
LOAN NUMBER _____-PRC

LOAN AGREEMENT
(Ordinary Operations)
(Jiangsu Yancheng Wetland Protection Project)

between

PEOPLE'S REPUBLIC OF CHINA

and

ASIAN DEVELOPMENT BANK

DATED _____

LAL: PRC 40685

LOAN AGREEMENT (Ordinary Operations)

LOAN AGREEMENT dated _____ between PEOPLE'S REPUBLIC OF CHINA ("Borrower") and ASIAN DEVELOPMENT BANK ("ADB").

WHEREAS

(A) the Borrower has applied to ADB for a loan for the purposes of the Project described in Schedule 1 to this Loan Agreement;

(B) the Project will be carried out by Jiangsu Provincial Government ("JPG"), and for this purpose the Borrower will make available to JPG, the proceeds of the loan provided for herein upon terms and conditions satisfactory to ADB; and

(C) ADB has agreed to make a loan to the Borrower from ADB's ordinary capital resources upon the terms and conditions set forth herein and in the Project Agreement between ADB and JPG.

NOW THEREFORE the parties hereto agree as follows:

ARTICLE I

Loan Regulations; Definitions

Section 1.01. All the provisions of the Ordinary Operations Loan Regulations Applicable to LIBOR-Based Loans Made from ADB's Ordinary Capital Resources, dated 1 July 2001 ("Loan Regulations"), are hereby made applicable to this Loan Agreement with the same force and effect as if they were fully set forth herein, subject, however, to the following modifications :

(a) Section 3.03 is deleted and the following is substituted therefor:

Commitment Charge; Credit. (a) The Borrower shall pay a commitment charge on the unwithdrawn amount of the Loan at the rate and on the terms specified in the Loan Agreement.

(b) ADB shall provide to the Borrower a credit at the rate specified in the Loan Agreement, which credit shall remain fixed for the term of the Loan. ADB shall apply the amount of the credit against the interest payable by the Borrower.

- (b) Section 3.06 is deleted and the following is substituted therefor:

(a) Following any announcement by ADB that the Fixed Spread applicable to new Loans shall be reduced, ADB shall provide a Rebate to any Borrower with an outstanding Loan on which a higher Fixed Spread is applicable. The amount of the Rebate shall be determined by multiplying (i) the difference between the Fixed Spread applicable to the outstanding Loan and the Fixed Spread that will be applied to new Loans (expressed as a percentage per annum) by (ii) the principal amount of the outstanding Loan on which the Borrower shall pay interest for all interest periods commencing on and after the effective date of the lower Fixed Spread that will be applied to new Loans.

(b) Following any announcement by ADB that its Funding Cost Margin calculations with respect to any Loan Currency (or Approved Currency) in any Semester resulted in ADB achieving savings, ADB shall provide a Rebate to the Borrower. The amount of the Rebate shall be determined by multiplying (i) the Funding Cost Margin (expressed as a percentage per annum) by (ii) the principal amount of the Loan on which the Borrower shall pay interest for the Interest Period commencing immediately after the Semester for which the Funding Cost Margin was calculated. ADB shall apply the amount of the Rebate against the interest payable by the Borrower for the Interest Period commencing immediately after the Semester for which the Funding Cost Margin was calculated.

- (c) Section 3.07 is deleted and the following is substituted therefor:

(a) Following any announcement by ADB that the Fixed Spread applicable to new Loans shall be increased, any Borrower with an outstanding Loan on which a lower Fixed Spread is applicable shall pay ADB a Surcharge. The amount of the Surcharge shall be determined by multiplying (i) the difference between the Fixed Spread that will be applied to new Loans and the Fixed Spread applicable to the outstanding Loan (expressed as a percentage per annum) by (ii) the principal amount of the outstanding Loan on which the Borrower shall pay interest for all interest periods commencing on and after the effective date of the higher Fixed Spread that will be applied to new Loans.

(b) Following any announcement by ADB that its Funding Cost Margin calculations with respect to any Loan Currency (or Approved Currency) in any Semester resulted in ADB incurring additional costs, the Borrower shall pay ADB a Surcharge. The amount of the Surcharge shall be determined by multiplying (i) the Funding Cost Margin (expressed as a

percentage per annum) by (ii) the principal amount of the Loan on which the Borrower shall pay interest for the Interest Period commencing immediately after the Semester for which the Funding Cost Margin was calculated. ADB shall add the amount of the Surcharge to the interest payable by the Borrower for the Interest Period commencing immediately after the Semester for which the Funding Cost Margin was calculated.

Section 1.02. Wherever used in this Loan Agreement, the several terms defined in the Loan Regulations have the respective meanings therein set forth unless modified herein or the context otherwise requires. Additional terms used in this Loan Agreement have the following meanings:

(a) “Consulting Guidelines” means the Guidelines on the Use of Consultants by Asian Development Bank and its Borrowers (2010, as amended from time to time);

(b) “Consulting Services” means the services to be financed out of the proceeds of the Loan as described in paragraph 3 of Schedule 1 to this Loan Agreement;

(c) “DCG” means the Defang City Government of the Borrower, or any successor thereto;

(d) “DFF” means the Dafeng Forest Farm within Dafeng city in Jiangsu;

(e) “DMNNR” means the Dafeng Milu National Nature Reserve within Dafeng city in Jiangsu;

(f) “EIA” means the consolidated Environmental Impact Assessment report for the Project, including any update thereto, submitted to and approved by ADB, which is based on all national Environmental Impact Assessments for the Project submitted to and approved by MEP;

(g) “EMP” means the environmental management plan for the Project, including any update thereto, incorporated in the EIA;

(h) “Environmental Safeguards” means the principles and requirements set forth in Chapter V, Appendix 1, and Appendix 4 (as applicable) of the SPS;

(i) “GAP” means the gender action plan for the Project, including any update thereto, prepared by the Borrower and cleared by ADB;

(j) “Goods” means equipment and materials to be financed out of the proceeds of the Loan, including related services such as transportation, insurance, installation, commissioning, training, and initial maintenance, but excluding Consulting Services;

(k) “HIV/AIDS” means human immunodeficiency virus/acquired immune deficiency syndrome;

(l) “IAs” or “Implementation Agencies” means JEPD for Output 1 and Output 5; JFORB for Output 2; YMG for Output 3; and DCG for Output 4, or any successor thereto acceptable to ADB;

(m) “Involuntary Resettlement Safeguards” means the principles and requirements set forth in Chapter V, Appendix 2, and Appendix 4 (as applicable) of the SPS;

(n) “JEPD” means the Jiangsu Environmental Protection Department of the Borrower, or any successor thereto;

(o) “JFORB” means the Jiangsu Forestry Bureau of the Borrower, or any successor thereto;

(p) “Jiangsu” means the Jiangsu province of the Borrower;

(q) “JPG” means the Jiangsu Provincial Government of the Borrower, or any successor thereto;

(r) “Loan Disbursement Handbook” means ADB’s Loan Disbursement Handbook (2007, as amended from time to time);

(s) “MEP” means the Ministry of Environmental Protection of the Borrower, or any successor thereto;

(t) “Milu” means a species of deer that prefers marshland and grazes on a mixture of grass and water plants and also known as *Elaphurus davidianus*;

(u) “O&M” means operations and maintenance;

(v) “Outputs” means 5 outputs to be implemented under the Project in the Project Area, as provided in paragraph 2 of Schedule 1 to this Loan Agreement;

(w) “PAM” means the Project administration manual for the Project dated 16 November 2011 and agreed between JPG and ADB, as updated from time to time in accordance with the respective administrative procedures of JPG and ADB;

(x) “Procurement Guidelines” means ADB’s Procurement Guidelines (2010, as amended from time to time);

(y) “Procurement Plan” means the procurement plan for the Project dated 16 November 2011 and agreed between JPG and ADB, as updated from time to time in accordance with the Procurement Guidelines, the Consulting Guidelines, and other arrangements agreed with ADB;

(z) “Project Area” means YRBNNR, DMNNR, DFF, and SFF all in Yancheng Wetland area in Jiangsu where the Project outputs will be implemented;

(aa) “Project Executing Agency” for the purposes of, and within the meaning of, the Loan Regulations means JPG, or any successor thereto acceptable to ADB, which is responsible for the carrying out of the Project;

(bb) “Project facilities” means equipment to be provided and the facilities to be constructed, upgraded, or rehabilitated under the Project;

(cc) “RP” means the resettlement plan for the Project, including any update thereto, prepared and submitted by JPG and cleared by ADB;

(dd) “Safeguards Monitoring Report” means each report prepared and submitted by JPG to ADB that describes progress with implementation of and compliance with the EMP and the RP, including any corrective and preventative actions;

(ee) “SFF” means the Sheyang Forest Farm within Tinghu district in Jiangsu;

(ff) “SPS” or “Safeguard Policy Statement” means ADB's Safeguard Policy Statement (2009);

(gg) “Works” means construction or civil works to be financed out of the proceeds of the Loan, including services such as drilling or mapping, and the Project related services that are provided as part of a single responsibility or turnkey contract, but excluding Consulting Services;

(hh) “Yancheng” means the Yancheng municipality in Jiangsu;

(ii) “YMG” means the Yancheng Municipal Government of the Borrower, or any successor thereto; and

(jj) “YRBNNR” means the Yancheng Rare Birds National Nature Reserve within Yancheng municipality in Jiangsu.

ARTICLE II

The Loan

Section 2.01. (a) ADB agrees to lend to the Borrower from ADB's ordinary capital resources an amount of thirty six million nine hundred thousand Dollars (\$36,900,000), as such amount may be converted from time to time through a Currency Conversion in accordance with the provisions of Section 2.06 of this Loan Agreement.

(b) The Loan has a principal repayment period of 20 years, and a grace period as defined in subsection (c) hereinafter.

(c) The term “grace period” as used in subsection (b) hereinabove means the period prior to the first Principal Payment Date in accordance with the amortization schedule set forth in Schedule 2 to this Loan Agreement.

Section 2.02. The Borrower shall pay to ADB interest on the principal amount of the Loan withdrawn and outstanding from time to time at a rate for each Interest

Period equal to the sum of LIBOR and 0.60% as provided by Section 3.02 of the Loan Regulations, less a credit of 0.20% as provided by Section 3.03 of the Loan Regulations.

Section 2.03. The Borrower shall pay a commitment charge of 0.15% per annum. Such charge shall accrue on the full amount of the Loan (less amounts withdrawn from time to time), commencing 60 days after the date of this Loan Agreement.

Section 2.04. Interest and other charges on the Loan shall be payable semiannually on 15 January and 15 July in each year.

Section 2.05. The Borrower shall repay the principal amount of the Loan withdrawn from the Loan Account in accordance with the provisions of Schedule 2 to this Loan Agreement.

Section 2.06. (a) The Borrower may at any time request any of the following Conversions of the terms of the Loan in order to facilitate prudent debt management:

- (i) a change of the Loan Currency of all or any portion of the principal amount of the Loan, whether withdrawn and outstanding or unwithdrawn, to an Approved Currency;
- (ii) a change of the interest rate basis applicable to all or any portion of the principal amount of the Loan withdrawn and outstanding from a Floating Rate to a Fixed Rate, or vice versa; and
- (iii) the setting of limits on the Floating Rate applicable to all or any portion of the principal amount of the Loan withdrawn and outstanding by the establishment of an Interest Rate Cap or Interest Rate Collar on said Floating Rate.

(b) Any conversion requested pursuant to subsection (a) hereinabove that is accepted by ADB shall be considered a "Conversion", as defined in Section 2.01(6) of the Loan Regulations, and shall be effected in accordance with the provisions of Article V of the Loan Regulations and the Conversion Guidelines.

ARTICLE III

Use of Proceeds of the Loan

Section 3.01. (a) The Borrower shall make the proceeds of the Loan available to JPG upon terms and conditions acceptable to ADB. Except as ADB may otherwise agree, the terms of the proceeds of the Loan made available to JPG 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; and (iii) JPG bearing the foreign exchange and interest rate variation risks.

(b) The Borrower shall cause JPG to ensure that the proceeds of the Loan are made available to YRBNNR, DMNNR, SFF, and DFF, through IAs upon terms and conditions acceptable to ADB and more specifically described in the Project Agreement for the implementation of the Project.

(c) The Borrower shall cause JPG and IAs to apply the proceeds of the Loan to the financing of expenditures on the Project in accordance with the provisions of this Loan Agreement and the Project Agreement.

Section 3.02. The proceeds of the Loan shall be allocated and withdrawn in accordance with the provisions of Schedule 3 to this Loan Agreement, as such Schedule may be amended from time to time by agreement between the Borrower and ADB.

Section 3.03. Except as ADB may otherwise agree, the Borrower shall procure, or cause to be procured, the items of expenditure to be financed out of the proceeds of the Loan in accordance with the provisions of Schedule 4 to this 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.

Section 3.04. Except as ADB may otherwise agree, the Borrower shall cause all items of expenditure financed out of the proceeds of the Loan to be used exclusively in the carrying out of the Project.

Section 3.05. The Loan Closing Date for the purposes of Section 9.02 of the Loan Regulations shall be 31 December 2017 or such other date as may from time to time be agreed between the Borrower and ADB.

ARTICLE IV

Particular Covenants

Section 4.01. (a) 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.

(b) In the carrying out of the Project and operation of the Project facilities, the Borrower shall perform, or cause to be performed, all obligations set forth in Schedule 5 to this Loan Agreement and the Project Agreement.

Section 4.02. 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.

Section 4.03. 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.

Section 4.04 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.

Section 4.05. 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.

Section 4.06. 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.

ARTICLE V

Effectiveness

Section 5.01. A date 90 days after the date of this Loan Agreement is specified for the effectiveness of this Loan Agreement for the purposes of Section 10.04 of the Loan Regulations.

ARTICLE VI

Miscellaneous

Section 6.01. The Minister of Finance of the Borrower is designated as representative of the Borrower for the purposes of Section 12.02 of the Loan Regulations.

Section 6.02. The following addresses are specified for the purposes of Section 12.01 of the Loan Regulations:

For the Borrower

Ministry of Finance
Sanlihe, Xicheng District
Beijing 100820
People's Republic of China

Facsimile Number:

+8610 6855 1125.

For ADB

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

Facsimile Numbers:

(632) 636-2444

(632) 636-6974.

IN WITNESS WHEREOF the parties hereto, acting through their representatives thereunto duly authorized, have caused this Loan Agreement to be signed in their respective names as of the day and year first above written and to be delivered at the principal office of ADB.

PEOPLE'S REPUBLIC OF CHINA

By _____
[Name and designation]

ASIAN DEVELOPMENT BANK

By _____
[Name and designation]

SCHEDULE 1

Description of the Project

1. The objective of the Project is to increase the capacity of the Borrower to manage and protect the wetland ecosystems in the Project Area.
2. The Project shall comprise:
 - a. **Output 1: Wetlands Protection at YRBNNR**, including (i) restoration of about 540 hectare (ha) of degraded wetland in the experimental zone; (ii) rehydration of about 1,630 ha of dehydrated wetland in the core zone; (iii) conversion of about 1,435 ha of fish ponds into wetlands; (iv) pilot control of the spread of invasive species, particularly about 400 ha of *Spartina alterniflora*; (v) construction of wetland protection infrastructure including patrol roads and stations, and waste management facilities; (vi) establishment of a rescue, breeding, and disease control center; (vii) establishment of a wetland and biodiversity research laboratory and monitoring sites; and (viii) establishment of a public education center and a community co-management center.
 - b. **Output 2: Wetlands Protection at DMNNR**, including (i) creation of about 24.7 ha of drinking water surface for Milu deer's drinking water supply; (ii) establishment of about 45 ha of grazing and resting ground, about 220 ha of fodder ground, including implementation of about 50 ha of rotational closure of grazing ground for Milu deer's food supply and resting ground; (iii) implementation of about 426.4 ha of tick control, rehabilitation of about 24 kilometer (km) of steel biological fences, improvement of about 18.5 km of patrol roads, and establishment of a patrol station; (iv) establishment of a Milu deer's research lab and habitat surveillance system; and (v) construction of the education center and the audio-video center.
 - c. **Output 3: Coastal Forest Improvement at SFF**, including (i) rehabilitation of about 185 ha of forest bird habitat; (ii) establishment of seedling nurseries, including approximately 285.2 ha of Chinese fir and evergreen tree, floral plant, and foliage-leaf nurseries; (iii) establishment of about 83.5 ha of agroforestry demonstration; (iv) rehabilitation of about 51.4 km of drainage canals; (v) establishment of a forest fire early warning and response system; and (vi) establishment of an integrated pest management (IPM) system.
 - d. **Output 4: Coastal Forest Improvement at DFF**, including (i) improvement of about 860 ha of coastal wetland protection forest; (ii) restoration and/or rehabilitation of about 122.7 ha of coastal wetland; (iii) improvement of about 174 km of drainage canals; (iv) rehabilitation of about 20.9 km of fire roads, and establishment of a

fire prevention and response system; and (v) establishment of an IPM system.

- e. **Output 5: Project Management and Capacity Development**, including (i) establishment of provincial-, municipal-, and county-level Project management offices; (ii) establishment of the Project implementation units at YRBNRR, DMNNR, SFF, and DFF; (iii) provision of assistance to JPG on formulation of a policy framework on eco-compensation; and (iv) training of about 100 staff of Project management and implementation offices by 2013, with at least 30% representation of women. This output will ensure provision of at least 30% of construction labor and 50% of operational jobs to women.

3. The Project includes consulting services to support Project implementation and capacity development.

4. The Project is expected to be completed by 30 June 2017.

SCHEDULE 2**Amortization Schedule****(Jiangsu Yancheng Wetland Protection Project)**

1. The following table sets forth the Principal Payment Dates of the Loan and the percentage of the total principal amount of the Loan payable on each Principal Payment Date (Installment Share). If the proceeds of the Loan shall have been fully withdrawn as of the first Principal Payment Date, the principal amount of the Loan repayable by the Borrower on each Principal Payment Date shall be determined by ADB by multiplying: (a) the total principal amount of the Loan withdrawn and outstanding as of the first Principal Payment Date; by (b) the Installment Share for each Principal Payment Date, such repayment amount to be adjusted, as necessary, to deduct any amounts referred to in paragraph 4 of this Schedule, to which a Currency Conversion applies.

<u>Date Payment Due</u>	<u>Installment Share</u> (Expressed as a %)
15 January 2017	2.500000
15 July 2017	2.500000
15 January 2018	2.500000
15 July 2018	2.500000
15 January 2019	2.500000
15 July 2019	2.500000
15 January 2020	2.500000
15 July 2020	2.500000
15 January 2021	2.500000
15 July 2021	2.500000
15 January 2022	2.500000
15 July 2022	2.500000
15 January 2023	2.500000
15 July 2023	2.500000
15 January 2024	2.500000
15 July 2024	2.500000
15 January 2025	2.500000
15 July 2025	2.500000
15 January 2026	2.500000
15 July 2026	2.500000
15 January 2027	2.500000
15 July 2027	2.500000
15 January 2028	2.500000
15 July 2028	2.500000
15 January 2029	2.500000
15 July 2029	2.500000
15 January 2030	2.500000
15 July 2030	2.500000

Schedule 2

15 January 2031	2.500000
15 July 2031	2.500000
15 January 2032	2.500000
15 July 2032	2.500000
15 January 2033	2.500000
15 July 2033	2.500000
15 January 2034	2.500000
15 July 2034	2.500000
15 January 2035	2.500000
15 July 2035	2.500000
15 January 2036	2.500000
15 July 2036	2.500000
Total	100.000000

2. If the proceeds of the Loan shall not have been fully withdrawn as of the first Principal Payment Date, the principal amount of the Loan repayable by the Borrower on each Principal Payment Date shall be determined as follows:

(a) To the extent that any proceeds of the Loan shall have been withdrawn as of the first Principal Payment Date, the Borrower shall repay the amount withdrawn and outstanding as of such date in accordance with paragraph 1 of this Schedule.

(b) Any withdrawal made after the first Principal Payment Date shall be repaid on each Principal Payment Date falling after the date of such withdrawal in amounts determined by ADB by multiplying the amount of each such withdrawal by a fraction, the numerator of which shall be the original Installment Share specified in the table in paragraph 1 of this Schedule for said Principal Payment Date (the Original Installment Share) and the denominator of which shall be the sum of all remaining Original Installment Shares for Principal Payment Dates falling on or after such date, such repayment amounts to be adjusted, as necessary, to deduct any amounts referred to in paragraph 4 of this Schedule, to which a Currency Conversion applies.

3. Withdrawals made within 2 calendar months prior to any Principal Payment Date shall, for the purposes solely of calculating the principal amounts payable on any Principal Payment Date, be treated as withdrawn and outstanding on the second Principal Payment Date following the date of withdrawal and shall be repayable on each Principal Payment Date commencing with the second Principal Payment Date following the date of withdrawal.

4. Notwithstanding the provisions of paragraphs 1 and 2 of this Schedule, upon a Currency Conversion of all or any portion of the withdrawn principal amount of the Loan to an Approved Currency, the amount so converted in said Approved Currency that shall be repayable on any Principal Payment Date occurring during the Conversion Period, shall be determined by ADB by multiplying such amount in its currency of denomination immediately prior to said Conversion by either: (i) the exchange rate that reflects the amounts of principal in said Approved Currency payable by ADB under the Currency Hedge Transaction relating to said Conversion; or (ii) if ADB so determines in accordance with the Conversion Guidelines, the exchange rate component of the Screen Rate.

5. If the principal amount of the Loan withdrawn and outstanding from time to time shall be denominated in more than one Loan Currency, the provisions of this Schedule shall apply separately to the amount denominated in each Loan Currency, so as to produce a separate amortization schedule for each such amount.

SCHEDULE 3

Allocation and Withdrawal of Loan Proceeds

General

1. The table attached to this Schedule sets forth the Categories of items of expenditure to be financed out of the proceeds of the Loan and the allocation of the Loan proceeds to each such Category ("Table"). (Reference to "Category" in this Schedule is to a Category or Subcategory of the Table).

Percentages of ADB Financing

2. Except as ADB may otherwise agree, each item of expenditure shall be financed out of the proceeds of the Loan on the basis of the percentages set forth in the Table.

Reallocation

3. Notwithstanding the allocation of Loan proceeds and the withdrawal percentages set forth in the Table,

(a) if the amount of the Loan allocated to any Category appears to be insufficient to finance all agreed expenditures in that Category, ADB may, in consultation with the Borrower, (i) reallocate to such Category, to the extent required to meet the estimated shortfall, amounts of the Loan which have been allocated to another Category but, in the opinion of ADB, are not needed to meet other expenditures; and (ii) if such reallocation cannot fully meet the estimated shortfall, reduce the withdrawal percentage applicable to such expenditures in order that further withdrawals under such Category may continue until all expenditures thereunder shall have been made; and

(b) if the amount of the Loan allocated to any Category appears to exceed all agreed expenditures in that Category, ADB may, in consultation with the Borrower, reallocate such excess amount to any other Category.

Disbursement Procedures

4. Except as ADB may otherwise agree, the Loan proceeds shall be disbursed in accordance with the Loan Disbursement Handbook.

Imprest Account and Statement of Expenditures

5. (a) Except as ADB may otherwise agree, the Borrower shall, through JPG, cause the Jiangsu Finance Department to establish immediately after the Effective Date, an imprest account at a bank acceptable to ADB. The imprest account shall be established, managed, replenished and liquidated in accordance with the Loan Disbursement Handbook, and detailed arrangements agreed upon between the Borrower and ADB. The imprest account shall only be used for the purposes of the Project. The currency of the imprest account shall be the Dollar. The ceiling for the imprest account shall not exceed the lower of (i) the estimated expenditure for the first 6 months of the Project implementation; or (ii) the equivalent of 10% of the Loan amount.

(b) The statement of expenditures procedure may be used for reimbursement of eligible expenditures and to liquidate advances provided into the imprest account, in accordance with the Loan Disbursement Handbook and detailed arrangements agreed upon between the Borrower and ADB. Any individual payment to be reimbursed or liquidated under the statement of expenditures procedure shall not exceed the equivalent of \$200,000.

Retroactive Financing

6. Withdrawals from the Loan Account may be made for reimbursement of eligible expenditures incurred under the Project before the Effective Date, but not earlier than 12 months before the date of this Loan Agreement in connection with procurement of Works and Consulting Services, subject to a maximum amount equivalent to 20% of the Loan amount.

TABLE

ALLOCATION AND WITHDRAWAL OF LOAN PROCEEDS (Jiangsu Yancheng Wetland Protection Project)				
Category				ADB Financing
Number	Item	Total Amount Allocated for ADB Financing (\$)		Percentage and Basis for Withdrawal from the Loan Account
		Category	Subcategory	
1	Works	29,990,000		
1A	Wetlands Protection at YRBNNR		19,100,000	53% of total expenditure claimed
1B	Wetlands Protection at DMNNR		470,000	19% of total expenditure claimed
1C	Coastal Forest Improvement at SFF		6,900,000	74% of total expenditure claimed
1D	Coastal Forest Improvement at DFF		3,520,000	74% of total expenditure claimed
2	Goods	6,360,000		
2A	Wetlands Protection at YRBNNR		3,560,000	73% of total expenditure claimed
2B	Wetlands Protection at DMNNR		2,480,000	100% of total expenditure claimed*
2C	Coastal Forest Improvement at DFF		320,000	65% of total expenditure claimed
3	Capacity Development	550,000		100% of total expenditure claimed*
Total		36,900,000		

* Exclusive of taxes and duties imposed within the territory of the Borrower.

SCHEDULE 4

Procurement of Goods, Works and Consulting Services

General

1. The procurement of Goods, Works and Consulting Services shall be subject to and governed by the Procurement Guidelines, and the Consulting Guidelines, respectively.
2. All terms used in this Schedule and not otherwise defined in this Loan Agreement have the meanings provided in the Procurement Guidelines and/or the Consulting Guidelines, as applicable.

Goods and Works

3. Except as ADB may otherwise agree, Goods and Works shall only be procured on the basis of the methods of procurement set forth below:
 - (a) International Competitive Bidding;
 - (b) National Competitive Bidding; and
 - (c) Shopping.
4. The methods of procurement are subject to, among other things, the detailed arrangements and threshold values set forth in the Procurement Plan. The Borrower may only modify the methods of procurement or threshold values with the prior agreement of ADB, and modifications must be set out in updates to the Procurement Plan.

Domestic Preference

5. The Borrower may grant a margin of preference in the evaluation of bids under international competitive bidding in accordance with paragraphs 2.55(a) and 2.56 of the Procurement Guidelines for domestically manufactured Goods.

National Competitive Bidding

6. The Borrower and ADB shall ensure that, prior to the commencement of any procurement activity under national competitive bidding, the Borrower's national competitive bidding procedures are consistent with the Procurement Guidelines. Any modifications or clarifications to such procedures agreed between the Borrower and ADB shall be set out in the Procurement Plan. Any subsequent change to the agreed modifications and clarifications shall become effective only after approval of such change by the Borrower and ADB.

Conditions for Award of Contract

7. The Borrower shall cause JPG to ensure that any Works contract which involves environmental impacts is not awarded until the relevant provisions from the EMP have been incorporated into the Works contract.
8. The Borrower shall cause JPG to ensure that any Works contract which involves involuntary resettlement impacts is not awarded, until the RP has been updated, if required and submitted to ADB based on the Project's detailed design, and obtained ADB's clearance of such RP.

Consulting Services

9. Except as ADB may otherwise agree, the Borrower shall apply quality- and cost-based selection for selecting and engaging Consulting Services.

Industrial or Intellectual Property Rights

10. (a) The Borrower shall ensure that all Goods and Works procured (including without limitation all computer hardware, software and systems, whether separately procured or incorporated within other goods and services procured) do not violate or infringe any industrial property or intellectual property right or claim of any third party.

(b) The Borrower shall ensure that all contracts for the procurement of Goods and Works contain appropriate representations, warranties and, if appropriate, indemnities from the contractor or supplier with respect to the matters referred to in subparagraph(a) of this paragraph.

11. The Borrower shall ensure that all ADB-financed contracts with consultants contain appropriate representations, warranties and, if appropriate, indemnities from the consultants to ensure that the Consulting Services provided do not violate or infringe any industrial property or intellectual property right or claim of any third party.

ADB's Review of Procurement Decisions

12. Contracts procured under international competitive bidding procedures, first contracts under national competitive bidding procedure and contracts for Consulting Services shall be subject to prior review by ADB, unless otherwise agreed between the Borrower and ADB and set forth in the Procurement Plan.

SCHEDULE 5

Execution of Project; Financial Matters

Implementation Arrangements

1. The Borrower shall, and shall cause JPG to, 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 Loan Agreement, the provisions of this Loan Agreement shall prevail.

Zoning Plan for DMNNR

2. The Borrower shall cause JPG and through JPG shall cause JEPD 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 Zoning Plan of Jiangsu DMNNR by the Borrower's State Council.

Counterpart Support

3. The Borrower shall cause JPG and through JPG 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 the Project implementation; and (c) all funds and resources necessary for construction, O&M, and management of the Project are provided on a timely basis.

LOAN NUMBER ____-PRC

PROJECT AGREEMENT
(Jiangsu Yancheng Wetland Protection Project)

between

ASIAN DEVELOPMENT BANK

and

JIANGSU PROVINCIAL GOVERNMENT

DATED _____

PAL: PRC 40685

PROJECT AGREEMENT

PROJECT AGREEMENT dated _____ between ASIAN DEVELOPMENT BANK ("ADB") and JIANGSU PROVINCIAL GOVERNMENT ("JPG").

WHEREAS

(A) by a Loan Agreement of even date herewith between People's Republic Of China ("Borrower") and ADB, ADB has agreed to make to the Borrower a loan of thirty-six million nine hundred thousand Dollars (\$36,900,000) on the terms and conditions set forth in the Loan Agreement, but only on the condition that the proceeds of the loan be made available to JPG and that JPG agrees to undertake certain obligations towards ADB set forth herein; and

(B) JPG, in consideration of ADB entering into the Loan Agreement with the Borrower, has agreed to undertake the obligations set forth herein;

NOW THEREFORE the parties hereto agree as follows:

ARTICLE I

Definitions

Section 1.01. (a) Wherever used in this Project Agreement, unless the context otherwise requires, the several terms defined in the Loan Agreement and in the Loan Regulations (as so defined) have the respective meanings therein set forth, except that for purposes of this Project Agreement.

(b) In addition to the terms referred to in subsection(a) hereinabove, the following terms, wherever used in this Project Agreement, unless the context otherwise requires, have the following meaning:

(i) the expression "IAs shall" means that JPG shall cause IAs to, or ensure that IAs, undertake required responsibilities or perform specified obligations in this Project Agreement; and

(ii) "Onlending Agreements" means the onlending agreements between (i) JPG and YMG; and (iii) JPG and DCG as referred to in Section 2.01(b) of this Project Agreement.

ARTICLE II

Particular Covenants

Section 2.01. (a) JPG shall ensure to provide on a grant basis (i) twenty-three million Dollars (\$23,000,000) to YRBNNR for the implementation of Output 1 and a portion of Output 5; and (ii) three million Dollars (\$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.

(b) JPG shall ensure: (i) to onlend seven million Dollars (\$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 three million nine hundred thousand Dollars (\$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.

(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.

(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.

Section 2.02. 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.

Section 2.03. (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.

(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.

Section 2.04. 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.

Section 2.05. (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.

(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.

Section 2.06. 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.

Section 2.07. (a) ADB and JPG shall cooperate fully to ensure that the purposes of the Loan will be accomplished.

(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.

(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.

Section 2.08. (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.

(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 be taken to remedy these problems, and proposed program of activities and expected progress during the following period.

(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 Project Agreement and the accomplishment of the purposes of the Loan.

Section 2.09. (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 Loan Agreement and the Project Agreement 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 financial statements and the audit thereof as ADB shall from time to time reasonably request.

(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.

Section 2.10. JPG and IAs shall enable ADB's representatives to inspect the Project, the Goods and Works, and any relevant records and documents.

Section 2.11. (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.

(b) JPG and IAs shall at all times conduct their operations in accordance with sound applicable technical, financial, business, development and operational practices, and under the supervision of competent and experienced management and personnel.

(c) JPG and IAs shall at all times operate and maintain their plants, equipment and other property, and from time to time, promptly as needed, make all necessary repairs and renewals thereof, all in accordance with sound applicable technical, financial, business, development, operational and maintenance practices.

Section 2.12. 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 Project Agreement.

Section 2.13. 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.

Section 2.14. 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.

Section 2.15. 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.

ARTICLE III

Effective Date; Termination

Section 3.01. This Project Agreement shall come into force and effect on the date on which the Loan Agreement comes into force and effect. ADB shall promptly notify JPG of such date.

Section 3.02. All the provisions of this Project Agreement shall continue in full force and effect notwithstanding any cancellation or suspension under the Loan Agreement.

ARTICLE IV

Miscellaneous

Section 4.01. Any notice or request required or permitted to be given or made under this Project Agreement and any agreement between the parties contemplated by this Project Agreement shall be in writing. Such notice or request shall be deemed to have been duly given or made when it shall be delivered by hand, mail or facsimile to the party to which it is required or permitted to be given or made at its address hereinafter specified, or at such other address as such party shall have designated by notice to the party giving such notice or making such request. The addresses so specified are:

For ADB

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

Facsimile Numbers:

(632) 636-2444
 (632) 636-6974.

For JPG

No. 68 West Beijing Road
 Nanjing, Jiangsu
 People's Republic of China

Facsimile Number:

(025) 83633110.

Section 4.02. (a) Any action required or permitted to be taken, and any documents required or permitted to be executed, under this Project Agreement by or on behalf of JPG may be taken or executed by Director General of Jiangsu Finance Department or by such other person or persons as he or she shall so designate in writing notified to ADB.

(b) JPG shall furnish to ADB sufficient evidence of the authority of each person who will act under subsection (a) hereinabove, together with the authenticated specimen signature of each such person.

Section 4.03. No delay in exercising, or omission to exercise, any right, power or remedy accruing to either party under this Project Agreement upon any default shall impair any such right, power or remedy or be construed to be a waiver thereof or an acquiescence in such default; nor shall the action of such party in respect of any default, or any acquiescence in any default, affect or impair any right, power or remedy of such party in respect of any other or subsequent default.

IN WITNESS WHEREOF the parties hereto, acting through their representatives thereunto duly authorized, have caused this Project Agreement to be signed in their respective names as of the day and year first above written, and to be delivered at the principal office of ADB.

ASIAN DEVELOPMENT BANK

By _____
[Name and Designation]

JIANGSU PROVINCIAL GOVERNMENT

By _____
[Name and Designation]

SCHEDULE

Execution of Project; Financial Matters

Implementation Arrangements

1. 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 Project Agreement shall prevail.

Regulations of the People's Republic of China on Management of Nature Reserves 1994.

2. JPG shall, and shall cause JEPD and JFORB 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.

Counterpart Support

3. 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.

Zoning Plan for DMNNR

4. 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 Zoning Plan of Jiangsu DMNNR by the Borrower's State Council.

Environmental Management Plans

5. 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.

Five Years Plan for Environmental and Ecological Protection

6. 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.

Transfer of Milu Deer

7. JPG shall, through JFORB, cause the DMNNR management authorities to ensure that a Milu deer relocation plan describing the selection criteria, transfer arrangements, and supervision 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.

8. JPG shall, through JFORB cause the DMNNR management authorities to ensure that (a) phased approach is adopted for relocation of Milo 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.

Environment

9. JPG shall ensure that the 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.

Land Acquisition and Involuntary Resettlement

10. 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.

11. 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.

Human and Financial Resources to Implement Safeguards Requirements

12. JPG shall make available necessary budgetary and human resources to fully implement the EMP and the RP.

Safeguards-Related Provisions in Bidding Documents and Works Contracts

13. JPG shall ensure that all bidding documents and contracts for Works contain provisions that require contractors to:

Schedule

- (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 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.

Safeguards Monitoring and Reporting

14. 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.

Prohibited List of Investments

15. 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.

Grievance Redress Mechanism

16. 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.

Gender Development

17. 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 specified in the GAP.

Health Risks

18. 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.

Labor Standards

19. 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.

SECTOR ASSESSMENT (SUMMARY): AGRICULTURE AND NATURAL RESOURCES

1. A detailed sector assessment analyzing the proposed Jiangsu Yancheng Wetlands Protection Project with respect to laws, regulations, strategies, plans, and programs, and aligning the project design with the sector strategies and priorities, considered (i) sites, focusing on the master plans of the two nature reserves and the twelfth five-year plans of the two forest farms; (ii) the municipality, focusing on the Yancheng coastal development plan, twelfth five-year plan for economic and social development, and twelfth five-year plan for forestry; (iii) the province, focusing on the Jiangsu coastal development plan, the twelfth five-year plans for economic and social development, and the plan for building Jiangsu into an ecological province; (iv) the nation, focusing on national laws, regulations, strategies, plans, and programs on wetland and wildlife protection; and (v) international commitments, including the Ramsar Convention, the Convention on Biological Diversity, and other multilateral and bilateral environmental agreements.

1. Importance of Yancheng Coastal Wetlands

2. With an area of 843,500 hectares (ha) of coastal and seashore wetlands, accounting for 14.2% of the national total, Jiangsu Province ranks third in this regard in the People's Republic of China (PRC). A significant portion of these wetlands are in Yancheng municipality, where they cover 453,000 ha (30% of the municipality) and stretch for 580 kilometers (km) along the coast. The Yancheng coastal wetlands consist primarily of extensive intertidal mudflats, tidal creeks and river channels, salt marshes, reed beds, and marshy grasslands that provide desirable habitats for numerous species of flora and fauna of global and national importance.

3. The coastal wetlands in Yancheng include two national nature reserves: the Dafeng Milu National Nature Reserve (DMNNR) and the Yancheng Rare Birds National Nature Reserve (YRBNNR). The YRBNNR is very rich in biodiversity, containing 480 species of plants, 370 of birds, 281 of fish, 48 of mammals, and 45 of amphibians. Twelve of its animal species are included on the country's first-ranked list for priority protection, and 29 of its bird species are listed on the International Union of Conservation Nature's (IUCN) Red List of Threatened Species. The YRBNNR is one of the two wintering grounds in the PRC for the red-crowned crane (*Grus japonensis*), which is rated as endangered in the Red List of Threatened Species. About 60% of the world's estimated 2,500 red-crowned cranes migrate every winter to the YRBNNR. The DMNNR is home to 25% of the world's population of milu deer (*Elaphurus davidianus*), which is rated as "extinct in the wild" in the Red List of Threatened Species. The two national nature reserves are accredited to the List of Wetlands of International Importance under the Ramsar Convention and the World Network of Biosphere Reserves of the United Nations Educational, Scientific, and Cultural Organization (UNESCO), recognizing the uniqueness of these wetland ecosystems and the species biodiversity that they harbor. The Dafeng Forest Farm and the Sheyang Forest Farm, neighboring the DMNNR and the YRBNNR respectively, provide additional ecological protection to the two nature reserves and are part of the national coastal ecological protection forest network and provincial forest parks.

4. The Yancheng wetlands provide important ecosystem services to local communities. Local livelihoods are sustained through gathering and culture of marine and estuarine plants (e.g., reeds) and fish species. Wetland plants slow the flow of rivers, and the mudflats absorb wave energy from the Yellow Sea, thereby protecting against coastal erosion, tsunamis, and storm surges. Wetlands improve water quality by assimilating some of Yancheng municipality's rapidly worsening pollution flowing from households and industry. They regulate the local climate and help raise agricultural productivity. Finally, the two nature reserves, together with

the two forest farms designated as provincial forest parks, attract hundreds of ecotourists each year from around the world, generating employment and income for local communities.

2. Threats to the Yancheng Coastal Wetlands

5. Despite their local, national, and global significance, Yancheng coastal wetlands suffer rapid degradation, wildlife habitat loss and fragmentation, and loss of biodiversity. The main threats to the coastal wetland ecosystems and biodiversity are (i) land-use changes from reclamation 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) draining; (v) pollution from terrestrial sources; (vi) poaching and poisoning; and (vii) overfishing and other unsustainable resource extraction. Since the 1980s, over half of the wildlife habitat has vanished. From 1975 to 2006, the area of fishponds and built-up land has expanded by 8.0 times and the area of farmland by 1.6 times. *Spartina alterniflora*, introduced from the United States to control coastal erosion and accelerate coastal sedimentation for reclamation, spread from zero to 13,705 ha since 1982. Consequently, the area of reeds contracted from 56,145 ha to 11,930 ha, seepweed from 72,134 ha to 9,499 ha, and mudflats from 133,683 ha to 77,373 ha. Fish catches declined from 165,605 tons in 1995 to 112,543 tons in 2005. Primarily human causes, compounded by natural causes, shrank the habitat suitable for the red-crowned cranes by 53.3%, from 2,354.4 square kilometres (km²) in 1987 to 1,100.1 km² in 2007, forcing the wintering population down from 1,175 in 2001 to an all-time low of 477 in 2010. The poor quality of drinking water and grazing and fodder grounds and a plague of parasites have undermined the health of milu deer in the DMNRR. These threats to the nature reserves are magnified by poor protection infrastructure, weak management capacity, and inadequate public education and community participation. Further, the two forest farms lack (i) diversity and strong resilience; (ii) adequate drainage; and (iii) adequate forest protection infrastructure, including for fire and pest prevention and control.

3. Government Responses

6. **National regulatory framework.** The PRC has a comprehensive regulatory framework for biodiversity protection and nature reserve management. The Constitution of the People's Republic of China of 1982; the Environmental Protection Law, 1989; the Law on Protection of Wild Fauna, 1989; and other laws and regulations provide for the protection of important species, their habitats, and valued ecosystems. The Guideline on Protection of Terrestrial Wild Fauna, proclaimed in 1992 by the former Ministry of Forestry, calls for adopting biological engineering and technical engineering toward maintaining and improving the habitats of wild fauna, wildlife rescue, biodiversity surveys and monitoring, and public education. The Regulation on Management of Nature Reserves, 1994 sets forth rules and procedures for establishing and managing nature reserves. It prohibits people entering the core zone but lacks provisions on ecosystem and habitat rehabilitation or patrol (e.g., by nature reserve management personnel) or emergency response (e.g., firefighting in a forest nature reserve). The Directive on Strengthening Wetland Protection and Management, 2004 calls for expanded (i) management infrastructure, including management and/or patrol stations, fences, border markers, wildlife rescue centers, patrol paths and vehicles, communication equipment, firetowers, firefighting routes, firetrucks, and the preparation and updating of management plans; (ii) public education infrastructure, including exhibition centers, specimen displays, audio and/or video equipment, signs, boards, and pamphlets; (iii) monitoring and scientific research infrastructure, including laboratories, field surveys, and sampling equipment and information systems; and (iv) administrative infrastructure, including office buildings and auxiliary facilities. The Guideline on Supervision and Inspection of Nature Reserves, 2006 requires the regular evaluation of national

nature reserves and defines the scope of evaluation to include (i) institutional set-up and staffing; (ii) patrol and protection facilities; (iii) area and suitability, boundaries, and land ownership of the functional zones; (iv) the formulation and implementation of management plans, as well as rules and procedures; (v) resource baseline surveys, protection, and utilization; (vi) scientific research, monitoring, recordkeeping, and specimen collection; (vii) the management of construction projects within nature reserves; (viii) tourism and other human activities; (ix) public education, training, exchange, and cooperation; and (x) financing.

7. **National plans and programs.** In 1996, the State Council approved the National Plan for Development of Nature Reserves, 1996–2010, which set the 2010 target of establishing 1,200 nature reserves covering 10.0% of national territory. By the end of 2010, there were 2,588 national, provincial, prefecture, and county nature reserves with a total area of 149.44 million ha, or 14.9% of national territory, including 319 national nature reserves with a total area of 92.68 million ha. By the end of 2010, more than 550 wetland nature reserves and 145 pilot national wetland parks had been established. Currently, there are 37 natural wetland sites with a total area of 3.81 million ha, or 10.5% of the 36.20 million ha of natural wetlands. The National Wetlands Protection Program of Action (NWPPA), 2004–2030 and the National Wetland Protection Program Implementation Plan (NWPPIP), 2005–2010 aim to remove such major threats to the country's wetlands as low awareness of the ecological value and social benefits, overfishing, draining, pollution, and upstream deforestation.

8. The NWPPA, 2004–2030 sets out to restore and maintain the ecological functions of wetland ecosystems by allocating and managing water resources more effectively; demonstrating the sustainable use of the wetland resources; and strengthening wetland monitoring, public awareness, training, scientific research, and management systems. As a near-term implementation program for the NWPPA, the NWPPIP, 2005–2010 proposed a series of programs with a total investment of CNY9 billion, including establishing 222 wetland nature reserves; restoring and rehabilitating 588,000 ha of wetlands with degraded area and ecosystem function, especially national wetland nature reserves, by rewatering drained wetlands, converting fishponds into wetlands, rehabilitating wildlife habitat, and controlling pollution; and demonstrating sustainable use while developing human resource capacity and infrastructure for monitoring, research, and public education. It specifically requires the comprehensive rehabilitation and restoration of degraded coastal wetland ecosystems using ecological engineering and technologies. In recognition that draining is the greatest threat to wetlands, 12 rewatering demonstrations across the country were proposed. Moreover, the NWPPIP required all reclaimed wetlands in nature reserves, including aquaculture ponds and farmland, to be restored. The capacity development package covered better management planning and improvements to infrastructure for patrolling, fire prevention, wildlife rescue, public education, and research and monitoring.

9. In 2010, the government released the PRC Biodiversity Protection Strategy and Action Plan, 2010–2030, which cites 9 priority areas and 39 priority actions, including regulatory strengthening; mainstreaming biodiversity protection into socioeconomic development planning; ecosystem and species monitoring; wetland protection, restoration, sustainable use, and monitoring; coastal ecosystem and species baseline surveys; public education; capacity development for nature reserves; nature reserve–community codevelopment; habitat protection and the breeding of rare and endangered species; and early warning and control of invasive species.

10. **Jiangsu provincial plans and programs.** Jiangsu's twelfth provincial five-year plan, 2011–2015 has established the targets of reducing energy intensity by 16%, industrial water

intensity by 25%, biological oxygen demand and sodium oxide emissions by 8%, and ammonia-nitrogen discharge and nitrogen oxides emissions by 10%, while expanding forest cover from 20.4% in 2010 to 22.0% by 2015. Resource conservation, environmental improvement, “clean waters,” and ecosystem health are among the strategic priorities for the twelfth five-year plan. The environment and sustainable development chapter of the twelfth five-year plan calls for greater efforts in reforestation, ecological protection and restoration, and eco-compensation. Ecological protection will protect key ecological function zones, including the two nature reserves and the two forest farms. Ecological restoration will restore the health of degraded land, freshwater, and coastal wetland ecosystems. Other priorities include species surveys and protection, controlling invasive species, establishing provincial genetic databanks, and rescuing and protecting rare and endangered flora and fauna. The twelfth five-year plan calls for establishing an eco-compensation program for key ecological function zones, improving the ecological forest compensation mechanism for provincial and national ecological forest farms, and implementing a regional system of pollution payments and compensation. The eco-compensation program will be piloted in national nature reserves. The Jiangsu Coastal Development Plan, 2009–2020 has a budget of CNY44.3 billion to 2012, including CNY350 million earmarked for YRBNNR wetland restoration and protection, establishing a management information system, ecological monitoring and laboratory facilities, and public education facilities, and CNY229 million for DMNNR ecosystem rehabilitation, infrastructure improvement, and building research capacity. The Jiangsu Ecological Province Plan proposed an investment of CNY200 billion from 2004 to 2010, including CNY20 billion for ecological protection and restoration and CNY20 billion for ecological agriculture and forestry. The priorities of these two plans have been incorporated into the twelfth five-year plan.

11. **Yancheng municipal plans and programs.** The Yancheng twelfth five-year plan, 2011–2015 sets the target of meeting the national requirements for an ecological city by 2015 and replicates provincial pollution control targets achieved through structural adjustment, cleaner production, strengthened regulatory enforcement, constructing sewage treatment plants and sanitary landfills, and controlling pollution that lacks a single, clear source. On the ecological front, wetland restoration and protection is a top priority, with the emphasis on the two national nature reserves. The protection of key ecological function zones will be strengthened. The actions proposed in the master plans of the two national nature reserves will be implemented. Other important priorities are ecotourism and strengthening the coastal protection forest network, biodiversity monitoring, post-environmental impact assessment monitoring of wind farms, and controlling invasive species. The use of economic instruments for pollution control and ecological protection, including eco-compensation with a focus on the two national nature reserves, will be promoted. The environmental priorities of the Yancheng Coastal Development Plan, 2007–2020 are incorporated into the twelfth five-year plans.

12. **Local plans.** The YRBNNR master plan, 2008–2020 proposed priority actions on planning and infrastructure improvement, ecological restoration, research and monitoring, public education and outreach, and beneficial uses. The estimated investment in the plan of action is CNY26.78 million in the near term (2008–2010) and CNY58.55 million in the long term (2011–2020). The DMNNR master plan, 2000–2020 proposed improving drinking water supply and resting space for milu deer, grazing and fodder grounds, disease control, science education facilities, ecotourism development, protection facilities such as fencing, and building research and monitoring capacity. A review of the status of the three national nature reserves in Jiangsu in 2008 for the Ministry of Environmental Protection and the State Forestry Administration concluded that they have good management capacity, but expressed concerns about (i) the scope and functional zoning of the DMNNR; (ii) the incomplete granting of land titles; (iii) illegal development; and (iv) the lack of personnel and funds. The twelfth five-year plans of the two

forest farms set the goal of sustainably developing agriculture and forestry for economic diversification and a stable increase in forest worker and forest farm income achieved by expanding forest cover; improving forest infrastructure; expanding agroforestry, tourism, and associated industries; and improving drainage and fire and pest prevention and control infrastructure and services.

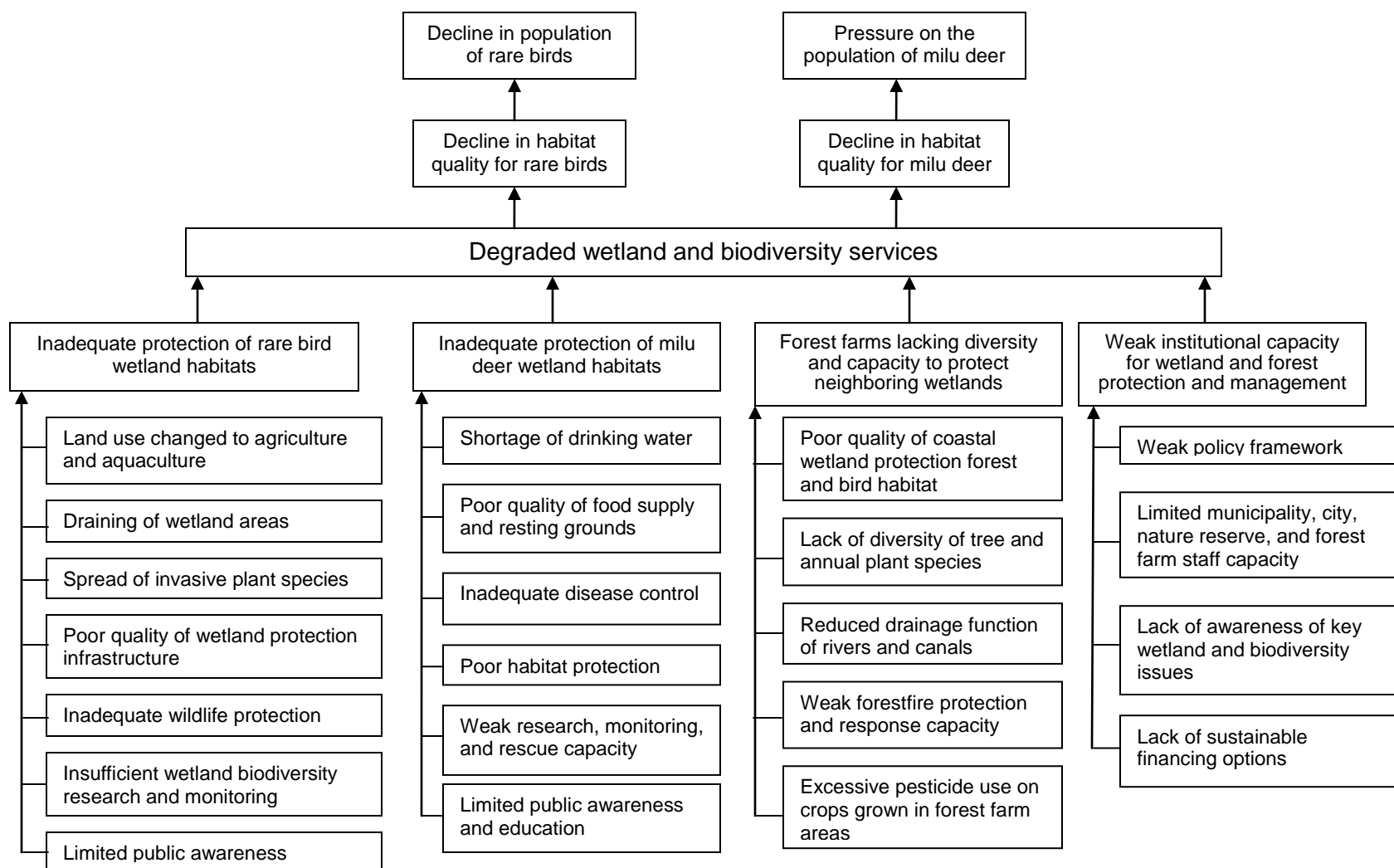
13. **International commitments.** In 1992, the PRC joined the Convention on Biological Diversity (CBD) and the Convention on Wetlands of International Importance (Ramsar Convention). The CBD requires each contracting party to, among other things, rehabilitate and restore degraded ecosystems and promote the recovery of threatened species by developing and implementing plans or other management strategies, as well as preventing the introduction of invasive species and controlling or eradicating them, among other actions. In 2009, the PRC submitted its fourth country report to the CBD secretariat. In June 1994, the government released its Biodiversity Protection Action Plan and in September 2010 its Biodiversity Strategy and Action Plan, 2010–2030. The Ramsar Convention calls for the protection, sustainable use, and monitoring of wetlands. In response, the PRC has 37 wetlands put on the List of Wetlands of International Importance under the Ramsar Convention. The DMNNR and the YRBNNR were so accredited on 11 January 2002.

14. The DMNNR and the YRBNNR are members of the China Biosphere Reserves Network, which was established by the Chinese National Committee for UNESCO's Man and the Biosphere Programme in 1993. The network has 141 members, of which 28, including the YRBNNR, are listed among 563 UNESCO World Network of Biosphere Reserves in 110 countries. The PRC is part of the Northeast Asia Crane Site Network, through which countries sign bilateral agreements to protect migratory birds including the red-crowned crane. The red-crowned crane is also covered by the East Asia–Australasia Flyway Agreement and the Asia Pacific Migratory Waterbird Conservation Strategy, which the PRC signed. Meanwhile, the PRC is party to a number of bilateral agreements on protecting migratory species. The PRC signed agreements with Japan in 1983 and Australia in 1988 to protect migratory birds and their habitats. In 1989, the PRC signed a memorandum of understanding with what was then the Soviet Union on nature conservation and an agreement with Mongolia on nature conservation. Finally, the PRC is a member of the International Crane Foundation, a Wisconsin-based nonprofit organization dedicated to studying and preserving of the 15 species of cranes.

4. Summary

15. The Jiangsu Yancheng Wetlands Protection Project will target wetland restoration, ecosystem and habitat improvement, species protection, invasive species control, infrastructure improvement, public education, community participation, and capacity development in research and monitoring. It will address the threats and pressures faced by the nature reserves and the two forest farms that form the Yancheng coastal wetland ecosystem; respond directly to national, provincial, municipal, and nature reserve priorities; and complement the attainment of the PRC's international commitments. Forest improvement interventions in the two forest farms will help strengthen the national coastal ecological protection forest network in the PRC. Together with wetland improvement, they contribute to carbon sequestration and building resilience under climate change.

PROBLEM TREE ANALYSIS



Source: Asian Development Bank.

Project Administration Manual

Project Number: 40685
Loan Number: Loan XXXX-PRC
November 2011

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

TABLE OF CONTENTS

ABBREVIATIONS	iv
I. PROJECT DESCRIPTION	1
A. Basic Project Information	1
B. Rationale	2
II. IMPLEMENTATION PLANS	7
A. Project Readiness Activities	7
B. Project Implementation Schedule	8
III. PROJECT MANAGEMENT ARRANGEMENTS	9
A. Project Implementation Organization – Roles and Responsibilities	9
B. Key Persons Involved in Implementation	12
C. Project Implementation Organization Chart	14
IV. COSTS AND FINANCING	15
A. Investment Plan	15
B. Financing Plan	15
C. Detailed Cost Estimates by Financier and Expenditure Category	17
D. Expenditure Accounts by Outputs	18
E. Allocation and Withdrawal of Loan Proceeds	19
F. Contract and Disbursement S-Curve	20
G. Fund Flow Diagram	21
V. FINANCIAL MANAGEMENT	22
A. Financial Management Assessment	22
B. Disbursement	22
C. Accounting	23
D. Auditing	23
VI. PROCUREMENT AND CONSULTING SERVICES	23
A. Advance Contracting and Retroactive Financing	23
B. Procurement of Goods, Works, and Consulting Services	24
C. Procurement Plan	24
D. Outline Terms of Reference for Consulting Services	34
VII. SAFEGUARDS	39
A. Environmental Safeguard	39
B. Social Safeguards	40
VIII. GENDER AND SOCIAL DIMENSIONS	41
IX. PERFORMANCE MONITORING, EVALUATION, REPORTING, AND COMMUNICATION	45
A. Project Design and Monitoring Framework	45
B. Monitoring	48
C. Evaluation	50
D. Reporting	50
E. Stakeholder Communication Strategy	50
X. ANTICORRUPTION POLICY	51
XI. ACCOUNTABILITY MECHANISM	52
XII. RECORD OF PROJECT ADMINISTRATION MANUAL CHANGES	52

Project Administration Manual Purpose and Process

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

The Jiangsu provincial government is wholly responsible for the implementation of this ADB-financed project, as agreed jointly between ADB and the borrower; and in accordance with the government's and ADB policies and procedures. ADB staff is responsible to support implementation, including compliance by the Dafeng city government, the Jiangsu provincial government, the Yancheng municipal government, and the four project implementation units of their obligations and responsibilities for project implementation in accordance with ADB policies and procedures.

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

After ADB Board approval of the project's report and recommendation of the President, changes in implementation arrangements are subject to agreement and approval pursuant to relevant government and ADB administrative procedures (including the project administration instructions), and upon such approval they will be subsequently incorporated in the PAM.

ABBREVIATIONS

ADB	–	Asian Development Bank
CBD	–	Convention on Biological Diversity
CNY	–	Chinese yuan
COBP	–	country operations business plan
CPS	–	country partnership strategy
DCG	–	Dafeng city government
DFF	–	Dafeng Forest Farm
DI	–	design institute
DMF	–	design and monitoring framework
DMNNR	–	Dafeng Milu National Nature Reserve
EA	–	executing agency
EAER	–	Environment, Natural Resources, and Agriculture Division
EARD	–	East Asia Department
EIA	–	environmental impact assessment
EMP	–	environmental management plan
EMU	–	environmental management unit
EPB	–	environmental protection bureau
EPD	–	environmental protection department
EPL	–	Environmental Protection Law
FMA	–	financial management assessment
FSR	–	feasibility study report
FYP	–	five-year plan
GAP	–	gender action plan
GDP	–	gross domestic product
GEF	–	Global Environment Facility
GRM	–	grievance redress mechanism
FA	–	force account
IA	–	implementing agency
ICB	–	international competitive bidding
ICS	–	individual consultant selection
IUCN	–	International Union for Conservation of Nature
JCDP	–	Jiangsu Coastal Development Plan
JEPD	–	Jiangsu Environmental Protection Department
JFD	–	Jiangsu finance department
JFORB	–	Jiangsu forestry bureau
JPG	–	Jiangsu provincial government
JPLG	–	Jiangsu project leading group
JPMO	–	Jiangsu project management office
LIBOR	–	London interbank offered rate
MEP	–	Ministry of Environmental Protection
MRM	–	Management Review Meeting
NCB	–	national competitive bidding
NNR	–	national nature reserve
NR	–	nature reserve
NWPPA	–	National Wetland Protection Plan of Action
NWPPIP	–	National Wetland Protection Program Implementation Plan
PAM	–	project administration manual
PBA	–	performance-based allocation
PIU	–	project implementation unit

PLG	–	project leading group
PMO	–	project management office
PPMS	–	project performance management system
PPTA	–	project preparatory technical assistance
PRC	–	People's Republic of China
QCBS	–	quality- and cost-based selection
RCOBP	–	regional cooperation operations business plan
RP	–	resettlement plan
SEPA	–	State Environmental Protection Administration
SFA	–	State Forestry Administration
SFF	–	Sheyang Forest Farm
SP	–	Shopping
SPRSS	–	summary poverty reduction and social strategy
SPS	–	Safeguard Policy Statement
UNESCO	–	United Nations Education, Science, and Culture Organization
YEPB	–	Yancheng environmental protection bureau
YMG	–	Yancheng municipal government
YPLG	–	Yancheng project leading group
YPMO	–	Yancheng project management office
YRBNNR	–	Yancheng Rare Birds National Nature Reserve

I. PROJECT DESCRIPTION

A. Basic Project Information

Aspects	Arrangements
Project title	Jiangsu Yancheng Wetlands Protection Project
Executing agency	Jiangsu provincial government
Modality	Project loan
Financing	Ordinary capital resources
COBP/RCOBP	The proposed project was included in the Asian Development Bank's (ADB) 2011 lending pipeline during the country programming mission conducted in Manila in December 2010.
Classification	<p>Sector: Agriculture and natural resources</p> <p>Subsectors: Water-based natural resources management, forestry</p> <p>Themes: Environmental sustainability, capacity development</p> <p>Subthemes: Natural resources conservation, organizational development</p> <p>Targeting classification: General intervention</p> <p>Gender mainstreaming category: Effective gender mainstreaming</p> <p>Location impact: Rural (high), urban (high), national (low)</p> <p>Safeguards: Environment category A, involuntary resettlement category A, and indigenous peoples category C</p>
Risk categorization	Complex
Partnership(s)	Grant cofinancing of \$2.50 million being sought from the Global Environment Facility to complement capacity development is under development.
Use of a PBA	Not applicable
Parallel PIU	No
Department and division	East Asia Department (EARD); Environment, Natural Resources, and Agriculture Division (EAER)
Mission leader and members	Q. Zhang, Lead Water Resources Specialist, EAER/Mission Leader; I. Ahsan, Counsel, Office of the General Counsel; B. Dunn, Environment Specialist, Regional and Sustainable Development Department; Y. Jiang, Environmental Economist, EAER; Alvin Lopez, Natural Resources and Agriculture Specialist, EAER; H. Luna, Operations Assistant, EAER; L. Medina, Project Officer, EAER; Z. Niu, Senior Project Officer (Environment), PRC Resident Mission/EARD; F. Radstake, Senior Environment Specialist, EAER; and M. Vorpahl, Senior Social Development Specialist, EAER.

B. Rationale

1. Performance Indicators and Analysis

1. With an area of 843,500 hectares (ha) of coastal and seashore wetlands accounting for 14.2% of the national total, Jiangsu Province ranks third in this regard in the People's Republic of China (PRC). A significant portion of these wetlands are in Yancheng municipality, where they cover 453,000 ha (30% of the municipality's total area) and stretch for 580 kilometers (km) along the coast. The Yancheng coastal wetlands consist primarily of extensive intertidal mudflats, tidal creeks and river channels, salt marshes, reed beds, and marshy grasslands that provide desirable habitats for numerous species of flora and fauna of global and national importance.

2. The coastal wetlands in Yancheng include two national nature reserves: the Dafeng Milu National Nature Reserve (DMNNR) and the Yancheng Rare Birds National Nature Reserve (YRBNNR). The YRBNNR is very rich in biodiversity, containing 480 species of plants, 370 of birds, 281 of fish, 48 of mammals, and 45 of amphibians. Twelve of its animal species are included on the country's first-ranked list for priority protection, and 29 of its bird species are listed on the International Union of Conservation Nature's (IUCN) Red List of Threatened Species. The YRBNNR is one of the two wintering grounds in the PRC for the red-crowned crane (*Grus japonensis*), which is rated as endangered in the Red List of Threatened Species. About 60% of the world's estimated 2,500 red-crowned cranes migrate every winter to the YRBNNR. The DMNNR is home to 25% of the world's population of milu deer (*Elaphurus davidianus*), which is rated as "extinct in the wild" in the Red List of Threatened Species. The two national nature reserves are accredited to the List of Wetlands of International Importance under the Ramsar Convention and the United Nations Educational, Scientific, and Cultural Organization (UNESCO)'s World Network of Biosphere Reserves, recognizing the uniqueness of these wetland ecosystems and the species biodiversity that they harbor. The Dafeng Forest Farm (DFF) and the Sheyang Forest Farm (SFF), neighboring the DMNNR and the YRBNNR respectively, provide additional ecological protection to the two nature reserves, including additional habitats for rare birds and milu deer. They are also part of the national coastal ecological protection forest network and provincial forest parks.

3. The Yancheng wetlands provide important ecosystem services to local communities. Local livelihoods are sustained through the gathering and culture of marine and estuarine plants and fish species. Wetland plants slow the flow of rivers; and the mudflats absorb wave energy from the Yellow Sea, thereby protecting against coastal erosion, tsunamis, and storm surges. Wetlands improve water quality by assimilating some of Yancheng municipality's worsening pollution flowing from households and industry. They regulate the local climate and raise agricultural productivity. Finally, the two nature reserves, together with the two forest farms designated as provincial forest parks, attract hundreds of ecotourists each year from around the world, generating employment and income for local communities.

2. Key Problems and Opportunities

4. **Government response to threats to Yancheng wetlands.** Despite their local, national, and global significance, Yancheng coastal wetlands suffer rapid degradation, wildlife habitat loss and fragmentation, and loss of biodiversity. The main threats to the coastal wetland ecosystems and biodiversity are (i) land-use changes from reclamation for agriculture, aquaculture, industry, and urban expansion; (ii) habitat degradation, especially in the core and buffer zones; (iii) the rapid spread of the invasive species, particularly *Spartina alterniflora*; (iv)

draining; (v) pollution from terrestrial sources; and (vi) poaching. Since the 1980s, over half of the wildlife habitat has vanished, while the area of fishponds and built-up land has expanded by eight times. *Spartina alterniflora*, introduced from the United States to control coastal erosion and accelerate coastal sedimentation for reclamation, spread from zero to 13,705 ha since 1982. Consequently, the area of reeds contracted from 56,145 ha to 11,930 ha, seepweed from 72,134 ha to 9,499 ha, and mudflats from 133,683 ha to 77,373 ha. Fish catches declined from 165,605 tons in 1995 to 112,543 tons in 2005. Primarily human causes, compounded by natural causes, shrank the habitat suitable for the red-crowned cranes by 53.3% from 2,354.4 square kilometers (km²) in 1987 to 1,100.1 km² in 2007, forcing the wintering population down from 1,175 in 2001 to an all-time low of 477 in 2010. The poor quality of drinking water and grazing and fodder grounds and a plague of parasites have undermined the health of milu deer in the DMNNR. These threats to the nature reserves are magnified by poor protection infrastructure, weak management capacity, and inadequate public education and community participation. Further, the two forest farms lack (i) diversity and strong resilience; (ii) adequate drainage; and (iii) adequate forest protection infrastructure, including for fire and pest prevention and control.

5. Government responses and master plans. In 1984, the Jiangsu provincial government (JPG) identified 453,000 ha of the coastal wetlands in Yancheng as rare birds' nature reserve under provincial protection. In 1992, the YRBNNR was promoted to become a national nature reserve; and was accepted in UNESCO's Man-and-Biosphere Program in the same year. It joined the Northeast Asia Cranes Protection Network in 1996, and the East Asian–Australasian Shorebird Reserve Network. The DMNNR was established in 1986 as a provincial-level protected area, and was promoted to become a national nature reserve in 1997. In 2002, both nature reserves were accepted in the List of Wetlands of International Importance under the Ramsar Convention. The protection of coastal wetlands, particularly the two national nature reserves, has been a priority for the national, provincial, and municipal governments. Since their establishment, measures have been incorporated into the national, provincial, and municipal five-year plans for environmental protection and ecological construction. Both the YRBNNR Master Plan (2008–2020) and the DMNNR Master Plan (2008–2030) were approved by JPG in 2005. In 2010, as part of the effort to become a national ecological protection demonstration area, the Jiangsu Environmental Protection Department (JEPD) and the Yancheng municipal government (YMG) formulated a series of measures for protecting the YRBNNR, including wetland rehabilitation and restoration in the core zone; and anti-poaching.

6. ADB's past assistance and lessons learned. ADB's loan projects in the PRC in the environment and natural resources management sector have been generally well implemented. Lessons learned from the ecosystem and biodiversity protection projects, such as the Baiyangdian lake, Sanjiang plain wetlands, and Shaanxi Qinling biodiversity protection, were considered in policy dialogues with the government, engineering designs of the project facilities, and capacity development programs. Recent ADB reviews¹ on reviving the Tai lake, the Baiyangdian and the Sanjiang plain wetlands, and the West lake suggested that ecosystem protection, biodiversity conservation, and nature reserve management are underfinanced. Because of their nonrevenue-generating nature, ecosystem protection and biodiversity conservation projects are least favored by the government for lending. Therefore, it is important to build sustainable financing mechanisms into the project design and conduct policy dialogues to mainstream nature reserve financing into regular government budgets. Furthermore, chronic underfinancing has also led to weak capacity of the nature reserve management authorities in investing on protection, research, monitoring, public education, and community co-management activities and infrastructure. The above lessons learned have been incorporated into the overall

¹ ADB. 2008. *Reviving Lakes and Wetlands: Lessons Learned from the People's Republic of China*. Manila.

project design. First, strong interactions between the project preparatory technical assistance (PPTA) consultants and ADB missions, and the local design institutes have led to the sound engineering design of project interventions that directly remove the most serious threats and respond to the capacity development needs. Moreover, the project aims to support the development of a policy framework on eco-compensation; and the proposed Global Environment Facility (GEF) cofinancing will pilot the eco-compensation operational mechanisms that will enhance the financial sustainability of the nature reserves. Furthermore, the innovative features incorporated in the project design, including wetland rehydration, invasive species control, conversion of fishponds to wetlands, and sustainable financing mechanisms, including the innovative use of public finance and international financial institutions' lending,² will generate knowledge products that can be disseminated across the country and to other developing member countries.

7. **Proposed ADB financing and its linkage with country partnership strategy.** By drawing lessons from previous ADB-financed projects in reviving lakes and wetlands, the proposed ADB financing directly targets the most serious threats of wetland and biodiversity degradation and respond to the capacity development needs. Moreover, the loan will target the policy framework on eco-compensation and the proposed GEF cofinancing on eco-compensation operational mechanisms that will enhance the financial sustainability of the nature reserves. Furthermore, such innovative features built into this project as wetland rehydration, invasive species control, conversion of fishponds to wetlands, and sustainable financing mechanisms, including the use of public finance and international financial institutions' lending, will generate knowledge products that can be disseminated across the country and to other developing member countries.

8. The project is expected to play a demonstrative role for the restoration of other similar wetlands in the PRC. The project is consistent with ADB's country partnership strategy (2008–2010) for the PRC which aims to support environmental sustainability and inclusive growth.³

3. Impact and Outcome

9. The expected impact of the project will be improved ecosystem health and services in the coastal wetlands in Yancheng. The expected outcome will be increased capacity to manage and protect the wetland ecosystems in Yancheng.

4. Interventions and Outputs

10. The proposed project comprises five outputs. The interventions and activities for each output are described as follows:

11. **Wetlands protection at the Yancheng rare birds national nature reserve.** This output covers eight categories of interventions: (i) wetland restoration of 540 ha of degraded wetland in the experimental zone; (ii) wetland rehydration of 1,630 ha of dehydrated wetland in the core zone; (iii) conversion of 1,435 ha of fishponds to wetlands; (iv) pilot control of the spread of invasive species, particularly 400 ha of *Spartina alterniflora*; (v) construction of wetland protection infrastructure including patrol roads and stations, and waste management

² For these two nature reserves, after various dialogues, JPG agreed in July 2010 to provide the counterpart financing and take the responsibility for loan repayment, considering the major externalities associated with the protection of these two nature reserves.

³ ADB. 2008. *Country Partnership Strategy: People's Republic of China, 2008–2010*. Manila.

facilities; (vi) improved wildlife protection with establishment of a rescue, breeding, and disease control center; (vii) establishment of a wetland and biodiversity research laboratory and monitoring sites; and (viii) establishment of a public education center and a community co-management center.

12. **Wetlands protection at the Dafeng milu national nature reserve.** This output includes five categories of interventions: (i) creation of 24.7 ha of drinking water surface for milu deer's drinking water supply; (ii) establishment of 45 ha of grazing and resting ground, and 220 ha of fodder ground, including implementation of 50 ha of rotational closure of grazing ground for milu deer's food supply and resting ground; (iii) implementation of 426.4 ha of tick control, rehabilitation of 24 km of steel biological fences, improvement of 18.5 km of patrol roads, and establishment of a patrol station; (iv) establishment of a milu deer's research laboratory and habitat surveillance system; and (v) construction of the education center and the audio-video center.

13. **Coastal forest improvement at the Sheyang forest farm.** This output includes six categories of interventions: (i) rehabilitation of 185 ha of forest bird habitat; (ii) establishment of seedling nurseries including 285.2 ha of Chinese fir and evergreen tree, floral plant, and foliage-leaf nurseries; (iii) establishment of 83.5 ha of agroforestry demonstration; (iv) rehabilitation of 51.4 km of drainage canals; (v) establishment of a forest fire early warning and response system; and (vi) establishment of an integrated pest management (IPM) system.

14. **Coastal forest improvement at the Dafeng forest farm.** This output includes five categories of interventions: (i) improvement of 860 ha of coastal wetland protection forest; (ii) restoration and/or rehabilitation of 122.7 ha of coastal wetland; (iii) improvement 174 km of drainage canals; (iv) rehabilitation of 20.9 km of fire roads, and establishment of a fire prevention and response system; and (v) establishment of an IPM system.

15. **Project management and capacity development.** This output includes four categories of interventions: (i) establishment of provincial-, municipal-, and county-level project management offices (PMOs), with at least 30% representation by women; (ii) establishment of the project implementation units (PIUs) at the two nature reserves and two forest farms; (iii) provision of assistance to JPG on formulation of a policy framework on eco-compensation; and (iv) training of 100 PIU and PMO staff. PIO and PIU staff by 2013, with at least 30% representation of women. About 33 person-months of national consultants and about 8 person-months of international consultants will be recruited through a firm to assist the PMO.

16. A summary of the specific interventions and expected outputs is presented in Table 1.

Table 1: Interventions and Outputs

Intervention	Output
1. Wetlands Protection at the Yancheng Rare Birds National Nature Reserve	
1.1 Wetland restoration	- 540 ha of wetlands in experimental zone restored
1.2 Wetland rehydration	- 1,630 ha of dehydrated wetlands in core zone rehydrated
1.3 Fishponds-to-wetland conversion	- 1,435 ha of fishponds converted to wetlands
1.4 Invasive alien species control pilot	- Control of the spread of 400 ha of <i>Spartina alterniflora</i> piloted
1.5 Wetland protection infrastructure	- Patrol roads and stations improved
1.6 Wildlife protection	- Wildlife rescue, breeding, disease control center established
1.7 Wetland monitoring, research, and education capacity strengthening	- Capacity in wetland and biodiversity monitoring, research, and education strengthened
1.8 Community co-development	- Community co-development capacity strengthened

Intervention	Output
2. Wetlands Protection at the Dafeng Milu National Nature Reserve	
2.1 Milu deer's water supply improvement	- 24.7 ha of drinking water surface created
2.2 Milu deer's food supply and resting ground improvement	<ul style="list-style-type: none"> - 45 ha of resting and grazing ground established - 50 ha of rotational closure of grazing ground implemented - 220 ha of fodder ground established
2.3 Milu deer's habitat protection	<ul style="list-style-type: none"> - 24 km of steel biological fences erected or rehabilitated - 18.5 km of patrol roads improved - 1 patrol station established - 426.4 ha of tick control implemented
2.4 Milu deer's research, monitoring, and rescue capacity development	<ul style="list-style-type: none"> - Milu deer's research laboratory established - Milu deer's habitat surveillance system established
2.5 Public education capacity development	- education and audio-video centers constructed
3. Coastal Forest Improvement at the Sheyang Forest Farm	
3.1 Bird habitat restoration	- 185 ha of bird habitat restored
3.2 Establishment of seedling nurseries	<ul style="list-style-type: none"> - 93.5 ha of Chinese fir and evergreen tree nursery established - 49.4 ha of floral plants nursery established - 142.3 ha of colour-leaf plant nursery established
3.3 Agroforestry development	- 83.5 ha of forest-crop intercropping
3.4 Drainage improvement	- 51.4 km of canals rehabilitated
3.5 Forest fire prevention and response capacity improvement	<ul style="list-style-type: none"> - 49.0 km of fire roads rehabilitated - Forest fire early warning and response system established
3.6 Integrated pest management	- Integrated pest management system established
4. Coastal Forest Improvement at the Dafeng Forest Farm	
4.1 Coastal wetland protection forest improvement	- 860 ha of wetland protection forest improved and tended
4.2 Coastal wetland restoration	- 122.7 ha of coastal wetlands restored
4.3 Drainage improvement	- 174 km of canals improved
4.4 Fire prevention and response capacity	<ul style="list-style-type: none"> - 20.9 km of fire roads rehabilitated - Fire prevention and response system established
4.5 Integrated pest management	- Integrated pest management system established
5. Project Management and Capacity Development	
5.1 Project management	<ul style="list-style-type: none"> - PMOs established and operational by 2011, including at least 30% representation by women
5.2 Capacity development	<ul style="list-style-type: none"> - 8 person-months of international consulting services, and 33 person-months of national consulting services provided by 2017 - 100 persons trained by 2013 (at least 30% are women) - 30% of construction labor and 50% of operational jobs provided to women

ha = hectare, km = kilometer, PMO = project management office.

Source: Asian Development Bank.

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

Indicative Activities	2011										2012						Agency Responsible
	M	J	J	A	S	D	O	N	D	J	F	M	A	M	J		
Establishment of project implementation arrangements																DCG, JPG, TDG, YMG	
Preparation of procurement documents for contracts proposed for advance contracting and retroactive financing																DCG, JPG, TDG, YMG, ADB	
Bidding and award of contracts																DCG, JPG, TDG, YMG, ADB	
Engagement of consultants																DCG, JPG, TDG, YMG, ADB	
Loan negotiations																ADB, Government	
ADB Board approval																ADB	
Loan signing																ADB, JPG, Government	
Government legal opinion provided																JPG, Government	
Government budget inclusion																DCG, JPG, TDG	
Loan effectiveness																ADB, JPG, Government	

ADB = Asian Development Bank, DCG= Dafeng city government, JPG = Jiangsu provincial government, TDG = Tinghu District government, TYMG = Yancheng municipal government.

Source: ADB.

B. Project Implementation Schedule

Indicative Activities ^a	2012				2013				2014				2015				2016				2017			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1. Wetlands Protection at YRBNNR																								
1.1 Preparation of procurement documents and award of contract for wetland management and protection, monitoring, research and system management																								
1.2 Procurement of patrol vehicles																								
1.3 Wetland restoration																								
1.4 Public education and community co-development capacity																								
1.5 Wetland rehydration																								
1.6 Fishponds-to-wetlands conversion																								
1.7 Invasive alien species control pilot																								
1.8 Wetland protection infrastructure																								
1.9 Wildlife protection																								
1.10 Wetland and biodiversity research and monitoring capacity																								
2. Wetlands Protection at DMNNR																								
2.1 Milu deer research, monitoring, and rescue capacity																								
2.2 Milu deer's drinking water supply improvement																								
2.3 Milu deer's food supply and resting ground improvement																								
2.4 Milu deer's habitat protection																								
2.5 Public education capacity																								
3. Coastal Forest Improvement at SFF																								
3.1 Forest bird habitat restoration																								
3.2 Agroforestry development																								
3.3 Establishment of seedling nurseries																								
3.4 Drainage improvement																								
3.5 Forest fire prevention and response capacity improvement																								
3.6 Integrated pest management																								
4. Coastal Forest Improvement at DFF																								
4.1 Coastal wetlands restoration																								
4.2 Forest fire prevention and response capacity improvement																								
4.3 Drainage improvement																								
4.4 Integrated pest management																								
4.5 Coastal wetland protection forest improvement																								
5. Project Management and Capacity Development																								
5.1 Engagement of consultants																								
5.2 Project management																								
5.3 Capacity development																								

Loan Effectiveness

DMNNR = Dafeng milu national nature reserve, DFF = Dafeng forest farm, SFF = Sheyang forest farm, YRBNNR = Yancheng rare birds national nature reserve.

Source: Asian Development Bank.

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organization – Roles and Responsibilities

17. The project will be implemented over 5 years from July 2012 to June 2017. JPG will serve as the executing agency which will take oversight responsibilities and ensure coordination among JPG agencies, such as the environmental protection and finance departments, the forestry and water resource bureaus, and the Jiangsu provincial development and reform commission. YMG will assist JPG in coordinating and supervising implementation of the project. The implementing agencies are JEPD for the wetlands protection at YRBNNR output, the Jiangsu forestry bureau for the wetlands protection at DMNNR output, the YMG for the coastal forest improvement at the SFF output, and the Dafeng city government (DCG) for the coastal forest improvement at the DFF output. The Jiangsu PMO (JPMO) has been established at JEPD to be responsible for the overall planning, coordination, and supervision of the project. A municipal PMO has been established in YMG to perform tasks delegated by JPMO. Project implementation offices (PIOs) have also been established. DCG will coordinate the respective output. Furthermore, PIUs have been established in DMNNR, DFF, SFF, and YRBNNR for day-to-day implementation of the respective outputs. The capacities of PMOs and PIUs have been assessed, and a capacity strengthening plan has been included in the consulting services.

18. A summary of the roles and responsibilities of the key project organizations is provided below:

Table 2: Roles and Responsibilities of Key Project Organizations

Organization	Roles and Responsibilities
1. Jiangsu Province:	
<ul style="list-style-type: none"> Jiangsu provincial government (JPG) 	<ul style="list-style-type: none"> ➤ Serves as the executing agency ➤ Establishes JPLG headed by the provincial vice governor and consists of JEPD, JFD, JFORB, YMG, and the Jiangsu provincial development and reform commission ➤ Assumes overall accountability and responsibility for the attainment of project goals and project sustainability ➤ Assumes overall responsibility for compliance with ADB safeguard requirements and those of the Government of the People's Republic of China (PRC) ➤ Provides counterpart financing and loan repayments for the Dafeng milu national nature reserve (DMNNR) and the Yancheng rare birds national nature reserve (YRBNNR) ➤ Provides timely policy support
<ul style="list-style-type: none"> Jiangsu project leading group (JPLG) 	<ul style="list-style-type: none"> ➤ Be responsible for overall guidance and coordination ➤ Reviews project progress, and reviews and approves annual work plans ➤ Supervises project design, implementation, and management
<ul style="list-style-type: none"> Jiangsu project management office (JPMO) 	<ul style="list-style-type: none"> ➤ Serves as secretariat for JPLG and performs daily functions of project management on behalf of JPLG ➤ Coordinates project preparation, design, approval, and implementation ➤ Supervises project implementation

Organization	Roles and Responsibilities
<ul style="list-style-type: none"> Jiangsu environmental protection department (JEPD) Jiangsu forestry bureau (JFORB) Jiangsu finance department (JFD) 	<ul style="list-style-type: none"> Submits to JPG and ADB progress reports, monitoring reports, and the project performance management system (PPMS) reports Recruits and manages tendering agency Recruits and manages international project management and capacity development consulting services Recruits and manages external environmental and resettlement monitoring agency for project implementation Coordinates, reviews, and submits fund utilization plan and fund withdrawal applications Coordinates, reviews, and submits to ADB tender documents and bid evaluation reports Conducts periodical site inspections Organizes capacity development activities Serves as the implementing agency for the wetlands protection at YRBNNR output Supervises the preparation, design, bidding, implementation, and construction supervision of the wetlands protection at YRBNNR output Coordinates, organizes, and supervises the external environmental monitoring during implementation, and submits to JPMO regular external environmental and resettlement monitoring reports Serves as the implementing agency for the wetland protection at DMNNR output Supervises the preparation, design, bidding, implementation, and construction supervision of DMNNR output Coordinates, organizes, and supervises the external environmental monitoring during implementation; and submits to JPMO regular external environmental and resettlement monitoring reports Opens and manages the imprest account Reviews and submits fund withdrawal and reimbursement documents
<p>2. Yancheng Municipality:</p> <ul style="list-style-type: none"> Yancheng municipal government (YMG) Yancheng project leading group (YPLG) 	<ul style="list-style-type: none"> Establishes YPLG headed by the vice mayor and consists the Yancheng environmental protection, finance, and forestry bureaus; the Yancheng provincial development and reform commission; and the Dafeng city vice mayor Assumes overall accountability and responsibility for the attainment of goals and sustainability of the coastal forest improvement at DFF and SFF outputs Provides timely policy support Be responsible for the overall guidance and coordination for the coastal forest improvement at DFF and SFF outputs Supervises the provision of counterpart financing and loan repayments by DCG and TDG for the coastal forest improvement at DFF and SFF outputs

Organization	Roles and Responsibilities
	<ul style="list-style-type: none"> ➤ Ensures compliance of the coastal forest improvement at DFF and SFF outputs with the PRC's and ADB safeguard requirements
<ul style="list-style-type: none"> • Yancheng project management office 	<ul style="list-style-type: none"> ➤ Coordinates the implementation of the project and its outputs ➤ Supervises the implementation of the project outputs, including periodic site inspections ➤ Supervises the tendering and contracting of the project outputs ➤ Coordinates, organizes, and supervises the preparation of external environmental and resettlement monitoring reports for the project outputs ➤ Undertakes project-related tasks delegated by JPMO
<ul style="list-style-type: none"> • Dafeng city government (DCG) 	<ul style="list-style-type: none"> ➤ Serves as the implementing agency for the coastal forest improvement at DFF output ➤ Provides counterpart financing and loan repayment for the coastal forest improvement at DFF output ➤ Coordinates and supervises the implementation of the coastal forest improvement at DFF output
<ul style="list-style-type: none"> • Yancheng rare birds' national nature reserve management office 	<ul style="list-style-type: none"> ➤ Serves as the project implementation unit (PIU) ➤ Organizes the preparation and design of the output ➤ Organizes the implementation of the output, including tendering and contracting of works and goods ➤ Supervises the construction and/or installation of works and goods, including periodic site inspections ➤ Organizes and supervises the implementation of environmental management and resettlement plans ➤ Be responsible for operation and maintenance (O&M) of the output
<ul style="list-style-type: none"> • Dafeng milu national nature reserve management office 	<ul style="list-style-type: none"> ➤ Serves as PIU ➤ Organizes the preparation and design of the output ➤ Organizes the implementation of the output, including tendering and contracting of works and goods ➤ Supervises the construction and/or installation of works and goods, including periodic site inspections ➤ Organizes and supervises the implementation of environmental management and resettlement plans ➤ Be responsible for O&M of the output
<ul style="list-style-type: none"> • Sheyang forest farm (SFF) 	<ul style="list-style-type: none"> ➤ Serves as PIU ➤ Organizes the preparation and design of the output ➤ Organizes the implementation of the output, including tendering and contracting of works and goods ➤ Supervises the construction and/or installation of works and goods, including periodic site inspections ➤ Organizes and supervises the implementation of environmental management and resettlement plans ➤ Be responsible for O&M of the output

Organization	Roles and Responsibilities
<ul style="list-style-type: none"> Dafeng forest farm (DFF) 	<ul style="list-style-type: none"> Serves as PIU Organizes the preparation and design of the output Organizes the implementation of the output, including tendering and contracting of works and goods Supervises the construction and/or installation of works and goods, including periodic site inspections Organizes and supervises the implementation of environmental management and resettlement plans Be responsible for O&M of the output
3. Asian Development Bank: <ul style="list-style-type: none"> Asian Development Bank (ADB) 	<ul style="list-style-type: none"> Provides the project preparatory technical assistance Supervises project implementation to ensure full compliance with provisions of the loan and project agreements, including environmental and social safeguard requirements Provides loan funds on a timely basis Reviews and approves tendering documents, bid evaluation reports, and contracts Conducts loan review missions on a timely basis

B. Key Persons Involved in Implementation

Table 3: Key Persons Involved in Implementation

Executing Agency Jiangsu Yancheng Wetlands Protection Project, Project management office	Mr. Zhao Ting Director Tel: (86 25) 8626 6066 Fax: (86 25) 8626 6000 Email: 2009pmo@sina.com Office Address: Rm 905, 176 Jiangdong Beilu Nanjing, Jiangsu 210036, PRC
Supervisory Agency Yancheng municipal government, Project management office	Mr. Wu Yuqing Director, Yancheng Municipal Environmental Protection Bureau Tel: (86 515) 8666 0727 Fax: (86 515) 8666 0730 Office Address: Rm 727, 21 Shiji Dadao Yancheng, Jiangsu Province 224005
Implementing Agency Dafeng city government, Project management office	Mr. Xia Henglin Director Dafeng City Environmental Protection Bureau Mobile: (86) 139 0511 2808 Fax: (86 515) 8351 4887 Tel: (86 515) 8351 4886 Office Address: 7 Xingfu Xijie Dafeng City, Jiangsu Province 224100

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ADB

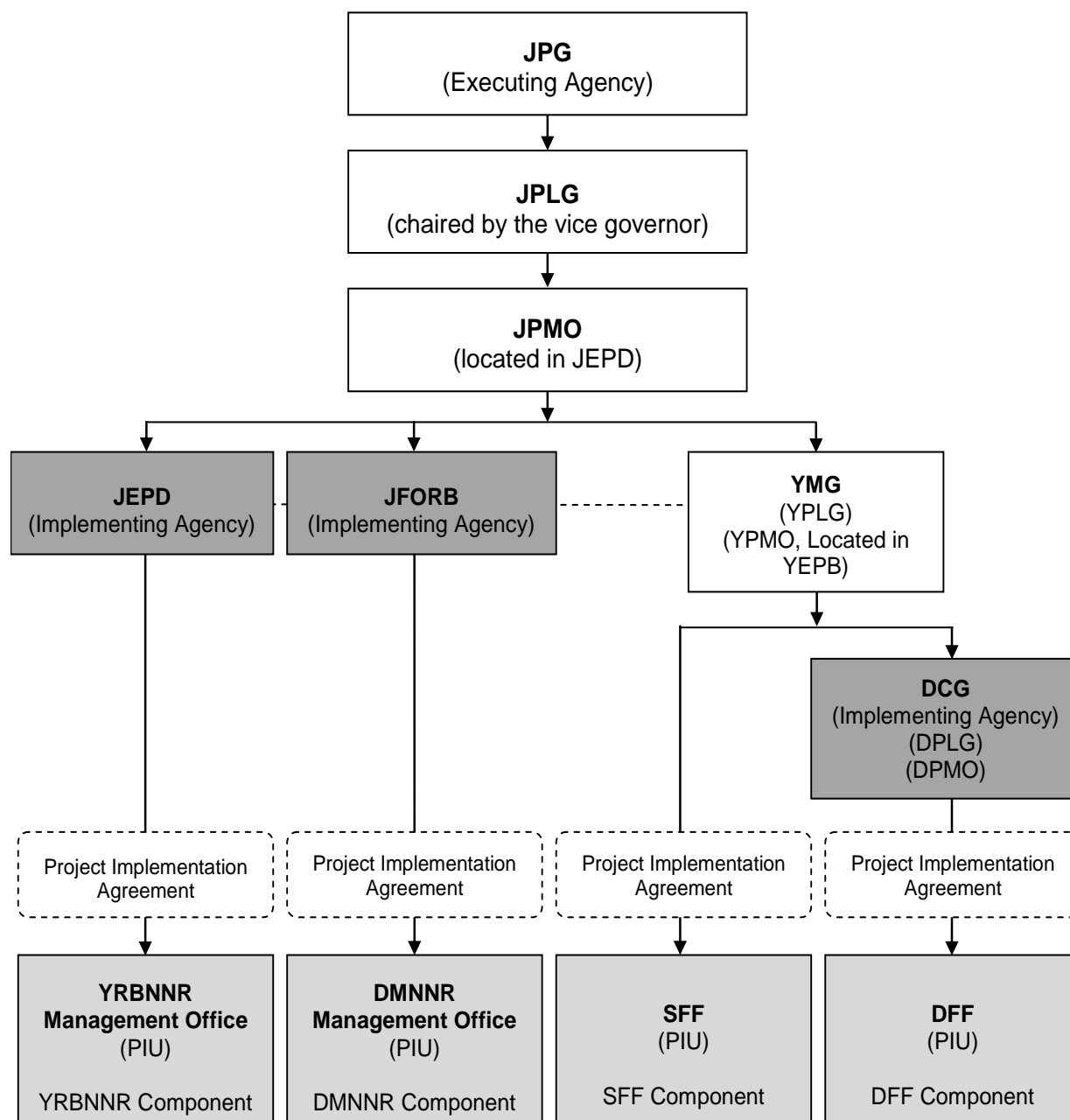
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C. Project Implementation Organization Chart



DCG = Dafeng City Government, DFF = Dafeng Forest Farm, DPLG = Dafeng project leading group, DMNMR = Dafeng Milu National Nature Reserve, DPMO = Dafeng project management office, JFORB = Jiangsu forestry bureau, JEPD = Jiangsu Environmental Protection Department, JPG = Jiangsu provincial government, JPLG = Jiangsu project leading group, JPMO = Jiangsu project management office, PIU = project implementation unit, SFF = Sheyang Forest Farm, YEPB = Yancheng environmental protection bureau, YMG = Yancheng municipal government, YPLG = Yancheng project leading group, YPMO = Yancheng project management office, YRBNNR = Yancheng Rare Birds National Nature Reserve.

Source: Asian Development Bank.

IV. COSTS AND FINANCING

A. Investment Plan

19. The project is estimated to cost \$76.39 million, including contingencies, financing charges, and taxes and duties, which will be paid by the government from its own resources. The investment plan is summarized in Table 4.

Table 4: Project Investment Plan (\$ million)

Item	Amount ^a
A. Base Cost^b	
1. Wetlands protection at Yancheng rare birds national nature reserve	41.89
2. Wetlands protection at the Dafeng milu national nature reserve	5.29
3. Coastal forest improvement at the Sheyang forest farm	10.21
4. Coastal forest improvement at the Dafeng forest farm	5.44
5. Project management and capacity development ^c	6.05
Total Base Cost (A)	68.88
B. Contingencies^d	6.19
C. Financing Charges During Implementation^e	1.32
Total (A+B+C)	76.39

ADB = Asian Development Bank, GEF = Global Environment Facility, LIBOR = London interbank offered rate.

^a In 2011 prices.

^b Including duties and taxes equivalent to \$8.14 million, which will be paid by the government from its own resources.

^c GEF grant cofinancing of \$2.5 million is being sought to complement capacity development.

^d Physical contingencies were computed using 10% on base cost. Price contingencies were computed using international and domestic price escalation factors, and include provisions for potential price exchange rate fluctuations under the assumption of a purchasing power parity exchange rate.

^e Interest during implementation, which will be paid by the government from its own resources, was computed based on 5-year forward LIBOR plus a spread of 0.4% per year. Commitment charges, which will be paid by the government out of its own resources, were computed at 0.15% per year on the undisbursed loan amount.

Source: ADB estimates.

B. Financing Plan

20. The government has requested a loan of \$36.9 million or 48.3% of the total cost from ADB's ordinary capital resources to help finance the project, excluding taxes and duties of \$8.14 million, which will be paid by the government from its own resources. Counterpart financing amounts to \$39.49 million or 51.7% of the total project cost, to cover civil works; design, monitoring, and management expenses; taxes and duties; and contingencies. The tentative financing plan is shown in Table 5.

Table 5: Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank	36.90	48.3
Government ^a	39.49	51.7
Total	76.39	100.0

^a Government financing includes taxes and duties, contingencies, and interest during implementation.

Source: Asian Development Bank estimates.

21. The borrower of the loan will be the government of the PRC. The loan will have a 25-year term, including a grace period of 5 years; an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility, which will be paid by the government out of its own resources; a commitment charge of 0.15% per year; and such

other terms and conditions as set forth in the loan and project agreements. The government has provided ADB with (i) the reasons for its decision to borrow under ADB's LIBOR -based lending facility based on these terms and conditions, and (ii) an undertaking that these choices were its own independent decision and not made in reliance on any communication or advice from ADB.

22. The government will make the loan proceeds available to JPG, which in turn will provide on a grant basis (i) twenty-three million Dollars (\$23,000,000) to YRBNNR for the implementation of Output 1 and a portion of Output 5; and (ii) three million Dollars (\$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. JPG will onlend (i) seven million Dollars (\$7,000,000) to YMG for further provision, on a grant basis to SFF for the implementation of Output 3 and a portion of Output 5; and (ii) three million nine hundred thousand Dollars (\$3,900,000) to DCG; and through DCG make available, on a grant basis, these funds to DFF for the implementation of Output 4 and a portion of Output 5. Each onlending will be done under onlending agreements upon terms and conditions specified in the loan and project agreements

23. About \$2.5 million grant from GEF was included in the March 2010 GEF intersessional work program. The approved GEF project identification form (PIF) identifies the following outputs for the proposed GEF grant cofinancing of the project: (i) wetland restoration and biodiversity conservation, (ii) sustainable natural resources management and sustainable livelihoods, (iii) ecological monitoring and evaluation, and (iv) environmental governance. The relevant document is being prepared to request GEF chief executive officer's endorsement. Once confirmation from GEF funding is received, it will be processed through ADB's internal procedures to effect the additional cofinancing from GEF to be administered by ADB.

C. Detailed Cost Estimates by Financier and Expenditure Category (\$ million)

Item	Government		ADB		Total ^a (\$ million)
	Amount (\$ million)	% of Category	Amount (\$ million)	% of Category	
I. Investment Costs^b					
A. Civil Works					
1. Wetlands protection at YRBNNR	17.75	48.17	19.10	51.83	36.85
2. Wetlands protection at DMNNR	2.09	81.64	0.47	18.36	2.56
3. Coastal forest improvement at SFF	2.71	28.20	6.90	71.80	9.61
4. Coastal forest improvement at DFF	1.41	28.60	3.52	71.40	4.93
Subtotal (A)	23.96	44.41	29.99	55.59	53.95
B. Goods					
1. Wetlands protection at YRBNNR	1.49	29.50	3.56	70.50	5.05
2. Wetlands protection at DMNNR	0.07	2.75	2.48	97.25	2.55
3. Coastal forest improvement at SFF	0.49	100.00	0.00	0.00	0.49
4. Coastal forest improvement at DFF	0.18	36.00	0.32	64.00	0.50
Subtotal (B)	2.23	25.96	6.36	74.04	8.59
C. Resettlement					
1. Wetlands protection at YRBNNR	0.17	100.00	0.00	0.00	0.17
2. Wetlands protection at DMNNR	0.00	0.00	0.00	0.00	0.00
3. Coastal forest improvement at SFF	0.11	0.00	0.00	0.00	0.11
4. Coastal forest improvement at DFF	0.00	0.00	0.00	0.00	0.00
Subtotal (C)	0.28	100.00	0.00	0.00	0.28
D. Project Management					
1. Wetlands protection at YRBNNR	3.68	100.00	0.00	0.00	3.68
2. Wetlands protection at DMNNR	0.45	100.00	0.00	0.00	0.45
3. Coastal forest improvement at SFF	0.89	100.00	0.00	0.00	0.89
4. Coastal forest improvement at DFF	0.48	100.00	0.00	0.00	0.48
Subtotal (D)	5.50	100.00	0.00	0.00	5.50
E. Consulting Services					
1. Wetlands protection at YRBNNR	0.00	0.00	0.34	0.00	0.34
2. Wetlands protection at DMNNR	0.00	0.00	0.05	100.00	0.05
3. Coastal forest improvement at SFF	0.00	0.00	0.10	100.00	0.10
4. Coastal forest improvement at DFF	0.00	0.00	0.06	100.00	0.06
Subtotal (E)	0.00	0.00	0.55	100.00	0.55
Subtotal Base Cost	31.97	46.42	36.90	53.58	68.87
II. Contingencies^c					
1. Wetlands protection at YRBNNR	4.15	100.00	0.00	0.00	4.15
2. Wetlands protection at DMNNR	0.50	100.00	0.00	0.00	0.50
3. Coastal forest improvement at SFF	1.00	100.00	0.00	0.00	1.00
4. Coastal forest improvement at DFF	0.54	100.00	0.00	0.00	0.54
Subtotal (II)	6.19	100.00	0.00	0.00	6.19
III. Financial Charges^d					
1. Wetlands protection at YRBNNR	0.90	100.00	0.00	0.00	0.90
2. Wetlands protection at DMNNR	0.12	100.00	0.00	0.00	0.12
3. Coastal forest improvement at SFF	0.11	100.00	0.00	0.00	0.11
4. Coastal forest improvement at DFF	0.19	100.00	0.00	0.00	0.19
Subtotal (III)	1.32	100.00	0.00	0.00	1.32
Total Project Cost	39.49	51.69	36.90	48.31	76.39

ADB = Asian Development Bank, DMNNR - Dafeng milu national nature reserve, DFF = Dafeng forest farm, SFF = Sheyang forest farm, YRBNNR = Yancheng rare birds national nature reserve.

Note: Numbers may not sum precisely because of rounding

^a In 2011 prices.

^b Including taxes and duties equivalent to \$8.14 million, which will be financed by the government.

^c Physical contingencies were computed using 10% on base cost. Price contingencies were computed using the international and domestic price escalation factors, and include provisions for potential price exchange rate fluctuations under the assumption of a power parity exchange rate.

^d Interest during implementation amounting to \$1.28 million, which will be paid by the government out of its own resources, was computed based on 5-year forward London interbank offered rate (LIBOR) plus a spread of 0.4% per year. Commitment charges, which will be paid by the government out of its own resources, were computed based on 0.15% per year on an undisturbed loan amount.

Source: ADB estimates.

D. Expenditure Accounts by Outputs (\$ million)

Item	Total ^a	Wetlands Protection at YRBNNR		Wetlands Protection at DMNNR		Coastal Forest Improvement at SFF		Coastal Forest Improvement at DFF	
		% of Cost		% of Cost		% of Cost		% of Cost	
		Amount	Category	Amount	Category	Amount	Category	Amount	Category
I. Investment Costs^b									
A. Civil Works	53.95	36.85	68.29	2.56	4.74	9.61	17.81	4.94	9.15
B. Goods	8.59	5.05	58.79	2.55	29.69	0.49	5.70	0.50	5.82
C. Resettlement	0.28	0.17	60.46	0.00	0.00	0.11	39.54	0.00	0.00
D. Project Management	5.51	3.69	66.97	0.45	8.17	0.89	16.15	0.48	8.71
E. Consulting Services	0.55	0.34	61.82	0.05	9.09	0.10	18.18	0.06	10.91
Subtotal	68.88	46.09	66.92	5.61	8.14	11.20	16.26	5.98	8.68
II. Contingencies^c	6.20	4.15	66.94	0.51	8.23	1.00	16.13	0.54	8.71
III. Financial Charges^d	1.32	0.90	68.18	0.12	8.79	0.11	8.33	0.19	14.24
Total	76.39	51.14	66.95	6.24	8.16	12.31	16.11	6.71	8.78
Taxes	8.14	5.27	64.74	0.63	7.74	0.71	8.72	1.53	18.80
Foreign Exchange	27.43	17.75	64.71	2.04	7.44	2.4	8.75	5.24	19.10

ADB = Asian Development Bank, DMNNR - Dafeng milu national nature reserve, DFF = Dafeng forest farm, SFF = Sheyang forest farm, YRBNNR = Yancheng rare birds national nature reserve.

Note: Numbers may not sum precisely because of rounding.

^a In 2011 prices.

^b Including taxes and duties equivalent to \$8.14 million, which will be financed by the government.

^c Physical contingencies were computed using 10% on base cost. Price contingencies were computed using the international and domestic price escalation factors, and include provisions for potential price exchange rate fluctuations under the assumption of a power parity exchange rate.

^d Interest during implementation amounting to \$1.28 million, which will be paid by the government out of its own resources, was computed based on 5-year forward London interbank offered rate (LIBOR) plus a spread of 0.4% per year. Commitment charges, which will be paid by the government out of its own resources, were computed based on 0.15% per year on an undisturbed bus.

Source: ADB estimates.

E. Allocation and Withdrawal of Loan Proceeds

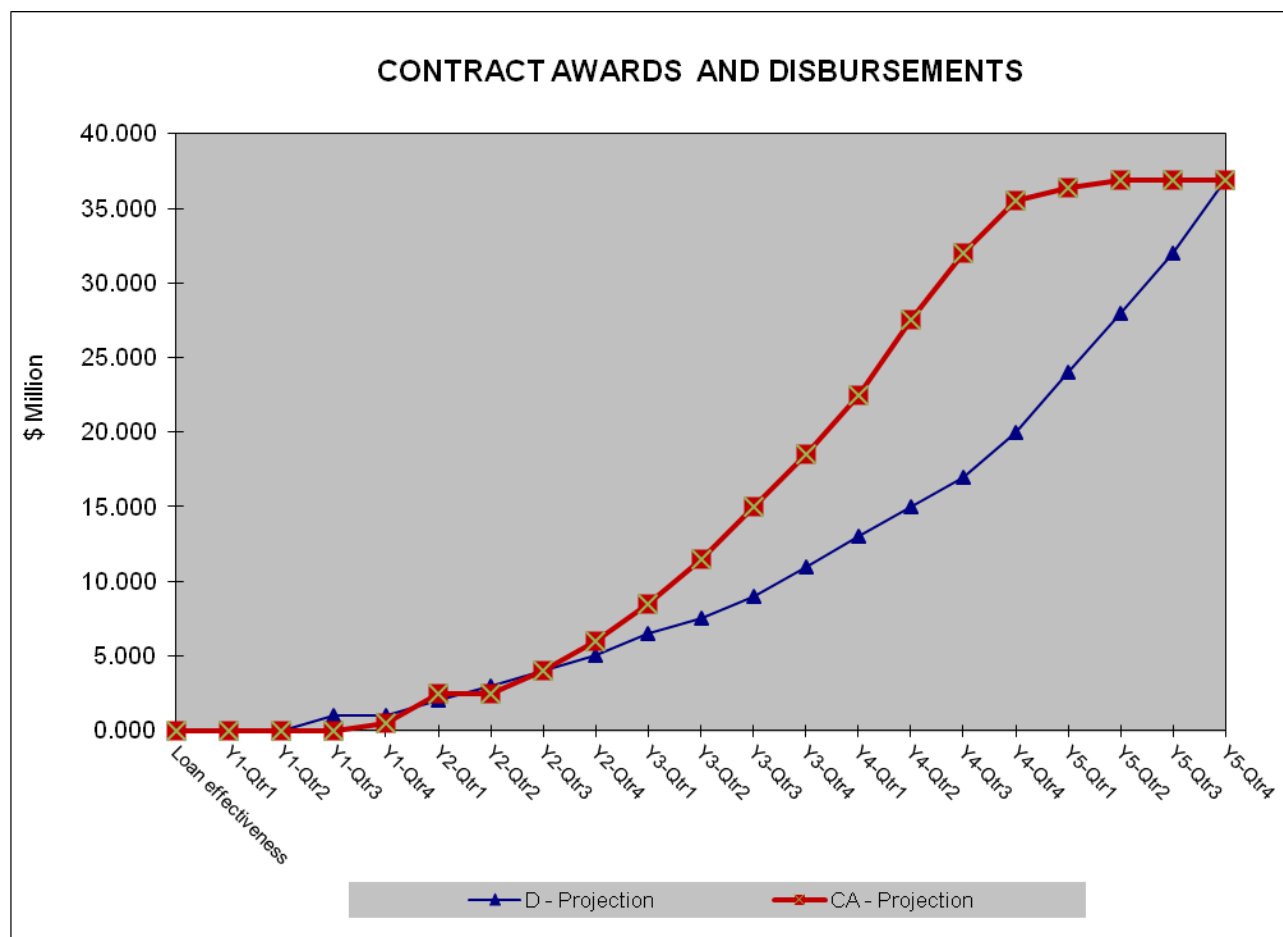
ALLOCATION AND WITHDRAWAL OF LOAN PROCEEDS (Jiangsu Yancheng Wetlands Protection Project)				
Category				ADB Financing
Number	Item	Amount Allocated (\$)		Percentage and Basis for Withdrawal from the Loan Account
		Category	Subcategory	
1	Works	29,990,000		
1A	Yancheng RBNNR		19,100,000	53% of total expenditure claimed
1B	Yanchengt DMNNR		470,000	19% of total expenditure claimed
1C	Sheyang Forest Farm		6,900,000	74% of total expenditure claimed
1D	Dafeng Forest Farm		3,520,000	74% of total expenditure claimed
2	Goods	6,360,000		
2A	Yancheng RBNNR		3,560,000	73% of total expenditure claimed
2B	Yancheng DMNNR		2,480,000	100% of total expenditure*
2C	Dafeng Forest Farm		320,000	65% of total expenditure
3	Capacity Development	550,000		100% of total expenditure*
Total		36,900,000		

DMNNR = Dafeng Milu National Nature Reserve, YRBNNR = Yancheng Rare Birds National Nature Reserve.

* Exclusive of taxes and duties imposed within the territory of the borrower.

Source: Asian Development Bank estimates.

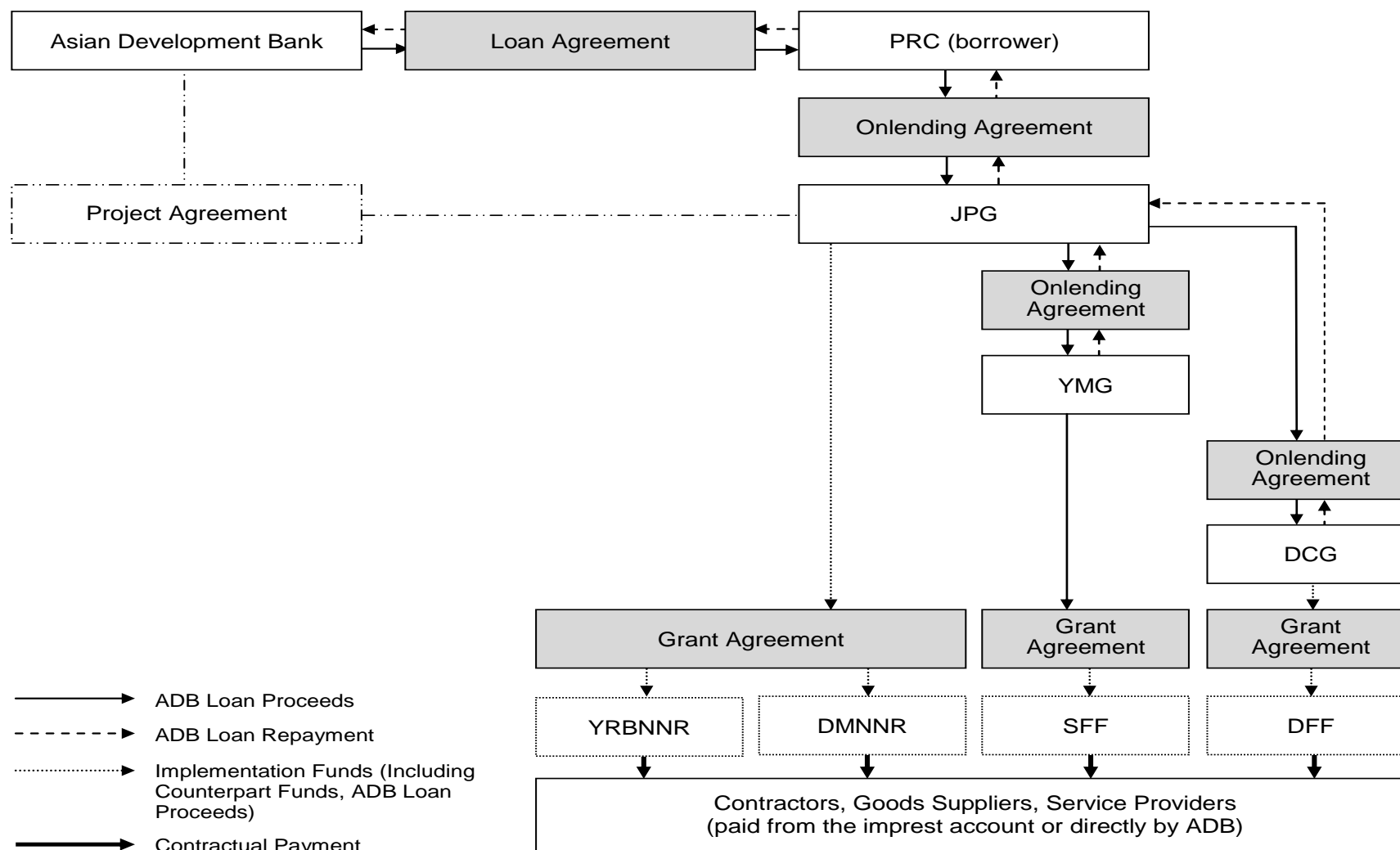
F. Contract and Disbursement S-Curves



Item	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Contract Awards						
Quarter 1	0.000	0.500	2.500	4.000	0.900	7.900
Quarter 2	0.000	1.500	3.000	5.000	0.500	10.000
Quarter 3	0.000	1.500	3.500	4.500	0.000	9.500
Quarter 4	0.500	2.000	3.500	3.500	0.000	9.500
Total	0.500	5.500	12.500	17.000	1.400	36.900
Disbursements						
Quarter 1	0.000	1.000	1.500	2.000	4.000	8.500
Quarter 2	0.000	1.000	1.000	2.000	4.000	8.000
Quarter 3	1.000	1.000	1.500	2.000	4.000	9.500
Quarter 4	0.000	1.000	2.000	3.000	4.900	10.900
Total	1.000	4.000	6.000	9.000	16.900	36.900

Source: Asian Development Bank.

G. Fund Flow Diagram



ADB = Asian Development Bank, DCG = Dafeng city government, DFF = Dafeng Forest Farm, DMNNR = Dafeng Milu National Nature Reserve, JPG = Jiangsu provincial government, PRC = People's Republic of China, SFF = Sheyang Forest Farm, YMG = Yancheng municipal government, YRBNNR = Yancheng Rare Birds National Nature Reserve.

Note: Imprest account will be opened and administered by the Jiangsu finance department.

Source: ADB.

V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

24. The purpose of the financial management assessment (FMA) is to present an assessment of the financial management capacity of the executing and implementing agencies and PIUs responsible for project implementation. The instrument used for the assessment of the executing and implementing agencies and PIUs is ADB's standard FMA questionnaire and financial statements.

25. The assessment indicates that the executing and implementing agencies and PIUs satisfy ADB's financial management requirements. They have satisfactory financial management capability to (i) record required financial transactions and balances, (ii) provide regular and reliable financial statements and monitoring reports, and (iii) safeguard financial assets.

26. However, they have not participated in ADB projects and financial, accounting and management staffs are not familiar with ADB loan management policies; hence, additional and refresher training on ADB loan management policies and procedures, including procurement, engagement of consultants, disbursement, and repayment policy and procedures need to be provided to enhance the professional capacity of relevant staff before implementing the project.

B. Disbursement

27. The loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2007, as amended from time to time),⁴ and detailed arrangements agreed upon between ADB and the government.

28. Pursuant to ADB's Safeguard Policy Statement (2009),⁵ ADB funds may not be applied to the activities described in the ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009). All financial institutions will ensure that their investments are in compliance with applicable national laws and regulations and will apply the prohibited investment activities list to subprojects financed by ADB.

29. Direct payment, reimbursement, commitment, and imprest fund procedures may be used to withdraw funds from the loan account. To expedite the flow of funds and simplify document processing, the statement of expenditures procedure may be used to reimburse, replenish, and liquidate eligible expenditures for any individual payment not exceeding \$200,000. Payments exceeding this ceiling will be reimbursed, replenished, and liquidated based on the full documentation process.

30. An imprest account will be set up for the project by the Jiangsu finance department (JFD) in a commercial bank acceptable to ADB. The initial amount deposited into the imprest account will not exceed 10% of the total loan amount, or the estimated expenditures to be financed from the imprest account for the first 6 months of implementation, whichever is lower.

⁴ Available at: http://www.adb.org/Documents/Handbooks/Loan_Disbursement/loan-disbursement-final.pdf

⁵ Available at: <http://www.adb.org/Documents/Policies/Safeguards/Safeguard-Policy-Statement-June2009.pdf>

C. Accounting

31. JPMO will prepare consolidated quarterly progress reports indicating progress achieved and problems encountered during the review period, including steps taken or proposed to remedy the problems, proposed program of activities, and progress expected in the following quarter. The PMO will ensure that these reports are submitted to ADB in a timely manner and will submit a completion report within 6 months of the project's physical completion.

32. JPMO and each district and/or city PMO and PIU will maintain separate records and accounts that identify the goods and services, and the expenditures financed from the loan proceeds and counterpart funds for the project. Each PIU will prepare annual financial statements for their project activities and submit these to district and/or city PMOs, who will consolidate and submit them to JPMO. The district and/or city PMOs will also prepare annual financial statements for their project activities and submit these to JPMO. JPMO will consolidate the annual financial statements of the district and/or city PMOs, the consolidated annual financial statements of the PIUs, and its own annual financial statements, as well as those related to the imprest accounts. All financial statements will be prepared in accordance with relevant accounting standards and regulations acceptable to ADB.

D. Auditing

33. The executing agency will cause the detailed consolidated project accounts to be audited following the International Standards on Auditing by the state audit agency of the government, or other auditors acceptable to ADB. The audited accounts will be submitted in the English language to ADB within 6 months of the end of the fiscal year by the executing agency. The annual audit report will include a separate audit opinion on the use of the imprest accounts and the statement of expenditure procedures. JPMO, the government, JPMO, and the executing agency have been made aware of ADB's policy on delayed submission, and the requirements for satisfactory and acceptable quality of the audited accounts. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used following ADB policies and procedures.

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting and Retroactive Financing

34. The government has requested advance contracting and retroactive financing for contract packages covering consulting services for the project management and capacity development output and for two contracts under the wetlands protection at YRBNNR output. Advance contracting and retroactive financing will be undertaken in conformity with ADB's Procurement Guidelines (2010, as amended from time to time)⁶ and the Guidelines on the Use of Consultants by the Asian Development Bank and its Borrowers (2010, as amended from time to time).⁷ The issuance of requests for proposal and invitations to bid under contracts proposed for advance contracting and retroactive financing will be subject to ADB approval. The borrower and the executing and implementing agencies have been advised that (i) approval of advance contracting and retroactive financing does not necessarily commit ADB to finance the project, and (ii) retroactive financing may only apply to eligible expenditures incurred prior to loan

⁶ Available at: <http://www.adb.org/Documents/Guidelines/Procurement/Guidelines-Procurement.pdf>.

⁷ Available at: <http://www.adb.org/Documents/Guidelines/Consulting/Guidelines-Consultants.pdf>.

effectiveness but not earlier than 12 months before loan signing up to a maximum amount equivalent to 20% of the total ADB loan.

B. Procurement of Goods, Works, and Consulting Services

35. All procurement to be financed under the ADB loan will be carried out following ADB's Procurement Guidelines (2010, as amended from time to time). Contracts for civil works valued at over \$10 million and contracts for goods and related services valued at over \$1 million will be procured through international competitive bidding procedures. Contracts for civil works valued at \$10 million or less but over \$100,000, and contracts for goods and related services valued \$1 million or less but over \$100,000 will be procured through national competitive bidding procedures. National competitive bidding will be undertaken following the PRC Tendering and Bidding Law (1999), subject to modifications agreed with ADB.⁸ Contract packages for civil works, goods, and related services valued at \$100,000 or less will be procured through shopping procedures. A procurement agency that is familiar with ADB procurement procedures will be hired by JPG to undertake procurement of works, goods, and services under the project on behalf of the implementing agencies.

36. A procurement capacity assessment undertaken during project preparation confirmed that the executing and implementing agencies, and PIUs, acting through the procurement agency and with the assistance of ADB and the project consultants, would be capable to carry out procurement under the project, including advance contracting. Consulting services to be financed under the ADB loan will be selected in accordance with ADB's Guidelines on the Use of Consultants by the Asian Development Bank and its Borrowers (2010, as amended from time to time). The relevant sections of ADB's Anticorruption Policy (1998, as amended to date) will be included in all documents and contracts relating to procurement and engagement of consultants.

37. Before the start of any procurement, ADB and the government will review the public procurement laws of the central and state governments to ensure consistency with ADB's Procurement Guidelines (2010, as amended from time to time).

38. Procurement plan indicating the thresholds and review procedures; contract packages for goods, works, and consulting services; and national competitive bidding guidelines is provided in Section 3 below.

39. All consultants will be recruited according to ADB's Guidelines on the Use of Consultants by the Asian Development Bank and its Borrowers (2010, as amended from time to time).⁹ The terms of reference for all consulting services are detailed in section D of this chapter. An estimated 42 person-months of consulting services (8 international and 34 national) are required to support project implementation and capacity development.

C. Procurement Plan

40. The procurement plan for the project, as agreed with the executing and implementing agencies during project processing, is shown below.

⁸ The mission requested the use of ADB standard bidding documents to ensure the high quality and consistency of the documents, which will facilitate ADB review.

⁹ Checklists for actions required to contract consultants by method available in e-Handbook on Project Implementation at: <http://www.adb.org/documents/handbooks/project-implementation/>

Basic Data

Project Name: Jiangsu Yancheng Wetlands Protection Project	
Country: People's Republic of China	Executing Agency: Jiangsu provincial government
Loan Amount: \$36.90 million	Loan Number: Lxxxx-PRC/P40685-PRC
Date of First Procurement Plan: 8 August 2011 (Loan fact-finding mission)	Date of this Procurement Plan: 20 October 2011

1. Process Thresholds, Review, and 18-Month Procurement Plan

a. Project Procurement Thresholds

41. Except as ADB may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

Procurement of Goods and Works

Method	Threshold (\$)
International Competitive Bidding (ICB) for Works	Over \$10,000,000
ICB for Goods	Over \$1,000,000
National Competitive Bidding (NCB) for Works ^a	Below ICB threshold, but more than \$100,000
NCB for Goods ^a	Below ICB threshold, but more than \$100,000
Shopping for Works ^b	Equal to or less than \$100,000
Shopping for Goods ^b	Equal to or less than \$100,000

^a NCB procedures are described in section C (item 3, page 32) of this chapter.

^b For the procurement of items below \$10,000, the executing and implementing agencies may purchase the items directly from the supplier; and in such cases, the ADB should be satisfied that the price paid is reasonable.

b. ADB Prior or Post Review

42. Except as ADB may otherwise agree, the following prior or post review requirements apply to the various procurement and consultant recruitment methods used for the project.

Procurement Method	Prior or Post	Remarks
Procurement of Goods and Works		
ICB Works ICB Goods	Prior	For ICB, invitations for bids and for prequalification, draft prequalification documents and bidding documents, and prequalification and bid evaluation reports will be submitted to ADB for prior review and approval. Use of this method is subject to the provision of ADB's Procurement Guidelines (2010, as amended from time to time) and project administration instruction (PAI) 3.03.
NCB Works NCB Goods	Prior/Post	For NCB, the first draft English language-version of the procurement documents for goods and for works should be submitted to ADB for review and approval regardless of the estimated contract amount. ADB-approved procurement documents should be used as a model for all NCB procurement financed by ADB for the project, and need not be subject to further review. ADB will review the bid evaluation report and award of contract on a post-review basis. Use of this method is subject to the provisions of the NCB Annex, ADB's Procurement Guidelines, paras. 3.3–3.4; and PAI 3.04.

Procurement Method	Prior or Post	Remarks
Shopping for Works Shopping for Goods	Post	For shopping (including direct contracting), ADB will review the award of contract on a post-facto basis. Use of this method is subject to the provision of ADB's Procurement Guidelines (2010, as amended from time to time), para. 3.5; and PAI 3.04 C.4 and 5.
Recruitment of Consulting Services		
Quality- and Cost-Based Selection (QCBS, 80:20)	Prior	For QCBS, both the quality of the technical proposal and the cost of the services to be provided are evaluated. Normally, the borrower will be required to make three submissions (prior reviews) for (i) ADB approval: (i) a draft request for proposal (RFP), including the shortlist; (ii) a technical proposal evaluation report; and (iii) an overall evaluation and ranking report. However, borrowers with proven capacity are required to make only two submissions: (i) a draft RFP, including the shortlist; and (ii) an overall evaluation and ranking report. Use of this method is subject to the Guidelines on the Use of Consultants by ADB and its Borrowers (2010, as amended from time to time), and para. 47 of PAI 2.03.

ADB = Asian Development Bank, ICB = international competitive, NCB = national competitive bidding.

Source: ADB.

c. Goods and Works Contracts Estimated to Cost More than \$1 Million

43. The following table lists the goods and works contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

Contract No.	Description	Contract Value (\$ million)	Procurement Method	Pre-qualification of Bidders (Y/N)	Advertise-ment Date
Works	Wetlands Protection at the Yancheng Rare Birds National Nature Reserve				
ZQCW-01	Wetland biodiversity and environmental science education exhibits and intelligent surveillance system	4.796	NBF	N	Q2 2012
ZQCW-02	Wetland management and protection, monitoring, and research and system management	4.895	NCB	N	Q4 2011 Retroactive financing
ZQCW-03	Wetland restoration and reconstruction, water level control, planting/culturing natural feeds, embankment projects	8.221	NCB	N	Q3 2012
ZQCW-04	Patrol road, boardwalk, bridge, land reshaping for memorial garden, fire fighting engineering, and drainage	9.812	NCB	N	Q2 2012
ZQCM-07	Sanitation (solid waste disposal, wastewater treatment facilities and eco-toilets)	4.550	NCB	N	Q2 2012
Works	Coastal Forest Improvement at the Dafeng Forest Farm				
DFCW-01	Growing ecological protection forest for coastal wetland (logging and planting)	1.290	NCB	N	Q3 2012
DFCW-02	Water dredging	1.180	NBF	N	Q3 2012

NBF = nonbank-financed, NCB = national competitive bidding.

Source: Asian Development Bank estimates.

d. Consulting Services Contracts Estimated to Cost More than \$100,000

44. The following table lists the consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

Contract No.	Description	Contract Value (\$ million)	Number of Contract	Procurement/ Recruitment Method	Advertisement Date
ZQZX-01	Project management and capacity development (YRBNNR)	0.550	1	QCBS (80:20)	Q4 2011

QCBS = quality- and cost-based selection, YRBNNR = Yancheng rare birds national nature reserve.
Source: Asian Development Bank estimates.

e. Goods and Works Contracts Estimated to Cost Less than \$1 Million and Consulting Services Contracts Less than \$100,000

45. The following table lists the goods and works contracts value at less than \$1 million and consulting services amounting to less than \$100,000 or which procurement activity is either ongoing or expected to commence within the next 18 months

Contract No.	Description	Contract Value (\$ million)	Number of Contracts	Procurement/ Recruitment Method	Advertisement Date
Works	Wetlands Protection at the Dafeng Milu National Natural Reserve				
MLCW-01	Earthwork, earth mound heaping, pennisetum elimination, land tilling, land leveling, earth	0.724	1	NBF	Q3 2012
MLCW-02	Vegetation restoration	0.655	1	NCB	Q3 2012
MLCW-03	Civil works for pump stations, power supply, sluice gates, culverts, and roads	0.263	1	NBF	Q3 2012
MLCW-04	Civil works for buildings, patrol stations, roads, and bridges	0.794	1	NBF	Q3 2012
MLCW-05	<i>Haemaphysalis longicornis</i> control and milu deer relocation	0.052	1	NBF	Q3 2012
Works	Coastal Forest Improvement at the Sheyang Forest Farm				
DFCW01	Landform and water system rectification, water system dredging, culvert engineering, and pump station	0.460	1	NBF	Q3 2012

Contract No.	Description	Contract Value (\$ million)	Number of Contracts	Procurement/ Recruitment Method	Advertisement Date
Works	Coastal Forest Improvement at the Dafeng Forest Farm				
DFCW-04	Ecological environmental protection and restoration works on coastal shore wetlands	0.430	1	NCB	Q3 2012
Goods	Wetlands Protection at the Yancheng Rare Birds National Nature Reserve				
ZQGD-01	Geothermal energy airconditioning system (including installation)	0.977	1	NBF	Q2 2012
ZQGD-02	Monitoring, patrol, and wildlife rescue equipment	0.696	1	NCB	Q4 2012
ZQGD-03	Environmental protection and solar energy utilization	0.980	1	NCB	Q3 2012
QZGD-04	Wildlife surveillance system and installation	0.916	1	NCB	Q4 2012
ZQGD-05	Information management system, audio system, public education materials, and office equipment	0.847	1	NCB	Q3 2012
ZQGD-06	Patrol vehicles	0.483	1	NCB	Q4 2011 (retroactive financing)
Goods	Wetlands Protection at the Dafeng Milu National Natural Reserve				
MLGD-03	Fencing of east section and poplar science park	0.681	1	NCB	Q4 2012
MLGD-04	Fencing of west section	0.642	1	NCB	Q4 2012
MLGD-05	Fodder ground maintenance equipment (including installation)	0.034	1	Shopping	Q2 2012
MLGD-06	Vehicles for patrol, and fodder transportation	0.076	1	Shopping	Q4 2012
MLGD-07	Equipment for public education	0.021	1	Shopping	Q3 2012
MLGD-08	Training of trainers and materials for public education	0.344	1	NCB	Q3 2012
Goods	Coastal Forest Improvement at the Sheyang Forest Farm				
DFGD-04	Forest pest alarm system (including installation)	0.020	1	NBF	Q3 2012

Contract No.	Description	Contract Value (\$ million)	Number of Contracts	Procurement/ Recruitment Method	Advertisement Date
Goods	Coastal Forest Improvement at the Dafeng Forest Farm				
DFGD-03	Ecological environmental protection and restoration of coastal shoal wetlands (supply and installation)	0.100	1	Shopping	Q3 2012

NBF = nonbank-financed, NCB = national competitive bidding.

Source: Asian Development Bank estimates.

46. The following table groups smaller-value goods, works, and consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

2. Indicative List of Packages Required by Outputs under the Project

47. The following table provides an indicative list of all procurement (goods, works, and consulting services) to be undertaken over the life of the project. Contracts financed by the borrower are indicated with appropriate notation in the comments section.

Contract No./Description	Total Contract Value (\$ million)	Procurement Method	Pre-qualification of Bidders (y/n)	Advertisement Date (quarter/year)	Comment
1. Works					
a. Wetlands Protection at the Yancheng Rare Birds National Nature Reserve					
ZQCW-01: Wetland biodiversity and environmental science education exhibits and intelligent surveillance system	4.796	NBF	n	Q2 2012	
ZQCW-02: Wetland management and protection, monitoring, and research and system management	4.895	NCB	n	Q4 2011	Retroactive financing
ZQCW-03: Wetland restoration and reconstruction, water level control, planting/culturing natural feeds, embankment projects	8.221	NCB	n	Q3 2012	
ZQCW-04: Patrol road, boardwalk, bridge, land reshaping for memorial garden, fire fighting engineering, and drainage	9.812	NCB	n	Q2 2012	

Contract No./Description	Total Contract Value (\$ million)	Procurement Method	Pre-qualification of Bidders (y/n)	Advertisement Date (quarter/year)	Comment
ZQCW-05: Water works for rehydration and fish-pond-to-wetland conversion	2.557	NCB	n	Q1 2013	
ZQCW-06: <i>Spartina alterniflora</i> control	0.993	NCB	n	Q1 2014	
ZQCW-07: Sanitation (solid waste disposal, wastewater treatment facilities and eco-toilets)	4.550	NCB	n	Q2 2012	
b. Wetlands Protection at the Dafeng Milu National Nature Reserve					
MLCW-01: Earthwork, earth mound heaping, <i>Pennisetum</i> elimination, land tilling, land leveling, earth excavation, and river dredging	0.724	NBF	n	Q3 2012	
MLCW-02: Vegetation restoration	0.655	NCB	n	Q3 2012	
MLCW-03: Civil works for pump stations, power supply, sluice gates, culverts, and roads	0.263	NBF	n	Q3 2012	
MLCW-04: Civil works for buildings, patrol stations, roads, and bridges	0.794	NBF	n	Q3 2012	
MLCW-05: <i>Haemaphysalis longicornis</i> control and milu deer relocation	0.052	NBF	n	Q3 2012	
c. Coastal Forest Improvement at the Sheyang Forest Farm					
DFCW-01: Landform and water system rectification, water system dredging, culvert engineering, and pump station	0.460	NBF	n	Q3 2012	
DFCW-02: Fire roads	2.360	NCB	n	Q3 2012	
DFCW-03: Monitoring and inspection station, iron watchtower, pest forecasting station, and supporting engineering	0.350	NBF	n	Q3 2013	
DFCW-04: Bird habitat reconstruction	1.230	NBF	n	Q3 2013	

Contract No./Description	Total Contract Value (\$ million)	Procurement Method	Pre-qualification of Bidders (y/n)	Advertisement Date (quarter/year)	Comment
DFCW-05: Tree cultivation and growing	4.940	NCB	n	Q3 2013	
d. Coastal Forest Improvement at the Dafeng Forest Farm					
DFCW-01: Growing ecological protection forest for coastal wetland (logging and planting)	1.290	NCB	n	Q3 2012	
DFCW-02: Water dredging	1.180	NBF	n	Q3 2012	
DFCW-03: Fire prevention channel and bridge works	1.890	NCB	n	Q3 2013	
DFCW-04: Ecological environmental protection and restoration works on coastal shoal wetlands	0.430	NCB	n	Q3 2012	
2. Goods					
a. Wetlands Protection at the Yancheng Rare Birds National Nature Reserve					
ZQGD-01: Geothermal energy airconditioning system (including installation)	0.977	NBF	n	Q2 2012	
ZQGD-02: Monitoring, patrol and wildlife rescue equipment	0.696	NCB	n	Q4 2012	
ZQGD-03: Environment protection and solar energy utilization	0.980	NCB	n	Q3 2012	
ZQGD-04: Wildlife surveillance system and installation	0.916	NCB	n	Q4 2012	
ZQGD-05: Information management information system, audio system, public education materials, and office equipment	0.847	NCB	n	Q3 2012	
ZQGD-06: Patrol vehicles	0.483	NCB	n	Q4 2011	Retroactive financing
b. Wetlands Protection at the Dafeng Milu National Nature Reserve					
MLGD-01: Video surveillance system (including installation and training)	0.606	NCB	n	Q1 2013	

Contract No./Description	Total Contract Value (\$ million)	Procurement Method	Pre-qualification of Bidders (y/n)	Advertisement Date (quarter/year)	Comment
MLGD-02: Biological lab equipment (including installation and training)	0.075	Shopping	n	Q1 2013	
MLGD-03: Fencing of east section and poplar science park	0.681	NCB	n	Q4 2012	
MLGD-04: Fencing of west section	0.642	NCB	n	Q4 2012	
MLGD-05: Fodder ground maintenance equipment (including installation)	0.034	Shopping	n	Q2 2012	
MLGD-06: Vehicles for public education, patrol, and fodder transportation	0.076	Shopping	n	Q4 2012	
MLGD-07: Equipment for public education	0.021	Shopping	n	Q3 2014	
MLGD-08: Training of trainers and materials for public education	0.344	NCB	n	Q3 2012	
c. Coastal Forest Improvement at the Sheyang Forest Farm					
DFGD-01: Fire brigade vehicle	0.050	NBF	n	Q3 2013	
DFGD-02: Emergency response equipment for forest farm	0.004	NBF	n	Q2 2013	
DFGD-03: Forest fire alarm system and installation	0.400	NBF	n	Q2 2015	
DFGD-04: Forest pest alarm system and installation	0.020	NBF	n	Q3 2012	
d. Coastal Forest Improvement at the Dafeng Forest Farm					
DFGD-01: Patrol tools for fire prevention	0.070	NBF	n	Q3 2015	
DFGD-02: Forest fire and pest alarm system	0.320	NCB	n	Q3 2014	
DFGD-03: Ecological environmental protection and restoration of coastal shoal wetlands (supply and installation)	0.100	NBF	n	Q3 2012	

Contract No./Description	Total Contract Value (\$ million)	Procurement Method	Pre-qualification of Bidders (y/n)	Advertisement Date (quarter/year)	Comment
3. Consulting Services					
ZQZX-01: Project management and capacity development (YRBNNR)	0.550	QCBS (80:20)	n	Q4 2011	Retroactive financing

NBF = nonbank-financed, NCB = National Competitive Bidding, QCBS = quality- and cost-based selection, YRBNNR = Yancheng rare birds national nature reserve.

Source: Asian Development Bank estimates.

3. National Competitive Bidding

48. The borrower's Law of Tendering and Bidding of the People's Republic of China promulgated by Order No. 21 of the President of the People's Republic of China on 30 August 1999, are subject to the following clarifications required for compliance with the guidelines:

- (i) All invitations to prequalify or to bid shall be advertised in the national press, or official gazette, or placed in a free and open access website in the borrower's country. Such advertisement shall be made in sufficient time for prospective bidders to obtain prequalification or bidding documents and prepare and submit their responses. In any event, a minimum preparation period of thirty (30) days shall be given. The preparation period shall count (a) from the date of advertisement, or (b) when the documents are available for issue, whichever date is later. The advertisement and the prequalification and bidding documents shall specify the deadline for such submission.
- (ii) Qualification requirements of bidders and the method of evaluating the qualification of each bidder shall be specified in detail in the bidding documents, and in the prequalification documents if the bidding is preceded by a prequalification process.
- (iii) If bidding is preceded by a prequalification process, all bidders that meet the qualification criteria set out in the prequalification document shall be allowed to bid, and there shall be no limit on the number of pre-qualified bidders.
- (iv) All bidders shall be required to provide a performance security in an amount sufficient to protect the borrower and/or project executing agency in case of breach of contract by the contractor, and the bidding documents shall specify the required form and amount of such performance security.
- (v) Bidders shall be allowed to submit bids by mail or by hand.
- (vi) All bids shall be opened in public; all bidders shall be afforded an opportunity to be present (either in person or through their representatives) at the time of bid opening, but bidders shall not be required to be present at the bid opening.
- (vii) All bid evaluation criteria shall be disclosed in the bidding documents and quantified in monetary terms or expressed in the form of pass and/or fail requirements.
- (viii) No bid may be rejected solely on the basis that the bid price falls outside any standard contract estimate, or margin, or bracket of average bids established by the borrower/project executing agency.
- (ix) Each contract shall be awarded to the lowest evaluated responsive bidder, that is, the bidder who meets the appropriate standards of capability and resources and whose bid has been determined (a) to be substantially responsive to the bidding documents and (b) to offer the lowest evaluated cost. The winning bidder

shall not be required, as a condition of award, to undertake responsibilities for work not stipulated in the bidding documents, or otherwise to modify the bid as originally submitted.

- (x) Each contract financed with the proceeds of the loan shall provide that the suppliers and contractors shall permit ADB, at its request, to inspect their accounts and records relating to the performance of the contract, and to have said accounts and records audited by auditors appointed by ADB.
- (xi) Government-owned enterprises in the borrower's country may be permitted to bid if they can establish that they (a) are legally and financially autonomous, (b) operate under commercial law, and (c) are not a dependent agency of the borrower/project executing agency.
- (xii) Re-bidding shall not be allowed solely because the number of bids is less than three.

D. Outline Terms of Reference for Consulting Services

1. Project Background

49. Jiangsu province lies in the east of the PRC facing the Yellow Sea with 1,040 km of coastline. Lying in northern Jiangsu, Yancheng municipality is the province's largest municipality with about 15,000 km² in area; and second largest in population with about 8.2 million officially registered residents by end 2010, of which 51.2% are urban. About 70% of Jiangsu's coastal wetlands are located in Yancheng where 453,000 ha of wetlands, comprising intertidal mudflats, creeks, salt marshes and reed beds that cover about 30% of the municipality's territory, stretch for about 580 km along the coast.

50. From a biodiversity perspective, the two most important areas of the Yancheng coastal wetlands are DMNNR and YRBNNR. YRBNNR is very rich in biodiversity, containing 480 species of plants, 370 of birds, 281 of fish, 48 of mammals and 45 of amphibians. Twelve animal species are included in the country's first-ranked priority protection list, and 29 bird species are listed in IUCN's Red List of Threatened Species. YRBNNR is particularly one of the two wintering grounds in the PRC for the red-crowned crane which is rated as endangered in the IUCN Red List. About 60% of the 2,500 estimated total world population of the red-crowned crane or about 1,500 migrate every winter to YRBNNR. About 25% of the world's population of milu deer, rated as extinct in the wild in the IUCN's Red List of Threatened Species, find their home in DMNNR. The two nature reserves are listed in the Ramsar Convention and UNESCO's World Network of Biosphere Reserves, recognizing the uniqueness of these wetland ecosystems and the species biodiversity that they harbor.

51. There are two important forest farms to the two national nature reserves—DFF situated to the northwest of DMNNR and SFF situated west of YRBNNR. The forest farms provide extra layer of protection for the nature reserves. They are also part of the national coastal ecological protection forest network that enhance national ecological security, and increase the climate resilience for local communities.

52. The wetlands of Yancheng provide important ecosystem services to local communities. Local livelihoods are sustained through the capture and culture of marine and estuarine plants (e.g., reeds) and fish species. Wetland plants slow the flow of rivers; and the mudflats absorb wave energy from the Yellow Sea, thereby controlling coastal erosion and increasing climate resilience. Wetlands also improve water quality by absorbing some of the household and industry wastes that are rapidly increasing in Yancheng municipality.

53. Despite their local, national, and global significance, the wetlands of Yancheng have been under growing threats, including (i) reclamation and conversion; (ii) habitat degradation, especially in the core and buffer zones; (iii) rapid spread of invasive species, particularly *Spartina alterniflora*; (iv) environmental pollution from the upstream catchment; (v) poaching; and (vi) rapid industrial development and urban expansion. The Jiangsu Coastal Development Plan (JC DP), which was approved by the State Council on 10 June 2010; and consists of a combination of industrial, urban, agricultural, port, and wind energy developments along the coastal areas, will place further pressures on the Yancheng coastal wetlands. It is a great challenge to conserve and protect the ecosystems and biodiversity in this fast developing region.

54. The expected impact of the project will be improved ecosystem health and services in the coastal wetlands in Yancheng. The expected outcome will be increased capacity to manage and protect the wetland ecosystems in Yancheng. The impact and outcome will be achieved by the implementation of four investment outputs and one capacity development output. The major interventions include wetland restoration, rehydration, conversion of fishponds to wetlands, *Spartina alterniflora* control, wildlife rescue, milu deer's nutrition and disease control, forest improvement, agroforestry, forest fire and pest prevention and control, forest infrastructure improvements, wetland research and monitoring, public education, and community co-management.

55. The total cost of the project is estimated at \$76.39 million. The government has requested ADB to provide a loan of \$36.9 million to finance 48.3% of the project cost. The consulting services to be provided under the capacity development output of the project will be financed by the ADB loan.

56. JPG will be the executing agency of the project. JPG has established JPMO at JEPD to carry out the day-to-day activities of the project and provide coordination support for preparation and implementation of the project and its outputs.

57. JEPD will be the implementing agency for the wetlands protection at YRBNNR investment output, and the Jiangsu forestry bureau will be the implementing agency for the wetlands protection at DMNNR investment output. The Tinghu District government (TDG) will be the implementing agency of the coastal forest improvement at SFF investment output. DCG will be the implementing agency for the coastal forest improvement at DFF investment output.

58. Furthermore, PIUs have been established in DFF, DMNNR, SFF, and YRBNNR. The four PIUs will be responsible for implementing the respective investment outputs. JPMO will be responsible for implementation of the capacity development output.

2. General Requirements of Consulting Services

59. The project will provide consulting services under the capacity development output. The consulting services will be engaged through a consulting firm (the consultant) in accordance with ADB's Guidelines on the Use of Consultants of the Asian Development Bank and its Borrowers (2010, as amended from time to time). The consulting firm will be selected through quality- and cost-based selection (QCBS) method, with a quality–cost weighing ratio of 80:20 using simplified technical proposal procedures. The consulting services will be grouped into two subcomponents for (i) project management, and (ii) capacity development.

60. The consultants will support JPMO and other local project partners to ensure that implementation of the project will meet all the policy and procedural requirements of ADB and

the government. The consulting services will include, but not necessarily be limited to, the following:

- (i) Help JPMO, YPMO, district and/or city PMOs, and PIUs to review the technical contents of bidding documents that are prepared by the tendering agency; recommend necessary changes for compliance with ADB's Procurement Guidelines (2010 and amended from time to time); and provide training and advice to JPMO, YPMO, district and/or city PMOs, and PIUs on procurement procedures;
- (ii) Advise JPMO, TDG, DCG, and PIUs on financial management and preparation of fund withdrawal applications;
- (iii) Develop the project performance management system (PPMS) in accordance with ADB policy requirements, including establishing baseline and operation mechanism for data collection, analysis, and reporting;
- (iv) Prepare "handbook on environmental management of construction" and provide related training;
- (v) Prepare quarterly, semiannual, and annual progress reports, midterm report, and project completion report for submission by JPMO to ADB and JPG;
- (vi) Advise on quarterly internal environmental monitoring and environmental impact mitigation; and based on internal monitoring reports, prepare semiannual environmental monitoring reports for submission to ADB and JPG in accordance with ADB's Safeguard Policy Statement (2009);
- (vii) Advise on quarterly internal resettlement, social, and poverty monitoring and impact mitigation; based on internal monitoring reports, prepare the semiannual resettlement monitoring report and the poverty and/or social monitoring report for submission to ADB and JPG; and help JPMO to prepare semiannual and annual financial reports and fund withdrawal applications and reports;
- (viii) Provide technical support to JPG on exploratory studies on ecological compensation;
- (ix) Assist JPMO to plan and organize training programs;
- (x) Guide DMNNR and YRBNNR on project implementation; and
- (xi) Perform tasks, within the scope of the consulting services, assigned by JPMO from time to time.

3. Composition of the Expertise and Estimated Inputs

61. It is estimated that the project management and capacity development output will include 2 international positions with 8 person-month inputs and 6 national positions with 34 person-month inputs. Indicative inputs for consulting services are summarized in Table 6. Indicative cost estimates for consulting services are provided in Table 7.

4. Terms of Reference for Individual Experts

62. **Team Leader—Ecosystem Protection Specialist and PPMS Specialist** (international, 5 person-months). The expert should have at least a master's degree in ecology, environment and natural resources management, or a related field; and 20 years of professional experience in team leadership, ecosystem protection, and PPMS related to internationally financed projects. The major tasks are as follows: (i) have overall responsibility for delivery of the consulting services; (ii) provide leadership, guidance, and supervision to the consultant team; (iii) prepare PPMS; and (iv) organize the preparation and finalization of required submissions.

Table 6: Indicative Inputs for Consulting Services

Position	Input (person-months)
International Consulting Services	
Team Leader—Ecosystem Protection and PPMS Specialist	5
Environment Safeguard Specialist	3
Subtotal	8
National Consulting Services	
Deputy Team Leader—Wetland Ecologist	10
Financial Management Specialist	8
Procurement Specialist	6
Environment Safeguard Specialist	5
Social Development Specialist	2
Eco-Compensation Specialist	3
Subtotal	34
Total	42

Table 7: Indicative Cost Estimates for Consulting Services

Category	Amount (\$)
International	
Professional fees, travel and accommodation	130,000
National	
Professional fees, travel and accommodation	210,000
Office Expenditures for Consulting Services	
Communication and reporting	20,000
Provisional Sum	
Office rental, local transportation, office equipment and consumables, training and study tour	190,000
Total	550,000

63. **Environment Safeguards Specialist** (international, 3 person-months). The expert should have at least a master's degree in ecology, biology, environmental and natural resources management, or a related field; and 15 years of professional experience in conducting environmental impact assessment (EIA) and environmental safeguards monitoring for internationally financed projects, especially by ADB and the World Bank. The major tasks are as follows: (i) provide advice and training to JPMO, YPMO, PIUs, and internal environmental agencies on ADB environmental safeguards requirements; (ii) provide inputs to quarterly, semiannual, and annual progress reports on the basis of internal environmental monitoring reports; and (iii) prepare semiannual environmental monitoring reports for submission to ADB and JPG in accordance with ADB Safeguard Policy Statement (2009).

64. **Deputy Team Leader—Wetland Ecologist** (national, 10 person-months). The expert should have at least a master's degree in wetland ecology or a related field, and 20 years of professional experience in wetland ecology. The major tasks are as follows: (i) help JPMO, YPMO, and PIUs to supervise the wetland restoration activities, such that they will be carried out in accordance with the approved designs and international and national best practices; (ii) coordinate and organize the consultant team for successful delivery of the consulting services; (iii) undertake coordination with JPMO; (iv) during the absence of the team leader, provide

leadership, guidance, and supervision to the consultant team; and (v) organize the preparation of required submissions.

65. **Financial Management Specialist** (national, 8 person-months). The expert should have at least a master's degree in finance, economics, or a related field; and 15 years of professional experience in financial management for internationally financed projects, especially by ADB and the World Bank. The major tasks are as follows: (i) provide advice and training to JPMO, YPMO, district and/or city PMOs, and PIUs on ADB's financial management and fund application and withdrawal procedures and requirements; (ii) assist JPMO in preparing semiannual and annual financial reports and fund withdrawal applications and reports; and (iii) provide inputs to quarterly, semiannual, and annual progress reports.

66. **Procurement Specialist** (national, 6 person-months). The expert should have at least a master's degree in finance, commerce, economics, or a related field; and 15 years of professional experience in procurement for internationally financed projects, especially by ADB and the World Bank. The major tasks are as follows: (i) provide advice and training to JPMO, YPMO, district and/or city PMOs, and PIUs on ADB procurement procedures and requirements; (ii) help JPMO to review the technical contents of bidding documents that are prepared by the tendering agency, and recommend necessary changes for compliance with ADB's Procurement Guidelines (2010, and amended from time to time); and (iii) provide inputs to quarterly, semiannual, and annual progress reports.

67. **Environment Safeguard Specialist** (national, 5 person-months). The expert will have at least a master's degree in environmental science or a related field; and 15 years of professional experience in environmental safeguard monitoring for internationally funded projects, preferably for ADB or World Bank projects. The major tasks include supporting the executing and implementing agencies to (i) ensure that all the monitoring plan of the environmental management plan (EMP) is implemented; (ii) provide inputs in preparing the environmental monitoring reports; (iii) conduct the monitoring of EIA key indicators from the coastal development plans; and (iv) perform other tasks that may reasonably be requested by the executing agency.

68. **Social Development Specialist** (national, 2 person-months). The expert should have at least a master's degree in sociology or a related field, and 10 years of professional experience in social safeguards monitoring for internationally financed projects, especially by ADB and the World Bank. The major tasks are as follows: (i) provide advice and training to JPMO, YPMO, district and/or city PMOs, and PIUs on ADB social safeguards requirements, gender action plan, consultation and other social dimensions; and (ii) provide inputs on social aspects to quarterly, semiannual, and annual progress reports.

69. **Eco-Compensation Specialist** (national, 3 person-months). The expert should have at least a master's degree in environmental economics or a related field, and 10 years of professional experience in the formulation of eco-compensation policies. The major tasks are as follows: (i) provide advice on international and national policies and best practices on eco-compensation; and (ii) assist JPMO in formulating eco-compensation policies and guidelines.

VII. SAFEGUARDS

A. Environmental Safeguard

70. The project is classified as category A following ADB's Safeguard Policy Statement (2009). Appropriate environmental mitigation and monitoring measures were defined for all identified impacts, and are included in EMPs of the national EIAs. The national EIAs conclude that all identified impacts can be mitigated to acceptable levels if the measures defined in EMPs are carefully implemented and monitored. The project EMP sets out the procedures and plans to carry out mitigation measures and monitoring requirements during sequential stages of the project (pre-construction, construction, and operational phases). It consists of two plans, one for implementing mitigation measures and the other for carrying out environmental monitoring. For each impact, appropriate mitigation measures are described. Internal and external monitoring and supervision requirements have been proposed to ensure that environmental impacts will be minimized to acceptable levels. The environmental mitigation measures will be incorporated in the bidding documents and the bill of quantities of the civil works contracts. International and national environmental consultants will be recruited under the project management consulting services to prepare and supervise the implementation of the EMP, monitor the environmental and social impacts, and prepare related reports.

71. JPG and YMG will be jointly accountable for the overall implementation and compliance with EMP and monitoring plan, including inspection, monitoring, reporting, and initiating corrective actions or measures. DCG, JPG, TDG, and YMG will be responsible for implementation of the grievance redress mechanism. JPMO and the Yancheng PMO (YPMO) will assume day-to-day responsibility for supervising implementation of environmental mitigation measures and reporting to ADB, ensuring that mitigation measures are implemented as described in EMP. In the detailed design stage, JPMO, YPMO, and PIUs will pass EMP to the design institutes for incorporating mitigation measures in the detailed designs. EMP will be updated at the end of the detailed design stage, and finally be passed to the construction contractors. To ensure that contractors comply with EMP's provisions, PIUs, supervised by JPMO and YPMO, will prepare and provide the following specification clauses for incorporation into the bidding procedures: (i) a list of environmental management requirements to be budgeted by the bidders in their proposals, (ii) environmental clauses for contractual terms and conditions, and (iii) full EIAs for compliance. PIUs will also initially handle any noncompliance with EMP.

72. JPMO and the Yancheng environmental protection bureau (YEPB) will each establish an environmental management unit (EMU) staffed with trained and qualified environmental specialists to undertake environmental management activities, including (i) ensuring effective EMP implementation; (ii) supervising the environmental activities carried out by PIUs; (iii) recruiting and supervising the environmental management companies and/or consultants responsible for inspecting, monitoring, and evaluating implementation of mitigation measures; and (iv) coordinating with other municipal agencies and ADB on all relevant environmental matters. PIUs will undertake regular inspections of the compliance of the contractors with the environmental management provisions in the contracts. JPMO will appoint one environment officer to supervise the work of the environmental management company and/or consultants, and to coordinate the EMP implementation with PIUs. Adequate assurances on environmental safeguards have been established in the loan and project agreements.

73. **Internal monitoring report.** During construction, results from the internal monitoring by the licensed environmental institute contracted by PIU and inspections by the environment, health, and safety officer and EMU will be reflected in the monthly construction reports. The reports will summarize (i) environmental issues during construction, including public grievances and responses; (ii) mitigation measures taken, if any; and (iii) consequences of the impacts on the environment and/or surrounding communities, including public grievances and responses. Results from the detailed internal environmental monitoring program and mitigation actions for construction will be submitted monthly to PIU, quarterly to JPMO and YPMO. JEPD and YEPB may request that further environmental mitigation actions be taken, as they deem necessary; and may determine further mitigation measures for different stages, if necessary.

74. **Compliance monitoring report.** An agency authorized by JEPD and YEPB will be responsible for environmental compliance monitoring and inspection according to the PRC environmental regulations during construction and operation. The compliance monitoring reports will include (i) project background, (ii) construction and operation activities, (iii) environmental conditions, (iv) measurement or sampling taken during auditing and their locations, (v) analytical results, (vi) interpretation and implication of the monitoring results, (vii) determination of the compliance status with regard to applicable regulations and standards, and (viii) recommendations for improvement. These reports will be submitted to JEPD, JPMO, and YEPB and/or YPMO by the environmental monitoring station.

75. **External environmental monitoring report.** The executing agency and/or JPMO has the responsibility to monitor and assess overall project activities under the project design and monitoring framework, and will be accountable to ADB for ensuring the effective implementation of the project EMP. JPMO will be assisted by the external environmental monitor, as part of the loan implementation consulting services recruited through international competitive bidding, to fulfill its independent environmental supervision, monitoring, and reporting to ADB and JPG. The reports on monitoring the implementation of the project EMP will be submitted to ADB and JPG on a semiannual basis. The reports will include (i) monitoring activities, (ii) implementation of mitigation measures, (iii) required environmental compliance, (iv) institutional strengthening and training, (v) public consultations and results, (vi) project-affected persons' grievances and responses, and (vii) problems occurred and corrective actions taken. ADB may request that further environmental mitigation actions and measures be taken, as deemed necessary; and may determine their composition and/or extent, if necessary.

76. Environmental training will be essential for PIUs and contractors to implement EMP. JPMO and YPMO will be responsible for organizing training programs, which will cover (i) environmental laws, regulation, and policies; (ii) implementing mitigation measures; (iii) environmental technologies and procurement; (iv) operating and maintaining project facilities; (v) environmental monitoring and supervision; and (vi) documentation and reporting.

B. Social Safeguards

77. Following ADB's Safeguard Policy Statement (2009), the project has been classified as category C for indigenous peoples and as category A for involuntary resettlement. The population in the project area is ethnically homogenous, of mainstream Han ethnicity; therefore, the project has no impact on ethnic minority communities. No further actions are required for the indigenous peoples safeguard.

78. There will be economic displacement of 493 persons in 156 households due to the nonrenewal of land use leases, which will expire before the commencement of project activities on the respective land. A resettlement plan has been prepared by JPG which covers the impacts of all four project outputs, although resettlement impacts were only identified for the SFF and YRBNNR outputs. The livelihood of the economically displaced or affected persons will be safeguarded by providing new leases for replacement land and an alternative fish pond. More specifically, under the wetlands protection at YRBNNR investment output, the conversion of fishponds to wetlands will affect one family and 15 hired laborers due to nonrenewal of the lease agreement upon expiry. YRBNNR management has consulted with the water resource bureau that is developing the fishponds. The water resource bureau is looking for aquacultural contractors, and will give priority consideration to the aquacultural family who will continue to employ the existing laborers. The affected family and laborers have been consulted and are satisfied with the proposed arrangements. For SFF during construction, about 100 tree planters, 30 rangers, and 50 construction workers will be needed. Priority for the recruitment of these positions will be given to the 112 affected employees and 28 lessees. Upon completion, the affected employees will be converted to rangers, forest tenders, and gardeners. The non-employees will be referred to the Tinghu district employment assistance center of Yancheng municipality to find suitable employment opportunities. The Tinghu district employment assistance center of the Yancheng municipality has been consulted; and it has promised to offer special assistance to the non-employee affected persons. Training will be provided on alternative employment. The above measures are included in the income and livelihood rehabilitation measures of the resettlement plan; and additional mitigation measures will be undertaken, if necessary.

79. Both internal and external monitoring of the resettlement plan implementation will be conducted. YPMO will engage an external monitor prior to commencement of project activities. A grievance redress mechanism has been established to provide affected persons to respond to grievances that may arise during preparation and implementation of the resettlement plan. If the affected persons feel dissatisfied with the livelihood rehabilitation measures, they should (i) appeal to the PIUs in verbal or written form; (ii) if unsatisfied with the decision, appeal to the component office/management office; (iii) if still dissatisfied, appeal to the administrative authorities; and (iv) if dissatisfied with the arbitration decision, prosecute to the civil court. Affected persons have been informed of these steps through public meetings and other forms to ensure they are aware of their legal rights. If two or more households thereafter think they have suffered direct, material and adverse harm, and believe it stemmed from ADB's lack of compliance with its policy and/or the RP, they may submit a request to ADB at any time, following the procedures set out in ADB's Accountability Mechanism (section XI). All grievances, actions and results will be logged, by use of the grievance action form. They will be reported in the project progress report and semiannual resettlement monitoring report of the corresponding period. The grievance action forms will also be made available to the complainants, key stakeholders and responsible agencies.

VIII. GENDER AND SOCIAL DIMENSIONS

80. The project will improve coastal wetland ecosystem health and services that will promote 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 will directly benefit from the project. Because the two nature reserves are of national and international importance, the project will generate national and global benefits.

81. The project will create 500 person-years of direct and 1,500 person-years of indirect employment opportunities during project construction, with estimated earnings amounting to CNY30 million or \$4.6 million from direct employment and CNY75 million or \$11.5 million from indirect employment. It will generate 150 direct jobs and 400 indirect jobs during project operation, with estimated annual earnings of CNY7.5 million or \$1.2 million from direct employment and CNY20.0 million or \$3.1 million from indirect employment. It will also trigger the creation of a large number of off-farm labor opportunities for surrounding communities in eco-tourism, and training for off-farm employment will be provided to beneficiaries of the project, including women and other vulnerable groups. Of the 500 person-years of employment opportunities during construction, an estimated 31.0% will go to women. Of the 150 employment opportunities created during operation, an estimated 50% will be availed by women. Project implementation will respect core labor standards, and it will be ensured that implementing agencies and contractors respect national regulations. Job opportunities will be available for women during project implementation and operations. The influx of construction workers to the port area and neighboring communities demands awareness raising for both workers and the public on HIV/AIDS and sexually-transmitted disease risks. Provisions on public and worker safety and health are included in the EMP, as well as schedules for consultation and participation procedures. A gender action plan (GAP) containing measures for maximizing gender benefits has been prepared and is included in this document for implementation. The summary poverty reduction and social strategy (SPRSS) containing poverty and social impacts and mitigation measures has been developed. Social and gender actions will be supervised and monitored by a social safeguard specialist as part of the consulting services, and will be reported in the PPMS.

82. Beyond the gender-target, pro-poor employment policies state that 70% of unskilled positions should be provided to local poor and rural migrant workers. JPMO, YPMO, and PIUs will also ensure that (i) contractors provide job opportunities respecting core labor standards; (ii) labor conditions, particularly regarding safety of workers and the public, are in line with national regulations, and are provided in a gender-balanced manner; and (iii) awareness raising for both workers and the public on HIV/AIDS and sexually transmitted disease risks is implemented, as influx of construction workers to the port area and neighboring communities may increase public health hazards.

GENDER ACTION PLAN

Gender Equality Component	Outputs/ Activities	Targets	Budget	Responsibilities	Timeframe
Output 1: Wetlands Protection at the Yancheng Rare Birds National Nature Reserve					
Employment	Employment equally accessible to women and men	30% or more of employment opportunities in project implementation for women 50% or more of employment opportunities in project operations for women	Included in project and operating budgets	The PMOs will monitor, and contractors will be made to ensure.	All implementation and operation
Capacity and skills development	Women will have equal access to training. Participation of women in curricula design	30% or more of management training opportunities will be provided to women. 50% or more of skills training opportunities will be provided to women. At least 2/3 of the training sites will be selected on sites and times suitable for women, and the women will be involved in content design.	CNY50,000 GEF, counterpart funds, labor and social security training funds	The PMOs and local department of labor and social security will monitor curricula and women's participation.	All implementation of capacity development planning and activities
Ecological compensation	Women access financial compensation and training programs.	50% or more of eco-agriculture skills training opportunities will be provided to women. 40% or more of employment transferring skills training opportunities will be provided to women.	Included in project budget	The provincial PMO will monitor curricula and women's participation.	Project implementation and operation
Output 2: Wetlands Protection at the Dafeng Milu National Nature Reserve					
Employment	Employment opportunities equally accessible to women and men	30% or more of employment opportunities in project implementation for women 50% or more of employment opportunities in project operations for women	Included in project and operating budgets	The PMOs will monitor, and contractors will be made to ensure.	All implementation and operation
Capacity and skills development	Women will have equal access to training. Participation of women in curricula design	30% or more of management training opportunities will be provided to women. 50% or more of skills training opportunities will be provided to women. At least 2/3 of the training sites will be selected on sites and time suitable for women, and the women will be involved in content design.	CNY50,000 GEF, project counterpart funds, labor and social security training funds	The PMOs and local department of labor and social security will monitor curricula and women's participation.	All implementation of capacity development planning and activities
Output 3: Coastal Forest Improvement at the Dafeng Forest Farm					
Employment	Employment opportunities equally accessible to women and men	60% or more of employment opportunities in project implementation for women 50% or more of employment opportunities in project operations for women	Included in project and operating budgets	The PMOs will monitor, and contractors will be made to ensure.	All implementation and operation

Gender Equality Component	Outputs/ Activities	Targets	Budget	Responsibilities	Timeframe
Capacity and skills development	Women will have equal access to training. Participation of women in curricula design	30% or more of management training opportunities will be provided to women. 50% or more of eco-fish farming skills training opportunities will be provided to women. At least 2/3 of the training sites will be selected on sites and time suitable for women, and the women will be involved in content design.	CNY100,000 Counterpart funds, labor and social security training funds	The PMOs and local department of labor and social security will monitor curricula and participation.	All implementation of capacity development planning and activities
Output 4: Coastal Forest Improvement at the Sheyang Forest Farm					
Employment	Employment opportunities equally accessible to women and men	60% or more of employment opportunities in project implementation for women 50% or more of employment opportunities in project operations for women	Included in project and operating budgets	The PMOs will monitor, and contractors will be made to ensure.	All implementation and operation
Capacity and skills development	Women will have equal access to training. Participation of women in curricula design	30% or more of management training opportunities will be provided to women. 50% or more of eco-fish farming skills training opportunities will be provided to women. At least 2/3 of the training sites will be selected on sites and time suitable for women, and the women will be involved in content design.	CNY100,000 Counterpart funds, labor and social security funds	The PMOs and local department of labor and social security will monitor curricula and participation.	All implementation of capacity development planning and activities
Output 5: Project Management and Capacity Development					
Gender awareness for project staff	Staff training includes gender awareness.	Staff training curricula for all PMOs, PIOs, and other offices include capacity development for gender awareness and GAP implementation.	Included in project budget	Provincial PMO and NGO monitoring	Early during implementation
Ensure women's participation in project decision making	Women's economic/ and political empowerment	At least 40% female officials in provincial and county PMOs At least 30% female officials in county and/or district PMOs At least 1 female official in other project offices	Included in local agency budgets	Provincial PMO and NGO monitoring Women participate in M&E.	All implementation
Gender-balanced information disclosure and participation	Women will be informed and consulted about the project.	Female beneficiaries will be informed about opportunities to access project funds, technical advice, training, and employment opportunities. Women will be consulted to improve subproject.	Included in project management budget	Information will be provided by the PMOs.	Early during implementation

GAP = gender action plan, GEF = Global Environment Facility, M&E = monitoring and evaluation, NGO = nongovernment organization, PIO = project implementation office, PMO = project management office,
Source: Asian Development Bank.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING, AND COMMUNICATION

A. Project Design and Monitoring Framework

Design Summary	Performance Targets and/or Indicators	Data Sources and/or Reporting Mechanisms	Assumptions and Risks
Impact Improved ecosystem health and services in the coastal wetlands in Yancheng	2012 as baseline: <ul style="list-style-type: none"> - Wintering red-crowned crane population in YRBNNR maintained above the critical level of 600 by 2020 - Annual mortality rate of milu deer reduced from 4% to 2% by 2020 	<ul style="list-style-type: none"> - Yancheng annual SOE reports - Yancheng and project district and/or city statistical yearbooks 	Assumptions <ul style="list-style-type: none"> - The government remains committed to wetland biodiversity conservation. - The government adopts suitable policies to limit land-use changes. - Point-source and nonpoint-source pollution are effectively controlled. Risk Economic slowdown may result in greater development pressure on wetlands.
Outcome Increased capacity to manage and protect the wetland ecosystems in Yancheng	<ul style="list-style-type: none"> - Annual degradation of YRBNNR at current rate of 2.48% in project intervention area halted by 2017 - Annual degradation of DMNNR at current rate of 5% in project intervention area halted by 2017 - 30% of construction labor, 50% of operational jobs, and 50% of off-farm employment opportunities provided to women and other vulnerable groups 	<ul style="list-style-type: none"> - Data from Yancheng environmental protection and forestry bureaus - Yancheng and project district and/or city statistical yearbooks 	Assumption <ul style="list-style-type: none"> - Project governments provide sufficient funds for proper O&M of project facilities. Risk <ul style="list-style-type: none"> - NR master plans and the forest farm five-year plans are not effectively implemented.
Outputs 1. Wetlands protection at YRBNNR	By 2017: <ul style="list-style-type: none"> - 540 ha of wetland in experimental zone restored - 1,630 ha of dehydrated wetland in core zone rehydrated - 1,435 ha of fishpond converted to wetland - Spread control of 400 ha of <i>Spartina alterniflora</i> piloted - 38.1 km of patrol roads and stations improved - Waste management facilities constructed - Wildlife rescue, breeding, and disease control center established 	<ul style="list-style-type: none"> - Monitoring reports of Yancheng environmental protection, forestry, and tourism bureaus - Yancheng annual SOE reports - Annual surveys for PPMS 	Assumptions <ul style="list-style-type: none"> - Project design is technically sound. - The executing and implementing agencies have capability and required counterpart funds. Risks <ul style="list-style-type: none"> - Some stakeholders may have resistance to participation in conservation and protection activities.

Design Summary	Performance Targets and/or Indicators	Data Sources and/or Reporting Mechanisms	Assumptions and Risks
	<ul style="list-style-type: none"> - Wetland and biodiversity research and monitoring capacity strengthened - Public education and community co-development capacity strengthened - 30% or more of employment opportunities during project implementation provided to women 		<ul style="list-style-type: none"> - Excessive noise from construction may affect the rare birds. Water for wetland rehydration may be polluted in excess of applicable standards.
2. Wetlands protection at DMNNR	<p>By 2016:</p> <ul style="list-style-type: none"> - 24.7 ha of drinking water surface created - 45 ha of grazing and resting ground established - 50 ha of rotational closure of grazing ground implemented - 220 ha of fodder ground established - 426.4 ha of tick control implemented - 24 km of steel biological fences erected or rehabilitated - 18.5 km of patrol roads improved - 1 patrol station established - Milu deer's research laboratory established - Milu deer's habitat surveillance system established - Science education center expanded - 30% or more of employment opportunities during project implementation provided to women 	<ul style="list-style-type: none"> - Monitoring reports of the Yancheng environmental protection, forestry, and tourism bureaus - Yancheng annual SOE report - Annual surveys for PPMS 	<p>Assumption</p> <ul style="list-style-type: none"> - DMNNR is able to effectively implement milu deer relocation measures and maintain milu deer population within NR's carrying capacity. <p>Risks</p> <ul style="list-style-type: none"> - Coastal wetland in the third core zone may not have adequate carrying capacity to support relocated milu deer. - Water may be polluted making it unsuitable as drinking water for milu deer.
3. Coastal forest improvement at SFF	<p>By 2017:</p> <ul style="list-style-type: none"> - 185 ha of forest bird habitat rehabilitated - 285.2 ha of plant nurseries established - 83.5 ha of agroforestry demonstration area established - 51.4 km of drainage canals rehabilitated - 49.0 km of fire roads rehabilitated - Forest fire early warning and response system established - An integrated pest management system established 	<ul style="list-style-type: none"> - Monitoring reports of the Yancheng environmental protection, forestry, and tourism bureaus - Yancheng annual SOE reports - Annual surveys for PPMS 	<p>Assumption</p> <ul style="list-style-type: none"> - Sheyang forest farm sustains its commitment to restore and improve the conditions in the farm.

Design Summary	Performance Targets and/or Indicators	Data Sources and/or Reporting Mechanisms	Assumptions and Risks
	<ul style="list-style-type: none"> - 60% or more of employment opportunities during project implementation provided to women - 50% or more of eco-agriculture farming skills training provided to women 		
4. Coastal forest improvement at DFF	<p>By 2017:</p> <ul style="list-style-type: none"> - 860 ha of coastal wetland protection forest improved and tended - 122.7 ha of coastal wetland rehabilitated - 174 km of drainage canals improved - 20.9 km of fire roads rehabilitated - Fire prevention and response system established - An integrated pest management system established - 60% or more of employment opportunities during project implementation provided to women - 50% or more of eco-fish farming skills training provided to women 	<ul style="list-style-type: none"> - Monitoring reports of the Yancheng environmental protection, forestry, and tourism bureaus - Yancheng annual SOE reports - Annual surveys for PPMS 	<p>Assumption</p> <ul style="list-style-type: none"> - Dafeng forest farm sustains its commitment to restore and improve the conditions in the farm.
5. Project management and capacity development	<ul style="list-style-type: none"> - PMOs established and operational by 2011, including at least 30% representation by women - PMOs and PIUs strengthened by 2017 - Eco-compensation study completed and approved by 2017 - 100 persons trained by 2013, at least 30% are women - 500 person-years of direct construction jobs created, with 30% being provided to women and other vulnerable groups; - 150 direct operational jobs created with 50% being provided to women and other vulnerable groups - 50% of the off-farm opportunities created by the project in surrounding communities taken up by women and other vulnerable groups 	<ul style="list-style-type: none"> - PMO progress reports - Project completion report - ADB review missions and evaluation reports 	<p>Assumptions</p> <ul style="list-style-type: none"> - PMOs and PIUs have competent consultants and facilities, and the executing and implementing agencies provide competent staff. - There are adequate female candidates to be trained and take up construction, operation, and off-farm employment opportunities. <p>Risks</p> <ul style="list-style-type: none"> - Local PMOs lack capacity in coordination and management. - PIUs lack capacity in procurement and financial management.

Design Summary	Performance Targets and/or Indicators	Data Sources and/or Reporting Mechanisms	Assumptions and Risks
Activities and Milestones 1. Wetlands Protection at YRBNNR 1.1 Wetland restoration by Q4 2013 1.2 Public education and community co-development capacity by Q4 2013 1.3 Wetland rehydration by Q4 2015 1.4 Fishponds-to-wetlands conversion by Q4 2015 1.5 Invasive alien species control pilot by Q4 2016 1.6 Wetland protection infrastructures by Q4 2016 1.7 Wildlife protection by Q4 2016 1.8 Wetland and biodiversity research and monitoring capacity by Q4 2016 2. Wetlands Protection at DMNNR 2.1 Milu deer's research, monitoring, and rescue capacity by Q4 2013 2.2 Milu deer's drinking water supply improvement by Q4 2014 2.3 Milu deer's food supply and resting ground improvement by Q4 2016 2.4 Milu deer's habitat protection by Q4 2016 2.5 Public education capacity by Q4 2016 3. Coastal Forest Improvement at SFF 3.1 Forest bird habitat restoration by Q2 2015 3.2 Agroforestry development by Q2 2015 3.3 Establishment of seedling nurseries by Q4 2016 3.4 Drainage improvement by Q4 2016 3.5 Forest fire prevention and response capacity improvement by Q4 2016 3.6 Integrated pest management by Q2 2017 4. Coastal Forest Improvement at DFF 4.1 Coastal wetlands restoration by Q4 2015 4.2 Forest fire prevention and response capacity improvement by Q2 2016 4.3 Drainage improvement by Q4 2016 4.4 Integrated pest management by Q2 2017 4.5 Coastal wetland protection forest improvement by Q2 2017 5. Project Management and Capacity Development 5.1 Project management by Q2 2017 5.2 Capacity development by Q2 2017 5.3 Implementation of the environmental management, gender action, and resettlement plan; and the SPRSS measures during 2012–2017			Inputs (\$ million) ADB: 36.90 Government: 39.49 Total 76.39

ADB = Asian Development Bank, DMNNR = Dafeng milu national nature reserve, DFF = Dafeng forest farm, O&M = operation and maintenance, PIU = project implementation unit, PMO = project management office, PPMS = project performance management system, SFF = Sheyang forest farm, SOE = state of the environment, SPRSS = summary poverty reduction and social strategy, YRBNNR = Yancheng rare birds national nature reserve.
Source: ADB.

B. Monitoring

83. Project performance monitoring. To monitor project progress in achieving the planned outcome and outputs, JPMO will establish and maintain a PPMS,¹⁰ which will be designed to permit adequate flexibility to adopt remedial action regarding project design, schedules, activities, and development impacts. The impact indicators, as specified in the design and monitoring framework (DMF), will include (i) red-crowned crane population (below 600 in 2010);

¹⁰ ADB's PPMS is available at: <http://www.adb.org/Documents/Slideshows/PPMS/default.asp?p=evaltool>

(ii) milu deer morbidity (3%) and mortality rates (4%); (iii) number of eco-tourists (YRBNNR from 70,000 in 2010 to 500,000 by 2020, DMNNR from 300,000 in 2010 to 400,000 by 2020, SFF from 80,000 in 2010 to 150,000 by 2020, and DFF from 100,000 in 2001 to 250,000 by 2020); and (iv) number of community participation activities in nature reserve management. At the start of project implementation, JPMO, with support from the project implementation consultants, will develop comprehensive PPMS 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 will be used to measure the project impact, outcome, outputs, and compliance with ADB safeguard requirements. No later than 6 months after loan effectiveness, JPMO will (i) refine the PPMS framework, (ii) establish the baseline, (iii) confirm achievable targets, (iv) finalize the monitoring and recording arrangements, and (v) establish data collection systems and reporting procedures.

84. **Compliance monitoring.** During project implementation, ADB and JPMO will closely monitor the compliance of all the covenants under the project and will take necessary remedy actions for any noncompliance. The compliance status will be reported in the quarterly progress report by PMO and will be reviewed during project review missions.

85. **Safeguards monitoring.** Environmental safeguard monitoring will be undertaken by the JPMO and YPMO through EMU that they will establish and staff. Further, JPMO and YPMO will engage an environmental management company and/or consultant to assist PIUs in carrying out environmental management and monitoring activities. PIUs will appoint one environment officer to supervise the work of the environmental management company and/or consultant, and report to the environment coordinator in JPMO and YPMO. JPMO and YPMO will monitor and assess overall project activities under the project DMF, including environmental targets. JPMO will report to ADB the progress of the EMP, information on project implementation, environmental performance of the contractors, and environmental compliance through quarterly project progress reports and semiannual environmental monitoring reports. The progress reports on the EMP will pay particular attention to consultation and participation, and to public and worker safety and health.

86. During construction, PIUs will support JPMO and YPMO to conduct internal environmental monitoring and inspections to ensure that environmental mitigation measures are properly implemented. Inspections or audits will mainly cover construction activities, but these will also review the affected environment and communities. External environmental monitoring and inspection will be conducted by local environmental monitoring centers under the local environment protection bureaus. They will be responsible to undertake regular and random environmental monitoring and inspection activities before, during, and after construction as well as in the event of emergencies.

87. Social safeguard monitoring will focus on the implementation of the resettlement plan, which includes a reemployment plan for the economically displaced or affected persons. Internal monitoring will be undertaken by JPMO and YPMO with support from the social safeguard specialist as part of the consulting services. JPMO will report to the ADB on the progress of the reemployment plan through the quarterly project progress reports (and the semiannual environmental monitoring reports). External monitoring of the resettlement plan implementation will be conducted by independent experts engaged by YPMO. The external monitor will investigate progress and submit reports to ADB and JPMO semiannually.

88. Gender and social dimensions monitoring. Project activities will create labor opportunities and have other impacts on social issues. The consolidated annual monitoring reports will include a section that describes (i) activities, advancements, and impacts on women and other gender issues; and (ii) job opportunities created for poor and other vulnerable groups. It may also include, if deemed important, social issues as they emerge.

C. Evaluation

89. In addition to regular monitoring, project performance will be reviewed at least once a year jointly by ADB and JPG. The review will assess implementation performance and achievement of project outcomes and outputs; assess financial progress; identify issues and constraints affecting implementation; and work out a time-bound action plan for their resolution. ADB and JPG will undertake a midterm review to assess implementation status and take appropriate measures—including modification of scope and implementation arrangements, and reallocation of loan proceeds, as appropriate—to achieve the project impact and outcome. Within 6 months of physical completion of the project, JPMO will submit a project completion report to ADB.¹¹

D. Reporting

90. JPG, through JPMO, will provide ADB with (i) quarterly progress reports in a format consistent with ADB's PPMS, including project physical and financial progress and implementation of environmental and social safeguards; (ii) semiannual safeguard monitoring reports submitted by external monitors; (iii) consolidated annual reports, including (a) progress achieved by output as measured through the indicator's performance targets, (b) achievement of gender and social dimension targets, (c) key implementation issues and solutions, (d) updated procurement plan, and (e) updated implementation plan for the next 12 months; and (iv) a project completion report within 6 months of physical completion of the project. To ensure projects continue to be both viable and sustainable, project accounts and the executing agency's audited financial statements, together with the associated auditor's report, should be adequately reviewed.

E. Stakeholder Communication Strategy

91. Relevant project information, including implementation progress, will be disclosed in the ADB's website and at JEPD, YEPB, and PIUs, as well as in village meetings and through village information boards. This may include the DMF, the environmental assessment, and the EMP. The EMP prepared for the project contains a public consultation plan for the project implementation. Stakeholder workshops will be held throughout the project implementation to inform and consult with key stakeholders, particularly workers and residents in the nature reserves, forest farms, and adjacent communities, to (i) encourage them to participate in project activities and (ii) make sure all stakeholders, including women, poor, and other vulnerable groups, are informed about and able to benefit from the project.

92. The nature reserves and forest farms will be responsible for operation and maintenance of project facilities; and they will manage effectively the project investments. They will also help convey opinions and advice of resource users concerning all aspects of operational efficiency.

¹¹ Project completion report format is available at: <http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar>

Objective(s)	Main Stakeholders	Messages	Means of Communication (Channels/Languages/Activities)	Timeline	Responsibility
Make sure that all stakeholders, including women, poor, and other vulnerable groups, are informed about and able to benefit from the project.	All stakeholders, including women, poor, and other vulnerable groups	Design and monitoring framework, environmental assessment, and environmental management plan	ADB's website; and at JEPD, YEPB, and PIUs; during village meetings, and on the village announcement boards	Early in project implementation	JEPD, YEPB, and PIUs; village committees
Encourage them to participate in project activities.	Workers and residents in the nature reserves, forest farms, and adjacent communities	Relevant project messages and the public consultation plan for project implementation	ADB's website; and at JEPD, YEPB, and PIUs; during village meetings, and on the village announcement boards	Consistently during project implementation	YEPB and PIUs, forest farm administration, village committees
Ensure shared ownership by communities, nature reserves, and forest farms.	Nature reserves and forest farms	Convey opinions and advice of resource users concerning all aspects of operational efficiency			YEPB, PIUs, nature reserve and forest farm administrations

ADB = Asian Development Bank, JEPD = Jiangsu environmental protection department, PIU = project implementation unit, YEPB = Yancheng environmental protection bureau.

Source: ADB.

X. ANTICORRUPTION POLICY

93. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the project.¹² All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all project contractors, suppliers, consultants, and other service providers. Individuals and/or entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the project.¹³

¹² Available at: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>.

¹³ ADB's Integrity Office web site is available at: <http://www.adb.org/integrity/unit.asp>.

94. To support these efforts, relevant provisions are included in the loan and project agreements, and the bidding documents for the project. The project design and implementation arrangements provide for mitigating corruption risks. Risks associated with project management will be mitigated by (i) training of the executing and implementing agencies' staff in the procurement of civil works, goods, and services under the project; and (ii) periodic inspection of contractors' activities related to fund withdrawals and settlements by the executing agency's staff. These key risks and mitigating measures were discussed and agreed between ADB and the borrower during loan processing as per the Second Governance and Anticorruption Action Plan.¹⁴

XI. ACCOUNTABILITY MECHANISM

95. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make a good faith effort to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.¹⁵

XII. RECORD OF PROJECT ADMINISTRATION MANUAL CHANGES

Date	Project Administration Manual Changes
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¹⁴ GACAP II Guidelines available at: <http://www.adb.org/Documents/Guidelines/GACAP-II-Guidelines.pdf>. See also Sourcebook: Diagnostics to Assist Preparation of Governance Risk Assessments: <http://www.adb.org/documents/books/Diagnostics-to-Assist-Preparation-of-GRAs/default.asp>.

¹⁵ For further information, see <http://www.adb.org/Accountability-Mechanism/default.asp>

CONTRIBUTION TO THE ADB RESULTS FRAMEWORK

No.	Results Framework Indicator (Level 2)	Target	Method and/or Comment
1	Greenhouse gas emission reduction (tCO ₂ e/year)	61,348.1 (tCO ₂ e/year) from 2016	Reduced degradation of wetlands and forests increases their capacity to sequester carbon

tCO₂e/year = ton of carbon dioxide equivalent per year.
Source: Asian Development Bank

DEVELOPMENT COORDINATION

A. Major Development Partners: Strategic Foci and Key Activities

1. The coastal province of Jiangsu is a relatively well-to-do. Compared with the poorer western provinces that are covered by the Western Development Strategy, Jiangsu is not a priority for national and international development assistance. There are, however, three ongoing lending projects, including two from the World Bank and one from the Asian Development Bank (ADB), on water and sanitation. The World Bank-financed Jiangsu Water and Wastewater Project covers Yancheng, but it is limited to water supply. Although closed in 2008, the Wetland Biodiversity Conservation and Sustainable Use in China Project, funded by the United Nations Development Programme and the Global Environment Facility, merits mention as it included the Yancheng coastal wetlands as one of its four project sites in the People's Republic of China (PRC). The evaluation report rated the project generally satisfactory, but it was suspended in 2002, 3 years after commencement in 1999, for not achieving the expected results. It was subsequently redesigned and relaunched in 2005 and finally completed in 2008. The causes of the failure of phase 1 of that project included poor original design, management deficiencies, a narrow institutional focus in the executing agency that failed to tackle the underlying causes of loss of wetland function, and a flawed approach to subcontracting.¹

Table 1: Major Development Partners

Development Partner	Project Name	Duration	Amount (\$ million)
Sector: Water and Sanitation			
ADB loan	Nanjing Qinhuai River Environmental Improvement Project	2007–2012	100.0
World Bank	Jiangsu Wuxi Lake Tai Environment Project	Programmed	150.0
	Jiangsu Water and Wastewater Project	2009–2014	100.0
Sector: Biodiversity Protection			
GEF–UNDP	Wetland Biodiversity Conservation and Sustainable Use in China	1999–2008	5.3

ADB = Asian Development Bank, GEF = Global Environment Facility, UNDP = United Nations Development Programme.
Source: ADB.

B. Institutional Arrangements and Processes for Development Coordination

2. ADB is committed to sharing sector information and experiences in partnership with its developing member countries and other development agencies. In line with ADB's support for the 2005 Paris Declaration and the 2008 Accra Agenda for Action, it has been actively harmonizing its policies, procedures, and practices with its key development partners through parallel implementation structures, technical working groups, and joint missions. In addition, ADB has supported global and regional efforts to enhance aid effectiveness.

¹ C. Vanpraet and X. B. Yu. 2009. *Terminal Evaluation Report of the UNDP-GEF-Government of China Project on Wetland Biodiversity Conservation and Sustainable Use in China*. New York: United Nations Development Programme.

3. In the PRC, development coordination is mainly by the central government. All development partners are requested to align their operations to support the implementation of a national development strategy as set in five-year plans for social and economic development approved by the People's Congress. ADB's Resident Mission in the PRC plays a key role in harnessing lessons learned for project processing and implementation, as well as sharing the knowledge and experiences with other development partners in the sector.

C. Achievement and Issues

4. Since 1992, coordination with major development partners has strengthened support for the 5-year plans of the PRC, strategic master plans, public awareness and education, financial and institutional strengthening, achieving the Millennium Development Goals, and other development results in the sector. ADB project teams regularly meet with major development partners of the PRC in the sector, such as the World Bank, to share project processing and implementation experiences.

5. The PRC's investment in pollution control and ecological protection has gradually increased from CNY700 billion in the Tenth Five-Year Plan, 1996–2000 to CNY1,400 billion, or 1.35% of the gross domestic product (GDP), in the Eleventh Five-Year Plan, 2006–2010 and CNY3,100 billion, or 1.50% of GDP, in the Twelfth Five-Year Plan, 2011–2015. Investment remains low compared with that of developed countries, at 2.5% to 5.0% of GDP. Meanwhile, the share of ecological protection (species and ecosystem protection) is low. However, there is an emerging trend of increased use of public finance, especially central and provincial finances and including lending from international financing institutions, for ecological protection. This trend should be encouraged through policy dialogue with central authorities, particularly the Ministry of Finance and the National Development and Reform Commission.

D. Summary and Recommendations

6. Close coordination with other development partners will continue and be further strengthened. Strengthening development coordination in the PRC is expected to minimize transaction costs, maximize responsiveness, address policy issues more systematically, provide greater support for reforms and capacity development, and promote increased accountability to achieve greater development impact.

7. Meanwhile, pollution control and ecological protection are among the top priorities in the PRC's Twelfth Five-Year Plan, 2011–2015. ADB should strengthen its dialogue with the government through the Ministry of Finance and the National Development and Reform Commission on continuing the trend toward higher investments in ecological protection.

ECONOMIC AND FINANCIAL ANALYSIS

A. Introduction

1. Rapid economic development over the past 3 decades has caused the rapid degeneration of the Yancheng wetlands, with significant loss and fragmentation of wildlife habitats and loss of biodiversity. The main threats are (i) land use changes from conversion to farmland and aquaculture ponds, as well as industrial and urban expansion; (ii) industrial, agricultural, and urban pollution; (iii) the spread of the invasive species *Spartina alterniflora*; (iv) draining; (v) overfishing and other unsustainable resource extraction; and (vi) poaching and poisoning. The importance of the wetlands from the local, national, and global perspectives, and the pressures that affect their ecosystems, have made ecological protection a high priority in national, provincial, and municipal 5-year development plans. These plans also place a high priority on strengthening the ecological protection forest network with reforestation along the coast, rivers, lakes, and transportation routes, as well as in urban centers and villages.

B. The Project

2. The Jiangsu Yancheng Wetlands Protection Project aims to improve the condition of natural resources and the environment in the project area through a number of interventions that are envisioned being implemented under four proposed structural outputs: (i) wetland protection in the Yancheng Rare Birds National Nature Reserve (YRBNNR), in particular wetland restoration and biodiversity conservation; (ii) wetland protection in the Dafeng Milu National Nature Reserve (DMNNR), in particular capacity development; (iii) coastal forest improvement in the Sheyang Forest Farm (SFF), in particular sustainable forestry management; and (iv) coastal forest improvement in the Dafeng Forest Farm (DFF), in particular sustainable forestry management. A fifth proposed output—project management and capacity development—will support facilitating effective project management and the delivery of technical services for efficient implementation. This output includes such non-structural measures as increasing awareness, capacity development, community participation, and environmental protection and monitoring, which are expected to improve institutional and community capacity in water resource and environmental management. These improvements are envisioned (i) improving the utilization, development, and management of water resources and (ii) consequently contributing to environmental health in the project area.

3. The project will be implemented over 5 years. Annual implementation costs have been estimated for each project output and for the overall project. The overall cost, including improved project management, is CNY484.06 million, with an economic value of CNY461.72 million. The estimated costs of the project outputs are as follows: (i) wetlands protection in the YRBNNR CNY324.45 million (CNY309.21 million in economic terms), (ii) wetland protection in the DMNNR CNY39.21 (CNY37.33 million in economic terms), (iii) coastal forest improvement in the SFF CNY78.20 million (CNY74.93 million in economic terms), and (iv) coastal forest improvement in the DFF CNY42.19 million (CNY42.25 million in economic terms). The estimated annual costs during implementation were derived using Costab software. Annual operation and maintenance costs for maintaining project facilities are estimated at 0.5% of total investment costs.

C. Economic Analysis

4. The economic analysis compares with- and without-project scenarios to determine the incremental economic benefits and costs of each of the four outputs. These provide the basis

for calculating economic internal rates of return (EIRRs) by output and for the project. The economic analysis was carried out following Asian Development Bank (ADB) Guidelines for Economic Analysis of Projects.¹ The major assumptions of the analysis are as follows:

- (i) The project life is assumed to be 30 years, including an implementation period of 5 years, after which the salvage value is zero.
- (ii) Financial revenues and costs are expressed in mid-2011 constant terms.
- (iii) All financial costs and benefits are valued using domestic prices and expressed in economic terms using the world price numeraire.
- (iv) All taxes and subsidies are excluded in the evaluation of the economic performance of the outputs and of the project.
- (v) Economic costs, which are assumed to be untradable, are derived by adjusting their values by a standard conversion factor of 0.93, which is consistent with the factor used for recent ADB projects in the People's Republic of China (PRC).²
- (vi) The real opportunity cost of capital is assumed to be 12% per year, which is the economic opportunity cost of capital for the PRC.

5. **Wetlands protection at the Yancheng Rare Birds National Nature Reserve.** The proposed rehabilitation and/or restoration interventions for this output cover 4,005 hectares (ha) of wetlands, mainly in the core and experimental zones. Wetlands provide several important services from which society derives benefits³ that are valued at CNY56,667.51/ha/year in economic terms.⁴ Wetland ecological services and their associated values are observed to have decreased at an average rate of 2.48%/year over 1992–2007. This rate is expected to continue in coming years in the without-project scenario, with no mitigation measures to preserve the wetlands and improve their management. In the with-project scenario—with the proposed interventions including strengthened institutional capacity for water resource and environmental management and increased community participation in environmental monitoring and pollution control—further degradation of the wetlands is averted. Total wetland area without the project is projected to decline from 3,621.6 ha in 2016 to 1,930.8 ha in 2041, and the total value of the wetlands is projected to decline from CNY205.23 million in 2016 to CNY109.41 million in 2041. With the project, the 4,005 ha wetland area is currently valued at CNY226.95 million. These values are projected to remain unchanged over 2016–2041. Total wetland areas saved from degradation are projected to increase from 383.4 ha in 2016 to 2,074.2 ha in 2041. The total value of wetlands saved from degradation is estimated to increase from CNY21.73 in 2016 to CNY117.54 million in 2041.

6. As the area and quality of wetlands deteriorate, their capacity to sequester carbon likewise deteriorates. The estimated quantity of carbon sequestered over the 30-year project life is carried

¹ ADB. 1997. *Guidelines for the Economic Analysis of Projects*. Manila.

² ADB. 2006. *Report and Recommendation of the President to the Board of Directors on the Proposed Loan to the People's Republic of China for the Inner Mongolia Autonomous Region Environment Improvement Project*. Manila; ADB. 2008. *Report and Recommendation of the President to the Board of Directors on the Proposed Loan to the People's Republic of China for the Integrated Ecosystem and Water Resources Management in the Baiyangdian Basin Project*. Manila; ADB. 2008. *Report and Recommendation of the President to the Board of Directors on the Proposed Loan to the People's Republic of China for the Qingdao Water Resources and Wetland Protection Project*. Manila.

³ These benefits include food and raw materials, water conservation, erosion control, disturbance regulation, water treatment, biodiversity conservation, nutrient recycling, leisure and recreation, and scientific research and education.

⁴ X. B. Bao and H. P. Li. 2008. *Yancheng Wetland Ecosystem Services and Valuation*. A paper presented in the Global Environment Facility-funded Chinese Wetland Biodiversity Protection and Sustainable Utilization Project (English translation).

out by applying data from Polasky and Liu⁵ and Neely.⁶ Incremental carbon sequestration of 3 tons of carbon (tC)/ha/year (or 11 tons of carbon dioxide equivalent per hectare per year) is applied⁷ and multiplied by a trading price of CNY133.02 per certified emission reduction⁸ to arrive at a value of CNY1,463 per ton of carbon dioxide equivalent per hectare per year. Without the project and with wetlands not restored, total carbon sequestration of the wetland area will continue to diminish at an average annual rate of 2.48%. As the total wetland area is projected to decline from 3,621.6 ha in 2016 to 1,930.8 ha in 2041, the annual value of carbon sequestered is correspondingly projected to decrease from CNY5.30 million/year in 2016 to CNY2.83 million/year in 2041. With the project, interventions to restore the 4,005 ha wetland area are expected to avert the decline in carbon sequestration capacity. The value of carbon sequestered is estimated at CNY5.86 million/year and projected to remain at this level over 2016–2041. The incremental value of carbon sequestered is estimated to increase from CNY0.56 million/year in 2016 to CNY3.04 million/year in 2041.

7. Wetland improvement is likewise expected to bring about incremental economic benefits from increased numbers of ecotourists and higher entrance fees or visitors' willingness to pay for visiting the natural reserve. Without the project, the number of ecotourists is projected to increase from 93,807 in 2016 to 317,663 in 2041 at an annual rate of 5%/year, with the entrance fee at CNY30/visitor. With the project, the number of visitors is projected to be 50% higher than without the project in 2016 and then increase by 10% annually until 2030, when the maximum capacity of 500,000 visitors per year is reached. The entrance fee is conservatively estimated at CNY50/visitor with the project.

8. The EIRR for the YRBNNR is estimated at 13.92% with an economic net present value (ENPV) of CNY57.57 million and an economic benefit-cost ratio (BCR) of 1.2 (Table 1). The results of the sensitivity analysis indicate that the component's EIRR is not very sensitive to changes in the selected risk variables such as benefits delayed by 1 year, a 10% benefit reduction, or a 10% increase in costs. If benefits are delayed by 2 years, the EIRR drops to 10.5%. If benefits decrease and costs increase by 10% simultaneously, the EIRR falls to 12%.

9. **Wetlands protection in the Dafeng Milu National Nature Reserve.** Interventions to rehabilitate milu deer habitat include (i) expanding grazing land by 25 ha, (ii) improving 50 ha of grazing ground, (iii) expanding existing deer resting area by 45.3 ha, (iv) establishing a 45-ha deer forest habitat, and (v) establishing 220 ha of deer fodder ground. Tick control will be implemented, complemented by the relocation of 418 head of milu deer to maintain the deer population within the maximum carrying capacity of the nature reserve. The interventions will be complemented with other activities such as establishing patrol and management facilities; research, monitoring, and rescue facilities; and an education center.

10. Establishing the milu deer forest habitat is expected to improve ecological health and corresponding service values on 45 ha. Improving ecological health is expected to increase the

⁵ S. Polasky and Y. Liu. 2006. *The Supply of Terrestrial Carbon Sequestration in Minnesota*. St. Paul: University of Minnesota. <http://wrc.umm.edu/outreach/carbon/>

⁶ H. Neely. 2008. *Restoring Farmland to Wetlands: the Potential for Carbon Credits in Eastern North Carolina*. Durham: Duke University, Nicholas School of the Environment and Earth Sciences.

⁷ The authors estimated that the average increment of carbon sequestered by healthy wetlands is 2–3 tC/ha/year, or 7.33–11.00 tons of carbon dioxide equivalent per hectare per year. The economic analysis for the Jiangxi Sustainable Forest Ecosystem Development Project in 2010 applied 3 tC/ha/year. ADB. 2010. *Report and Recommendation of the President to the Board of Directors on the Proposed Loan to the People's Republic of China for the Jiangxi Sustainable Forest Ecosystem Development Project*. Manila.

⁸ Available at: <http://www.eco2forests.com/carbon-pricing.html>. The price of carbon traded was \$20/tC in 2010, when the average exchange rate was CNY6.65 = \$1.00.

value per hectare of ecological services each year from the current CNY8,531.32/ha/year⁹ until the value of healthy coastal protection forests of CNY85,313.16/ha/year (footnote 3) is attained during 2016–2041. Subsequently, the total value of ecological services with the project will increase from CNY0.38 million in 2016 to CNY3.84 million in 2041. Without the project, the value of ecological services is assumed to remain at CNY8,531.32/ha/year throughout the projection period. The incremental value of ecological services is projected to increase from CNY0.04 million in 2016 to CNY3.46 million in 2041.

Table 1: Estimated Economic Internal Rate of Return of the Yancheng Rare Birds National Nature Reserve (CNY million)

Year	Project Cost			Project Benefits				
	Investment Cost	Operation and Maintenance	Loss of Income from Aqua-culture	Total Costs	Value of Wetland Services Saved from Degradation	Conserved Carbon Sequestration Value	Increased Benefits from Ecotourist Visits	Net Economic Benefits
2012	90.58		0.93	91.51				(91.51)
2013	82.75		1.86	84.61				(84.61)
2014	89.74		1.86	91.60				(91.60)
2015	35.07		1.86	36.93				(36.93)
2016	11.07	1.55	1.86	14.47	21.73	0.56	4.22	12.04
2017		1.55	1.86	3.41	26.83	0.69	4.78	28.90
2018		1.55	1.86	3.41	31.80	0.82	5.41	34.62
2019		1.55	1.86	3.41	36.65	0.95	6.11	40.29
2020		1.55	1.86	3.41	41.38	1.07	6.88	45.92
2021		1.55	1.86	3.41	45.99	1.19	7.74	51.51
2022		1.55	1.86	3.41	50.48	1.30	8.69	57.07
2023		1.55	1.86	3.41	54.87	1.42	9.75	62.63
2024		1.55	1.86	3.41	59.14	1.53	10.92	68.19
2025		1.55	1.86	3.41	63.31	1.63	12.22	73.76
2026		1.55	1.86	3.41	67.38	1.74	13.66	79.38
2027		1.55	1.86	3.41	71.34	1.84	15.26	85.04
2028		1.55	1.86	3.41	75.21	1.94	17.03	90.77
2029		1.55	1.86	3.41	78.98	2.04	18.98	96.59
2030		1.55	1.86	3.41	82.65	2.13	19.43	100.81
2031		1.55	1.86	3.41	86.24	2.23	19.15	104.21
2032		1.55	1.86	3.41	89.74	2.32	18.86	107.50
2033		1.55	1.86	3.41	93.14	2.41	18.55	110.69
2034		1.55	1.86	3.41	96.47	2.49	18.23	113.78
2035		1.55	1.86	3.41	99.71	2.57	17.89	116.77
2036		1.55	1.86	3.41	102.87	2.66	17.53	119.66
2037		1.55	1.86	3.41	105.96	2.74	17.16	122.44
2038		1.55	1.86	3.41	108.96	2.81	16.77	125.14
2039		1.55	1.86	3.41	111.89	2.89	16.36	127.73
2040		1.55	1.86	3.41	114.75	2.96	15.92	130.23
2041		1.55	1.86	3.41	117.54	3.04	15.47	132.64
EIRR =								13.92%
NPV @ 12% =								57.75
BCR =								1.20

BCR = benefit–cost ratio, EIRR = economic internal rate of return, NPV = net present value.

Note: The economic opportunity cost of capital is at 12%.

Source: Asian Development Bank estimates.

11. Since the introduction of 39 head of milu deer into the DMNNR in 1986, the number of deer increased to 1,618 head in 2010 at an average annual rate of increase of 2.5%/year. Project interventions are expected to halve the annual mortality rate, from 4% to 2%. The loss of

⁹ C. F. Tong et al. 2006. *Ecosystem Service Value and Restoration in the Urban Sanyang Wetland of Wenzhou, China*. www.elsevier.com/locate/ecoleng. This base value is 10% of the value of mature ecosystems. The 10% base value is consistent with the estimate provided in the publication cited in this footnote. The authors indicated that the potential value of restored wetland ecosystems is 10 times their base value. Discussions with the DMNNR and forest farm staff during field visits confirmed this, as well as that restored wetland and coastal protection forests will attain the full value after at least 30–40 years.

one milu deer is estimated at about CNY63,886.¹⁰ The total value of carbon sequestration with the project is estimated at CNY0.07 million/year over 2016–2041. Carbon sequestration benefits which were derived from rehabilitating the 45-ha milu deer forest habitat are assumed to be incremental.¹¹ The current number of ecotourists visiting the DMNNR was estimated in 2010 at 300,000/year. This is projected to increase to 400,000/year by 2016 without the project and be kept at that maximum capacity until 2041. With the project, it is assumed that the maximum capacity will be maintained while the entrance fee is increased from CNY35/visitor to CNY50/visitor. Incremental economic benefits from ecotourists are derived mainly from higher entrance fees or willingness to pay and estimated at CNY6.00 million/year.

12. The EIRR for the DMNNR is estimated at 16.17%, with an ENPV of CNY11.643 million and a BCR of 1.4 (Table 2). The results of the sensitivity analysis indicate that the EIRR is not sensitive to changes in selected risk variables such as benefit reduction and cost increase by 10% together or benefits delayed by 2 years.

Table 2: Estimated Economic Internal Rate of Return of the Dafeng Milu National Nature Reserve (CNY million)

Year	Economic Cost			Economic Benefits					Net Economic Benefits
	Investment Cost	Operation and Maintenance	Total Costs	Reduced Losses due to Milu Deer Mortality	Increased Value of Wetland Forest Services	Increased Carbon Sequestration Value	Increased Revenue from Ecotourist Visits	Total Economic Benefits	
2012	8.50		8.50						(8.50)
2013	15.08		15.08						(15.08)
2014	11.00		11.00						(11.00)
2015	1.59		1.59						(1.59)
2016	1.15	0.19	1.34	2.28		0.07	6.00	8.35	7.01
2017		0.19	0.19	2.20	0.04	0.07	6.00	8.30	8.11
2018		0.19	0.19	2.12	0.08	0.07	6.00	8.26	8.07
2019		0.19	0.19	2.04	0.12	0.07	6.00	8.22	8.04
2020		0.19	0.19	1.96	0.17	0.07	6.00	8.19	8.01
2021		0.19	0.19	1.88	0.22	0.07	6.00	8.17	7.98
2022		0.19	0.19	1.80	0.28	0.07	6.00	8.15	7.96
2023		0.19	0.19	1.72	0.35	0.07	6.00	8.14	7.95
2024		0.19	0.19	1.65	0.42	0.07	6.00	8.13	7.94
2025		0.19	0.19	1.57	0.50	0.07	6.00	8.13	7.95
2026		0.19	0.19	1.50	0.58	0.07	6.00	8.14	7.96
2027		0.19	0.19	1.43	0.67	0.07	6.00	8.16	7.98
2028		0.19	0.19	1.35	0.78	0.07	6.00	8.19	8.01
2029		0.19	0.19	1.28	0.89	0.07	6.00	8.24	8.05
2030		0.19	0.19	1.21	1.01	0.07	6.00	8.29	8.10
2031		0.19	0.19	1.14	1.14	0.07	6.00	8.35	8.17
2032		0.19	0.19	1.07	1.29	0.07	6.00	8.43	8.24
2033		0.19	0.19	1.01	1.45	0.07	6.00	8.53	8.34
2034		0.19	0.19	0.94	1.63	0.07	6.00	8.64	8.45
2035		0.19	0.19	0.88	1.83	0.07	6.00	8.77	8.58
2036		0.19	0.19	0.81	2.04	0.07	6.00	8.91	8.73
2037		0.19	0.19	0.75	2.27	0.07	6.00	9.08	8.90
2038		0.19	0.19	0.68	2.53	0.07	6.00	9.28	9.09
2039		0.19	0.19	0.62	2.81	0.07	6.00	9.50	9.31
2040		0.19	0.19	0.56	3.12	0.07	6.00	9.74	9.55
2041		0.19	0.19	0.50	3.46	0.07	6.00	10.02	9.83
								EIRR =	16.17%
								NPV @ 12% =	11.64
								BCR =	1.39

BCR = benefit-cost ratio, EIRR = economic internal rate of return, NPV = net present value.

Note: The economic opportunity cost of capital is at 12%.

Source: Asian Development Bank estimates.

13. **Coastal forest improvement in the Sheyang Forest Farm.** The restoration of the SFF will cover 493.3 ha. The expected benefits are (i) the increased value of ecological services of

¹⁰ The calculated value may be considered as the minimum estimate of the government's willingness to protect milu deer, considering their global importance. For the economic analysis, the calculated average value of one milu deer is the sum of the NPV of the (i) DMNNR investment cost/head/year, (ii) cost of medical treatment/head/year, (iii) cost of supplemental feed/head/year, and (iv) DMNNR cost of operation and maintenance/head/year. These NPVs are projected over 30 years and discounted at 12%.

¹¹ Projections of benefits from enhanced carbon sequestration for the DMNNR follow those applied for the YRBNNR.

coastal protection forests on 493.3 ha, with incremental economic benefits increasing from CNY4.60 million/year in 2016 to CNY42.09/year in 2041;¹² (ii) enhanced carbon sequestration capacity of the restored and/or rehabilitated forest farm area and ecological habitat on 493.3 ha, with incremental benefits from enhanced carbon sequestration of CNY0.72 million/year over 2016–2041;¹³ and (iii) increased revenues from ecotourists as the number of visits is projected to be higher by 2016 and to increase at 10% annually with the project but at only 5% without the project, subject to a maximum capacity of 200,000 ecotourist visits per year, and the entrance fee with the project at CNY25/visitor, 25% higher than without the project.

14. The EIRR for the SFF is estimated at 13.61%, with an ENPV of CNY9.451 million and a BCR of 1.2 (Table 3). The results of the sensitivity analysis indicate that the EIRR is not sensitive to changes in the selected risk variables in general. In the sensitivity tests, only when benefits are delayed by 2 years or benefits decrease and costs increase by 10% simultaneously does the EIRR fall between 11.0% and 11.7%.

Table 3: Estimated Economic Internal Rate of Return for the Sheyang Forest Farm
(CNY million)

Year	Economic Cost			Economic Benefits			
	Investment Cost	Operation and Maintenance	Total Costs	Increased Value of Coastal Protection Forest Services	Increased Value of Carbon Sequestration	Increased Revenue from Ecotourism	Net Economic Benefits
2012	3.54		3.54				(3.54)
2013	20.26		20.26				(20.26)
2014	21.71		21.71				(21.71)
2015	12.60		12.60				(12.60)
2016	16.84	0.38	17.21	4.60	0.72	1.88	(10.02)
2017		0.38	0.38	5.02	0.72	2.17	7.54
2018		0.38	0.38	5.49	0.72	2.50	8.34
2019		0.38	0.38	6.00	0.72	2.52	8.86
2020		0.38	0.38	6.55	0.72	2.39	9.29
2021		0.38	0.38	7.16	0.72	2.26	9.77
2022		0.38	0.38	7.82	0.72	2.13	10.30
2023		0.38	0.38	8.55	0.72	1.98	10.88
2024		0.38	0.38	9.34	0.72	1.83	11.52
2025		0.38	0.38	10.20	0.72	1.67	12.22
2026		0.38	0.38	11.15	0.72	1.51	13.00
2027		0.38	0.38	12.18	0.72	1.33	13.86
2028		0.38	0.38	13.31	0.72	1.15	14.80
2029		0.38	0.38	14.54	0.72	1.00	15.89
2030		0.38	0.38	15.89	0.72	1.00	17.23
2031		0.38	0.38	17.36	0.72	1.00	18.71
2032		0.38	0.38	18.97	0.72	1.00	20.31
2033		0.38	0.38	20.72	0.72	1.00	22.07
2034		0.38	0.38	22.64	0.72	1.00	23.99
2035		0.38	0.38	24.74	0.72	1.00	26.09
2036		0.38	0.38	27.03	0.72	1.00	28.38
2037		0.38	0.38	29.53	0.72	1.00	30.88
2038		0.38	0.38	32.27	0.72	1.00	33.61
2039		0.38	0.38	35.25	0.72	1.00	36.60
2040		0.38	0.38	38.52	0.72	1.00	39.87
2041		0.38	0.38	42.09	0.72	1.00	43.43
							EIRR = 13.61%
							NPV @ 12% = 9.45
							BCR = 1.17

BCR = benefit–cost ratio, EIRR = economic internal rate of return, NPV = net present value.

Note: The economic opportunity cost of capital is at 12%.

Source: Asian Development Bank estimates.

15. **Coastal forest improvement in the Dafeng Forest Farm.** The proposed interventions for the DFF include (i) rehabilitating existing forests by replanting indigenous plant species on 900 ha; (ii) rehabilitating 133.8 ha of coastal wetlands;¹⁴ and (iii) other activities such as constructing a water supply and drainage system, wetland boardwalks, and patrol stations, as well as improving forest and wetland protection services. The expected benefits are (i) the

¹² Projections of benefits from improved ecological services in the SFF follow those applied for the DMNNR.

¹³ Projections of benefits from enhanced carbon sequestration in the SFF follow those applied for the YRBNNR.

¹⁴ This includes 122.7 ha of coastal wildlife habitat restoration and 11.1 ha of wetland rehabilitation.

increased in value of ecological services on 1,033.8 ha, with incremental benefits increasing from CNY0.85 million in 2017 to CNY79.34million in 2041;¹⁵ (ii) improved biodiversity in wetlands and coastal protection forests increasing the carbon sequestration capacity of these ecosystems, with incremental benefits from enhanced carbon sequestration estimated at CNY1.51 million/year over 2016–2041;¹⁶ and (iii) increased revenues from ecotourists as the number of visits is projected to be higher by 2016 and to increase 10% with the project, versus 5% without the project, subject to a maximum capacity of 250,000 ecotourist visits per year, and the entrance fee with the project at CNY30/visitor, 20% higher than without the project.

16. The EIRR for the DFF is 21.67%, the ENPV CNY48.65 million, and the BCR 2.7 (Table 4). The EIRR is not sensitive to changes in the selected risk variables, as their corresponding sensitivity indicators are all less than one. For instance, when the benefits decrease and costs increase by 10% simultaneously, the EIRR is estimated at 19.4%.

Table 4: Estimated Economic Internal Rate of Return for the Dafeng Forest Farm
(CNY million)

Year	Economic Cost			Project Benefits				Net Economic Benefits
	Investment Cost	Operation and Maintenance	Total Costs	Increase in Value of Ecological Services	Increased Carbon Sequestration Value	Increased Revenue from Ecotourism	Total Economic Benefits	
2012	3.08		3.08					(3.08)
2013	7.88		7.88					(7.88)
2014	10.31		10.31					(10.31)
2015	10.96		10.96					(10.96)
2016	8.03	0.20	8.23		1.51	2.68	4.19	(4.04)
2017		0.20	0.20	0.85	1.51	3.12	5.48	5.28
2018		0.20	0.20	1.78	1.51	3.60	6.90	6.70
2019		0.20	0.20	2.81	1.51	3.62	7.94	7.74
2020		0.20	0.20	3.93	1.51	3.43	8.87	8.67
2021		0.20	0.20	5.16	1.51	3.22	9.90	9.69
2022		0.20	0.20	6.51	1.51	3.01	11.03	10.83
2023		0.20	0.20	7.99	1.51	2.79	12.28	12.08
2024		0.20	0.20	9.61	1.51	2.55	13.67	13.47
2025		0.20	0.20	11.39	1.51	2.30	15.20	15.00
2026		0.20	0.20	13.33	1.51	2.04	16.89	16.69
2027		0.20	0.20	15.47	1.51	1.77	18.75	18.55
2028		0.20	0.20	17.82	1.51	1.48	20.81	20.61
2029		0.20	0.20	20.39	1.51	1.25	23.15	22.95
2030		0.20	0.20	23.20	1.51	1.25	25.97	25.76
2031		0.20	0.20	26.29	1.51	1.25	29.05	28.85
2032		0.20	0.20	29.68	1.51	1.25	32.44	32.24
2033		0.20	0.20	33.39	1.51	1.25	36.16	35.96
2034		0.20	0.20	37.47	1.51	1.25	40.23	40.03
2035		0.20	0.20	41.93	1.51	1.25	44.70	44.49
2036		0.20	0.20	46.83	1.51	1.25	49.59	49.39
2037		0.20	0.20	52.20	1.51	1.25	54.96	54.76
2038		0.20	0.20	58.08	1.51	1.25	60.85	60.65
2039		0.20	0.20	64.54	1.51	1.25	67.30	67.10
2040		0.20	0.20	71.62	1.51	1.25	74.38	74.18
2041		0.20	0.20	79.38	1.51	1.25	82.14	81.94
							EIRR =	21.67%
							NPV @ 12% =	48.65
							BCR =	2.68

BCR = benefit–cost ratio, EIRR = economic internal rate of return, NPV = net present value.

Note: The economic opportunity cost of capital is at 12%.

Source: Asian Development Bank estimates.

17. **Whole project.** Based on the calculated incremental cost and benefit streams projected under each component, the EIRR for the whole project is estimated at 14.87% (Table 5). The ENPV of the whole project is calculated at CNY127.50 million, and the BCR is 1.3.

¹⁵ Projections of benefits from improved ecological services in the DFF follow those applied for the DMNRR.

¹⁶ Projections of benefits from enhanced carbon sequestration in the DFF follow those applied for the YRBNNR.

Table A5: Estimated Economic Internal Rate of Return for the Whole Project (CNY million)

Year	Subproject Costs				Subproject Benefits				Total	Incremental Benefits
	Investment Cost	O&M Cost	Aqua-culture Income Loss	Total	Increased Value of Ecological Services	Increased Value of Carbon Sequestered	Increased Benefits from Ecotourism	Reduced Milu Deer Mortality		
2012	105.70		0.93	106.63						(106.63)
2013	125.97		1.86	127.83						(127.83)
2014	132.76		1.86	134.62						(134.62)
2015	60.22		1.86	62.08						(62.08)
2016	37.09	2.31	1.86	41.25	26.33	2.86	14.78	2.28	46.25	4.99
2017		2.31	1.86	4.17	32.74	2.99	16.07	2.20	54.00	49.83
2018		2.31	1.86	4.17	39.15	3.12	17.51	2.12	61.90	57.73
2019		2.31	1.86	4.17	45.57	3.25	18.25	2.04	69.10	64.93
2020		2.31	1.86	4.17	52.03	3.37	18.70	1.96	76.05	71.89
2021		2.31	1.86	4.17	58.53	3.49	19.23	1.88	83.12	78.95
2022		2.31	1.86	4.17	65.10	3.60	19.83	1.80	90.33	86.16
2023		2.31	1.86	4.17	71.75	3.72	20.52	1.72	97.71	93.54
2024		2.31	1.86	4.17	78.51	3.83	21.31	1.65	105.29	101.12
2025		2.31	1.86	4.17	85.40	3.94	22.20	1.57	113.10	108.93
2026		2.31	1.86	4.17	92.44	4.04	23.21	1.50	121.19	117.02
2027		2.31	1.86	4.17	99.67	4.14	24.36	1.43	129.60	125.43
2028		2.31	1.86	4.17	107.11	4.24	25.66	1.35	138.36	134.19
2029		2.31	1.86	4.17	114.79	4.34	27.23	1.28	147.64	143.48
2030		2.31	1.86	4.17	122.75	4.43	27.68	1.21	156.08	151.91
2031		2.31	1.86	4.17	131.03	4.53	27.40	1.14	164.10	159.94
2032		2.31	1.86	4.17	139.67	4.62	27.11	1.07	172.47	168.30
2033		2.31	1.86	4.17	148.71	4.71	26.80	1.01	181.23	177.06
2034		2.31	1.86	4.17	158.21	4.79	26.48	0.94	190.42	186.25
2035		2.31	1.86	4.17	168.21	4.88	26.14	0.88	200.09	195.93
2036		2.31	1.86	4.17	178.77	4.96	25.78	0.81	210.32	206.15
2037		2.31	1.86	4.17	189.96	5.04	25.41	0.75	221.15	216.98
2038		2.31	1.86	4.17	201.84	5.11	25.02	0.68	232.65	228.49
2039		2.31	1.86	4.17	214.50	5.19	24.61	0.62	244.91	240.74
2040		2.31	1.86	4.17	228.00	5.26	24.17	0.56	258.00	253.83
2041		2.31	1.86	4.17	242.46	5.34	23.72	0.50	272.01	267.84
									EIRR =	14.87%
									NPV @ 12% =	127.50
									BCR =	1.34

BCR = benefit–cost ratio, EIRR = economic internal rate of return, NPV = net present value, O&M = operation and maintenance.
 Note: The economic opportunity cost of capital is at 12%.
 Source: Asian Development Bank estimates.

18. The sensitivity analysis indicates that the economic viability of the project is not sensitive to changes in benefits and costs. When the overall benefits (e.g., wetland values, carbon price, and tourism revenues) decrease by 10% and the costs (e.g., investment and operation and maintenance) decrease by 10%, the EIRR is estimated at 12.9%.

Table A6: Results of Sensitivity Analysis for the Whole Project

Change Variables	Base EIRR ^a	Recalculated EIRR ^a	Sensitivity Indicator	Switching Value ^b
	14.9%	(%)		(%)
Delay in benefits by 1 year		13.4		
Delay in benefits by 2 years		12.2		
Lower benefits from ecological services by 10%		14.1	0.52	34
Price of carbon traded lower by 10%		14.8	0.03	>100
Lower benefits from ecotourist visits by 10%		14.6	0.15	>100
Lower benefits generated by the project as a whole by 10%		13.8	0.72	26
Increase in project investment and O&M costs by 10%		13.9	0.65	34
Decrease in project benefits and increase in project costs by 10%		12.9	1.34	14

EIRR = economic internal rate of return, O&M = operation and maintenance.

^a At 12% discount rate.

^b The switching value is the percentage increase or decrease in costs or benefits to maintain an EIRR equal the economic opportunity cost of capital of 12%.

Source: Asian Development Bank estimates.

D. Financial Analysis

19. The financial analysis of the project mainly evaluated the capacity of the governments of Dafeng city, Jiangsu Province, and Tinghu District to cover annual counterpart financing and annual debt service. The annual counterpart financing requirement during project implementation, as a ratio of the projected annual government revenues, falls significantly below 1% for all governments. Likewise, estimated annual debt service is considerably less than 1% of annual government revenues. These low ratios indicate acceptable fiscal risk.

COUNTRY ECONOMIC INDICATORS

Item	2006	2007	2008	2009	2010
A. Income and Growth					
1. GDP per capita (\$, current)	2,069.8	2,652.5	3,413.6	3,748.4	4,396.4
2. GDP growth (% in constant prices)	12.7	14.2	9.6	9.2	10.3
a. Agriculture	5.0	3.7	5.4	4.2	4.3
b. Industry	13.4	15.1	9.9	9.9	12.2
c. Services	14.1	16.0	10.4	9.6	9.5
B. Saving and Investment (current and market prices, % of GDP)					
1. Gross domestic investment	43.0	41.7	44.0	48.2	48.2
2. Gross domestic saving	47.9	50.5	51.5	51.1	53.8
3. Gross national saving	49.6	52.4	53.2	52.5	55.1
C. Money and Inflation (annual % change)					
1. Consumer price index	1.5	4.8	5.9	(0.7)	3.3
2. Total liquidity (M2)	17.0	16.7	17.8	27.7	19.7
D. Government Finance (% of GDP)					
1. Revenue and grants	17.9	19.3	19.5	20.1	20.9
2. Expenditure and net lending	18.7	18.7	19.9	23.0	23.0
3. Overall fiscal surplus (Deficit)	(0.8)	0.6	(0.4)	(2.9)	(2.1)
E. Balance of Payments					
1. Merchandise trade balance (% of GDP)	8.0	9.0	8.0	5.0	4.3
2. Current account balance (% of GDP)	9.3	10.6	9.4	6.0	5.2
3. Merchandise export (\$) growth (annual % change)	27.2	25.8	17.6	(16.1)	31.4
4. Merchandise import (\$) growth (annual % change)	19.7	20.3	18.7	(11.1)	39.1
F. External Payments Indicators					
1. Gross official reserves (including gold, \$ million)	1,068,490.0	1,530,280.0	1,949,260.0	2,416,040.0	2,866,080.0
2. External debt service (% of exports of goods and services)	2.6	2.4	2.2	3.1	2.1
3. Total external debt (% of GDP)	12.0	10.7	8.4	8.6	8.2
G. Memorandum Items					
1. GDP (current prices, CNY billion)	21,631.4	26,581.0	31,404.5	34,090.3	39,798.3
2. Exchange rate (CNY/\$, average)	8.0	7.6	6.9	6.8	6.8
3. Population (mid-year, million)	1,311.0	1,317.9	1,324.7	1,331.4	1,337.2

() = negative, CNY = yuan, GDP = gross domestic product.

Source: Asian Development Outlook database.

SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

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

Lending/ Financing Modality:	Project Loan	Department/ Division:	East Asia Department (EARD)/Environment, Natural Resources, and Agriculture Division (EAER)
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I. POVERTY ANALYSIS AND STRATEGY

A. Links to the National Poverty Reduction Strategy and Country Partnership Strategy

The country partnership strategy, 2008–2010 of the Asian Development Bank for the People's Republic of China (PRC) emphasizes inclusive growth through balanced development and environmental sustainability. There will be increased focus on ecosystem conservation and increased investment in natural resource management, agriculture, and rural development. The Jiangsu Yancheng Wetlands Protection Project is expected to enhance the sustainable use and conservation of the wetlands in Yancheng while reducing rural poverty by adopting an integrated approach to wetland management. To reduce poverty, the project counters social vulnerability by (i) promoting the sustainable use of natural resources, which is a key source of income for local communities, and (ii) vitalizing the local economy and developing alternative means of income generation by introducing ecotourism in collaboration with the private sector. The project is aligned with the PRC's Twelfth Five-Year Plan, 2011–2015, which calls for balanced, equitable, and sustainable development. The project directly addresses the two central issues of community livelihood development and environmental protection. The project will

- (i) increase employment and income-generating opportunities by creating temporary jobs during construction and permanent jobs during operation;
- (ii) enhance the development of local ecotourism and the associated development of local catering and hotel and entertainment facilities and services to generate direct and indirect employment opportunities;
- (iii) train the local labor force;
- (iv) improve water use in agricultural development and intercropping, improving farming areas and agricultural productivity;
- (v) improve the condition of saline and alkali land by planting trees;
- (vi) improve roads to facilitate access to all farming areas agricultural trade, which will increase sales volumes and the prices of products sold by local farmers; and
- (vii) further increase of the value for agricultural products through eco-agricultural development.

B. Poverty Analysis Targeting Classification: Targeted Intervention, Geographic Focus

1. Key issues. The project will benefit 1.69 million local people in the direct project area of Dafeng city and Sheyang County and 2.91 million local residents in the indirect project areas of Binhai County, Dongtai city, and Xiangshui County. In project areas, 2.5% of residents are considered poor, and in indirect project areas 3.2%, receiving financial and other support from the national system as they live under the minimum living guarantee set at CNY180 per capita per month for Dafeng and Dongtai and CNY300 per capita per month for Dafeng and Dongtai. Social analysis suggests that poverty is caused by disability, chronic illness, and old age. Yancheng city has a higher poverty rate than the provincial average. Beyond the difficulty of reaching the very poor, a large portion of the rural populations in direct and indirect project areas have unsustainable livelihoods.

2. Design features. The project addresses environmental protection and community development in the Dafeng Forest Farm (DFF), Dafeng Milu National Nature Reserve (DMNNR), Sheyang Forest Farm (SFF), and Yancheng Rare Birds National Nature Reserve (YRBNNR). It will facilitate biodiversity conservation, identify alternatives toward livelihood improvement, and create employment and income generation for local people in project areas. The ecological compensation and ecotourism programs will develop ways of achieving a win-win solution to biodiversity conservation and community livelihood development. Direct project interventions will provide many employment opportunities. The project will, in collaboration with the labor bureau and other offices, reserve as many of these jobs as possible for poor

and disadvantaged households, which can also benefit from the high returns of ecotourism. The improvement of water systems and intercropping and of saline and alkali areas, as well as eco-agricultural development in general and the development of alternative livelihoods, will help the poor to shift to the sustainable use of the natural resources and income generate income and (ii) more sustainable nonagricultural income.

II. SOCIAL ANALYSIS AND STRATEGY

A. Findings of Social Analysis

Employment benefits. The project will create 500 person-years of direct short-term employment during project construction and 150 direct long-term employment opportunities during operation. In addition, 21,790 new jobs will be created by developing ecotourism. Jobs created by multiplier effects are anticipated. The implementing agencies, the DMNNR and the YRBNNR, have agreed to a target of at least 30% of employment allocated to women, and at least 60% at the DFF and the SFF. The target will be monitored under the design and monitoring framework and the project performance management system.

Agricultural development benefits. The DFF and SFF outputs of the project will promote and improve local agricultural development. Both forest farms will dredge and rehabilitate irrigation systems that will provide flood control, drainage, and irrigation, thus increasing the sustainability of agricultural outputs. Intercropping will be the method of choice to continue some agricultural production in tree-planting areas. Tree planting in the DFF and the SFF will desalinate soil, and dredging rivers and irrigation system will allow more freshwater to flow into farms and improve soil quality. According to the assessment, 27 hectares of saline and alkali land will be improved per year during project implementation.

Benefits of road improvement. The construction of 22.8 kilometers of roads in the DFF and 50 kilometers in the SFF will improve the road system to facilitate access to all farming areas. This will make it easier to market agricultural products.

Benefits of eco-agricultural development. After project completion, agricultural skills will be geared to environmental protection. The forest farm will develop eco-agriculture (organic and green) production. As eco-agriculture products are in very short supply, their prices are higher than for regular products. Ecotourism development will assist in marketing eco-agriculture produce.

B. Consultation and Participation

1. Stakeholder consultation identified opportunities for stakeholder participation. Stakeholders' needs and perceived benefits were identified and assessed in light of the ecological compensation program, ecotourism, and alternative livelihood programs outputs. Developing the environmental impact assessment and environmental management plan took two rounds of public consultation, and the formulation of the resettlement plan involved separate rounds of consultations.

2. What level of consultation and participation (C&P) is envisaged during project implementation and monitoring? ☒ Information sharing ☒ Consultation ☐ Collaborative decision making ☐ Empowerment

3. Was a C&P plan prepared for project implementation? ☒ Yes ☐ No

The project is biodiversity conservation in nature, the consultation process for which is primarily an assessment of beneficiaries' needs, which was fed into project design during project preparation. A C&P plan has been prepared. The C&P plan, resettlement plan, and gender action plan include provisions to ensure beneficiaries are consulted regarding livelihood restoration and capacity development linked to the project.

C. Gender and Development

Gender Mainstreaming: Effective Gender Mainstreaming

1. **Key issues.** The project is categorized as having effective gender mainstreaming. Consultations indicate that women are engaged with men in farming. They are the major educators of ecological conservation and environmental protection in their communities and households. They are keen to be engaged in the service industry of ecotourism. The project will significantly increase women's employment, training, and income opportunities, as well as their agricultural productivity.

2. **Key actions.** ☒ Gender action plan ☐ Other actions or measures ☐ No action or measure

The project has prepared a gender action plan. It will ensure women's participation, awareness building, and capacity development. Targets and indicators are set for project outputs, and sex-disaggregated data will be collected for project monitoring and evaluation. International and national social safeguard specialists with gender experience will be provided under the capacity development output to help the project management office ensure that the gender action plan is properly implemented.

III. SOCIAL SAFEGUARD ISSUES AND OTHER SOCIAL RISKS			
Issue	Significant/ Limited/ No Impact	Strategy to Address Issue	Plan or Other Measures Included in Design
Involuntary Resettlement	Significant	One resettlement plan has been prepared in accordance with the PRC's Land Administration Law and the Asian Development Bank's Safeguard Policy Statement (2009).	<input checked="" type="checkbox"/> Resettlement plan <input type="checkbox"/> Resettlement framework <input type="checkbox"/> No action
Indigenous Peoples	No impact	No ethnic minority communities are in the project area.	<input checked="" type="checkbox"/> No action
Labor <input checked="" type="checkbox"/> Employment opportunities <input checked="" type="checkbox"/> Labor retrenchment <input type="checkbox"/> Core labor standards	Limited impact	The construction and implementation period of the project will offer some job opportunities. It will be ensured that regulations on labor standards will be respected. Restricted access to nature reserves that requires labor retrenchment is covered in the resettlement plan.	<input type="checkbox"/> Plan <input checked="" type="checkbox"/> Other action <input type="checkbox"/> No action
Affordability	No impact	No issues are expected relating to affordability or tariffs.	<input type="checkbox"/> Action <input checked="" type="checkbox"/> No action
Other Risks and/or Vulnerabilities <input checked="" type="checkbox"/> HIV/AIDS <input type="checkbox"/> Human trafficking <input type="checkbox"/> Others (conflict, political instability, etc)	Limited	Awareness raising for workers and the public on HIV/AIDS and other sexually transmitted diseases will be provided during project implementation.	<input type="checkbox"/> Plan <input checked="" type="checkbox"/> Other action <input type="checkbox"/> No action
IV. MONITORING AND EVALUATION			
<p>Are social indicators included in the design and monitoring framework to facilitate monitoring of gender and social development activities and/or social impacts during project implementation? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>The social indicators include (i) 100 people trained by 2013, of which at least 30% are women; (ii) 500 person-years of direct construction jobs created, with 30% provided to women and other vulnerable groups; (iii) 150 direct operational jobs created, with 50% provided to women and other vulnerable groups; and (iv) 50% of the off-farm opportunities created by the project in surrounding communities to be taken up by women and other vulnerable groups.</p>			

Source: Asian Development Bank.

GENDER ACTION PLAN

Gender Equality Component	Outputs/ Activities	Targets	Budget	Responsibilities	Timeframe
Output 1: Wetlands Protection at the Yancheng Rare Birds National Nature Reserve					
Employment	Employment equally accessible to women and men	30% or more of employment opportunities in project implementation for women 50% or more of employment opportunities in project operations for women	Included in project and operating budgets	The PMOs will monitor, and contractors will be made to ensure.	All implementation and operation
Capacity and skills development	Women will have equal access to training. Participation of women in curricula design	30% or more of management training opportunities will be provided to women. 50% or more of skills training opportunities will be provided to women. At least 2/3 of the training sites will be selected on sites and times suitable for women, and the women will be involved in content design.	CNY50,000 GEF, counterpart funds, labor and social security training funds	The PMOs and local department of labor and social security will monitor curricula and women's participation.	All implementation of capacity development planning and activities
Ecological compensation	Women access financial compensation and training programs.	50% or more of eco-agriculture skills training opportunities will be provided to women. 40% or more of employment transferring skills training opportunities will be provided to women.	Included in project budget	The provincial PMO will monitor curricula and women's participation.	Project implementation and operation
Output 2: Wetlands Protection at the Dafeng Milu National Nature Reserve					
Employment	Employment opportunities equally accessible to women and men	30% or more of employment opportunities in project implementation for women 50% or more of employment opportunities in project operations for women	Included in project and operating budgets	The PMOs will monitor, and contractors will be made to ensure.	All implementation and operation
Capacity and skills development	Women will have equal access to training. Participation of women in curricula design	30% or more of management training opportunities will be provided to women. 50% or more of skills training opportunities will be provided to women. At least 2/3 of the training sites will be selected on sites and time suitable for women, and the women will be involved in content design.	CNY50,000 GEF, project counterpart funds, labor and social security training funds	The PMOs and local department of labor and social security will monitor curricula and women's participation.	All implementation of capacity development planning and activities
Output 3: Coastal Forest Improvement at the Dafeng Forest Farm					
Employment	Employment opportunities equally accessible to women and men	60% or more of employment opportunities in project implementation for women 50% or more of employment opportunities in project operations for women	Included in project and operating budgets	The PMOs will monitor, and contractors will be made to ensure.	All implementation and operation

Gender Equality Component	Outputs/ Activities	Targets	Budget	Responsibilities	Timeframe
Capacity and skills development	Women will have equal access to training. Participation of women in curricula design	30% or more of management training opportunities will be provided to women. 50% or more of eco-fish farming skills training opportunities will be provided to women. At least 2/3 of the training sites will be selected on sites and time suitable for women, and the women will be involved in content design.	CNY100,000 Counterpart funds, labor and social security training funds	The PMOs and local department of labor and social security will monitor curricula and participation.	All implementation of capacity development planning and activities
Output 4: Coastal Forest Improvement at the Sheyang Forest Farm					
Employment	Employment opportunities equally accessible to women and men	60% or more of employment opportunities in project implementation for women 50% or more of employment opportunities in project operations for women	Included in project and operating budgets	The PMOs will monitor, and contractors will be made to ensure.	All implementation and operation
Capacity and skills development	Women will have equal access to training. Participation of women in curricula design	30% or more of management training opportunities will be provided to women. 50% or more of eco-fish farming skills training opportunities will be provided to women. At least 2/3 of the training sites will be selected on sites and time suitable for women, and the women will be involved in content design.	CNY100,000 Counterpart funds, labor and social security funds	The PMOs and local department of labor and social security will monitor curricula and participation.	All implementation of capacity development planning and activities
Output 5: Project Management and Capacity Development					
Gender awareness for project staff	Staff training includes gender awareness.	Staff training curricula for all PMOs, PIOs, and other offices include capacity development for gender awareness and GAP implementation.	Included in project budget	Provincial PMO and NGO monitoring	Early during implementation
Ensure women's participation in project decision making	Women's economic/ and political empowerment	At least 40% female officials in provincial and county PMOs At least 30% female officials in county and/or district PMOs At least 1 female official in other project offices	Included in local agency budgets	Provincial PMO and NGO monitoring Women participate in M&E.	All implementation
Gender-balanced information disclosure and participation	Women will be informed and consulted about the project.	Female beneficiaries will be informed about opportunities to access project funds, technical advice, training, and employment opportunities. Women will be consulted to improve subproject.	Included in project management budget	Information will be provided by the PMOs.	Early during implementation

GAP = gender action plan, GEF = Global Environment Facility, M&E = monitoring and evaluation, NGO = nongovernment organization, PIO = project implementation office, PMO = project management office,
Source: Asian Development Bank.