipal Government.³² This has made it possible to maintain reasonable herd densities within the Dafeng Milu NNR. Nonetheless, close monitoring will be required to track herd movements and milu deer population dynamics.³³

B. Recommendations

56. **Follow-up assistance.** The Yancheng wetlands has been enlisted on the World Heritage natural site list. As per UNESCO guidelines, the two NNRs and the Yancheng Municipal Government need to improve continuously management, monitoring, and preservation of these wetlands to maintain the site's value and benefits as justified. As the only development partner that has supported significant financing to protect this important heritage site, ADB should continue support the government efforts to manage the heritage site in compliance with UNESCO standards. Future ADB assistance can focus on developing institutional capacity, improving monitoring systems, and promoting international collaboration—for instance, by setting up a knowledge hub with organizations such as the Convention on Biological Diversity Secretariat, the Ramsar Convention on Wetlands, IUCN, WWF, and the East Asian–Australasian Flyway Partnership.

57. **Following monitoring.** The project supported the formulation of OMPs for the two NNRs, which have been adopted since 2018 (paras. 14, 38, and 40). The OMPs will require dynamic updating to comply with the national wetland regulations, a legislation under review and expected to be passed by the central legislator in 2021. In addition, NNR managers and local officials should be trained continuously on implementing the OMPs. Following monitoring is needed to assess the implementation effectiveness of the OMPs. The project piloted certain engineering methods for invasive species control, e.g., cutting spartina first and then inundating vegetation by pumping in water (footnote 13). It is too early to verify the effectiveness of many of these measures. Continuous monitoring is needed to assess the long-term effectiveness of the measures for invasive spartina control.

58. **Timing of the project performance evaluation report.** It is recommended that the ADB Independent Evaluation Department conduct a project performance evaluation in 2022. By that time, the methods applied for wetlands restoration and rehabilitation under the project, including engineering interventions and vegetative measures, will have functioned for 5 years. This time frame will allow for a comprehensive evaluation of the operations of the two NNRs and the two forest farms.

³² The total area is about 20,000 ha and it can accommodate up to 10,000 heads of milu deer, in theory.

³³ Milu deer is currently classified level-1 protected species and under current PRC conservation laws culling is prohibited. Until such time that the Milu deer population is under level-1 protection, the population maybe controlled by sending the excess population to zoos or releasing it to wilderness that have been traditionally the Milu deer range.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and/or Indicators	Achievements
Impact Improved ecosystem health and services in the coastal wetlands of Yancheng.	2012 as baseline: Wintering red-crowned crane population in the YRBNNR maintained above the critical level of 600 by 2020 Annual mortality rate of milu deer reduced from 4% to 2% by 2020	Wintering red-crowned cranes in YRBNNR was 486 during the 2017 to 2018 wintering season. In addition, YRBNNR breeds 128 birds Annual mortality rate of young milu deer was 1.9% in 2018
Outcome Increased capacity to manage and protect wetland ecosystems in Yancheng and improved livelihoods for local people	Annual degradation of the project intervention area in the YRBNNR in 2010 at 2.48%, halted by 2017 Annual degradation of the project intervention area in the DMNNR in 2010 at 5%, halted by 2017 2,000 person-years of direct and indirect employment created by 2017	Degradation of the project intervention area in the YRBNNR halted from 2018 Degradation of the project intervention area in the DMNNR halted from 2018 Direct and indirect employment reached 2,903 persons in 2018
Outputs Output 1: Wetlands protection at the YRBNNR	By 2017: 540 ha of wetland in the experimental zone restored 1,630 ha of dehydrated wetlands in the core zone rehydrated 1,435 ha of fishponds converted to wetlands Control of <i>Spartina alterniflora</i> piloted on 400 ha 38.1 km of patrol roads and stations improved Wetland and biodiversity research and monitoring capacity strengthened	By 2018: 540 ha of wetland were restored in the experimental zone through landscape regulation, habitats creation, and revegetation. 1,630 ha of dehydrated wetlands in the core zone were rehydrated through water regulating controlled by pumps. 1,435 ha of fishponds were converted to natural ebb-flow wetlands. <i>Spartina alterniflora</i> control were piloted using engineering measures (i.e. cutting and then inundating for up to 6 months) on 207 ha. 40 km of patrol roads and 4 stations were improved and equipped with adequate facilities. A laboratory for wetland and biodiversity research was established and equipped with adequate experiment and testing instruments. 204 surveillance sites including 24 for bird observation were established. 10 bird watching houses were built up.

Design Summary	Performance Targets and/or Indicators	Achievements
	Public education and community co-development capacity strengthened	A community center and a wetland museum for public education were built with adequate facilities.
Output 2: Wetlands protection at the DMNNR	<p>By 2017:</p> <p>24.7 ha of drinking water ponds created</p> <p>45 ha of grazing and resting ground established</p> <p>50 ha of rotational closure of grazing ground implemented</p> <p>220 ha of fodder ground established</p> <p>Tick control implemented on 426.4 ha of Milu habitat</p> <p>24 km of steel biological fences erected or rehabilitated</p> <p>Milu deer habitat surveillance system established</p> <p>Science education center expanded</p> <p>30% or more of jobs in project implementation provided to women</p>	<p>Up to 2018:</p> <p>Over 25 ha of drinking water ponds were created.</p> <p>45 ha of grazing and resting ground were established.</p> <p>Rotational closure was implemented on 119.5 ha of grazing ground.</p> <p>242 ha of fodder ground established.</p> <p>Tick control was implemented on 430 ha of Milu habitat.</p> <p>26.9 km of steel biological fences were erected.</p> <p>A surveillance system for Milu deer habitat was established, covering 30 spots in enclosure area and 13 spots in wilding ground.</p> <p>A science education center was established and also presents the information related to the UNESCO's World Nature Heritage.</p> <p>44% of jobs in project implementation were provided to women.</p>
GEF-supported for Output 1 and 2: Improved management of the two NNRs including financial sustainability and monitoring system	<p>Operational management plans for PAs developed in consideration of the ecological water allocation requirements of the PAs by 2017</p> <p>Training-of-trainers programs on natural resource management and sustainable livelihoods designed and delivered for 20 public education and collaborative management officers by 2017.</p> <p>Innovative financing mechanisms for nature reserve conservation and management piloted by 2014.</p>	<p>Operational management plans were developed for the 2 NNRs and have been functioning since 2018, which include adequate considerations of ecological water allocation. The conservation management plan was also prepared for each of the two forest farms.</p> <p>By 2018, the training-of-trainers program trained over 50 staff from the 2 NNRs under the project and the other NNR of the province, of which 12 people were trained as trainers. Two workshops and two national study tours were organized.</p> <p>According to the government policies for NNR adopted since 2010, majority of financing is budgeted and provided by the government. Small business such as home-stay ecotourism and ecolabelling</p>

Design Summary	Performance Targets and/or Indicators	Achievements
	<p>A sustainable tourism strategy for both NNRs developed and implemented by 2015.</p> <p>Private sector participation and public-private partnership strategies and programs developed for both NNRs and pilot tested by 2016</p> <p>40 Staff of NNRs trained in sustainable financing for PAs and 100 staff of the two NNRs trained on sustainable tourism by 2016</p> <p>Gap filling assessments of ecosystem services and biodiversity completed by 2013</p> <p>Ecological monitoring system established with agreed aims, institutional arrangements and required financing for implementation by 2016</p> <p>Targeted monitoring programs established and sufficiently financed (e.g. wild-release of Milu)</p>	<p>agriproducts were promoted by local communities</p> <p>An ecotourism strategy was developed for the two NNRs in 2017 and has been implemented since then. A tourism plan was also introduced for the two forest farms in 2017</p> <p>Ecotourism plans were developed for the two NNRs and two forest farms, which involve local households and small companies to run the business</p> <p>Staff of the NNRs received training on financing for PAs and sustainable tourism were over 50 and 100, respectively by 2018</p> <p>The gap filling assessment of ecosystem services and biodiversity conservation was done by the consultant in 2017</p> <p>A comprehensive ecological monitoring system was developed in 2017, covering the two NNRs. Its operation and maintenance are integrated with the NNR regular management</p> <p>Monitoring for wild-release of Milu and Spartina control effectiveness are already in place since 2017</p>
Output 3: Coastal forest improvement at the YFF	<p>By 2017:</p> <p>185 ha of forest bird habitat rehabilitated</p> <p>285.2 ha of plant nurseries established</p> <p>83.5 ha of agroforestry demonstration area established</p> <p>51.4 km of drainage canals rehabilitated</p> <p>Forest fire early warning and response system established</p> <p>Integrated pest management system established</p>	<p>Up to 2018:</p> <p>185 ha of forest were rehabilitated for bird habitats, including 105.7 ha reforestation</p> <p>302 ha of plant nurseries were established</p> <p>Agroforestry demonstration about 300 ha was developed</p> <p>53.8 km of drainage canals were rehabilitated</p> <p>Forest fire early warning and response system were established, including 52 km of fire-fighting access roads, 4 watching towers, 16 check points, and fire engine</p> <p>Integrated pest management system was established, including 200 pest capturing lamps and 5 monitoring sites.</p>

Design Summary	Performance Targets and/or Indicators	Achievements
	50% or more of eco-agriculture farming skills trainees are women	Eco-agriculture farming training were provided to participants of 230 person-times cumulative, of which 152 person-times were women (66%).
Output 4: Coastal forest improvement at the DFF	<p>By 2017:</p> <p>860 ha of coastal wetland protection forest improved and tended</p> <p>122.7 ha of coastal wetlands rehabilitated^a</p> <p>174 km of drainage canals improved</p> <p>Fire prevention and response system established</p> <p>Integrated pest management system established</p> <p>50% or more of eco-fish farming skills trainees are women</p>	<p>By 2018:</p> <p>870 ha of coastal wetland protection forest were improved through plantation of about 132,000 trees.</p> <p>Not implemented.</p> <p>174 km of drainage canals were dredged</p> <p>Fire prevention and response system was established, including 20.9 km of fire-fighting access roads, 7 check points and 1 watching tower</p> <p>Integrated pest management system was established, including 130 pest capturing lamps and a high-range sprayer</p> <p>The eco-fish farming trainings with the cumulative participants of 40 person-times have been provided, of which 24 person times were women</p>
GEF-supported for Output 3 and 4: Enhanced livelihood opportunities for communities in the buffer and experimental zones of the NNRs through piloting of schemes of PES	<p>By 2017:</p> <p>Buffer zone management guidelines developed, and implementation linked to PES schemes</p> <p>Implementation of a 'community-based' fund for supporting the relevant pilot PES schemes initiated</p> <p>Special training program on PA- and ecotourism-related income generation opportunities designed and implemented for 150 low-income, women-headed households (lowest 10% income brackets)</p> <p>Community training programs on PA- & biodiversity-friendly practices and guidelines initiated</p>	<p>A management plan was prepared for each of the two forest farms, which includes PES elements</p> <p>The PES funds are provided by the local government aiming to compensate losses in farmers' agricultural production caused by protected birds and animals^b</p> <p>Training on ecotourism and conservation was conducted through community participation programs involving over 200 low-income households.</p> <p>Training on ecotourism and conservation was conducted through community participation programs</p>
Output 5: Project management and capacity development	<p>PMOs established and operational by 2011, including at least 30% representation by women</p> <p>PMOs and PIUs strengthened by</p>	<p>PMOs established in 2011 and being operational up to the completion, including 73% representation by women</p>

Design Summary	Performance Targets and/or Indicators	Achievements
GEF-supported for Output 5:	2017	PMOs and PIUs strengthened through provisions of trainings by the project completion
	Eco-compensation study completed and approved by 2013	Eco-compensation study completed and approved by 2018
	100 people trained by 2013, at least 30% of women	418 person-times trained by 2018, 46% of them women
	500 person-years of construction jobs directly created	Cumulative 580 person-years of construction jobs directly created during the project implementation
	150 operational jobs directly created	162 operational jobs directly created
	50% of off-farm opportunities created by the project taken up by women or other vulnerable groups	49% of off-farm opportunities created by the project taken up by women or other vulnerable groups
	Wetland and biodiversity management recommendations mainstreamed into relevant local development plans by 2016.	Wetland and biodiversity conservation are included in Yancheng 13th Five-Year Plan for Ecological and Environmental Protection, 2016-2020.
	Coordination mechanisms with key stakeholders (including government agencies, NGOs, private sector, academia, etc.) established by 2013	Stakeholder coordination mechanisms are already in place since 2015 for the NNRs.
	PES policies and operational guidelines developed and introduced for the 2 NNRs by 2016	The study on operationalizing PES was conducted, from which recommendations were presented to the 2 NNRs.
	Communication, Education and Public Awareness Strategy and Action Plan developed, and implemented	Programs for public education and communication were developed and implemented effectively in the 2 NNRs.

DFF = Dafeng Forest Farm; DMNNR = Dafeng Milu National Nature Reserve; ha = hectare; GEF = Global Environment Facility; km = kilometer; NGO = nongovernment organization; NNR = National Nature Reserve; PA = protected area; PES = pay for ecosystem services; PIU = project implementation unit; PMO = project management office UNESCO = United Nations Educational, Scientific, Cultural Organization; YFF = Yancheng Forest Farm; YRBNNR = Yancheng Rare Birds National Nature Reserve,

^a The planned intervention was to build a pump station to regulate water for wetland restoration. The pump station was cancelled with the scope change approved in February 2015 due to conflicts of its location with a government development plan. Nonetheless, the designated function of the wetlands was not affected, which is a natural habitat for milu deer about 300-400 heads in the wild condition.

^b Jiangsu Provincial Government. 2013. *Provisional Arrangements for Transferred Payments for Eco-compensation in Jiangsu Province*. Nanjing.

Sources: Asian Development Bank, Consultant's Reports, and Project Completion Report by the Executing Agency.

PROJECT COST AND FINANCING

Table A2.1: Project Cost at Appraisal and Actual
(\$ million)

Item	Appraisal Estimate				Actual			
	ADB	GEF	Gov't	Total Cost	ADB	GEF	Gov't	Total Cost
I. Investment Costs								
A. Civil Works								
1. Wetlands protection at YRBNNR	19.1	0.0	17.8	36.9	12.5	0.0	14.5	27.0
2. Wetlands protection at DMNNR	0.5	0.0	2.1	2.6	0.9	0.0	2.0	2.9
3. Coastal forest improvement at YFF	6.9	0.0	2.7	9.6	5.7	0.0	2.8	8.5
4. Coastal forest improvement at DFF	3.5	0.0	1.4	4.9	1.9	0.0	0.3	2.2
Subtotal (A)	30.0	0.0	24.0	54.0	21.0	0.0	19.6	40.6
B. Goods								
1. Wetlands protection at YRBNNR	3.6	0.0	1.5	5.1	2.6	0.0	1.2	3.8
2. Wetlands protection at DMNNR	2.5	0.0	0.1	2.6	1.6	0.0	0.2	1.8
3. Coastal forest improvement at YFF	0.0	0.0	0.5	0.5	0.0	0.0	0.6	0.6
4. Coastal forest improvement at DFF	0.3	0.0	0.2	0.5	0.3	0.0	0.0	0.3
5. Provincial Project Management Office	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1
Subtotal (B)	6.4	0.1	2.2	8.7	4.5	0.1	2.0	6.6
C. Resettlement								
1. Wetlands protection at YRBNNR	0.0	0.0	0.2	0.2	0.0	0.0	0.1	0.1
2. Wetlands protection at DMNNR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. Coastal forest improvement at YFF	0.0	0.0	0.1	0.1	0.0	0.0	1.5	1.5
4. Coastal forest improvement at DFF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal (C)	0.0	0.0	0.3	0.3	0.0	0.0	1.5	1.5
D. Project Management								
1. Wetlands protection at YRBNNR	0.0	0.0	3.7	3.7	0.0	0.0	1.8	1.8
2. Wetlands protection at DMNNR	0.0	0.0	0.5	0.5	0.0	0.0	0.4	0.4
3. Coastal forest improvement at YFF	0.0	0.0	0.9	0.9	0.0	0.0	0.5	0.5
4. Coastal forest improvement at DFF	0.0	0.0	0.5	0.5	0.0	0.0	0.2	0.2
5. Provincial Project Management Office	0.0	1.0	0.0	1.0	0.0	0.4	0.6	1.0
Subtotal (D)	0.0	1.0	5.5	6.5	0.0	0.4	3.5	3.9
E. Consulting Services								
1. Wetlands protection at YRBNNR	0.3	0.0	0.0	0.3	0.2	0.0	0.0	0.2
2. Wetlands protection at DMNNR	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0
3. Coastal forest improvement at YFF	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0
4. Coastal forest improvement at DFF	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0
5. Provincial Project Management Office	0.0	1.2	0.0	1.2	0.0	1.0	0.0	1.0
Subtotal (E)	0.6	1.2	0.0	1.7	0.3	1.0	0.0	1.2
Subtotal I (A = A+B+C+D+E)	36.9	2.3	32.0	71.2	25.8	1.4	26.7	53.9
II. Contingencies								
1. Wetlands protection at YRBNNR	0.0	0.0	4.2	4.2	0.0	0.0	0.0	0.0

Item	Appraisal Estimate				Actual			
	ADB	GEF	Gov't	Total Cost	ADB	GEF	Gov't	Total Cost
2. Wetlands protection at DMNRR	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0
3. Coastal forest improvement at YFF	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0
4. Coastal forest improvement at DFF	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0
Subtotal II	0.0	0.0	6.2	6.2	0.0	0.0	0.0	0.0
III. Financing Charges during Implementation								
1. Wetlands protection at YRBNNR	0.0	0.0	0.9	0.9	0.0	0.0	2.5	2.5
2. Wetlands protection at DMNRR	0.0	0.0	0.1	0.1	0.0	0.0	0.3	0.3
3. Coastal forest improvement at YFF	0.0	0.0	0.1	0.1	0.0	0.0	0.7	0.7
4. Coastal forest improvement at DFF	0.0	0.0	0.2	0.2	0.0	0.0	0.3	0.3
Subtotal (III)	0.0	0.0	1.3	1.3	0.0	0.0	3.8	3.8
Total (I+II+III)	36.9	2.3	39.5	78.7	25.8	1.4	30.5	57.7

ADB = Asian Development Bank, GEF = Global Environment Facility, DFF = Dafeng Forest Farm, DMNRR = Dafeng Milu National Nature Reserve, YFF = Yancheng Forest Farm

^a Numbers may not sum precisely because of rounding.

^b Exchange rate used at appraisal is: \$1.00 = CNY6.3519, exchange rate used at completion is: \$1.00 = CNY6.8792.

Sources: Asian Development Bank and Jiangsu Provincial Project Management Office.

Table A2.2: Project Cost at Appraisal by Outputs
(\$ million)

Item	Total (F)	YRBNNR		DMNNR		YFF		DFF		PPMO	
		Amount (A)	% (A/F)	Amount (B)	% (B/F)	Amount (C)	% (C/F)	Amount (D)	% (D/F)	Amount (E)	% (E/F)
I. Investment Costs											
A. Civil Works	53.95	36.85	68.3	2.56	4.7	9.61	17.8	4.93	9.1	0.00	0.0
B. Goods	8.69	5.05	58.1	2.55	29.3	0.49	5.6	0.50	5.8	0.10	1.1
C. Resettlement	0.28	0.17	60.7	0.00	0.0	0.11	39.3	0.00	0.0	0.00	0.0
D. Project Management	6.47	3.68	56.9	0.45	7.0	0.89	13.8	0.48	7.4	0.97	15.0
E. Consulting Services	1.73	0.34	19.6	0.05	2.9	0.10	5.8	0.06	3.5	1.18	68.3
Subtotal (I)	71.22	46.09	64.7	5.61	7.9	11.20	15.7	5.97	8.4	2.25	3.2
II. Contingencies	6.19	4.15	67.0	0.50	8.1	1.00	16.2	0.54	8.7	0.00	0.0
III. Financial Charges	1.32	0.90	68.2	0.12	9.1	0.11	8.3	0.19	14.4	0.00	0.0
Total Project Cost (I+II+III)	78.73	51.14	65.0	6.23	7.9	12.31	15.6	6.70	8.5	2.25	2.9

ADB = Asian Development Bank, DFF = Dafeng Forest Farm, DMNNR = Dafeng Milu National Nature Reserve, PPMO = provincial project management office, YFF = Yancheng Forest Farm.

Sources: Asian Development Bank and Jiangsu Provincial Project Management Office.

Table A2.3: Project Cost at Completion by Outputs
(\$ million)

Item	Total ^a (F)	YRBNNR		DMNNR		YFF		DFF		PPMO	
		Amount ^b (A)	% (A/F)	Amount ^b (B)	% (B/F)	Amount ^b (C)	% (C/F)	Amount ^b (D)	% (D/F)	Amount ^b (E)	% (E/F)
I. Investment Costs											
A. Civil Works	40.64	27.05	66.5	2.94	7.2	8.46	20.8	2.19	5.4	0.00	0.0
B. Goods	6.60	3.77	57.1	1.85	27.9	0.59	9.0	0.30	4.5	0.10	1.5
C. Resettlement	1.55	0.06	3.7	0.00	0.0	1.49	96.3	0.00	0.0	0.00	0.0
D. Project Management	3.87	1.82	47.1	0.38	9.7	0.49	12.7	0.18	4.6	1.00	25.9
E. Consulting Services	1.23	0.16	12.8	0.02	1.7	0.05	3.9	0.03	2.2	0.98	79.4
Subtotal (I)	53.89	32.86	61.0	5.18	9.6	11.08	20.6	2.69	5.0	2.07	3.8
II. Contingencies	0.00	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
III. Financial Charges	3.80	2.52	66.3	0.28	7.4	0.70	18.4	0.30	7.9	0.00	0.0
Total Project Cost (I+II+III)	57.69	35.38	61.3	5.46	9.5	11.78	20.4	2.99	5.2	2.07	3.6

ADB = Asian Development Bank, DFF = Dafeng Forest Farm, DMNNR = Dafeng Milu National Nature Reserve, PPMO = provincial project management office, YFF = Yancheng Forest Farm

^a Numbers may not sum precisely because of rounding.

^b Exchange rate used at appraisal is: \$1.00 = CNY6.3519, exchange rate used at completion is: \$1.00 = CNY6.8792.

Sources: Asian Development Bank and Jiangsu Provincial Project Management Office.

DISBURSEMENT OF ADB LOAN AND GRANT PROCEEDS

Table A3.1: Annual and Cumulative Disbursement of ADB Loan Proceeds^a
(\$ million)

Year	Annual Disbursement ^b		Cumulative Disbursement	
	Amount (\$ million)	% of Total	Amount (\$ million)	% of Total
2012	0.0	0.0	0.0	0.0
2013	2.0	7.8	2.0	7.8
2014	3.4	13.0	5.4	20.8
2015	3.9	15.0	9.2	35.8
2016	8.1	31.5	17.3	67.2
2017	5.1	19.8	22.4	87.0
2018	3.4	13.0	25.8	100.0
Total	25.8	100.0	25.8	100.0

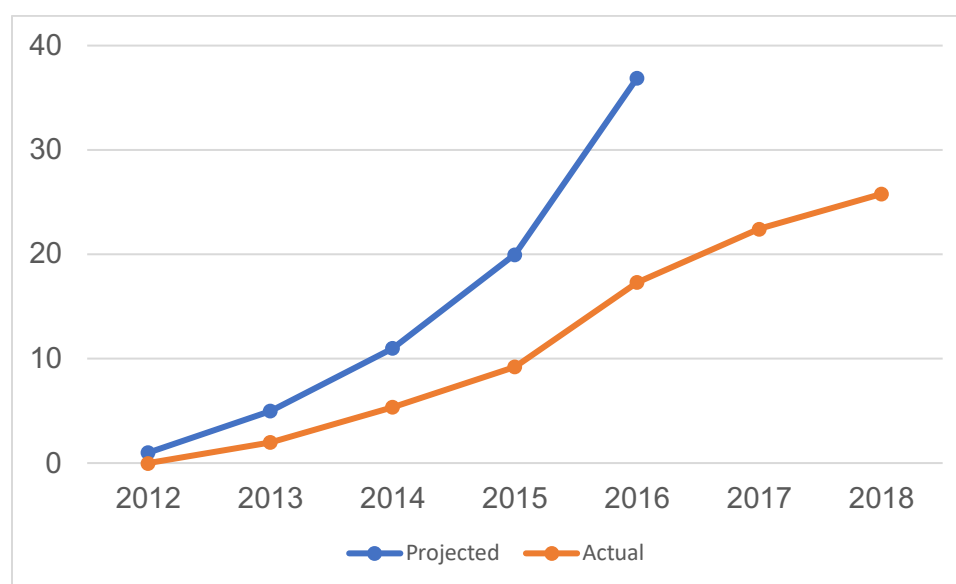
ADB = Asian Development Bank

^a Numbers may not sum precisely because of rounding.

^b Includes disbursements to advance accounts.

Sources: Asian Development Bank loan financial information system and eOperations.

Figure A3.1: Projection and Cumulative Disbursement of ADB Loan Proceeds
(\$ million)



ADB = Asian Development Bank

Table A3.2: Annual and Cumulative Disbursement of GEF Grant Proceeds ^a
(\$ million)

Year	Annual Disbursement ^b		Cumulative Disbursement	
	Amount (\$ million)	% of Total	Amount (\$ million)	% of Total
2012	0.0	0.0	0.0	0.0
2013	0.0	0.0	0.0	0.0
2014	0.1	9.7	0.1	9.7
2015	0.0	0.0	0.1	9.7
2016	0.0	0.0	0.1	9.7
2017	0.7	45.6	0.8	55.3
2018	0.6	44.7	1.4	100.0
Total	1.4	100.0	1.4	100.0

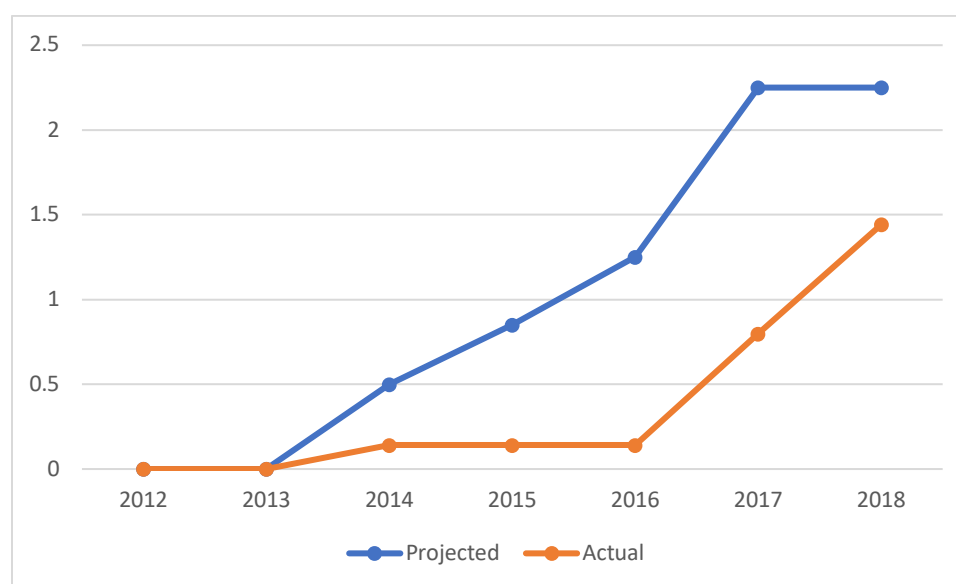
GEF = Global Environment Facility

^a Numbers may not sum precisely because of rounding.

^b Includes disbursements to advance accounts.

Sources: Asian Development Bank grant financial information system and eOperations.

Figure A3.2: Projection and Cumulative Disbursement of GEF Grant Proceeds
(\$ million)



GEF = Global Environment Facility

CHRONOLOGY OF MAIN EVENTS

Date	Milestone Event
31 July-9 August 2011	Loan Fact-finding mission fielded
12 August 2011	Concept paper approved
20 October 2011	Management review meeting held
15-16 November 2011	Loan Negotiation
25 November 2011	Board Circulation
16 December 2011	Loan approval
22 March 2012	Loan, project agreements signed
23 August 2012	Loan effectiveness
18 September 2012	Grant approval
29 November 2012	Project administration transferred to PRCM
10-14 December 2012	Inception mission fielded
29 April 2013	Initial disbursement of loan
3 May 2013	Implementation consulting service contract approved
8-13 October 2013	Loan review mission fielded
21 October 2013	First NCB goods contract awarded
31 October 2013	Grant Financing Agreement signed
18 December 2013	Grant effectiveness
15 April 2014	First NCB works contract awarded
3-7 November 2014	Loan review mission fielded
19 December 2014	Initial disbursement of grant
13 February 2015	Approval of minor change in scope and reallocation
7-11 December 2015	Loan review mission fielded
26-30 September 2016	Mid-term review mission fielded
19-23 June 2017	Special review mission fielded
21 November 2017	Approval of loan/grant extension by 13 months
1 June 2018	Loan partial cancellation by \$7mn
29 October-2 November 2018	Loan review mission fielded
4 December 2018	Final disbursement of grant
24 June 2019	Final disbursement of loan
29 July 2019	Actual closing date of loan/grant account and partial cancellation of loan/grant proceeds
11-15 November 2019	Project completion review mission fielded

NCB = national competitive bidding, PRCM = ADB Resident Mission in the People's Republic of China

Sources: Asian Development Bank and Jiangsu Provincial Project Management Office.

CONTRACT AWARDS OF ADB LOAN AND GRANT PROCEEDS

Table A5.1: Annual and Cumulative Contract Awards of ADB Loan Proceeds
(\$ million)

Year ^a	Annual Contract Awards		Cumulative Contract Awards ^b	
	Amount	% of Total	Amount	% of Total
2012	0.0	0.0	0.0	0.0
2013	1.1	4.1	1.1	4.1
2014	11.9	46.0	12.9	50.1
2015	4.9	18.8	17.8	68.9
2016	5.9	22.9	23.7	91.8
2017	2.1	8.0	25.7	99.8
2018	0.0	0.2	25.8	100.0
Total	25.8	100.0	25.8	100.0

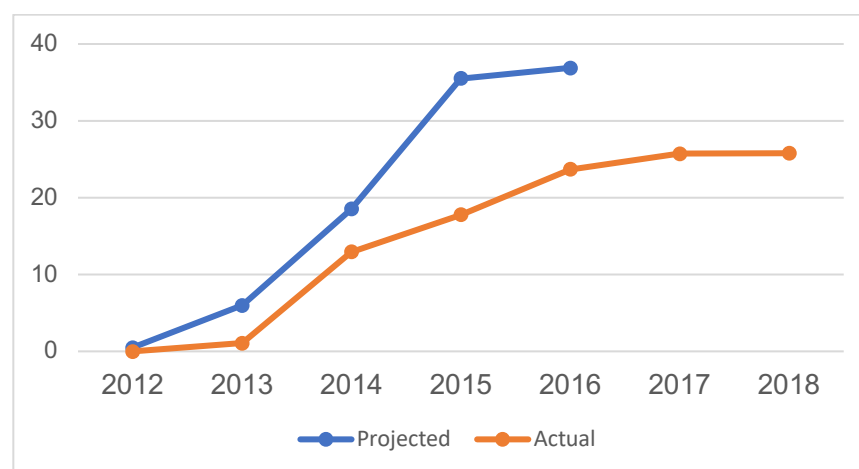
ADB = Asian Development Bank

^a Classified by procurement contract summary sheet date.

^b Numbers may not sum precisely because of rounding.

Sources: Asian Development Bank loan financial information system and eOperations.

Figure A5.1: Projection and Cumulative Contract Awards of ADB Loan Proceeds
(\$ million)



ADB = Asian Development Bank

Table A5.2: Annual and Cumulative Contract Awards of GEF Grant Proceeds^a
(\$ million)

Year	Annual Contract Awards		Cumulative Contract Awards ^b	
	Amount	% of Total	Amount	% of Total
2012	0.00	0.0	0.00	0.0
2013	0.00	0.0	0.00	0.0
2014	0.00	0.0	0.00	0.0
2015	0.00	0.0	0.00	0.0
2016	0.71	49.3	0.71	49.3
2017	0.67	46.5	1.38	95.8
2018	0.06	4.2	1.44	100.0
Total	1.44	100.0	1.44	100.0

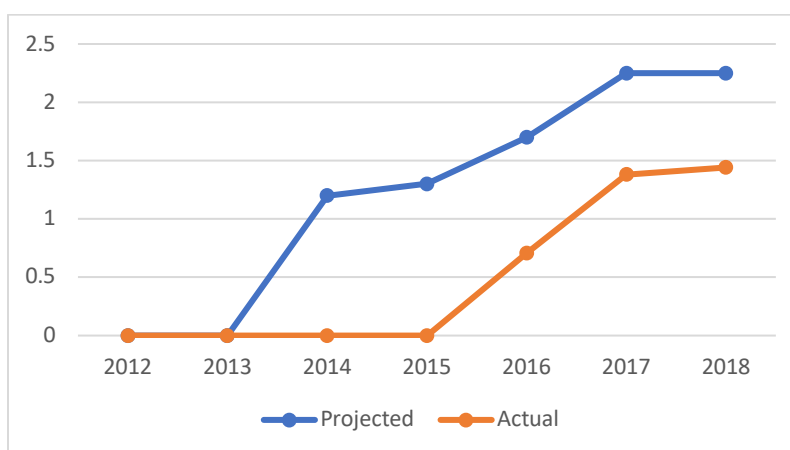
GEF = Global Environment Facility

^a Numbers may not sum precisely because of rounding.

^b Classified by procurement contract summary sheet. date.

Sources: Asian Development Bank grant financial information system and eOperations.

Figure 5.2: Projection and Cumulative Contract Awards of GEF Grant Proceeds
(\$ million)



GEF = Global Environment Facility

IMPLEMENTATION OF GENDER ACTION PLAN

A. Introduction

1. The project benefited directly 1.1 million people who live within the project areas. Other main social objectives achieved through the project are increased employment opportunities, particularly for women and improved capacity of biodiversity conservation and management of wetland ecosystem.

B. Project Gender Features and Achievements

2. The following were identified in the poverty and social assessment conducted during the project preparatory phase in terms of women's status:

- (i) Women are engaged with men in farming;
- (ii) Women are the major educators of ecological conservation and environmental protection in their communities and households;
- (iii) Women are keen to be engaged in the service industry of ecotourism; and
- (iv) Women will benefit from increased employment, training, and income opportunities, as well as their agricultural productivity.

3. The project gender classification was effective gender mainstreaming for gender equality. A gender action plan (GAP) was prepared to maximize gender benefits including (i) prioritizing women's employment, (ii) promoting the effective inclusion of women in all project activities; particularly women's participation in off-farm skills development, and (iii) monitoring gender targets and implementation. Adequate human resources were allocated for GAP implementation and monitoring. The provincial project management office (PPMO) in conjunction with district PMOs was responsible for the overall GAP implementation. The PPMOs were supported by the Asian Development Bank (ADB) and the social consultant with technical and monitoring support. The monitoring results showed that the project gained positive impacts on women including (i) increased employment opportunities and income generated by the project, (ii) increased awareness and knowledge on ecological conservation and environmental protection in their communities and households, and (iii) improved urban-rural environment and quality of life.

4. The provincial and district PMOs had made efforts to ensure that (i) contractors provided job opportunities respecting core labor standards, (ii) safety of workers and the public were in line with national regulations in a gender-balanced manner, (iii) awareness raising for both workers and the public on HIV/AIDS and communicable disease risks was implemented by local center for communicable disease (CDC), and (iv) women's employment and training opportunities were prioritized. The project created a total of 2,903 (person-years) off-farm labor opportunities for surrounding communities both at project construction and operation, including 1,409 (49%) jobs for women. Of the 1,896 person-years of employment opportunities created during project construction, 889 (47%) went to women. Of the 1,007 employment opportunities created during operation, 520 (52%) were taken by women. Off-farm skills development training were also conducted to the beneficiaries of the project, including 70 (50%) female participants out of 140. 163 (65%) women out of 250 participated in eco-agricultural skill training; and 24 (60%) women out of 40 participated in eco-fish farming skills training. Women were encouraged to participate in the project through community meetings and consultation meetings to understand their opportunities for jobs and skills development. These trainings have strengthened public education of biodiversity conservations and community development capacity by encouraging local farmers to adopt wetland-friendly farming practices.

5. In order to promote and facilitate women's consultation and participation in the project, 11 (73%) female staffs out of 15 were assigned in the PMOs from Jiangsu province to Yancheng city and down to two project districts. Thirteen (32%) female officials/facilitators out of 41 were trained in the management. 192 (46%) female staffs/officials out of 418 from PMOs and project implementing agencies (PIAs) participated in the training on agroforestry technology, forest nurturing, wetland and environmental management, ecological and biodiversity conservation, project management, coastal wetland and bird protection organized by provincial and local agencies with the consultant assistance. Women and men benefited equitably from capacity building activities. The project provided equal opportunities for men and women for capacity development.

6. The project was successful in achieving the gender actions. As shown in the GAP implementation achievements matrix, all activities (100%) were implemented and completed, with 24 (96%) quantitative targets fully achieved. Women's employment rate (55%) was not achieved to meet the target of 60% under Yancheng Forest Farm. Women in this project area were reported to have other better job opportunities in the cities and other livelihood options as migrant workers. As per the project design and monitoring framework, achievements related to the gender performance include: (i) 44% jobs (173 out of 394) were provided to women during project implementation under output 2 which exceeded the target of 30%, (ii) 66% women (152 out of 230) participated in eco-agricultural skills training under output 3 which exceeded the target of 50%, (iii) 60% (24 out of 40) of eco-fish farming skills trainees were women under output 4 (target 50%), (iv) PMOs' female staff representation achieved 73% (target 30%) under output 5, (v) 46% women (192 out of 418) were trained in eco-compensation (target 30%), and (vi) 49% off-farm job opportunities were taken by women (target 50%). The GAP implementation contributed to the project outcome attainment. Details of the GAP achievements are presented in Table A6.1.

7. The strategic benefits for women achieved are the longer-term benefits and livelihood security. Over 520 women continue to be engaged in project related jobs in the project areas. They have expanded their work with other institutions in seedling nursery, planting and landscape plants cultivation with the skills and experiences learned through the project, which helped achieve larger social benefits in terms of sustainable livelihood and increased economic empowerment beyond project implementation. Women have reported that these opportunities have not only increased their income but also their own sense of empowerment, self-determination, and self-esteem.

C. Lessons and Experiences

8. The project internal data collection system should be developed as early as the start project. In light of the new criteria used for the gender rating at project completion, and GAP indicators link with OP2 (accelerating progress in gender equality) indicator and report achievement, designing and identification of specific and clear GAP indicators/targets, particularly those that link to OP2 are deemed necessary to respond to and meet the above-mentioned requirements, and also to guide the executing and implementing agencies and relevant entities to successfully implement GAP and achieve project gender results. From the early stage of the project implementation, the PMOs and PIAs were trained on gender equality and required to implement the GAP as part of project implementation. The PIAs included gender-related articles in their bidding documents and required the contractors to facilitate women's equal participation in the project activities and monitor the gender targets. Joint efforts were made by the local government agencies and PMOs which created an enabling environment for women's participation and employment through publicity, propaganda, and facilitation. Priorities in employment, training and educational opportunity were provided to women to enhance their off-

farm skills and promote their access to social services. The project contributed to women's economic empowerment through employment and training opportunities. The story of the beneficiary below demonstrated women's economic empowerment under the project.

Ms. Zhongxiu YANG, as one of the project beneficiaries, shared her experiences during an interview that her life has changed dramatically because of the project. As a 59-year old farmer, Ms. Yang is living in Xin Yanggang Community next to the Yancheng Forest Farm with her husband. She used to run a small shop until her husband had a car accident and lost ability to work. Life became difficult for her and her family since then. In 2013, she learned about the project through public consultation and participated in the off-farm training which later offered her a job to plant trees in the farm. Supported by the project management office (PMO) and project implementing agency (PIA), she started mobilizing other fellows in her village to participate in seedling planting under the project since 2014. As a result of increased income, her experiences encouraged more women to join her team which later reached 20 people including 70% women and poor. In 2018, her annual income reached CNY40,000 which was 166% of increase prior to the project in 2013. Ms. Yang said that she started the work simply hoping to help her family, but later it turned out that she benefited more through the entire project process to become more confident and empowered. Her performance was highly appreciated by the PIA and her fellows. She was encouraged by the PMO to continue working with her team on project maintenance. Meanwhile, getting access to market and other resources through the project, her team receives more job opportunities and currently they have engaged in seedling nursery and planting for other institutions thanks to the skills and experiences developed during implementation. Ms. YANG appreciated the opportunity to participate as equals in the project and she is proud of her achievements as the first woman in her village to lead a group of people for paving the way to women's empowerment, which made her a role model in her community.

Table A6.1: Gender Action Plan Achievements

Gender Equality	Outputs/Activities	Targets	Achievements
Output 1: Wetlands Protection at the Yancheng Rare Birds National Nature Reserve			
Employment	Employment equally accessible to women and men	<ul style="list-style-type: none"> • QT1: 30% or more of employment opportunities in project implementation for women • QT2: 50% or more of employment opportunities in project operations for women 	<ul style="list-style-type: none"> • The project created 560 jobs for local farmers during project implementation, of which 170 were for women (30%). Women took unskilled construction laborer jobs (part-time) including brick carrier, gravel carrier, mortar, maintenance, cleaning and cooking etc. • 60 jobs were provided to local people during project operation, of which 33 (55%) were taken by women in both skilled and unskilled jobs as cashier, tour guide, office administrator, gardener and sanitation worker etc.
Capacity and skills development	<p>Women will have equal access to training.</p> <p>Participation of women in curricula design</p>	<ul style="list-style-type: none"> • QT3: 30% or more of management training opportunities will be provided to women. • QT4: 50% or more of skills training opportunities will be provided to women. • QT5: At least 2/3 of the training will be selected on sites and times suitable for women, and the women will be involved in content design. 	<ul style="list-style-type: none"> • 12 people participated in management training including 4 (33%) women who worked in office management, external coordination and financial controller. The training increased their capacity in career development. • 110 people participated in skills development training including 54 (49%) women in landscape plants cultivation and eco-tourism. • 4 training sessions were organized in total. All training sites were selected on sites and times suitable for women, which was proved by the high number of participants.
Ecological compensation	Women access financial compensation and training programs.	<ul style="list-style-type: none"> • QT6: 50% or more of eco-agriculture skills training opportunities will be provided to women. • QT7: 40% or more of employment transferring skills training opportunities will be provided to women. 	<ul style="list-style-type: none"> • 20 people participated in eco-agriculture skills development training, including 11 women (55%) from surrounding villages. • 8 people including 7 women (88%) participated in employment transferring skills training. YRBNNR provided technical training in tree pruning, watering and planting to these 8 people from surrounding villages.
Output 2: Wetlands Protection at the Dafeng Milu National Nature Reserve			
Employment	Employment opportunities equally accessible to women and men	<ul style="list-style-type: none"> • QT8: 30% or more of employment opportunities in project implementation for women • QT9: 50% or more of employment opportunities in project operations for women 	<ul style="list-style-type: none"> • 394 jobs were created during project implementation, 173 (44%) for women. Women took unskilled laborer jobs(part-time) including tree planting, maintenance, cleaning and cooking etc. • 40 Jobs were created during project operations, of which, 21 (53%) were provided to women who worked in skilled and unskilled jobs as cashier, tour guide, office administrator,

Gender Equality	Outputs/Activities	Targets	Achievements
			sanitation worker etc.
Capacity and skills development	Women will have equal access to training. Participation of women in curricula design	<ul style="list-style-type: none"> • QT10: 30% or more of management training opportunities will be provided to women. • QT11: 50% or more of skills training opportunities will be provided to women. • QT12: At least 2/3 of the training will be selected on sites and time suitable for women, and the women will be involved in content design. 	<ul style="list-style-type: none"> • 10 people including 3 women (30%) participated in management training who worked in office management, external coordination and financial controller. The training increased their capacity in career development. • 4 skills trainings were conducted, with 30 participants including 16 women (53%) in agroforestry farming and eco-tourism. • All skill trainings were selected on site, and the time were suitable for women which was proved by the high number of participants. Women were consulted in the content design.
Output 3: Coastal Forest Improvement at the Yancheng Forest Farm			
Employment	Employment opportunities equally accessible to women/men	<ul style="list-style-type: none"> • QT13: 60% or more of employment opportunities in project implementation for women • QT14: 50% or more of employment opportunities in project operations for women 	<ul style="list-style-type: none"> • During the project implementation, 492 jobs were created of which, 271 (55%) were taken by women. Women worked on part time jobs such as nursery garden construction, digging channels. • 407 jobs were created during project operation, 216 (53%) were provided to women including forest ranger, tree grower, laboratory technician, and tour guide.
Capacity and skills development	Women will have equal access to training. Participation of women in curricula design	<ul style="list-style-type: none"> • QT15: 30% or more of management training opportunities will be provided to women. • QT16: 50% or more of eco-fish farming skills training opportunities will be provided to women. • QT17: At least 2/3 of the training will be selected on sites and time suitable for women. The women will be involved in content design. 	<ul style="list-style-type: none"> • 9 people including 3 women (33%) participated in management training who worked in office management and financial control. The training increased their capacity in career development. • 230 people including 152 (66%) women participated in eco-agricultural skill trainings including agroforestry farming and aquaculture and forest conservation. • All trainings were on-site trainings and time suitable for women which was proved by the high number of participants, and women involved in content design.
Output 4: Coastal Forest Improvement at the Dafeng Forest Farm			
Employment	Employment opportunities equally accessible to women and men	<ul style="list-style-type: none"> • QT18: 60% or more of employment opportunities in project implementation for women. • QT19: 50% or more of employment 	<ul style="list-style-type: none"> • 450 employment opportunities were provided to local farmers, of which 275 (61%) were women. Women worked on part time jobs such as nursery garden construction, tree planting and sanitation. • 500 jobs were created during project operation, of which, 250

Gender Equality	Outputs/Activities	Targets	Achievements
		opportunities in project operations for women	(50%) were women who worked as forest ranger, tree grower, gardener, laboratory technician, and tour guide.
Capacity and skills development	Women will have equal access to training. Participation of women in curricula design	<ul style="list-style-type: none"> • QT20: 30% or more of management training opportunities will be provided to women. • QT21: 50% or more of eco-agriculture farming skills training opportunities will be provided to women. • QT22: At least 2/3 of the training will be selected on sites and time suitable for women, and women will be involved in content design. 	<ul style="list-style-type: none"> • 10 people including 3 women (30%) participated in project management training who worked in office management and financial control. The training increased their capacity in career development. • 40 people participated in eco-fish farming training, of which 24 (60%) were women including aquaculture, pond fish farming, cage fish farming and fence farming. • All trainings were selected on sites and time suitable for women which was proved by the high number of participants. and women were involved in content design.
Output 5: Project Management and Capacity Development			
Gender awareness for project staff	Staff training includes gender awareness.	<ul style="list-style-type: none"> • Staff training curricula for all PMOs, PIOs, and other offices include capacity development for gender awareness and GAP implementation. 	<ul style="list-style-type: none"> • In the beginning of the project implementation, gender awareness and GAP implementation training were provided to all five PMOs including one provincial and four district level PMOs, four PIOs and other relevant agencies including Jiangsu Provincial Environmental Protection Department, Jiangsu Forestry Bureau, Yancheng Development and Reform Commission and Yancheng Finance Bureau. The project consultant team also conducted training on GAP implementation to project staff and contractors during the project implementation.
Ensure women's participation in project decision making	Women's economic/ and political empowerment	<ul style="list-style-type: none"> • QT23: At least 40% female officials in provincial and county PMOs • QT24: At least 30% female officials in county and/or district PMOs • QT25: At least 1 female official in other project offices 	<ul style="list-style-type: none"> • Of the 6 officials in provincial PMO, 5 (83%) were women. • Of the 9 officials in district PMOs, 5 (56%) were women. • One female official was assigned in Yancheng PMO. This institutional arrangement has demonstrated the increased capacity of the executing and implementing agencies to consult with women and men and respond to women's priorities.
Gender-balanced information disclosure and participation	Women will be informed and consulted about the project.	<ul style="list-style-type: none"> • Female beneficiaries will be informed about opportunities to access project funds, technical advice, training, and employment opportunities. • Women will be consulted to improve subproject. 	<ul style="list-style-type: none"> • Project related technical advice, training, and employment opportunities were informed to all project affected people, particularly female beneficiaries. A total of 22,431 people was consulted including 8,075 (36%) women. • Women were consulted for improvement of subproject. Around 376 women representatives who were selected

Gender Equality	Outputs/Activities	Targets	Achievements
			through village committees were consulted in terms of project improvement. It was noticed that women were more sensitive to environmental issues and they were very supportive of the subprojects which they believed would bring more social benefits including better environment and more job opportunities related to eco-tourism.

GAP = gender action plan, GEF = Global Environment Facility, M&E = monitoring and evaluation, NGO = nongovernment organization, PIO = project implementation office, PMO = project management office, QT= quantitative target,

Source: Asian Development Bank and Data Provided by Project Management Offices.

ENVIRONMENTAL ANALYSIS

A. INTRODUCTION

1. The project was classified as Category A for environment, according to Asian Development Bank's (ADB) Safeguard Policy Statement (2009). The project delivered four physical outputs: (i) Wetlands protection at the Yancheng Rare Birds National Nature Reserve (YRBNNR), (ii) Wetlands protection at the Dafeng Milu National Nature Reserve (DMNNR), (iii) Coastal forest improvement at the Yancheng Forest Farm (YFF), and (iv) Coastal forest improvement at the Dafeng Forest Farm (DFF).

Scope of Subprojects

Output	Project Activities
YRBNNR	(i) 540 ha of wetland restoration (ii) 1,630 ha of wetland rehydration (iii) 1,435 ha of fishponds conversion to natural ebb-flow wetlands (iv) 207 ha of <i>Spartina alterniflora</i> control (v) 40 km of patrol roads and 4 patrol stations (vi) A laboratory for wetland and biodiversity research (vii) Bird monitoring and observation facilities (i.e. 204 surveillance sites and 10 bird watching houses), (viii) A community center and a visitor inception building (ix) A wetland museum for public education
DMNNR	(i) Over 25 ha of drinking water ponds (ii) 45 ha of grazing and resting grounds (iii) 119.5 ha of rotational closure of grazing ground (iv) 242 ha of fodder ground (v) 26.9 km of steel closure fences (vi) A surveillance system (30 spots in enclosure area and 13 spots in wilding ground) (vii) A science education center
YFF	(i) 185 ha of forestry rehabilitation for bird habitats (ii) 302 ha of plant nurseries (iii) 300 ha of agroforestry demonstration (iv) 53.8 km of drainage canals rehabilitation (v) Forest fire early warning and response systems, including 52 km of fire-fighting access roads, 4 watching towers, 16 check points, and fire engine (vi) Integrated pest management system, including 200 pest capturing lamps and 5 monitoring sites
DFF	(i) 860 ha of afforestation (132,000 trees) (ii) 174 km of drainage canals dredging (iii) Fire prevention and response system, including 14.75 km of fire-fighting access roads, 7 check points and 1 watching tower, (iv) Integrated pest management system, including 130 pest capturing lamps and a high-range sprayer

ha = hectare, km = kilometer

Source: Environmental Completion Report by the executing agency.

2. During preparation, an environment impacts assessment (EIA) report was prepared for each of the four investment components by qualified institutes in accordance with the PRC's Law on Environmental Impact Assessment (2003). The individual EIA report was approved by Jiangsu Provincial Environment Protection Department in 2011. A consolidated EIA report was prepared for the overall project and obtained approval by Ministry of Environment Protection in October 2011. The consolidated EIA report was also reviewed by a technical expert panel and the

Wetlands International (www.wetlands.org). A consolidated environmental impact assessment report including an environmental management plan (EMP) was compiled based on domestic EIAs and disclosed on the ADB website in November 2011. The EIA concluded that the project would have limited adverse environmental and ecological impacts of noise, air and water, which would be temporary and localized mainly during construction.

3. All subprojects passed the government environment audit for completion by relevant authorities during July to October 2019.

B. ENVIRONMENTAL PROTECTION AND MANAGEMENT

4. During the project implementation, Jiangsu Provincial Management Office (JPMO) coordinated the overall environment management adequately.¹ The project implementing units (PIUs) oversaw the EMP implementation for its respective component. Two certified external monitors were engaged by PIUs and conducted environmental monitoring on sites during construction.² JPMO engaged a consultant to assist in supervising the EMP implementation and preparing environmental monitoring reports (EMRs). Totally, 10 semiannual EMRs were prepared and submitted during 2014 to 2018. Monitoring results confirmed that the EMP had been implemented effectively and complied with environmental requirements.

5. A grievance redress mechanism (GRM) was well established to prevent and address community concerns, reduce risks, and assist the project to maximize environmental and social benefits. During the project implementation, public consultation was regularly undertaken by the PIUs, contractors and the consultant to collect comments and suggestions from local communities on environmental impacts and effectiveness of the EMP. The consultant provided timely training to the JPMO, PIUs, contractors, construction supervision companies and construction workers. During initial operation (2018-2019), environmental quality monitoring was also carried out in accordance with EMP and relevant environmental standards.

C. ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

6. **Impacts and mitigation measures during construction.** The major potential impacts for the two nature reserves and the two forest farms during the construction phase included noise pollution, air pollution, water pollution, solid waste management, borrow and spoil and their possible effects on protected species and their habitats. Overall, the EMP implementation during construction was satisfactory. All civil works contracts referred to the EMP and contained provisions on occupational and community health and safety, pollution prevention and abatement and emergency preparedness. Measures were undertaken in accordance with SPS requirements for work in protected areas including compliance with the PA management plan. EMP implementation was tailored to the sensitive ecological values and habitats e.g. avoidance of critical habitat during project construction by clear site planning and demarcation of no-go zones for workers and equipment. Daily supervision of construction was carried out by the construction supervision companies and the contractors.

7. The project completion environment audit report prepared by the PIUs confirmed that (i) internal supervision commitments were fulfilled, (ii) no accidents were reported, and (iii)

¹ The office formulated and applied two checklists for project implementing units' compliance: (i) checklist for environmental management unit concerning their achievement of objective; and (ii) checklist and summary report of environmental management and monitoring plans and the implementation status".

² Two monitors were: Huainan Centre Testing International Company and Jiangsu Tianyu Testing Company.

environmental requirements specified in contracts were observed. Interviews with reports from selected external monitoring agencies, who carried out regular inspection of the project sites during construction as well as project completion environmental audits, indicated that environmental protection measures undertaken during construction were satisfactory. The mitigation measures proposed in the EMP were adopted as the local villagers were satisfied. All the environmental elements monitoring results showed compliance with all national standards respectively.

8. **Impacts and Mitigation Measures during Operation.** Potential impacts during the operation phase may include noise from the water pumps operating, wastes from buildings and/or tourists, and their possible effects on the protected species and habitats. Of special concern is accidental or unintended introduction of invasive species by tourists. Controls will be put in place to disinfect the sole of shoes, entry of plants including raw fruits and vegetables, and other sanitary and phytosanitary measures. Overall, the project's performance and compliance with the EMP during operation has been satisfactory. Noise monitoring was conducted for all facilities during trial operation by the completion environmental auditing institutes. Full compliance with the *Environmental Quality Standard for Noise (GB3096-2008)* Grade II standard was reported in the EMRs, confirming that the noise mitigation measures (including noise enclosures, underground placement of pump stations, and greenbelts) are effective. Site visits conducted during completion environmental audits confirmed that all impacts were adequately addressed. At the project level, no risks caused the residual noise level after the use of sound barrier were observed on the rare birds particularly red-crowned crane and milu.

9. **Mitigation cost.** At appraisal, the total cost of environmental protection measures was about CNY173.0 million, against to the appraisal estimation of CNY170.0 million.

D. ENVIRONMENTAL BENEFITS

10. The project improved coastal wetland ecosystem health and services that promoted biodiversity conservation, agroforestry development, eco-tourism development, and climate resilience of local communities. About 1.1 million people who live within the direct project areas and vicinities directly benefit from the project. Because the two nature reserves are of national and international importance, the project will generate national and global environmental and biodiversity benefits. Direct environmental benefits produced from the project include:

- (i) YRBNNR: 560 hectares (ha) of degraded wetland in the experimental zone restored, 1,560 ha of wetland in the core area rehydrated, 1,350 ha of fishponds restored back into wetlands.
- (ii) DMNNR: 25 ha of water surface for milu deer created, 200 ha grazing and 45 ha resting ground created, and 220 ha of forage grassland created. So far, the number of Milu population in DMNNR has grown from 39 introduced in 1986 to 5,016 to date, of which the number of wild populations has reached 1,350, making it the world's largest wild Milu population.
- (iii) YFF: 101 ha of forest bird habitat rehabilitated; 289 ha of seedling nurseries created.
- (iv) DFF: 860 ha of coastal wetland protection forest improved.

11. **Carbon sequestration and climate resilience.** The carbon sequestration benefits of the project are derived primarily from two major interventions: (i) wetland restoration; and (ii) reforestation. YRBNNR and DMNNR components involved wetland restoration interventions with a total restoration area of 1,987 ha. Reforestation was involved in three project components, DMNNR, YFF and DFF with a total area of 903 ha.

12. The Yancheng and Dafeng forest farms are an important part of the People's Republic of China's (PRC) coastal protection forest system that extends 18,340 kilometers from Liaoning province in north-eastern PRC to Guangxi in south-western PRC. According to the Plan for Construction of National Coastal Protection Forest System (2016-2025), the planned area covers 427,699 square kilometers (or 4.5% of the national land mass) and the forest cover target is 40.8% by 2025, while the same system's 2006-2015 nationally planned forest cover target was 37.4% by 2015 against actual forest cover was 38.6% in 2014.³ The objectives of the national coastal protection forest system are to improve and protect the coastal ecosystems, and increase resilience to climate and geological disasters such as storm surges and tsunamis. The forest interventions as well as the wetland interventions under the project will contribute to the above national objectives.

E. CONCLUSION

13. The project met the initial objectives and delivered substantial environmental benefits to improve the ecosystem in the forest farms and nature reserves. The PIUs of each sub-project generally accomplished safeguard works defined in the Environmental Management Plan during the construction period. During the construction period, environmental safeguard expert continuously coordinates with the environmental management unit of each sub-project and evaluated the scientific logic of environmental analysis sampling process and the compliance of environmental analysis results. After the completion of each project, liquid and solid wastes in the project site are all handled in accordance with the requirements of EMP. No hazardous gas vents were identified in all project sites. No environmental complaints were received during the construction and operation stages of all subprojects.

³ Issued by State Forestry Administration and National Development and Reform Commission on 4 May 2017. http://www.gov.cn/xinwen/2017-05/16/content_5194348.htm

LAND ACQUISITION AND RESETTLEMENT

A. Land Acquisition Impacts

1. The project was categorized A for involuntary resettlement. The executing agency prepared a resettlement plan (RP) in November 2011, which covered all four outputs of the project, although resettlement impacts were identified only in two outputs i.e. Yancheng Rare Birds National Nature Reserve (YRBNNR) and Yancheng Forest Farm (YFF).

2. **YRBNNR.** The RP indicated that the fishpond-to-wetland conversion activities would affect one household (5 family members), who had a five-year lease of 14,918.8 *mu*¹ land for aquaculture in the core zone. The lease agreement expired on 31 December 2012. According to the laws and regulations for nature reserve management, all production activities are prohibited in the core zone. Therefore, the lease would not be renewed after its expiry. Thus, incomes of this household and 15 seasonable workers (involving 49 family members) were affected.

3. **YFF.** According to the RP, the output would involve land use changes covering 8,089 *mu* of land in Fangqiang and Shengli, including 3,313 *mu* for cultivation, 289 *mu* for agroforestry farming, 1,833 *mu* for forest, and 2,654 *mu* for other types of land use, such as river course and engineering structures. The cultivation and agroforestry lands were leased to its 112 workers (involving 336 family members) and 28 contractors (involving 103 family members) from outside. The lease was renewed on an annual basis. These lands were state owned involving no requisition, while alternative arrangements would need to be considered for the affected people. During the project implementation, 111 farm workers signed land transfer contracts (involving 1,176 *mu* of land) while 1 forestry worker was allocated with new land. At the project completion, the livelihood of the affected people had been properly considered and arranged.

B. Livelihood Rehabilitation

4. To mitigate the anticipated impacts associated with YRBNNR as per the RP, livelihood restoration measures were proposed: (i) 1,000 *mu* of alternative fishponds would be leased to the affected household from 1 January 2013, which YRBNNR coordinated with the Sea Dike Management Bureau (SDMB) to allocate with the right of priority.² The fishponds are located outside the nature reserve with better aquaculture conditions than the original one in the core zone; (ii) the affected household had revenue about CNY2.7 million from another fish farm (1,000 *mu*) and a feed processing plant outside the nature reserve. The project would not cause decrease in its revenue; and (iii) YRBNNR would provide technical assistance in fine aquaculture if necessary. As for the 15 seasonal workers affected: (i) ten would continue working in the fish farm of the affected household outside the nature reserve after the project construction; (ii) five would continue working in the contracted fish farm if the affected household would reach a contract with SDMB; and (iii) these 15 workers may seek for new job opportunities from the surrounding villages.

5. In November 2012, YRBNNR issued a written and oral notice to Mr. Songlin Xu, head of the affected household, in terms of the lease contract and the laws and regulations for nature reserve management. The notice requested Mr. Xu to stop fish farming in the leased land by the end of 2012. However, even after the contract expired, Mr. Xu refused to give back the land and

¹ A *mu* is a Chinese unit of measurement (1 *mu* = 666.67 square meters)

² The Sea Dike Management Bureau is responsible for overall planning and land allocation for fishing and other production activities along the coastal area.

asked for the contract extension. Without agreements reached, YRBNNR took legal action against Mr. Xu in Dafeng City Court on 16 September 2013, which judged on 10 October 2013 that the contract extension would not be supported because the contract violated the nature reserve laws and regulations as the land was within the core zone. Mr. Xu then appealed against the decision and elevated his case to YRBNNR to Yancheng Municipal Intermediate Court, which rejected his appeal on 22 June 2014.

6. At the project completion, the contracted land was given back to YRBNNR. The affected people's livelihoods were not affected. In 2014, Mr. Xu Songlin rented new fishing ponds of 4,000 *mu* at a price of CNY1,600/*mu* per year at Shanghai Farm, which can afford intensive and modern fishing. Before returning the land, the fishing yield per *mu* was about 800 kilograms (kg) squid and the annual net profit was about CNY4.0 million. In the new fishing sites, the yield per *mu* reached 1,500 kg with an annual net profit of CNY5.0 million. The people worked for Mr. Xu before still work in his new contracted fishponds. Because the affected workers are all nearby farmers, they have been continuing working in the new intensive fishponds. The annual income of the affected workers was increased from CNY20,000/year when they worked at the old fishponds to CNY40,000-50,000/year in the new fishing sites.

7. For the impacts associated with YFF, it provides CNY1,500 as security for each offspring annually. When the farm worker retires, the allowance land would be reclaimed and re-contracted to other farm workers or outside villagers. The retired farm worker would receive a monthly pension of CNY1,600-2,000. The lease is renewable on an annual basis.

8. The project began to transfer land in 2013 when the transfer fee was set at CNY1,066 per month initially. The fee was increased to CNY1,266 per month in 2016 and raised further to CNY1,466 per month in 2019. During their spare time, the affected workers go out for temporary labor opportunities or for other business. This approach has been widely welcomed by the forest farmers. By 30 June 2019, 30 persons were working in southern areas of Jiangsu province, 20 were working locally, and the rest were working for short-term opportunities. Their daily earnings were about CNY100-CNY130/day. About 30 employees were engaged in agroforestry farming. In order to ensure fairness, employees not covered by the ADB project may also choose to sign a land transfer contract if they wish to transfer their land. According to the external monitoring and evaluation report, the average annual net income of the affected households increased by 210.7% from CNY17,738 in 2012 to CNY55,114 in 2018.

Table A8.1: Net Income of the Affected Households before and after the Project
(CNY)

Category	2012	%	2018	%	Variations	%
1. Income						
Agricultural income	821.08	2.95%	2,831.31	3.00%	2,010.23	244.83%
Sideline income	2,180.11	7.83%	6,606.39	7.00%	4,426.28	203.03%
Enterprise wage income	11,778.25	42.28%	49,076.04	52.00%	37,297.79	316.67%
Working income	8,248.55	29.61%	21,706.71	23.00%	13,458.16	163.16%
Self-employed income	4,171.46	14.97%	12,269.01	13.00%	8,097.55	194.12%
Other income	660.63	2.37%	1,887.54	2.00%	1,226.91	185.72%
Total Income	27,860.08	100.00%	94,377.00	100.00%	66,516.92	238.75%
2. Expenses						
Agricultural production expenditures	102.08	1.01%	392.63	1.00%	290.55	284.63%

Category	2012	%	2018	%	Variations	%
Water and electricity	910.90	9.00%	3,141.04	8.00%	2,230.14	244.83%
Communication	518.27	5.12%	2,355.78	6.00%	1,837.51	354.55%
Education	2,277.25	22.50%	11,386.27	29.00%	9,109.02	400.00%
Medical fees	1,036.54	10.24%	4,318.93	11.00%	3,282.39	316.67%
Food	2,504.97	24.75%	8,637.86	22.00%	6,132.89	244.83%
Operating expenses	973.72	9.62%	3,141.04	8.00%	2,167.32	222.58%
Transportation	164.90	1.63%	785.26	2.00%	620.36	376.20%
Other expenses	1,633.34	16.14%	5,104.19	13.00%	3,470.85	212.50%
Total Expenditure	10,121.97	100.00%	39,263.00	100.00%	29,141.03	287.90%
3. Net income	17,738.11		55,114.00		37,375.89	210.71%

Source: External Monitoring and Evaluation Reports.

C. Participation, Consultation and Grievance Redress

9. Public participation and extensive consultation were carried out during policy making, RP preparation and implementation through RP disclosure and consultation meetings with representatives of the affected people and/or households. Further consultation with affected people was also conducted to reply and address their questions and demands related to livelihood recovery and seek to solve all the problems before and during the RP implementation. A grievance redress procedure was well established and implemented to redress land acquisition and resettlement issues. During the project implementation, only one grievance occurred, which was the dispute between Mr. Songlin Xu and YRBNNR (para. 5). The dispute was settled finally through judicial process.

D. Institutional Set-up & Monitoring and Evaluation

10. The RP has been implemented effectively with adequate institutional establishment at various levels. A provincial project leading group was set up to coordinate interagency matters. The project management office (PMO) oversaw the overall implementation of the RP, including monitoring and reporting. The planned measures were implemented effectively by the two project implementing units concerned (i.e. YRBNNR and YFF). The project implementation consultants helped capacity building for the implementing units and local communities. With the consultant's assistance, PMO submitted eight internal social and resettlement progress reports throughout the implementation period. A qualified institute (i.e. Hohai University) was engaged as the external monitor for the RP implementation monitoring. Six monitoring and evaluation reports were prepared and submitted by the project completion.

STATUS OF COMPLIANCE WITH LOAN/GRANT COVENANTS

Covenants	Reference	Status of Compliance
The Borrower shall cause JPG to ensure that the Project is carried out with due diligence and efficiency and in conformity with sound applicable technical, financial, business, and development practices.	LA Article IV Section 4.01	Complied with.
The Borrower shall make available, or cause to be made available, promptly as needed, and on terms and conditions acceptable to ADB, the funds, facilities, services, land and other resources, as required, in addition to the proceeds of the Loan, for the carrying out of the Project.	LA Article IV Section 4.02	Complied with. All necessary conditions were made available to carry out the project.
The Borrower shall ensure that the activities of its departments and agencies with respect to the carrying out of the Project and operation of the Project facilities are conducted and coordinated in accordance with sound administrative policies and procedures.	LA Article IV Section 4.03	Complied with.
The Borrower shall, upon reasonable request by ADB, enable ADB's representatives to inspect the Project, the Goods and Works, and any relevant records and documents.	LA Article IV Section 4.04; PA Article II Section 2.10	Complied with. Undertook during reviews.
The Borrower shall take all actions which shall be necessary on its part to enable JPG and IAs to perform their obligations under the Project Agreement and shall not take or permit any action which would interfere with the performance of such obligations.	LA Article IV Section 4.05	Complied with.
The Borrower shall cause JPG and IAs to exercise their rights in such a manner as to protect the interests of the Borrower and ADB and to accomplish the purposes of the Loan.	LA Article IV Section 4.06	Complied with.
<p>(a) JPG shall ensure to provide on a grant basis (i) \$23,000,000 to YRBNNR for the implementation of Output 1 and a portion of Output 5; and (ii) \$3,000,000 to DMNNR for the implementation of Output 2 and a portion of Output 5, with JPG bearing the foreign exchange and interest rate variation risks associated with the portions of the loan proceeds made available to YRBNNR and DMNNR, respectively.</p> <p>(b) JPG shall ensure: (i) to onlend \$7,000,000 out of the proceeds of the Loan to YMG for further provision, on a grant basis, of the said \$7,000,000 to SFF for the implementation of Output 3 and a portion of Output 5; and (ii) to onlend \$3,900,000 to DCG, and through DCG make available, on a grant basis, the said \$3,900,000 to DFF for the implementation of Output 4 and a portion of Output 5. Each onlending shall be done under Onlending Agreements upon terms and conditions acceptable to ADB. Except as ADB may otherwise agree, the terms of the proceeds of the Loan onlent to YMG and DCG, respectively shall include: (i) commitment charge and interest at the rates identical to those applied to the Loan; (ii) the repayment period including the grace period identical to those applied to the Loan; (iii) YMG and DCG bearing the foreign exchange and interest rate variation risks, respectively; and (iv) JPG, YMG, and DCG performing all such obligations, to the extent applicable to them, as provided in this Project Agreement and such obligations shall be made an integral part of their respective Onlending Agreement.</p>	PA Article II Section 2.01	Complied with. According to the final disbursement, JPG provided the loan proceeds on a grant basis \$15,163,980.64 and \$2,699,311.6 to YRBNNR and DMNNR, respectively. JPG onlent \$5,752,365.87 to YMG and \$2,171,115.61 to DCG, which then provided the amount on the grant basis to YFF (replaced SFF in name in 2012 following the government organizational divisions) for implementation of output 3 and to DFF for implementation of output 4, respectively.

Covenants	Reference	Status of Compliance
<p>(c) JPG and IAs shall carry out the Project with due diligence and efficiency, and in conformity with sound applicable technical, financial, business, and development practices.</p> <p>(d) In the carrying out of the Project and operation of the Project facilities, JPG and IAs shall perform all obligations set forth in the Loan Agreement to the extent that they are applicable to JPG and IAs respectively, and all obligations set forth in the Schedule to this Project Agreement.</p>		JPG and IAs applied adequate technical, financial, business and development practices, and performed obligations as set in the LA and PA.
JPG and IAs shall make available, promptly as needed, and on terms and conditions acceptable to ADB, the funds, facilities, services, land and other resources as required, in addition to the proceeds of the Loan, for the carrying out of the Project.	PA Article II Section 2.02	Complied with.
<p>(a) In the carrying out of the Project, JPG shall employ competent and qualified consultants and contractors acceptable to ADB, to an extent and upon terms and conditions satisfactory to ADB.</p> <p>(b) Except as ADB may otherwise agree, JPG shall procure all items of expenditures to be financed out of the proceeds of the Loan in accordance with the provisions of Schedule 4 to the Loan Agreement. ADB may refuse to finance a contract where any such item has not been procured under procedures substantially in accordance with those agreed between the Borrower and ADB or where the terms and conditions of the contract are not satisfactory to ADB.</p>	PA Article II Section 2.03	Complied with. All consultants under the loan were recruited to support the project implementation. Complied with.
JPG and IAs shall carry out the Project in accordance with plans, design standards, specifications, work schedules and construction methods acceptable to ADB. JPG shall furnish, or cause to be furnished, to ADB, promptly after their preparation, such plans, design standards, specifications and work schedules, and any material modifications subsequently made therein, in such detail as ADB shall reasonably request.	PA Article II Section 2.04	Complied with. All project facilities were constructed following national standards and construction methods.
<p>(a) JPG shall, and shall cause IAs to, take out and maintain with responsible insurers, or make other arrangements satisfactory to ADB for, insurance against such risks and in such amounts as shall be consistent with sound practice.</p> <p>(b) Without limiting the generality of the foregoing, JPG undertakes to insure, or cause to be insured, the Goods to be imported for the Project against hazards incident to the acquisition, transportation and delivery thereof to the place of use or installation, and for such insurance any indemnity shall be payable in a currency freely usable to replace or repair such Goods.</p>	PA Article II Section 2.05	Complied with.
JPG and IAs shall maintain, or cause to be maintained, records and accounts adequate to identify the items of expenditure financed out of the proceeds of the Loan, to disclose the use thereof in the Project, to record the progress of the Project (including the cost thereof) and to reflect, in accordance with consistently maintained sound accounting principles, its operations and financial condition.	PA Article II Section 2.06	Complied with. All accounts and records were maintained and managed satisfactorily.

Covenants	Reference	Status of Compliance
<p>(a) ADB and JPG shall cooperate fully to ensure that the purposes of the Loan will be accomplished.</p> <p>(b) JPG and IAs, through JPG shall promptly inform ADB of any condition which interferes with, or threatens to interfere with, the progress of the Project, the performance of their obligations under this Project Agreement or the Onlending Agreements, or the accomplishment of the purposes of the Loan.</p> <p>(c) ADB and JPG shall from time to time, at the request of either party, exchange views through their representatives with regard to any matters relating to the Project, JPG, IAs, and the Loan.</p>	PA Article II Section 2.07	Complied with. Effective communications were carried out during implementation.
<p>(a) JPG shall furnish to ADB all such reports and information as ADB shall reasonably request concerning (i) the Loan and the expenditure of the proceeds thereof; (ii) the items of expenditure financed out of such proceeds; (iii) the Project; (iv) the administration, operations and financial condition of JPG and IAs; and (v) any other matters relating to the purposes of the Loan.</p> <p>(b) Without limiting the generality of the foregoing, JPG shall furnish to ADB periodic reports on the execution of the Project and on the operation and management of the Project facilities. Such reports shall be submitted in such form and in such detail and within such a period as ADB shall reasonably request, and shall indicate, among other things, progress made and problems encountered during the period under review, steps taken or proposed to remedy these problems, and proposed program of activities and expected progress during the following period.</p> <p>(c) Promptly after physical completion of the Project, but in any event not later than 6 months thereafter or such later date as ADB may agree for this purpose, JPG shall prepare and furnish to ADB a report, in such form and in such detail as ADB shall reasonably request, on the execution and initial operation of the Project, including its cost, the performance by JPG of its obligations under this PA and the accomplishment of the purposes of the Loan.</p>	PA Article II Section 2.08	<p>Complied with.</p> <p>Complied with. Periodic progress reports were submitted on time.</p> <p>Complied with. EA submitted its project completion report in August 2019.</p>
<p>(a) JPG shall, and shall cause: (i) IAs to maintain separate accounts for the Project and for its overall operations; (ii) to have such accounts and related financial statements (balance sheet, statement of income and expenses, and related statements) consolidated and audited annually, in accordance with appropriate auditing standards consistently applied, by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB; and (iii) furnish to ADB, promptly after their preparation but in any event not later than 6 months after the close of the fiscal year to which they relate, certified copies of such audited accounts and financial statements and the report of the auditors relating thereto (including the auditors' opinion on the use of the Loan proceeds and compliance with the financial covenants of the LA and the PA as well as on the use of the procedures for imprest account and statement of expenditures), all in the English language. JPG shall furnish to ADB such further information concerning such accounts and</p>	PA Article II Section 2.09	Complied with. Audit reports were submitted annually.

Covenants	Reference	Status of Compliance
<p>financial statements and the audit thereof as ADB shall from time to time reasonably request.</p> <p>(b) JPG shall enable ADB, upon ADB's request, to discuss JPG's and IAs' financial statements and their financial affairs from time to time with the auditors appointed by JPG pursuant to subsection (a) hereinabove, and shall authorize and require any representative of such auditors to participate in any such discussions requested by ADB, provided that any such discussion shall be conducted only in the presence of an authorized officer of JPG unless JPG shall otherwise agree.</p>		
<p>(a) JPG and IAs shall, promptly as required, take all action within their powers to maintain their corporate existence, to carry on their operations, and to acquire, maintain and renew all rights, properties, powers, privileges and franchises which are necessary in the carrying out of the Project or in the conduct of their operations.</p>	PA Article II Section 2.11	Complied with.
<p>Except as ADB may otherwise agree, JPG and IAs shall not sell, lease or otherwise dispose of any of their assets which shall be required for the efficient carrying on of their operations or the disposal of which may prejudice their ability to perform satisfactorily any of their obligations under this Agreement.</p>	PA Article II Section 2.12	Complied with.
<p>Except as ADB may otherwise agree, JPG and IAs shall apply the proceeds of the Loan to the financing of expenditures on the Project in accordance with the provisions of the Loan Agreement and this Project Agreement, and shall ensure that all items of expenditures financed out of such proceeds are used exclusively in the carrying out of the Project.</p>	PA Article II Section 2.13	Complied with. The LA and PA were followed adequately.
<p>Except as ADB may otherwise agree, (a) JPG shall, and shall cause JEPD to, duly perform all of their obligations; and (b) JPG shall cause TDG and DCG to duly perform their obligations under the Onlending Agreements, and shall not take, or concur in, any action which would have the effect of assigning, amending, abrogating or waiving any rights or obligations of the parties under the Onlending Agreements or otherwise.</p>	PA Article II Section 2.14	Complied with. All IAs performed their obligations satisfactorily.
<p>JPG shall, and shall cause IAs to, promptly notify ADB of any proposal to amend, suspend or repeal any provision of their constitutional documents, which, if implemented, could adversely affect the carrying out of the Project or the operation of the Project facilities. JPG shall, and shall cause IAs to, afford ADB an adequate opportunity to comment on such proposal prior to taking any affirmative action thereon.</p>	PA Article II Section 2.15	No such occasions occurred.
<p>Implementation Arrangements</p> <p>JPG and IAs shall ensure that the Project is implemented in accordance with the detailed arrangements set forth in the PAM. Any subsequent change to the PAM shall become effective only after approval of such change by JPG and ADB. In the event of any discrepancy between the PAM and this Project Agreement, the provisions of this PA shall prevail.</p>	PA Schedule para. 1; LA Schedule 5, para. 1	Complied with. No major changes were made for the implementation arrangements.

Covenants	Reference	Status of Compliance
<p>PRC Regulations on Management of Nature Reserves 1994</p> <p>JPG shall, and shall cause JEPD and JFB to, ensure that (a) the DMNNR and YRBNNR management authorities do not allow any tourists in their core zones; (b) YRBNNR and DMNNR are managed and protected in compliance with the Borrower's regulatory framework, especially Regulations of the People's Republic of China on Management of Nature Reserves 1994; and (c) the Project is implemented in accordance with MEP's instructions provided in the EIA approval.</p>	PA Schedule para. 2	Complied with. The Regulations was amended in 2017 and have been strictly enforced for the two nature reserves.
<p>Counterpart Support</p> <p>JPG shall, and shall cause IAs to, ensure that (a) counterpart funds, necessary for the Project, are provided in time; (b) additional counterpart funding is provided to cover any funding shortfalls that may occur during Project implementation; and (c) all funds and resources necessary for construction, O&M, and management of the Project are provided on a timely basis.</p>	PA Schedule para. 3; LA Schedule 5, para. 3	Complied with. JPG and IAs provided sufficient counterpart funds to deliver the project.
<p>Zoning Plan for DMNNR</p> <p>JPG shall, and shall cause JPED to, ensure that construction of the education center and the audio-video center in the area that is included in the core zone of the DMNNR shall not commence until the said area is excluded from the core zone by way of official approval of DMNNR Zoning Plan by the State Council.</p>	PA Schedule para. 4; LA Schedule 5, para. 2	Not applicable. The location of the education and audio-video center was not in the core zone of the nature reserve as per the EIA and the engineering design.
<p>Environmental Management Plans</p> <p>To minimize external environmental impacts on the Yancheng coastal wetland ecosystems, JPG shall ensure that the environmental management plans associated with the Jiangsu Coastal Development Plan, Yancheng Coastal Development Plan and other sector development plans and programs of JPG are monitored and reported to ADB in a timely manner.</p> <p>Five Years Plan for Environmental and Ecological Protection</p> <p>JPG shall, and shall cause YMG to, implement the provincial and municipal 12th Five years plan for environmental and ecological protection to reduce the pollution loads on the coastal wetlands, particularly DMNNR and YRBNNR.</p>	PA Schedule para. 5-6	Complied with. JPG issued a provincial ecological civilization development plan (2013-2022) in July 2013 and a provincial protection plan of ecological red-line controlled zones. These two documents set forth requirements for ecosystem conservation and pollution control and list details of ecological red-line controlled zones to regulate development activities.
<p>Transfer of Milu Deer</p> <p>JPG shall, through JFB, cause the DMNNR management authorities to ensure that a Milu deer relocation plan describing the selection criteria, transfer arrangements, and supervision</p>	PA Schedule paras. 7-8	Complied with. The transfer of Milu deer is endorsed by JFB and

Covenants	Reference	Status of Compliance
<p>process is prepared under the supervision of an ADB endorsed International non-governmental organization (NGO), prior to the transfer of the Milu deer from DMNNR.</p> <p>JPG shall, through JFB cause the DMNNR management authorities to ensure that (a) phased approach is adopted for relocation of Milu deer to third core zone for ensuring health and survival of the relocated Milu deer; and (b) subsequent relocation is only continued if the relocation under the preceding phase is evaluated to be successful.</p>		<p>reported to the State Forestry Administration for record as per the management regulations.</p>
<p>Environment</p> <p>JPG shall ensure that preparation, design, construction, implementation, operation and decommissioning of the Project and all Project facilities comply with (a) all applicable laws and regulations of the Borrower relating to environment, health and safety; (b) the Environmental Safeguards; and (c) all measures and requirements set forth in the EIA, the EMP, and any additional measures set forth in a Safeguards Monitoring Report.</p>	<p>PA Schedule para. 9</p>	<p>Complied with. The EIA including EMP has been fully complied with during construction and operation.</p>
<p>Land Acquisition and Involuntary Resettlement</p> <p>JPG shall ensure that all land and all rights-of-way required for the Project are made available to the Works contractor in accordance with the schedule agreed under the related Works contract and all land acquisition and resettlement activities are implemented in compliance with (a) all applicable laws and regulations of the Borrower relating to land acquisition and involuntary resettlement; (b) the Involuntary Resettlement Safeguards; and (c) all measures and requirements set forth in the RP, and any corrective or preventative action plans agreed by JPG and ADB.</p> <p>Without limiting the application of the Involuntary Resettlement Safeguards or the RP, JPG shall ensure that no physical or economic displacement takes place in connection with the Project until: (a) compensation and other entitlements have been provided to affected people in accordance with the RP; and (b) agreements for replacement fish ponds and other support measures are signed with affected persons, in accordance with the RP.</p>	<p>PA Schedule paras. 10-11</p>	<p>Complied with. The RP has been implemented adequately and monitored/reported to ADB periodically. There are no remaining issues related to resettlement.</p>
<p>Human and Financial Resources to Implement Safeguards Requirements</p> <p>JPG shall make available necessary budgetary and human resources to fully implement the EMP and the RP.</p>	<p>PA Schedule para. 12</p>	<p>Complied with.</p>
<p>Safeguards-Related Provisions in Bidding Documents and Works Contracts</p> <p>JPG shall ensure that all bidding documents and contracts for Works contain provisions that require contractors to: (a) comply with the measures relevant to the contractor set forth in the EIA, the EMP, and the RP (to the extent they concern impacts on affected people during construction), and any additional</p>	<p>PA Schedule para. 13</p>	<p>Complied with. Bidding documents have included provisions and/or clauses for environmental</p>

Covenants	Reference	Status of Compliance
<p>measures set forth in a Safeguards Monitoring Report; (b) make available a budget for all such environmental and social measures; (c) provide JPG with a written notice of any unanticipated environmental or resettlement risks and impacts that arise during construction, implementation or operation of the Project that were not considered in the EIA, the EMP, and the RP; (d) adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction; and (e) reinstate pathways, other local infrastructure, and agricultural land to at least their pre-Project condition upon the completion of construction.</p>		<p>protection and resettlement.</p>
<p>Safeguards Monitoring and Reporting</p> <p>JPG shall ensure to do the following: (a) submit semiannual Safeguards Monitoring Reports to ADB and disclose relevant information from such reports to affected persons promptly upon submission; (b) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the EIA, the EMP, and the RP, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; (c) no later than 3 months from the Effective Date, engage qualified and experienced external experts or qualified NGOs under a selection process and terms of reference acceptable to ADB, to verify information produced through the Project monitoring process, and facilitate the carrying out of any verification activities by such external experts; and (d) report any actual or potential breach of compliance with the measures and requirements set forth in the EMP, and the RP promptly after becoming aware of the breach.</p> <p>Prohibited List of Investments</p> <p>JPG shall ensure that 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.</p> <p>Grievance Redress Mechanism</p> <p>JPG shall ensure that within 3 months of the Effective Date, complaint and problem management mechanisms acceptable to ADB are established, and a task force is functioning effectively to: (a) review and document eligible complaints of Project stakeholders; (b) proactively address grievances; (c) provide the complainants with notice of the chosen mechanism/action; and (d) prepare periodic reports to summarize the number of complaints received and resolved, and final outcomes of the grievances and chosen actions and make these reports available to ADB upon request. Eligible complaints include those related to the Project, any of the service providers, any person responsible for carrying out the Project, complaints on misuse of funds and other irregularities, and grievances due to any safeguard issues.</p>	<p>PA Schedule paras. 14-16</p>	<p>Complied with. Semiannual reports and external monitoring reports for environment and resettlement were submitted on schedule.</p> <p>Complied with. No prohibited activities were undertaken.</p> <p>Complied with. The grievance redress mechanism was established in the early stage of the project and has been applied effectively.</p>

Covenants	Reference	Status of Compliance
<p>Gender Development</p> <p>JPG shall, and shall cause IAs to, ensure that: (a) the GAP is implemented, monitored in a timely manner and reported to ADB annually in accordance with principles of ADB's Policy on Gender and Development (1998) and adequate resources are allocated for this purpose; (b) targets under the GAP are achieved; (c) progress in achieving the GAP targets are reflected in the Project progress reports and Project completion report through collection and compilation of sex-disaggregated data, wherever relevant; and (d) bidding documents include provisions as GAP specified.</p>	PA Schedule para. 17	Complied with. The GAP has been executed effectively and GAP targets were all achieved.
<p>Health Risks</p> <p>In coordination with the local health bureaus, JPG shall, and shall cause IAs to, ensure that: (a) the Works contractors disseminate information and conduct awareness training on the risks and prevention measures of HIV/AIDS and other communicable diseases to their employees, temporary laborers and family members, and subcontractors during the Project implementation; (b) measures to prevent other communicable diseases are implemented, within the construction sites, as specified in the EMP; and (c) these requirements are included in the Works contracts, monitored and reported semiannually to ADB through JPG.</p> <p>Labor Standards</p> <p>JPG shall, and shall cause IAs to, ensure that the construction contractors: (a) provide timely payment of wages and safe working conditions to all male and female workers; (b) pay equal wages to the women and male employees for equivalent labor; (c) not employ child labor as required by the relevant laws and regulations of the Borrower; (d) the contractors involved in the Project implementation maximize the employment of local people, particularly women, who meet the job and efficiency requirements for Project construction, operation and maintenance; and (e) such workers are provided with adequate on-the-job training and safety training.</p>	PA Schedule paras. 18-19	<p>Complied with. Adequate measures were taken during construction as per the EMP and no health incidents were reported.</p> <p>Complied with. Labor standards were strictly followed during construction.</p>
<p>The GEF Grant</p> <p>In the carrying out of the Grant Component and operation of the Project facilities, the Recipient shall perform, or cause to be performed, all obligations set forth in Schedule 5 to the LA and Schedule to the PA.</p> <p>(a) The Recipient shall cause JPG, and through JPG shall cause the IAs to: (i) maintain separate accounts and records for the Grant Component; (ii) prepare annual financial statements for the Grant Component in accordance with financial reporting standards acceptable to ADB; (iii) have such financial statements audited annually by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB, in accordance with international standards for auditing or the national equivalent acceptable to ADB; (iv) as part of each such audit, have the auditors prepare a report (which includes the auditors' opinion on the financial statements, use of the Grant</p>	<p>GA Article IV Section 4.01</p> <p>GA Article IV Section 4.02</p>	<p>Complied with. The recipient performed its obligations adequately.</p> <p>Complied with. The grant and loan accounts were audited in combined audit reports and submitted timely.</p>

Covenants	Reference	Status of Compliance
<p>proceeds and compliance with the financial covenants of this GA as well as on the use of the procedures for the imprest account) and a management letter; and (v) furnish to ADB, no later than 6 months after the end of each related fiscal year, copies of such audited financial statements, audit report and management letter, all in the English language, and such other information concerning these documents and the audit thereof as ADB shall from time to time reasonably request.</p> <p>(b) ADB shall disclose on its website the annual audited financial statements for the Grant Component and the opinion of the auditors on the financial statements within 30 days of the date of their receipt.</p> <p>(c) The Recipient, through JPG, shall enable ADB, upon ADB's request, to discuss the financial statements for the Grant Component and JPG's and IA's financial affairs where they relate to the Grant Component with the auditors appointed pursuant to subsection (a) (iii) hereinabove, and shall authorize and require any representative of such auditors to participate in any such discussions requested by ADB. This is provided that such discussions shall be conducted only in the presence of an authorized officer of JPG unless JPG shall otherwise agree.</p> <p>The Recipient shall enable ADB's representatives to inspect the Grant Component, the goods financed out of the proceeds of the Grant, and any relevant records and documents.</p> <p>The Recipient acknowledges and agrees that this Grant Agreement is entered into by ADB, not in its individual capacity, but as Grant administrator for GEF. Accordingly, the Recipient agrees that (i) it may only withdraw the Grant proceeds to the extent that ADB has received proceeds for the Grant from GEF; and (ii) that ADB does not assume any obligations or responsibilities of GEF in respect of the project or the Grant other than those set out in this GA.</p>	<p>GA Article IV Section 4.03</p> <p>GA Article IV Section 4.04</p>	<p>Complied with.</p> <p>Complied with. The GA was duly implemented.</p>

ADB = Asian Development Bank, DCG = Dafeng County Government, DFF = Dafeng Forest Farm, DMNNR = Dafeng Milu National Nature Reserve, EIA = environment impact assessment, EMP = environment management plan, GA = grant agreement, GAP = gender action plan, GEF = Global Environment Facility, IA = implementing agencies, JEPD = Jiangsu Environment Protection Department, JFB = Jiangsu Forestry Bureau, JPG = Jiangsu Provincial Government, LA = loan agreement, PA = project agreement, PAM = project administration manual, RP = resettlement plan, SPS = Safeguard Policy Statement, TDG = Tinghu District Government, YMG = Yancheng Municipal Government, YRBNNR = Yancheng Rare Birds National Nature Reserve.

ECONOMIC AND FINANCIAL REEVALUATION

A. Introduction

1. The project's outcome was to improve capacity to manage and protect wetland ecosystems and biodiversity in Yancheng and improved livelihoods for local people. Four structural outputs were: (i) wetlands protection at Yancheng Rare Birds National Nature Reserve (YRBNNR), (ii) wetlands protection at Dafeng Milu National Nature Reserve (DMNNR), (iii) coastal forest improvement at Yancheng Forest Farm (YFF), and (iv) coastal forest improvement at Dafeng Forest Farm (DFF). All outputs were achieved by the loan closing. The economic reevaluation was carried out following ADB's Cost-Benefit Analysis for Development – A practical Guide (2013) and Guidelines for the Economic Analysis of Projects (2019).

B. Assumptions and Methodologies used for Economic Reevaluation

2. Benefit estimates are based on the actual situation during implementation. With and without-project scenarios were identified for each subproject to quantify the incremental output volume. For the subprojects concerned with wetlands, the quantifiable benefits are visitor numbers and visitor receipts; and subprojects concerned with the forest improvement for which the quantifiable outputs are the sale of seedlings and the forestry land rentals. Besides, the project generated many economic benefits accruing from carbon sequestration and biomass carbon sink, water resource and soil conservation, biodiversity protection and forestry protection. These benefits were quantified in the reevaluation of the economic benefits.

3. The main assumptions used in the financial and economic reevaluation are the following:

- (i) To be consistent with the approaches adopted at appraisal, the lifespan of the reevaluation is 30 years from 2012 to 2041, including the actual implementation period of 7 years from 2012 to 2019, after which the residual value is zero.
- (ii) All financial revenues and expenses were expressed in constant 2018 prices. The economic costs and benefits were valued using the domestic numeraire and expressed in constant 2018 prices. The actual capital costs have been converted to economic values by applying relevant conversion factors and by deducting taxes, duties and interest.
- (iii) Capital costs were the actual expenditures incurred by the implementing agencies for the project activities which included construction materials, equipment, labor, training and other related costs. Sources of capital included ADB loan proceeds, government financing and Global Environment Facility (GEF) grant.
- (iv) Income tax is 25%. The value added tax (VAT) on construction, equipment and general business are 9%, 13% and 6%, respectively.
- (v) For all output goods concerned in the project, little or no price distortion was apparent in the market, therefore a conversion factor of 1.0 was used. Tax and other transfer payments were deleted in the economic analysis. A shadow wage rate factor of 0.8 was applied to the price of unskilled labor in the economic analysis.
- (vi) The real opportunity cost of capital is assumed to be 12% per year.

C. Economic Benefits and Costs

4. The facilities established under the project became operational in 2019, and the actual operation data were provided by respective implementing agencies. The operating costs, including expenditures for labor cost, production materials, management and maintenance, were estimated based on the actual performance of the forest farms subprojects and at 2% of total investment costs of the wetland improvement subprojects. The incremental economic benefits included (i) the direct benefit from the increased numbers of ecotourists and the incremental sale of seedlings and woods; and (ii) the indirect benefit from the incremental ecological service value, the details of which is shown in Table A10.1.

Table A10.1: Parameters of Ecological Service Value
(CNY/hectare/year)

Category	Wetland ^a	Water Surface	Grassland	Woodland	Forestry ^b
Carbon sequestration and oxygen release	1,592.70	-	707.90	3,097.20	8,297.75
Climate regulation	15,130.90	407.10	796.40	2,389.20	-
Water resource conservation	13,715.20	18,034.30	707.90	2,831.70	17,380.26
Soil conservation	1,513.10	8.80	1,725.50	3,451.10	1,205.86
Environment purification	16,086.60	16,087.50	1,159.20	1,159.20	5,489.36
Biodiversity protection	2,212.20	2,203.40	964.50	2,884.60	2,097.14
Forestry protection	-	-	-	-	9,457.03

^a Ecological service values of wetland, water surface, grassland and woodland follow those applied in the Feasibility Study Report JECC2011-KY-0860B of Yancheng Rare Birds National Nature Reserve and Dafeng Milu National Nature Reserve.

^b Chen Dasheng. Accounting of Ecosystem Service Value of Coast Protection Forest in Jiangsu with Sheyang Forest Farm as the Example[J]. Journal of Anhui Agricultural Sciences, 2010(27): 15046-15049.

5. **Wetlands Protection at YRBNNR.** The number of tourists increased from 49,500 in 2012 to 130,237 in 2019 at an average annual rate of 15%. Due to the improved wetlands environment and facilities, the number of visitors is expected to increase significantly with an annual average rate of 25% from 2020 to 2025, when the maximum capacity of 500,000 visitors per year is reached. The entrance fee is CNY45/visitor, slightly lower than the appraisal estimate of CNY50/visitor. The incremental ecological service value of wetlands improvement was reevaluated based on its effect on carbon fixation and oxygen release, regulation of climate, water resource conservation, soil conservation, environment purification and biodiversity protection. By applying the unit ecological service value shown in Table A10.1 to the incremental wetlands area of 3,812 hectares (ha), decremental water surface area of 1,435 ha and grassland area of 207 ha, the total incremental benefits under YRBNNR will increase gradually from CNY13.76 million in 2019 to CNY137.58 million in 2041.

6. **Wetlands Protection at DMNNR.** The current number of tourists visiting the DMNNR was around 750,000 annually. Since DMNNR is free of charge for the elderly, school kids and special professions, around 40% of the visitors are charged at full entrance fee. After the completion of the wetlands improvement, the number of tourists is expected to grow at annual rate of 15% until 2025 and then 5% until 2041, by when the number of visitors would be still within the maximum capacity of 15 million/year. The entrance fee is CNY55/visitor, slightly higher than the appraisal estimate of CNY50/visitor. The incremental ecological service value from wetland improvement at DMNNR followed those applied for the YRBNNR. The incremental areas of water surface,

grassland and woodland are 25 ha, 220 ha and 45 ha respectively. The incremental economic benefits will be CNY0.30 million in 2019 and increase gradually to CNY2.95 million in 2041.

7. **Coastal Forest Improvement at YFF.** The restoration of YFF rehabilitated the bird habitat of 185 ha, established a nursery of 303 ha and developed agroforestry of 300 ha. Different from the appraisal estimate, the farm does not charge the entrance fee from the ecotourists. The direct benefit of the farm mainly came from the sale of seedlings and the rental of partial farmland to local farmers for growing crops. The revenue from the sale of seedlings will increase from CNY1.5 million in 2020, one year after plantation, to CNY3.9 million in 2025 until 2041. The rental income is around CNY3.0 million/year. The incremental ecological service value of forest restoration was evaluated based on its effect on carbon fixation and oxygen release, water resource and soil conservation, environment purification, biodiversity protection and forestry protection. By applying the ecological service values per ha to the incremental area of 778 ha as shown in Table A10.1, the total incremental benefits from YFF will be CNY3.33 million in 2019 and gradually increase to CNY33.35 million in 2041.

8. **Coastal Forest Improvement at DFF.** Similar to YFF, the DFF does not charge the entrance fee as well, which is different from the appraisal estimate. The farm's direct benefit is mainly from the sale of seedlings and woods. The seedlings will be sold starting from 2023, i.e. five years later after plantation, and the woods will be sold starting from 2028, 10 years after plantation. The direct benefit will increase from CNY0.70 million in 2023 to CNY3.26 million in 2028 until 2041. The incremental ecological service values from the forest restoration in DFF followed those applied for YFF. The ecological service values are reevaluated based on the incremental habitat area of 123 ha and forestry area of 860 ha. The total incremental benefit will increase gradually from CNY3.62 million in 2019 to CNY36.23 million in 2041.

D. Economic Rate of Return

9. The economic reevaluation yields EIRRs ranging from 12.5% to 22.8% by component (Table A10.2). Incorporating these subprojects, the EIRR for the whole project is 14.7%. All subprojects indicated EIRRs higher than the threshold rate of 12%. EIRRs of YRBNNR and YFF are slightly lower than the appraisal estimates while EIRRs of DMNNR and DFF are higher than the appraisal estimates. At appraisal, the project was expected to be implemented over five years from 2012 to 2017 with the incremental benefits starting from 2016. However, due to the delay in the project start-up and prolonged implementation, the project was completed in 2019 with the incremental benefits starting from the same year. The three years' delay of the project benefits has certain effect on the economic reevaluation results. Although the actual investment cost is 74% of the appraisal estimate, this advantage was offset by the delayed incremental benefits. For DMNNR, it was envisaged at appraisal that the number of tourists was 400,000 per year. At project completion, the actual number of visitors charged at full entrance fee are slightly lower than the appraisal estimates in 2019-2020 but may stay higher from 2021 until 2041, which result in a higher EIRR against to the appraisal estimates.

Table A10.2: Reevaluated Economic Indicators

Item	Project	YRBNNR	DMNNR	YFF	DFF
At Appraisal (%)	14.9	13.9	16.2	13.6	21.7
At Completion (%)	14.7	13.1	20.3	12.5	22.8

DFF = Dafeng Forest Farm, DMNNR = Dafeng Milu National Nature Reserve, YFF = Yancheng Forest Farm, YRBNNR = Yancheng Rare Birds National Nature Reserve.

Source: Asian Development Bank estimates.

10. Sensitivity analysis was carried out for each subproject to test the impacts of (i) increased operation and maintenance costs, (ii) decreased benefits, and (iii) a combination of the first two scenarios. According to the analysis, the whole project will remain economically viable in the tested scenarios. YFF is sensitive to the economic benefits, of which 10% decrease will make the subproject below the threshold of 12% slightly. The results of the sensitivity analysis are provided in Table A10.3.

Table A10.3: Sensitivity Analysis for Each Subproject

Subprojects	EIRR (%)		
	O&M +10%	Benefits -10%	Combined
YRBNNR	13.0	12.2	12.1
DMNNR	20.2	19.3	19.2
YFF	12.3	11.3	11.1
DFF	22.2	21.0	20.4
Whole Project	14.5	13.6	13.5

DFF = Dafeng Forest Farm, DMNNR = Dafeng Milu National Nature Reserve, EIRR = economic internal rate of return, O&M = operation and maintenance, YFF = Yancheng Forest Farm, YRBNNR = Yancheng Rare Birds National Nature Reserve.

E. Financial Reevaluation

11. To be consistent with the appraisal approach, the financial reevaluation mainly focused on the capacity of the governments of Jiangsu province, Yancheng City and Dafeng District to cover the annual debt service and the operation and maintenance costs of the subprojects. Jiangsu Provincial Government will burden the debts of YRBNNR and DMNNR, while Yancheng Municipal Government and Dafeng District Government will repay the debts of YFF and DFF, respectively. During 2017-2019, the average annual fiscal income of Jiangsu Provincial Government was CNY853.5 billion, Yancheng Municipal Government CNY37.5 billion and Dafeng District Government CNY5.3 billion. The annual debt service and the operation and maintenance costs, as a ratio of the government revenues, falls below 0.1% for the governments, which indicate a low fiscal risk.

GRANT TERMINAL EVALUATION REPORT

A. Background

1. The Chief Executive Officer of the Global Environment Facility (GEF) endorsed a grant in the amount of \$2.25 million for the Jiangsu Yancheng Wetlands Protection Project on 20 April 2013. As the implementing agency, the Asian Development Bank (ADB) approved the grant on 18 September 2013. The GEF Agreement was signed on 31 October 2013 and became effective on 18 December 2013. The grant was implemented together with the ADB loan for the project throughout five years from 2014 to 2018. It was closed in January 2019. Cost details and project phasing information are presented in the Data Annex (Annex A).

2. The project is strongly aligned with, and supportive of, multiple GEF strategic objectives (SOs) and strategic programs (SPs) within the biodiversity (BD) focal area:

3. **BD-SO1: Catalyzing sustainability of protected area systems.** Sustainability of protected areas (PAs) was catalyzed through restoration and rehabilitation of degraded coastal wetlands, piloting of measures to control invasive alien plant species, public education and community co-management, improved research and monitoring capacity, and enhanced planning and management capabilities at the Yancheng Rare Birds National Nature Reserve (YRBNNR) and Dafeng Milu National Nature Reserve (DMNNR). Within BD-SO1, the project is consistent with SP-1 and SP-2:

- (i) SP1: sustainable financing of PA systems at the national level: The People's Republic of China (PRC) has undertaken significant steps to promote innovative financing mechanisms for environmental management in such areas as pollution control and river basin management. Government at both the national and provincial levels has also explored potential financing mechanisms for biodiversity conservation, specifically in natural reserves. The Yancheng project has pursued this objective through: supporting capacity building for more effective PA management in the two natural nature reserves (NNRs); facilitating the formulation of policies for sustainable financing; and promoting community co-management.
- (ii) SP2: Increasing representation of effectively managed marine protected areas in protected area systems: The Yancheng coastal wetlands include two of the most important coastal NNRs in the PRC's PA system. The project has undertaken measures to promote best management practices at both these sites, which can be replicated in other PAs in the province, the nation, and internationally.

4. **BD-SO2: Mainstreaming biodiversity conservation in production landscapes and sectors.** The project was designed to achieve this objective by incorporating wetland protection and biodiversity conservation practices into productive sectors such as agriculture, aquaculture and forestry. Within BD-SO2, the SP with relevance for the project is SP5:

- (i) SP5: Strengthening the policy and regulatory framework for mainstreaming biodiversity: Project interventions were focused on formulating and introducing policies for payment for ecosystem services (PES), eco-compensation, and PA- and biodiversity-friendly pro-poor best practices in the agriculture, aquaculture, and forestry sectors. In practical terms, the project was able to link improved biodiversity conservation and strengthened management in the two NNRs, with mainstreaming of biodiversity in production landscapes represented by the two

forest farms—which effectively function as buffer zones for the PAs. Activities undertaken to promote mainstreaming included development of guidelines and delivering community training programs to residents living in the vicinity of the NNRs.

5. **BD-SO3: Safeguarding Biodiversity.** The project explored strategies for controlling and managing an important alien plant species, *Spartina alterniflora*, which is widespread in the coastal and marine habitats of the Yancheng project area and beyond. The invasion of this species displaces reeds and other native vegetation and makes the wetlands unsuitable for protected rare bird species. Within SO-3, the project supported SP-7:

- (i) SP-7: Prevention, control and management of invasive alien species: Following experience gained through earlier initiatives to control invasive alien species (IAS), the project developed a 400-hectare (ha) pilot site for IAS control, a model which can be replicated in other parts of the Yancheng wetlands and beyond.

B. Terms of Reference

6. The GEF grant was integrated with the baseline investment project, and thus the terminal evaluation (TE) has been carried out as an integral part of the whole project completion process. Preparation of this terminal evaluation report (TER) has followed the same methodology applied for preparation of the project completion report (PCR), which included field investigation, stakeholder consultations, and desk review of the executing agency's project completion report and project performance monitoring system (PPMS) reports regarding the project targets and indicators as set forth in the design and monitoring framework (DMF). Actual project costs and financing plan were reviewed. In addition, the TER incorporates findings from a review and updating of the GEF tracking tools, which included (i) management effectiveness tracking tools (METT); threat assessments; and (ii) financial sustainability scorecards. ADB conducted seven review missions over the course of project implementation, starting with an inception mission in December 2012, and culminating with a final review mission during October-November 2019. The GEF focal point (i.e. Ministry of Finance) was engaged through regular reporting/consultation and commenting the draft final PCR report.

C. Implementation

7. The Jiangsu Provincial Government (JPG) was the executing agency for the project, and had oversight and responsibility to ensure coordination among JPG agencies such as ecology and environment, finance, forestry, and water resource departments and bureaus, as well as the Jiangsu Provincial Development and Reform Commission (JPDR). The Yancheng Municipal Government (YMG) assisted the JPG in coordinating and supervising project implementation. The implementing agencies were the Jiangsu Provincial Ecology and Environment Department (JEED)¹ for wetlands protection at the YRBNNR, the Jiangsu Forestry Bureau (JFB) for wetlands protection at the DMNNR, the YMG for coastal forest improvement at the YFF, and the Dafeng City Government (DCG) for coastal forest improvement at the DFF. The Jiangsu Project Management Office (JPMO) was established at the JEED to be responsible for planning, coordinating, and supervising the project. A municipal Yancheng PMO (YPMO) was established in the YMG to perform tasks delegated by the Jiangsu PMO. A third PMO was also established at the city level to coordinate project implementation on behalf of the DCG. Further, project implementation units (PIUs) were established to oversee implementation of day-to-day activities

¹ Formerly the Environmental Protection Department.

in the YRBNNR, DMNNR, YFF and DFF. Capacity needs of the PMOs and PIUs were assessed early on and needs for strengthening were addressed through provision of consulting services, as required.

8. A Project Leading Group (PLG) was also established to provide administrative guidance and oversight for the project. The deputy director general of JEED was appointed as the chief of the leading group, with its members drawn from the leadership of relevant divisions of JEED, the JPDRC, and the JFB. In order to facilitate day to day management, JPMO served as the secretariat for the leading group.

D. Relevance, Effectiveness and Impact

1. Relevance

9. The project is relevant. As originally detailed in the GEF CEO Endorsement Request, the project is closely aligned with a range of national, provincial, and municipal policies, plans, laws, and regulations.

10. The project was fully aligned with (i) the government's sustainable development agenda for an environment-friendly, resource-efficient and harmonious society as outlined in the PRC's Twelfth and Thirteenth Five Year Plans of the PRC, 2011–2015 and 2016–2020; and (ii) ADB's country partnership strategies for the PRC, 2011–2015 and 2016–2020, which aims at supporting environmental sustainability and inclusive growth. It is also consistent with ADB's Strategy 2020, which cites sustainable natural resource management and protection of the environment as keyways to ensure sustainable long-term economic growth and poverty reduction.

11. At the local level, the Jiangsu Provincial and Yancheng Municipal Five-Year Plans set forth targets (among others) for natural resource conservation, protecting clean water resources, improved ecosystem functioning, ecological protection and restoration, reforestation, eco-compensation, control of invasive species, and rescue and protection of rare and endangered species. The Yancheng municipality has also declared its intent to prioritize wetland protection and restoration, and to establish itself and become recognized as an 'ecological city.' The restoration, protection, and proper management of the Yancheng wetlands are one of the cornerstones for achieving this status.

12. The various instruments highlighted above demonstrate the strong relevance of the project and its close alignment with national-, provincial-, and municipal-level priorities. In addition, the PRC is party to a number of international commitments and agreements which support biodiversity conservation and sustainable development on a global scale. A number of these also specifically include the Yancheng wetlands as a site within their respective networks. The agreements with greatest relevance for the project include the following:

- (i) Convention on Biological Diversity (1992)
- (ii) Ramsar Convention on Wetlands of International Importance (YRBNNR designated Ramsar site in 2002)
- (iii) China Biosphere Reserves Network (with YRBNNR and DMNNR designated as Biosphere Reserve site in 1993)
- (iv) UNESCO World Heritage Convention (Yancheng wetlands inscribed as part of the World Heritage site "Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China [Phase I]" in 2019)
- (v) East Asia-Australasia Flyway Agreement

(vi) Asia Pacific Migratory Waterbird Conservation Strategy

2. Effectiveness

13. As reported in the executing agency's project completion report, at th, key project outputs were achieved: (i) 3,812 ha of degraded wetlands in YRBNNR restored, improving the ecological services of the wetlands; (ii) 742 ha of habitat for Milu deer in DMNNR improved, and rate of habitat degradation halted in 2018; (iii) 1,426 ha of coastal protection forests and wetlands in two forest farms improved; and (iv) 2,055 person-years of direct and indirect employment opportunities for local communities produced.

14. Most of the targets that were included in the project framework were achieved. The main area where targets were partially accomplished was in relation to the piloting and demonstration of PES as a mechanism for sustainable financing. Despite the fact that the project did not make significant contributions in this area, sufficient funding from existing sources is available to support continuing biodiversity conservation efforts at the project sites; thus, the financial sustainability risk is considered to be low. This aspect is further explained in the section on sustainability.

3. Impact

15. It is well-known that for many projects, upon completion, it is often too early for long-term impacts to become readily apparent (especially for projects intended to bring about environmental improvements such as strengthened conservation of biodiversity and recovery of endangered species populations—processes which require considerable time, before impacts are fully realized). Nevertheless, GEF guidelines require that evidence of progress towards impact should be assessed, and thus require that intermediate attainments should be evaluated. The analysis must show clearly how accomplishment of key outputs is expected to lead to the anticipated outcomes and impact as set forth in the project framework.

16. As per the DMF, the overall project impact is stated as “Improved ecosystem health and services in the coastal wetlands of Yancheng.” While this differs to some extent from the stated project objective as described in the GEF project framework, the two statements are generally in agreement in their substance, with the main focus being on maintaining and improving ecosystem functionality and sustainability.²

17. For this project, a number of critical indicators, which suggest significant progress toward achieving the desired impact, have already been at least partially fulfilled. These include: (i) restoration of degraded wetlands in the YRBNNR; (ii) reconversion of previously reclaimed areas (e.g., aquaculture ponds) to wetland habitats; (iii) improvement of water flow and exchange regimes (e.g., through improvement of drainage canals); (iv) implementation of measures (at least partially) to control alien species (*S. alterniflora*); (v) effective management, habitat enhancement, and coastal wetland protection forests established in YFF and DFF facilities, thus serving as multiple-use buffer zones for the two national nature reserves; (vi) measures undertaken to minimize pollution that could affect wetland water quality (e.g., through agricultural training programs, integrated pest management (IPM) demonstration, etc.); and (vii) establishment of state-of-the-art management information systems at the two NNRs, facilitating more effective monitoring, data access, and analytical capability.

² The GEF project framework states the project objective as “To conserve the coastal ecosystems of the Yancheng wetlands while reducing rural poverty and environmental sustainability through the establishment of an integrated wetlands management system.”

18. In addition, several other conditions have been put in place, that create an enabling environment which should allow beneficial impacts to continue. These include:

- (i) Greater engagement of local stakeholders in biodiversity conservation and protected area management: this was accomplished through such initiatives as strengthening of trans-provincial cooperation to allow more effective biodiversity conservation for selected species (e.g., Red-crowned crane); training programs on natural resources management and sustainable livelihoods.
- (ii) Financial sustainability for wetland nature reserve management³
- (iii) Reduction of pressure on natural resources: accomplished through introduction of new alternative livelihood options, e.g., ecotourism; community-level training in protected area- and biodiversity-friendly practices; utilizing PES mechanisms as a basis to support environment-friendly, sustainable livelihoods.
- (iv) Strengthened institutional framework: this was accomplished through various initiatives, including mainstreaming of management recommendations for wetlands, biodiversity and protected areas into relevant local plans and policies, as well as strengthening of management capacity (e.g., through training programs, and providing support for performance-based management).

19. The elements enumerated above represent “intermediate states” along the pathway from outputs to impact. The fact that these intermediate states have already been established makes it more likely that the intended project impact (and potentially, other related spin-off benefits) can be achieved over the long term.

E. Global Environmental Benefits and Catalytic Role

20. Significant global environmental benefits (GEBs) have been achieved under the Jiangsu Wetland Protection Project, and have contributed to the survival of a number of globally important endangered species, including the Red-crowned crane and other migratory waterfowl, and the Milu deer.⁴ The targets for restoration and rehabilitation of coastal wetland habitat supporting these species have largely been met. Measures for control of the invasive species of reed, *Spartina alterniflora*, have been piloted. The rate of degradation of habitats critical for survival of endangered species has been reduced. These benefits have been further supported through a range of related accomplishments brought about through project interventions, including:

- (i) Sustainable forest improvements in the YFF and DFF multi-use landscapes, which have provided additional habitat connectivity, strengthened coastal protection,

³ The project did not significantly contribute to supporting the piloting of PES as a mechanism for sustainable financing, as was originally intended. However, there is strong evidence that adequate existing sources of funding are available to sustainably support continuing biodiversity conservation efforts in the project area. It is for this reason that financial sustainability as an element of a strong enabling environment is noted here—even though this cannot be attributed to the project.

⁴ The Red-crowned crane is listed as Endangered in the IUCN Red Data Book, while the Milu deer is listed in the IUCN Red Data Book as “extinct in the wild.” In the DMNNR, the herd size of Milu deer has now grown to the point that it is believed that the carrying capacity of the habitat for supporting the deer population, has been exceeded. This aspect is further discussed in the sub-section on environmental risks.

- improved the national forest network, and created effective buffers for the two NNRs;
- (ii) Improved capacities for coastal wetland planning and management;
 - (iii) Improved research and monitoring, supported through state-of-the-art equipment upgrades;
 - (iv) Upgraded infrastructure to support improved water quality in the wetlands;
 - (v) Development and uptake of management plans, with mainstreaming of biodiversity into provincial policy-making; and
 - (vi) Increased awareness supported by the project through training and capacity-building activities, and dissemination of targeted knowledge products.

F. GEF Tracking Tools

21. As prescribed for all full-size GEF projects that offer support under the biodiversity focal area, the METT was used to monitor progress of the Yancheng Wetlands Protection Project toward improved protection and conservation of biodiversity resources. The METT for the project was conducted in 2012 and 2018, and was reviewed and updated once more in 2019.

22. The METT contains several important sections used to facilitate monitoring and analysis of various aspects of project performance, namely, (i) threats, (ii) management effectiveness, and (iii) financial sustainability. The findings of these METT analyses are presented in Table A11.1 and in the brief descriptions which follow.

Table A11.1: Management Effectiveness, Threats and Financial Sustainability

Facility	Threats Assessment ^a			Management Effectiveness Assessment			Financial Sustainability Scorecard		
	2019	2018	2012	2019	2018	2012	2019	2018	2012
YRBNNR	24	23	29	77	73	60	42	-- ^b	--
DMNNR	11	8	11	77	78	53	36	--	--
YFF	7	7	10	64	63	--	68	59	--
DFF	13	11	14	62	63	--	69	59	--

^a For the threats assessment, higher numeric scores indicate a higher level of threat (thus, poorer performance) than lower scores.

^b Blanks (--) indicate no data.

1. Yancheng Rare Bird NNR

23. **Threats assessment.** The 2019 analysis resulted in changes in the scoring for several individual parameters. The adjustments made in the scoring resulted in only a negligible change in responsiveness to threats--a slightly poorer score from 23 in 2018, to 24 in 2019. Both the 2018 and 2019 scores were moderately better than the 2012 threat score of 29.

24. **Management effectiveness assessment.** A moderate improvement, from a score of 73 in the 2018 study, to 77 in the 2019 assessment, was recorded. Both of the most recent scores for management effectiveness at this NNR represent a significant improvement over the 2012 score of 60. The most significant change which occurred in the short time interval between the 2018 and 2019 analyses was the inscription of this site on the list of UNESCO World Heritage sites (in July 2019). This prestigious recognition of the global importance of the site will no doubt

allow further improvements to be made for more effective management, awareness-building, and sustainable financing in this NNR, going forward.

25. **Financial sustainability scorecard.** No scoring was done in the 2012 and 2018 Financial Sustainability Scorecards. Thus, it is not possible to compare results at different points along the project timeline. Furthermore, information in the project document file that deals with this topic is rather limited. Nonetheless, an effort was made to complete the financial scorecard in 2019. However, due to the lack of available information, the information being provided on financial sustainability is still quite incomplete. The analysis resulted in a score of 42 (19% of highest possible score of 220), as compared with no data from the previous scorecards. As already stated the score is only indicative in a very general way; the low score value is due mainly to two factors: (1) scores awarded very conservatively, i.e., mostly at a level recognizing minimal acceptable performance, and (2) a number of items on the scorecard were left blank because of no data.

26. It is strongly recommended that if this scorecard is to be used for any future decision-making for PA financing, the scorecard should be critically reviewed, revised, and gaps filled as needed. Further, any next steps to be taken for strengthening management of the YRBNNR, should include focus upon developing an integrated system of financial management that is geared toward ensuring the financial sustainability of biodiversity conservation efforts. All elements of such an effort should be integrated within the general PA management plan.

2. Dafeng Milu NNR

27. **Threats assessment and management effectiveness assessment.** In the most recent analysis, the threats assessment score for DMNNR increased (worsened), from 8 in 2018, to 11 in 2019. This was due mainly to somewhat different interpretations of a few specific threat parameters between the two analyses. The score of 11 is still extremely low, only 7% of the maximum score possible (156) for the worst-case threat scenario. Management effectiveness score was virtually unchanged from 2018 to 2019, with scores of 78 and 77, respectively (much improved from the score of 53 in 2012).

28. **Financial sustainability scorecard.** As was the case for the YRBNNR, the key section (with scoring) of the financial sustainability scorecard for DMNNR was not completed in 2012 or 2018. The 2019 results show a raw score of 36 (16%). The reasons for the relatively low score for 2019 are as for YRBNNR, namely (1) scores awarded very conservatively; and (2) no available data for some items on the scorecard. As for YRBNNR, the scoring for financial sustainability of DMNNR should be regarded as indicative only.

3. Yancheng Forest Farm

29. **Threats assessment and management effectiveness assessment.** No changes were made from the threats assessment from 2018 to 2019—the score of 7, indicating a very low threat level, remained the same (the score in 2012 also had been quite good, at 10). The management effectiveness score showed an insignificant improvement from 2018 to 2019, from 63 to 64, respectively.

30. **Financial sustainability scorecard.** A number of adjustments were made in the scoring of the financial sustainability scorecard in 2019, as compared with the scorecard that was completed in 2018. This resulted in a significantly improved score of 68 (36.8%) from the previous score of 59 (31.9%).

4. Dafeng Forest Farm

31. **Threats assessment and management effectiveness assessment.** The review of the threats assessment in 2019 produced a score of 13, very slightly poorer than the score of 11 in 2018, but better than the score of 14 from 2012; all these scores indicate a low threat level. The rating for the 2018 management effectiveness assessment was 63, while the score in 2019 was one point lower, 62. These are negligible differences, and are not considered significant. The management effectiveness assessment form of the METT was not completed in 2012, so comparisons for that year are not possible.

32. **Financial sustainability scorecard.** Revision and updating of several parameters resulted in an improved score in the financial sustainability scorecard, from 59 (31.9%) in 2018 to 69 (37.3%) in 2019. As was the case for the other financial sustainability assessments, scores were awarded quite conservatively, and the scoring should be regarded as indicative only.

G. Sustainability

33. Analysis of sustainability is predicated on consideration of the risks which form barriers to achieving the intended project result—the lower the risks, the higher the probability that project benefits will be sustained in the future. If one or more of the risk factors is too great, they can threaten the chances for the sustainability of project benefits. As prescribed by ADB and GEF, in this analysis, the following risks are taken into account: (i) financial risks, (ii) sociopolitical risks, (iii) institutional and governance risks, and (iv) environmental risks.

H. Financial

34. **Financial.** Financial self-sufficiency for protected area management has been one of the key issues in People's Republic of China, since conservation responsibilities are delegated by the central government to local government, but without accompanying matching funding provided from the central budget. Many of the protected areas in the country are located in remote, high-poverty areas, and therefore, financial risks at these sites have been high. However, the Yancheng project site is located in an economically developed province. For this reason, it has been possible for operational costs of the YRBNNR and DMNNR to be covered within regular provincial and municipal budget allocations. Furthermore, the project area has been listed as a key ecological function zone, and has been included within the “red line”,⁵ which means that transfer payments for ecosystem services from central government and local government are assured.

35. Other elements are also expected to contribute to the financial sustainability of conservation efforts in the Yancheng wetlands. It is anticipated that continued economic growth in the area may increase available funding for wetland conservation still further. In addition, eco-compensation schemes piloted through the project can serve as important references for the design of provincial-level eco-compensation programs. Finally, the presence of keystone species (Red-crowned crane and Milu deer), the prominent status conferred upon Ramsar Wetlands of International Importance, UNESCO Biosphere sites, and World Heritage sites can raise the profile of the Yancheng wetlands and boost interest in the area for ecotourism and raising public awareness.

⁵ The “ecological protection red line” scheme was first devised in 2011 amid fears that decades of “irrational development” had put People's Republic of China's environment under heavy strain. It is designed to ban or restrict industrial development in wetlands, forests, national parks or protected nature zones.

36. Taken collectively, the above-mentioned considerations suggest that the financial risks to project sustainability are low.

37. **Sociopolitical.** The strong commitment of the both the Jiangsu Provincial Government and the Yancheng Municipal Government to protecting the precious goods and services associated with the Yancheng wetlands has already been referenced. At both levels, these governments have adopted a proactive approach towards strengthening the management of the two NNRs and two forest farms in the project area and have backed their commitment by providing significant financial resources for the sustainable management of these sites. This commitment also reduces sociopolitical risk. In addition, through the engagement of the project within local communities (especially in promoting sustainable alternative livelihood options), the level of understanding and local ownership regarding the biodiversity resources in the project area has been raised. These findings indicate that sociopolitical risks to project sustainability are low.

38. **Institutional framework and governance.** As described previously, the project is strongly aligned with a range of policies, programs, and legal instruments which are targeted towards ensuring the protection and conservation of globally-important biodiversity resources. Thus, there is already a comprehensive legal and institutional framework in place, that supports the furtherance of the objectives and benefits of the project.

39. Another institutional dimension to be considered relates to capacity, i.e., do the personnel responsible for the management of protected areas, and for carrying out other related functions (e.g., research, awareness raising, community engagement, etc.), have the requisite skills and capabilities, to effectively perform these functions? The project has contributed to building the capacity of the responsible personnel, and through some project interventions (for example, training of trainers) it is expected that capacity-building activities can be continued, even after project closure. For the reasons stated, the institutional and governance risk to project sustainability is considered to be low.

40. **Environmental.** Several environment-related factors pose a degree of risk for the sustainability of project outcomes and impact. These are briefly described below.

41. It has been noted in project documentation that one weakness in the original project design may have been the selection of increasing numbers of Red-crowned crane at YRBNNR during annual bird counts, as an indicator of project performance. The reasoning behind this conclusion was that other external factors—outside of improving bird habitat on the site—may play a significant part in determining the numbers of birds that visit the site annually. For example, warmer temperatures may enable the Red-crowned crane to spend a longer time in higher latitudes, thus reducing the numbers of birds that visit the YRBNNR wetlands. Thus, climate change may be a factor that disrupts natural migratory patterns of the birds. This, along with other related effects that could occur at other locations along the birds' migration route, could reduce the presence of the crane and other migratory birds at YRBNNR.

42. Project documents also report that the recovery of the population of Milu deer at the DMNNR has been very successful—so much so that in fact the deer population may already be exceeding the capacity of the environment to support such a large number. This could create pressures on the deer population, including such effects as competition for food, increased infant mortality, and spread of disease, any of which could cause a subsequent collapse in the population. Further research is needed to determine the best options for management of the herd, in order to ensure its continued health and survival.

43. In keeping with provincial and municipal objectives for economic growth, the project undertook steps to promote tourism at the four project sites, especially at the two NNRs. However, such growth in tourism could potentially lead to increased pressures on natural populations of wildlife, such as increased generation of waste and litter resulting in pollution of wetland waters; deliberate harm to animals; and unintentional alteration of natural animal behavior due to increased interactions with humans. To minimize these impacts, it will be critical that any growth in tourism be accompanied by (i) strong programs of awareness-raising for both visitors and residents; (ii) infrastructure improvements with sufficient capacity to accommodate increased generation of solid and sanitary waste; and (iii) effective monitoring and management.

44. In light of the factors described above, the environmental risks to project sustainability are rated as moderate.

45. **Sustainability Summary.** Taking into consideration the four dimensions of risk that have been highlighted here, the cumulative risks posed to project sustainability are rated as low to moderate. This suggests that, with proper care and attention, the benefits of the project can be extended beyond the closure of project activities and support.

I. M&E Framework and Institutional Arrangements

46. Monitoring and evaluation (M&E) for the project conformed to both GEF and ADB guidelines for project implementation and M&E. The Project followed the standard M&E procedures, reporting, and supervisory arrangements prescribed by ADB. To monitor the progress of the project in achieving the planned outcome and outputs, at the start of project implementation, JPMO, with support from the project implementation consultants, developed a comprehensive PPMS and procedures to generate data systematically on project outcome, inputs, and outputs of each investment output, as well as the agreed-upon project performance indicators, environmental and social monitoring indicators, and resettlement plan implementation indicators. These were used to measure the project impact, outcome, outputs, and compliance with ADB safeguard requirements. Baseline data were acquired and updates to the baseline were obtained at requisite time intervals, e.g., for monitoring of results of project actions and reporting on any environmental management requirements.

47. The key performance parameters that were monitored under the PPMS included (i) Red-crowned crane populations, (ii) Milu deer populations, (iii) ecotourism activity in the four project sites, and (iv) community participation activities in nature reserve management. The PMO was responsible for analyzing and consolidating the M&E data, and for reporting the outcome to ADB through quarterly progress reports and annual project implementation reports (PIRs).

48. In addition to regular monitoring, project performance was periodically reviewed jointly by ADB and the Government, to assess implementation performance and achievement of progress towards project outcomes and outputs, financial progress, and to identify issues and constraints affecting implementation. ADB conducted seven review missions over the course of project implementation, starting with an inception mission in December 2012, and culminating with a final review mission during October-November 2019. Meetings and interviews were conducted with local stakeholders and project implementing agencies during each of these missions. The GEF focal point (i.e. Ministry of Finance) was engaged through regular reporting/consultation and commenting the draft final PCR report. The current terminal evaluation represents the concluding step in the required M&E activities.

49. The M&E system for the project was adequately funded, and it was successfully used to track project performance, in a timely manner.

J. Rating

50. The grant is rated satisfactory. The project was generally successful in achieving its intended targets, which have helped to establish enabling conditions that are believed to set the stage for realizing the stated impact objective of the project, namely, to improve ecosystem health and services in the coastal wetlands in Yancheng. In fact, some aspects of this objective have already started to become evident. The project has demonstrated its relevance, effectiveness, and impact, and has shown a reasonable likelihood that its benefits will be sustainable over the long term. The project successfully delivered many important results, all of which contributed to the Satisfactory rating.

51. The project has made a significant contribution to GEF's strategic objectives, and to GEBs, especially as far as the improvement of habitat vital to the survivorship of rare endangered species is concerned. Furthermore, it is expected that the project can continue to yield important benefits, given the relatively low risks to its sustainability. Finally, it is hoped that lessons from the project can be applied, and that the interventions which were successfully implemented under the project can be replicated and scaled up in other locations within Jiangsu Province, the PRC as a whole, and beyond.

Overall Ratings

Criteria	Rating
Relevance	Relevant
Effectiveness	Effective
Efficiency	Efficient
Sustainability	Likely sustainable
Overall Assessment	Successful

ANNEX A - PROJECT DATA SHEET

I. Project Identification

GEF Project ID: 3670

GEF Agency Project ID: 40685

Countries: PRC

Project Title: Jiangsu Yancheng Wetlands Protection Project

GEF Agency: Asian Development Bank

II. DATES

Milestone	GEF Grant		ADB Loan	
	Expected Date	Actual Date	Expected Date	Actual Date
CEO endorsement	--	30 April 2012	--	--
Agency approval date	16 December 2011	18 September 2012	--	--
Implementation start	6 January 2012	15 December 2013		23 August 2012
Midterm review	1 March 2016	30 September 2016	--	30 September 2016
Terminal evaluation completion	--	12 April 2020	--	--
Closing	30 June 2017	31 January 2019	31 December 2017	31 January 2019

Source: Asian Development Bank.

III. PROJECT FRAMEWORK

Project Component	Activity Type (TA or INV)	GEF Financing (\$)		Co-financing (\$)	
		Approved	Actual	Planned	Actual
1. Wetland restoration and biodiversity conservation	INV/TA	790,684		52,700,000	
2. Sustainable natural resources management and sustainable	INV/TA	658,533		17,340,000	
3. Ecological monitoring and	INV/TA	279,033	1,440,000	150,000	56,300,000
4. Environmental governance and knowledge dissemination	INV/TA	318,010		150,000	
5. Project management	TA	203,740		6,050,000	
Total		2,250,000	1,440,000	76,390,000	56,300,000

INV = investment, TA = technical assistance

Sources: Asian Development Bank and Project Completion Report by the executing agency.

IV. CO-FINANCING

Source of Co-financing	Financing Type	Expected (\$)	Actual (\$)
Host government contribution	grant	39,490,000	30,500,000
GEF Agency (ADB)	loan	36,900,000	25,800,000
Total		76,390,000	56,300,000

ADB = Asian Development Bank, GEF = Global Environment Facility

Source: Asian Development Bank