



Completion Report

Project Number: 35289
Loan Number: 2157/Grant Number: 4571
October 2013

People's Republic of China: Sanjiang Plain Wetlands Protection Project

Asian Development Bank

CURRENCY EQUIVALENTS

Currency Unit – yuan (CNY)		
	At Appraisal (1 February 2005)	At Project Completion (31 August 2012)
CNY1.00	= \$0.121	\$0.157
\$1.00	= CNY8.277	CNY6.351

ABBREVIATIONS

ADB	–	Asian Development Bank
AP	–	affected person
CFB	–	county forest bureau
EMP	–	environmental management plan
FIRR	–	financial internal rate of return
FNPV	–	financial net present value
GEF	–	Global Environment Facility
GIS	–	geographical information system
ha	–	hectare
HPDRC	–	Heilongjiang Provincial Development and Reform Commission
HPEPB	–	Heilongjiang Provincial Environmental Protection Bureau
HPFB	–	Heilongjiang Provincial Finance Bureau
HPFD	–	Heilongjiang Provincial Forestry Department
HPG	–	Heilongjiang provincial government
HPTB	–	Heilongjiang Provincial Tourism Bureau
HPWRD	–	Heilongjiang Provincial Water Resources Department
IEE	–	initial environmental examination
M&E	–	monitoring and evaluation
NDRC	–	National Development and Reform Commission
NR	–	nature reserve
NTFP	–	nontimber forest product
O&M	–	operation and maintenance
PIU	–	project implementation unit
PMO	–	project management office
PPTA	–	project preparatory technical assistance
PRC	–	People's Republic of China
RF	–	resettlement framework
RP	–	resettlement plan
WACC	–	weighted average cost of capital

NOTES

- (i) The fiscal year (FY) of the government and its agencies ends on 31 December. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2013 ends on December 2013.
- (ii) In this report, "\$" refers to US dollars.

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BASIC DATA

A. Loan Identification

1.	Country	People's Republic of China
2.	Loan/Grant Number	2157/4571
3.	Project Title	Sanjiang Plain Wetlands Protection Project
4.	Borrower	People's Republic of China
5.	Executing Agency	Heilongjiang Provincial Government
6.	Amount of Loan	\$15,000,000
7.	Amount of Grant	\$12,140,000
8.	Project Completion Report Number	1428

B. Loan/Grant Data

1.	Appraisal			
	– Date Started		15 September 2004	
	– Date Completed		24 September 2004	
2.	Loan Negotiations			
	– Date Started		20 December 2004	
	– Date Completed		22 December 2004	
3.	Date of Board Approval		14 March 2005	
4.	Date of Loan Agreement		18 July 2005	
5.	Date of Loan Effectiveness			
	– In Loan Agreement		19 October 2005	
	– Actual		9 December 2005	
	– Number of Extensions		1	
6.	Closing Date			
	– In Loan Agreement		31 December 2010	
	– Actual		30 May 2013	
	– Number of Extensions		1	
7.	Terms of Loan			
	– Interest Rate		LIBOR rate	
	– Maturity (number of years)		25	
	– Grace Period (number of years)		5	
8.	GEF Cofinancing			
	– GEF Approval		7 February 2005	
	– Date of Financing Agreement		18 July 2005	
	– Date of Effectiveness		9 December 2005	
	– Closing Date in Financing Agreement		31 December 2010	
	– Actual Closing Date		5 April 2013	
	– Number of Extensions		1	
9.	Disbursements			
a.	Dates—Loan			
	Initial Disbursement	Final Disbursement	Time Interval	
	24 March 2006	30 May 2013	86 months	
	Effective Date	Original Closing Date	Time Interval	
	9 December 2005	31 December 2010	61 months	

b. Dates—GEF Grant

Initial Disbursement	Final Disbursement	Time Interval
12 March 2007	27 March 2013	73 months
Effective Date	Original Closing Date	Time Interval
9 December 2005	31 December 2010	61 months

c. Amount (\$)

Category^a	Original Allocation	Last Revised Allocation	Amount Canceled	Net Amount Available	Amount Disbursed	Undisbursed Balance^b
A. ADB Loan						
01A	10,240,000	13,116,318	0	13,116,318	13,116,318	0
01B	0	0	0	0	0	0
01C	1,390,000	526,629	0	526,629	526,629	0
02A	1,361,000	1,357,053	0	1,357,053	1,343,228	13,825
02B	0	0	0	0	0	0
02C	0	0	0	0	0	0
03	583,000	0	0	0	0	0
04A	0	0	0	0	0	0
04B	0	0	0	0	0	0
05	0	0	0	0	0	0
06A	662,000	0	0	0	0	0
06B	0	0	0	0	0	0
07	764,000	0	0	0	0	0
Subtotal (A)	15,000,000	15,000,000	0	15,000,000	14,986,175	13,825
B. GEF Grant						
01A	0	0	0	0	0	0
01B	889,000	335,705	0	335,705	335,705	0
01C	0	0	0	0	0	0
02A	0	0	0	0	0	0
02B	700,000	5,813,683	0	5,813,683	6,237,335	(423,652)
02C	281,000	753,973	0	753,973	735,973	0
03	5,135,000	2,667,346	0	2,667,346	2,667,346	0
04A	1,491,000	1,302,176	0	1,302,176	1,302,176	0
04B	1,186,000	626,431	0	626,431	626,431	0
05	599,000	90,926	0	90,926	90,926	0
06A	0	0	0	0	0	0
06B	765,000	567,760	0	567,760	567,732	28
07	1,094,000	0	0	0	0	0
Subtotal (B)	12,140,000	12,140,000	0	12,140,000	12,139,972	28
Total	27,140,000	27,140,000	0	27,140,000	27,126,147	13,853

^a 01A = civil works—forest improvement; 01B = civil works—wetland restoration; 01C = nontimber forest products; 02A = forest's equipment, materials, and vehicles; 02B = nature reserve's equipment, materials, and vehicles; 02C = project management office's equipment, materials, and vehicles; 03 = consulting services; 04A = domestic training; 04B = overseas training and study tours; 05 = subcontract; 06A = operation and maintenance; 06B = incremental staff; 07 = unallocated.

^b An undisbursed loan amount of \$13,825 and an undisbursed grant amount of \$28 were cancelled when the loan and grant were closed.

10. Local Costs (Financed-Loan)

- Amount (\$ million)	13.60
- Percent of Local Costs	29.49
- Percent of Total Cost	25.90

C. Project Data

1. Project Cost (\$ million)

Cost	Appraisal Estimate	Actual
Foreign Exchange Cost	9.41	6.40
Local Currency Cost	46.14	46.11
Total	55.55	52.51

2. Financing Plan (\$ million)

Cost	Appraisal Estimate	Actual
Implementation Costs		
Borrower Financed	26.23	24.19
Heilongjiang Provincial Government	22.19	20.69
County Government	4.04	3.50
ADB Financed	15.00	14.99
Other External Financing—GEF	12.14	12.14
Subtotal	53.37	51.32
Financing Charges		
Borrower Financed	2.18	1.19
ADB Financed	0.00	0.00
Other External Financing	0.00	0.00
Subtotal	2.18	1.19
Total	55.55	52.51

ADB = Asian Development Bank, GEF = Global Environment Facility.

3. Cost Breakdown by Project Component (\$ million)

Component	Appraisal Estimate	Actual
A. Watershed Management	23.21	28.15
B. Wetland Nature Reserve Management	5.40	2.49
C. Alternative Livelihood	15.75	15.12
D. Education and Capacity Building	3.63	2.11
E. Project Management	2.71	3.44
Total Baseline Costs	50.71	51.32
Contingencies	2.65	
Interest During Implementation	1.96	0.96
Commitment Charges	0.22	0.23
Total	55.55	52.51

Note: Numbers may not sum precisely because of rounding.

4. Project Schedule

Item	Appraisal Estimate	Actual
A. Watershed Management		
1. Forestry Improvement		
a. New plantations	April 2005–December 2009	April 2006–August 2012
b. Plantation treatment	April 2005–December 2009	April 2006–August 2012
2. Local-Level Water Management	January 2006–June 2010	April 2007–June 2012
3. Watershed-Level Water Resource Planning	January 2006–June 2010	April 2007–December 2011
B. Wetland Nature Reserve Management		
1. Conservation Management	July 2005–June 2010	April 2007–August 2012
2. Pilot Wetland Restoration	July 2005–June 2010	October 2007–August 2012
a. Design	July 2005–June 2007	October 2007–June 2011

Item	Appraisal Estimate	Actual
b. Implementation	January 2006–December 2007	October 2007–December 2011
c. Monitoring	January 2007–June 2010	July 2008–August 2012
3. Wildlife Species Recovery	July 2005–June 2010	April 2007–August 2012
4. Reduction of Resource Exploitation	July 2005–June 2010	April 2007–August 2012
C. Alternative Livelihood Program		
1. Agroforestry and Nontimber Forest Products	April 2006–June 2010	April 2007–August 2012
2. Land Compensation and Village Development	January 2006–March 2010	April 2007–August 2012
3. Sustainable Ecotourism	July 2005–June 2010	April 2007–August 2012
D. Capacity Building		
1. Conservation Education	July 2005–June 2010	April 2007–December 2011
2. Public Awareness	July 2005–June 2010	April 2007–August 2012
3. Wetland Management Training	July 2005–June 2010	April 2007–August 2012
E. Project Implementation Support	July 2005–June 2010	April 2007–August 2012

5. Project Performance Report Ratings

Implementation Period	Ratings	
	Development Objectives	Implementation Progress
From 31 March 2005 to 31 August 2008	Satisfactory	Satisfactory
From 30 September 2008 to 31 May 2009	Satisfactory	Highly Satisfactory
From 30 June 2009 to 31 December 2010	Satisfactory	Satisfactory
From 01 January 2011 to 30 August 2013	On Track	

D. Data on Asian Development Bank Missions

Name of Mission	Date	No. of Person	No. of Person-Day	Specialization of Members
Fact-finding	15 April–12 May 2004	7	92	a, b, c, d, e, f, g
Appraisal	15–24 September 2004	7	54	a, b, e, f, h
Loan negotiation	20–22 November 2004	3	9	e, i, j
Inception	22–28 November 2005	3	21	a, k, l
Special loan administration 1	18–24 June 2006	1	7	m
Review mission 1	01–06 December 2006	2	12	l, m
Review mission 2	10–13 December 2007	2	8	l, n
Review mission 3	05–10 June 2008	1	6	n
Review mission 4	14–25 October 2008	3	30	n, o, p
Midterm review	29 May–09 June 2009	5	60	f, n, p, q
Special loan administration 2	18–20 December 2009	1	3	n
Review mission 5	23–31 May 2010	1	9	n
Special loan administration 3	23–24 February 2011	1	2	n
Review mission 6	19–26 May 2011	1	8	n
Special loan administration 4	22–24 November 2011	1	3	n
Review mission 7	12–19 July 2012	3	15	l, r, s
Project completion review	1–12 August 2013	4	25	f, l, r

a = senior project specialist, b = resettlement specialist, c = poverty reduction specialist, d = environment specialist, e = senior counsel, f = staff consultant, g = project officer, h = senior financial management specialist, i = senior natural resources management specialist, j = senior country programs specialist, k = financial control specialist, l = project analyst, m = project economist, n = water resources management specialist, o = senior social development specialist, p = social development specialist, q = natural resources economist, r = senior water resources specialist, s = director.

I. PROJECT DESCRIPTION

1. Sanjiang Plain is a vast alluvial floodplain of 108,900 square kilometers in the northeast of Heilongjiang Province, where the Heilongjiang, Songhua, and Wusuli rivers join. The Sanjiang Plain wetlands and their surrounding forestlands are rich in globally significant flora and fauna. Despite the establishment of nature reserves to protect these valuable flora and fauna, the wetlands and forestlands have shrunk to one-fifth of their size in the 1950s. Accelerating population growth and increasing grain production threaten the flora and fauna in the wetland nature reserves. Local communities exploit biological and water resources within the reserves and wetland habitats for their livelihood through unsustainable farming practices. The limited management capacity of staff in the nature reserves has exacerbated the deterioration of the resources in the reserves.

2. The goal of the Sanjiang Plain Wetlands Protection Project¹ was to improve management of natural resources so as to protect globally significant biodiversity and sustain economic development. The purpose of the project was to establish an integrated conservation and development model to protect the natural resources of the wetlands—i.e., biodiversity, water, and forests—from continued threats and to improve the well-being of local communities. The project addressed 13 counties and 6 nature reserves in 5 contiguous watersheds in Heilongjiang Province. The counties conducted reforestation activities, and the nature reserves focused on protection of biodiversity and restoration of natural habitats in some deteriorated areas. The project comprised five components: (i) watershed management; (ii) wetland nature reserve management; (iii) alternative livelihood programs; (iv) education and capacity building; and (v) project management.

3. An Asian Development Bank (ADB) loan for \$15 million was cofinanced by a Global Environment Facility (GEF) grant of \$12.14 million that ADB administered. The funds financed activities to protect the wetland ecosystems and their biodiversity by relieving threats and associated root causes of deterioration. The supplementary appendix provides additional background information on the GEF grant and details related to the global environmental benefits the project aimed to deliver. This project completion report is based on the findings of the project completion review mission. The methodology of the project completion review mission and the terms of reference are included in the supplementary appendix.

II. EVALUATION OF DESIGN AND IMPLEMENTATION

A. Relevance of Design and Formulation

4. The development program of the Government of the People's Republic of China (PRC) in the early 2000s emphasized protecting the environment, managing sustainable natural resources, and improving quality of life.² The project was fully consistent with the government's program and medium-term strategy. ADB's country strategy and program for the PRC for 2004–2007 focused on (i) promoting equitable and inclusive growth, especially in remote rural areas; (ii) making markets work better; and (iii) improving the environment, including dealing with land and water degradation.³ It recognized conservation of soils, forests, and wetlands; and abatement of water pollution as critical environmental interventions that have a positive impact

¹ ADB. 2005. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan and Global Environment Facility Grant to the People's Republic of China for the Sanjiang Plain Wetlands Protection Project*. Manila.

² Government of the People's Republic of China, National Development and Reform Commission. 2010. *The Outline of the Tenth Five-Year Plan, 2009–2013*. Beijing.

³ ADB. 2004. *Country Strategy and Program: People's Republic of China, 2004–2007*. Manila.

on the poor. In this context, the project strongly supported ADB's principal strategic concerns. The wetlands and forests of the Sanjiang Plain are major environmental assets in the northeast of the PRC. Conservation of the wetlands and their forested watersheds would help flood management and overall watershed management in the Sanjiang Plain. The income-generating initiatives of the project, which aimed at remote forest farms and wetland areas, supported ADB's focus on equitable and inclusive growth.

5. The project was fully compliant with the GEF operational strategy in the focal area of biodiversity and was consistent with the GEF's operational program 2, which aimed at conservation and sustainable use of biological resources in—among others—fresh-water ecosystems. The project aimed to develop models that could be replicated to provide much-needed examples for other areas in the PRC and other countries. Such an approach was fully compatible with the objectives of the GEF's strategic priorities BD-1 (catalyzing sustainability of protected areas), BD-2 (mainstreaming biodiversity in production landscapes and sectors), and BD-4 (generating and disseminating best practices for addressing current and emerging biodiversity issues). The project design was sound. In line with ADB's water policy,⁴ the project adopted an integrated watershed management approach to the wetland and forest conservation to support ecologically sustainable economic development. It provided a model framework that can be applied for comprehensive, long-term management of a nature reserve in a large river basin, and can be replicated throughout the wetland reserves and areas with similar environmental conditions. The model framework included (i) rehabilitation and protection of degraded forests in the upper watershed areas, (ii) restoration and protection of wetlands nature reserves in the downstream areas, (iii) provision of alternative livelihoods to farmers and fishermen, and (iv) education and public awareness raising and capacity building of local agency staff in watershed and wetlands management.

6. The project formulation was adequate. The project was formulated through project preparatory technical assistance (PPTA).⁵ The PPTA was provided to help the central government prepare a project that would help the provincial government protect the wetlands and forests by integrating natural resources conservation and economic development, and enhance the economic well-being of local communities. The PPTA provided all the inputs needed to prepare the project for ADB and GEF financing. Stakeholders were consulted during planning, design, and implementation to determine the project's scope and implementation arrangements. For monitoring and evaluation (M&E) of the project performance, a project framework was developed that included the goal (impact), purpose (outcome), outputs, activities, performance indicators or targets, monitoring mechanisms, and assumptions and risks. After an ADB midterm review mission during May–June 2009, ADB approved a minor change in the project framework to reflect (i) the extension of the loan and grant closing date; and (ii) the change in purpose of the alternative livelihoods development element from the mitigation of adverse resettlement impacts to the establishment of a sustainable scheme for a long-term strategy for wetland protection.⁶ The goal was that eight key globally threatened species in the Sanjiang Plain would be removed from the list of endangered to vulnerable

⁴ ADB. 2001. *Water for All: The Water Policy of the Asian Development Bank*. Manila.

⁵ ADB. 2002. *Technical Assistance to the People's Republic of China for Preparing the Sanjiang Plain Wetlands Protection Project*. Manila.

⁶ For the pilot farmland-to-wetland restoration, the aim was to provide compensation and alternative livelihoods to affected villages on the basis of resettlement plans and village development plans. During implementation, the number of people affected was significantly reduced; and those people were workers on the forest farms and the nature reserves, not villagers. Consequently, project management concluded that instead of village development plans for the mitigation of adverse resettlement impacts, alternative livelihood plans should be formulated to identify pilot livelihood schemes that would benefit the longer-term strategy for wetland restoration.

species.⁷ At project completion, it was difficult to say whether achievement of the performance target will be successful or unsuccessful in the long run. Of the eight species, only the Baikal teal had been removed from the list of endangered to vulnerable species. Whether the remaining seven species will be removed depends on global efforts and long-term close monitoring by international communities because the Sanjiang Plain is not the only habitat of these species. It was also difficult to exactly measure the achievement of these targets: a 10% increase in the population of native species; a 10% increase in the occurrence and population of key threatened species; a 10% increase in the habitat area of target species; and a 50% increase in the extent of vegetation cover contributed by reeds, thatch grass, and wild herbs. The difficulty lay in the lack of consistency in monitoring methods, the lack of data sources, and the lack of baseline data during project preparation. The project framework at appraisal and as implemented appears in Appendix 1. The supplementary appendix provides more details on M&E.

7. In addition to the extension of the loan and grant closing date and minor changes in the project framework, ADB approved some other minor changes in project scope and implementation arrangements. They include (i) use of a force account for civil works for nontimber forest products (NTFPs); and (ii) reallocation of the loan and grant, and an increase in the overall ceiling for local currency cost financing by ADB for the loan. These minor changes facilitated disbursements for small contracts and provided sufficient funds for project activities following the appreciation of the yuan against the dollar.

B. Project Outputs

8. **Component 1: Watershed management.** This component, which was funded by ADB and the GEF, was completed successfully, in general. A total of 10,090 hectares (ha) of new forestry plantations were established, which is 85% of the area targeted; of that 3,853 ha was done by converting farmland to forest. A total of 39,769 ha of young trees in existing forests was treated and maintained, which is 91% of the area targeted. The achievement was less than the targets because of the appreciation of the yuan against the dollar.⁸ Water resources management plans were incorporated in the master plans of all six nature reserves. A water resources coordination-leading group, including all stakeholders, was established at each reserve to coordinate the inclusion of a water resources management plan into the nature reserves master plan. Discussions with the water authorities were conducted at an early stage, and local water allocation plans for the nature reserves as well as wetland protection criteria and management requirements were included in the water allocation plans and/or water resources plans of relevant cities and counties. In inter-agency coordination meetings organized by the provincial Water Resources Department, the provincial Forestry Department made recommendations on wetlands protection criteria, wetlands management, and water allocation. These recommendations were reflected in two watershed-level water resources management plans: the Sanjiang Plain Water Resources Master Plan (which covers all six nature reserves) and the Songhua River Master Plan (which covers the Anbanghe nature reserve). These two plans were submitted to the Ministry of Water Resources for approval.

9. **Component 2: Wetland nature reserve management.** This component, funded by the GEF, was successfully completed, in general; although some performance targets and indicators were difficult to measure (para. 6). Pilot farmland-to-wetland restoration was implemented in the six reserves, and 3,441 ha of farmlands were restored to wetlands against

⁷ The Baikal teal, hooded crane, lesser white-fronted goose, scaly-sided merganser, oriental stork, red-crowned crane, swan goose, and white-naped crane.

⁸ \$1.00 = CNY8.277 at appraisal as of 1 February 2005, \$1.00 = CNY6.351 at project completion as of 31 August 2012.

the target of 3,433 ha set at appraisal. Drawing on the experience of the pilot restoration, a wetland restoration manual was prepared and disseminated to all nature reserves in the Sanjiang Plain. Using the manual, nature reserve staff conducted wetland restoration in six additional reserves.⁹ In the six model reserves, wetland restoration continued after the pilot; and wetland areas increased by 5%.¹⁰ Monitoring of species was improved through the provision of monitoring equipment and training; the establishment of permanent monitoring stations, a geographic information system, and a database; and the development of a monitoring method and manual. More than 6,000 records were collected. Recovery plans for 18 water birds were prepared and provided to all nature reserves. About 220 stork nests were installed in the six nature reserves, and 57% of the nests were occupied. Lessons learned from this component led to improvements in the conservation management components of the master plans for the six nature reserves. On the basis of proposals made under the project, animal grazing and fishing is prohibited in all the nature reserves in the Sanjiang Plain. The number of birds monitored in the six nature reserves was 510,559 in 2008; 1,081,353 in 2009; 1,063,532 in 2010; and 683,612 in 2011.¹¹ In the Xingkaihu nature reserve, continuous monitoring for many years has produced sufficient data to allow an accurate analysis of changes in species populations. In that reserve, the number of stork pairs occupying nesting territories increased from 9 to 44 from 2005 to 2011, mainly because of increased numbers in man-made nests.¹² The number of bird species included in the name list increased from 238 to 287. The Qixinghe and Xingkaihu nature reserves, which are covered by the Baoping, Qixinghe, and Xidapao management stations, implemented a new artificial feeding program. In those reserves, the recorded numbers of red-crowned cranes increased from 30 in 2004 to 44 in 2011; and the recorded number of white-naped cranes increased from 17 in 2004 to 58 in 2011. No illegal international trade in animal species originating in project area has been reported.

10. Component 3: Alternative livelihoods. This component, funded by ADB and the GEF, was successfully completed, in general. The income levels of people affected by farmland-to-forest conversion under component 1 rose throughout the life of the project as a result of planting 923 ha of NTFPs (24% of the lands converted from farmland to forest) and intercropping on 663 ha.¹³ To reduce farmlands and agricultural water use in the experimental zone of the Qixinghe nature reserve, a water- and land-intensive eco-agriculture pilot project was conducted.¹⁴ Reserve staff constructed 40 greenhouses in a 9-ha area,¹⁵ then leased them to 40 farmer households who had conducted traditional large-scale agriculture on about 400 ha of rented lands in the experimental zone. Both the farmers and the reserve can thus maintain their incomes. The rented lands were returned to the nature reserve for wetland restoration. Ecotourism pilot projects were also implemented in the Xingkaihu and Zhenbaodao nature

⁹ The wetland restoration conducted in the six additional reserves was out of the project scope.

¹⁰ The wetland restoration that continued in the six model reserves after the pilot wetland restoration was out of the project scope.

¹¹ The monitoring data do not necessarily show actual populations. The increase in the numbers of birds monitored in 2009 and 2010, and the decrease in 2011 seem to have been results of more frequent monitoring and use of a better method following the training provided by consultants under the project in 2008, 2009, and 2010. Five training courses and on-the-job training were provided during this period, and training was suspended in 2011.

¹² In 2012, colder temperature reduced this number to 27.

¹³ As shown in the project framework in Appendix 1, the target for NTFPs was revised at midterm from 1,300 ha to 860 ha.

¹⁴ State Council. 1994. *People's Republic of China Nature Reserve Protection Regulation*. Document No. 167. Beijing. Following the PRC's nature reserve protection regulation, cultivation is prohibited in nature reserves. Construction of productive facilities that cause environmental pollution and damage nature reserves is also prohibited in the reserves' experimental zones. Because the water- and land-intensive eco-agriculture pilot project is eco-friendly and will contribute to wetland restoration, the Baoping County Development and Reform Commission and the environmental protection and land resources bureaus approved its implementation.

¹⁵ Equipment and materials for the greenhouses were procured during project implementation, and reserve staff built the greenhouses after project completion.

reserves. Following early discussions, the provincial Tourism Bureau adopted the proposals for the ecotourism pilot projects. Under these projects, ecotourism activities such as bird watching, fishing, boating, hiking, and camping were offered and taken up. The estimated annual net profits from the pilot projects were CNY2.73 million in the Xingkaihu nature reserve and CNY2.33 million in the Zhenbaodao nature reserve. The reserves are using the incomes from the pilot projects to protect wetlands, convert farmlands to wetlands, improve facilities and equipment used in ecotourism and nature reserve management, and train staff. In the Xingkaihu nature reserve, about 280 farmers and fishermen changed their livelihoods to ecotourism and stopped farming on 525 ha of lands, of which 427 ha have been converted to wetlands; the fish catch declined by about 500 tons. In the Zhenbaodao nature reserve, about 50 farmers and fishermen changed their livelihoods to ecotourism; and stopped farming on 1,025 ha of lands, of which 899 ha were converted to wetlands; and the fish catch declined by 5 tons. The farmers and fishermen who changed their livelihoods to ecotourism maintained or increased their income levels.

11. **Component 4: Capacity building.** This component, which was funded by the GEF, was completed successfully. Wetland protection education was included in the curriculum of 12 schools, and teachers are giving lectures on wetland protection.¹⁶ A public awareness master plan was produced, and a public awareness manual was distributed to community residents and schools. Seven conservation awareness activities were conducted in more than 20 communities. In the six model nature reserves, a public awareness manual and profile of the project were printed and distributed to community residents and schools. During project implementation, 38 short- and long-term training courses, study tours, and workshops were conducted for more than 1,000 people, including government staff—local forestry bureau staff and project management office (PMO) staff and most nature reserve staff—directors, professional staff, and technical staff; and community leaders and residents. The topics were project management, financial management, project performance evaluation, forest improvement, wetland protection, wild species monitoring and recovery, wetland restoration, alternative livelihood development, public awareness raising, environmental protection, and social safeguards.

12. **Component 5: Project management.** For this component, which was funded by the GEF, a considerable number of capacity-building activities were conducted for project management staff throughout the project. Consultants drew up guidelines for project M&E; prepared detailed work plans identifying key activities for each component; established an M&E database, including books, maps, reports, and related documents; and built up an internal M&E procedures. The consultants produced monthly and semiannual M&E reports. Vehicles and equipment for project management were procured. The PMO procured civil works and equipment, and recruited international consultants in line with ADB and domestic requirements. The PMO submitted quarterly progress reports and a project completion report that were acceptable to ADB.

C. Project Costs

13. At appraisal, the project cost was estimated at \$55.55 million equivalent, comprising \$9.41 million of foreign exchange costs (17% of the total); and \$46.14 million equivalent of local currency costs (70% of the total). At the loan and grant closing, the actual project costs amounted to \$52.51 million, including \$6.40 million of foreign exchange costs (12% of the total) and \$46.11 million equivalent of local currency costs (88% of the total). ADB raised the overall ceiling for local currency cost financing for the loan from \$13.44 million to \$13.60 million to finance larger-than-planned expenditures for forest improvement. The estimated and actual

¹⁶ During project implementation, the teachers gave lectures on wetland protection to more than 6,000 students.

interest during construction and the commitment charges amounted to \$2.18 million and \$1.19 million, respectively. The estimated ADB financing amounted to \$15.00 million (27.0% of the total at appraisal), and the actual ADB financing amounted to \$14.99 million (28.5% of the total at the loan closing). The estimated and actual grant financing remained at \$12.14 million (22.0% of the total at appraisal and 23.1% of the total at the grant closing).

14. The detailed estimated and actual costs by expenditure account and financiers, and by components and financiers are in Appendix 2.

15. The main reasons for the changes between the appraisal estimates and the actual costs are (i) the increased costs of civil works for forest improvement owing to the appreciation of the yuan against the dollar (footnote 8); (ii) added civil works for the pilot project on alternative livelihoods development; (iii) reduced resettlement impacts (para. 36), and a change in scope for village development (footnote 6); (iv) a revised target for NTFPs (footnote 13); and (v) overestimates at appraisal, particularly for consulting services; intercropping and NTFPs works; and wetland management in nature reserves. The loan and grant proceeds were reallocated to accommodate actual disbursements in February 2006 (both loan and grant proceeds), in January 2007 (loan proceeds only), and in April 2013 (both loan and grant proceeds).

16. The provincial and county governments allocated CNY169.7 million for the project: CNY19.9 million in 2006; CNY30.3 million in 2007; CNY25.7 million in 2008, CNY20.0 million in 2009, CNY15.8 million in 2010, CNY30.3 million in 2011, CNY27.4 million in 2012, and CNY0.3 million in 2013. The actual counterpart funds at the loan and grant closing date amounted to \$25.38 million against the appraisal estimates of \$28.41 million. The reduction was due mainly to (i) reduced resettlement impacts (para. 36), and (ii) reduced interest during construction.

D. Disbursements

17. As of the loan closing date, total disbursements amounted to \$14.99 million, or 99.9% of the loan amount of \$15.00 million. Disbursements included \$13.12 million for forest improvement, \$0.53 million for NTFPs, and \$1.34 million for forest equipment purchases. The loan account was financially closed on 30 May 2013, with a cancellation of \$13,825. As of the grant closing date, total GEF disbursement amounted to \$12.14 million, or 100% of the grant amount. These disbursements included \$0.34 million for civil works for wetland restoration; \$5.81 million for nature reserve equipment, materials, and vehicles; \$0.74 million for PMO equipment, materials, and vehicles; \$2.67 million for consulting services; \$1.93 million for domestic and international training; \$0.09 million for subcontract; and \$0.57 million for incremental staff. An undisbursed balance of \$28.00 under the grant was cancelled at closing date of 5 April 2013. The detailed costs actually disbursed (by expenditure account and financiers and by components and financiers) are in Appendix 2.

18. The imprest account, replenishment, and direct payment procedures were used to pay for project expenditures. The commitment procedure was not used as it is not appropriate for the kind of project expenditures. Because of the large number of small expenditures and force account works for planting activities, the statement of expenditure procedure was used to facilitate the reimbursement and liquidation of the imprest accounts. This procedure reduced the workload for disbursements and was implemented very efficiently.

19. The project initially experienced delays in disbursements for three reasons: (i) reallocations of loan and grant proceeds and the revision of their withdrawal percentages as agreed during the inception mission in November 2005 and approved by ADB in February 2006, and another reallocation of loan proceeds as agreed during a review mission in December 2006 and approved by ADB in January 2007; (ii) the lack of financial resources from the GEF grant

funds caused by delays in receiving the initial advance to the GEF imprest account (which was disbursed in April 2007); and (iii) the PMO's initial lack of knowledge about ADB's disbursement procedures. Monitoring the utilization and disbursement of GEF funds proved challenging for both ADB and the PMO because the grant account was not maintained in the ADB financial information system. These difficulties were addressed through approval of the reallocation and financing percentages, and effective communication between ADB and the PMO.

20. ADB allows up to 4 months after the loan and grant closing date for the executing agency to submit withdrawal applications for expenditures incurred on or before the loan and grant closing date. Given the difficulty the provincial government had in securing supporting documents from the counties, it was unable to submit all withdrawal applications by the end of the original winding-up period of 31 December 2012. Considering the provincial government's intention to maximize the use of the loan and grant proceeds, the end of the winding-up period was extended to 28 February 2013. The provincial government submitted to ADB all remaining withdrawal applications by that date. Final disbursements of the loan proceeds were made in May 2013 and of the grant proceeds in March 2013.

E. Project Schedule

21. ADB approved the loan on 14 March 2005. The GEF chief executive officer endorsed the GEF grant on 7 February 2005. The loan inception mission was undertaken from 22 to 28 November 2005, and the loan was declared effective on 9 December 2005. The project completion review mission was conducted from 1 to 12 August 2013. Project implementation was delayed about 20 months from the appraisal estimates. It experienced an initial set back due to constraints relating to the reallocation of loan and grant proceeds, the revision of loan and grant financing percentages, and the lack of financial resources from the GEF grant funds. This delayed implementation of the GEF-funded activities, particularly those relating to consulting services, training, and nature reserve management. These constraints were resolved with the approval of the reallocation of loan and grant proceeds, and the revision of loan and grant financing percentages in February 2006 and January 2007; the fielding of the consultants in March 2007; and the disbursement of the initial advance to the GEF imprest account in April 2007. The midterm review mission was undertaken from 29 May to 9 June 2009. On 19 May 2010, ADB approved the extension of the loan and grant closing date from 31 December 2010 to 31 August 2012. The planned and actual implementation schedules are in Appendix 3.

F. Implementation Arrangements

22. The Heilongjiang provincial government was the executing agency of the project, and the 13 counties where forest were improved and the 6 model nature reserves were the implementing agencies.¹⁷ The project steering committee was established in 2002, with representatives from the provincial Development and Reform Commission, the provincial Finance Bureau, the provincial Forestry Department, and other relevant agencies. During implementation, the steering committee met 23 times. It effectively acted as an inter-agency working committee. In 2009, an advisory committee was established in the HPFD for technical support and evaluations for the project. The PMO comprised four divisions—Accounting and Planning, Administration, Coordination, and Management—and was operated by 12 full-time staff, including a director and two vice-directors. Implementation of the subprojects was the responsibility of the project implementation units in the counties and nature reserves. These units had adequate capacities for subproject implementation; and implemented the subprojects,

¹⁷ The 13 counties and 6 nature reserves conducted forest improvements and wetland protection under the jurisdiction of the HPFD, which is responsible for wetland management in the province, as well as for forest management activities in state forest farms in the project counties.

including budgeting and financial management, successfully. The project was implemented in a generally satisfactory manner and in line with the arrangements agreed at project appraisal. There were no major changes in the implementation arrangements.

G. Conditions and Covenants

23. All loan and GEF covenants that were due for compliance have been complied with. The establishment of a land compensation and resettlement account by the provincial government through the provincial Finance Bureau was not relevant. The government did not need to establish the account because the compensation amount needed was much smaller than anticipated. As well, all compensation was managed by state farms, state forest farms, and nature reserves, with assistance from county or city governments, not by the provincial government. The preparation of village development plans was also not relevant because the impacts on people affected by the project were reduced or avoided, and no villages were seriously affected (footnote 6). Audit reports were submitted in a timely manner, except those for 2006, which ADB received on 3 October 2007; and for 2011, which ADB received on 1 October 2012. The auditor's unqualified opinions on the financial statements were that (i) the loan and grant funds were used in all material respects in accordance with the loan and project agreements, and (ii) adequate supporting documents were maintained to support the use of the loan and grant imprest accounts and the statement of expenditure procedure. The auditor's recommendations on improving weaknesses in project implementation were noted and adequately addressed by the PMO. ADB's Anticorruption Policy (1998, as amended to date) was also compiled with.¹⁸ No individuals and entities on ADB's anticorruption debarment list were awarded any contracts under the project.¹⁹ The status of the major loan and grant covenants is in Appendix 4.

H. Consultant Recruitment and Procurement

24. Under the loan, contracts were awarded for (i) civil works for forest improvement; (ii) civil works for NTFPs; and (iii) forest equipment, materials, and vehicles. Under the grant, contracts were awarded for (i) civil works for wetland restoration; (ii) nature reserve equipment, materials, and vehicles; (iii) PMO equipment, materials, and vehicles; (iv) consulting services; (v) domestic training; (vi) overseas training and study tours; (vii) subcontracts; and (viii) incremental staff. Civil works for forest improvement, NTFPs, and wetland restoration were carried out by the implementing agencies on a force account basis, in accordance with the loan agreement. For equipment, materials, vehicles, and services other than consulting services, direct contracting or single source selection was used in accordance with the loan agreement and ADB's Guidelines on the Use of Consultants (2012, as amended from time to time).²⁰ All packages financed by ADB and the GEF were procured in accordance with ADB's Procurement Guidelines (2012, as amended from time to time), and the Guidelines on the Use of Consultants. Procurement and consultant recruitments encountered no major problems. The information on procurement packages funded by ADB and the GEF is in Appendix 5.

25. A substantial financial provision was made for consulting services, with a GEF grant allocation of \$2.7 million. For PMO management support and project implementation, a team of consultants was recruited through a consulting firm using the quality- and cost-based selection method, in accordance with ADB's Guidelines on the Use of Consultants. The PMO and the consulting firm signed the contract on 9 February 2007; the contract completion date was 13 March 2012. The consulting services started on 14 March 2007. The consulting services for

¹⁸ Available at: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>

¹⁹ The website of ADB's Integrity Office is <http://www.adb.org/integrity/unit.asp>

²⁰ All these packages cost the equivalent of \$100,000 or less.

project implementation designed during project preparation did not meet the needs during implementation. The consultants' inputs for water resources management were too low, while the inputs for natural resources management were too high. Of the consultants' inputs of 640 person-months estimated at project appraisal, 428 person-months were utilized. The estimated and actual consultants' inputs for PMO management support and project implementation are in Appendix 6.

26. Two external monitors were also recruited using the consultants' qualification selection method. They were to carry out M&E for the resettlement and alternative livelihood development related to farmland-to-wetland and farmland-to-forest conversions. In September 2008, ADB approved the use of the consultants' qualification selection method to recruit the two external monitors.

I. Performance of Consultants and Suppliers

27. The performance of all suppliers of equipment, materials, and vehicles; and also of all consultants was satisfactory. Suppliers delivered equipment, materials, and vehicles fulfilling contract specifications; and provided related services, such as installation. The consulting service for PMO management support and project implementation was provided throughout the 5-year implementation. The team of consultants assisted the provincial government, including the PMO, in implementing eight activities: (i) water resources management for the nature reserves and watersheds, and water quality monitoring; (ii) habitat conservation management; (iii) pilot wetland restoration; (iv) wildlife species recovery; (v) natural resources management; (vi) development of alternative livelihoods for farmers and fishermen; (vii) conservation education, public awareness raising, and capacity building; and (viii) project management, including project M&E, financial management, environmental management, and resettlement. In general, the team of consultants fulfilled the tasks specified in their terms of reference. Some national consultants (resettlement specialist, nature reserve management specialist, etc.) performed highly satisfactorily. The external monitors who conducted external M&E for resettlement and alternative livelihood development for farmland-to-wetland and farmland-to-forest conversions submitted M&E reports that were acceptable to ADB.

J. Performance of the Borrower and the Executing Agency

28. The provincial government's performance was satisfactory. The PMO consisted of staff of the provincial Forestry Department working full-time for the project. The PMO displayed high ownership of the project and showed strong commitment to wetlands protection. With its strong leadership, the PMO appropriately managed the 19 implementing agencies and their activities. The PMO procured civil works and goods, and recruited consultants in line with ADB requirements. During implementation, the PMO appropriately addressed various project implementation issues. The PMO continued to exist after loan closing on 31 August 2012, and assisted ADB's project completion review mission conducted in August 2013. However, the provincial government needs to continue to strengthen the capacity of nature reserve staff to monitor the performance of the project's purpose (outcome), outputs, and even the goal (impact) to provide reliable monitoring data.

K. Performance of the Asian Development Bank

29. ADB carried out 14 missions, starting with an inception mission during 22–28 November 2005. Seven review missions charted the achievement of physical output targets and solved implementation issues. Four special project administration missions were fielded to address issues of resettlement and others, including needs for minor changes in scope and implementation arrangements. The midterm review mission took place during 29 May–9 June

2009, and the final review mission during 12–19 July 2012. In its completion report, the PMO noted that ADB missions identified a variety of problems; but all were satisfactorily resolved with the help of ADB project staff. It rated the performance of ADB as highly satisfactory.

III. EVALUATION OF PERFORMANCE

A. Relevance

30. Overall, the project is rated highly relevant.²¹ Its stated goals to improve natural resources management, protect globally significant species, and support sustainable economic development remain highly relevant at completion. The project was fully consistent with the government's development program, which increasingly emphasized environmental protection, sustainable natural resources management, and a better quality of life (footnote 2). The project strongly supported ADB's country strategy and program for the PRC for 2004–2007, which strongly emphasized improving the environment, including dealing with land and water degradation issues (footnote 3). The project supported conservation of soils, forests, and wetlands and abatement of water pollution, which are critical environmental interventions. The project was also fully compliant with the GEF operational strategy in biodiversity and consistent with GEF's operational program 2, aimed at conservation and sustainable use of biological resources in fresh-water ecosystems, among others.

B. Effectiveness in Achieving Outcome

31. Overall, the project was effective in achieving the expected outcome (or purpose), which was the achievement of an integrated conservation and development model to protect natural resources of the Sanjiang Plain wetlands and their watersheds from continued threats; and to improve the well-being of local communities.²² The project adopted integrated watershed management and provided a model framework for integrated watershed management (paras. 7 and 40). Discussions with relevant authorities were conducted at an early stage and plans developed under the project fed into government plans. Of four performance targets for the outcome (purpose), two were successfully achieved. One target—that by 2010, nature reserve and watershed resource management mechanisms in the Sanjiang Plain would establish or integrate wetland water requirements—was generally achieved. Water resources management plans were incorporated in the master plans of all six nature reserves; two water resources master plans for watersheds, including water allocation to wetlands, were prepared and submitted to the Ministry of Water Resources for approval. The data are not clear for another target—that by 2012, populations of native species in six target nature reserves would increase by at least 10% (improved biodiversity). The numbers of birds monitored in the nature reserves do not necessarily reflect the actual populations because of possible inconsistency in monitoring methods (footnote 11). However, some other data indicate increases in the populations of native species; continuous monitoring will be needed to verify achievement of this target.²³

C. Efficiency in Achieving Outcome and Outputs

32. The investment was highly efficient. The financial analysis indicates the financial validity of the project, with an overall financial rate of return of 13.4% and an overall financial net present value of CNY325.1 million. The rates of return for the counties and activities ranged from 8.8% to 22.8%, significantly higher than the estimated weighted average cost of capital of 3.33%. The economic analysis also indicates that the project was economically viable, with an

²¹ ADB's rating of highly relevant is equivalent to the GEF's rating of highly relevant.

²² ADB's rating of effective is equivalent to the GEF's rating of moderately effective.

²³ Such as a greater number of stork pairs occupying nesting territories in the Xingkaihu nature reserve, and greater numbers of red-crowned and white-nape cranes in the Qixinghe and Xingkaihu nature reserves (para. 9).

overall economic internal rate of return of 18.1% and an economic net present value of CNY60.0 million. The rates of return for the individual counties and activities ranged from 12.1% to 27.3%.²⁴ However, the process was inefficient, particularly because of delays in project implementation by about 20 months from the appraisal estimates. Overall, the project is rated as efficient, considering both the high efficiency of the investment and inefficiency of the process.²⁵

D. Preliminary Assessment of Sustainability

33. The project is most likely sustainable overall.²⁶ The executing and implementing agencies are continuing to protect the wetlands effectively using the achievements of the project after completion. New forest planting and maintenance of existing forest have continued after the project. The master plans of the six nature reserves, which were revised to incorporate water resources management plans and to improve the conservation management components, are being implemented. The water resources coordination-leading group is still working. Staff at the six nature reserves are monitoring wild species, using monitoring stations, equipment, and geographic information systems constructed, provided, or established during project implementation; and data are being accumulated in the database developed under the project. Recovery plans for 18 species were disseminated to all nature reserves in the Sanjiang Plain, and are being implemented. The wetland restoration manual produced under the project was disseminated to all nature reserves in the Sanjiang Plain, and is being used for wetland restoration.²⁷ On the basis of proposals made under the project, animal grazing and fishing has been prohibited in all nature reserves in the Sanjiang Plain, except for those permitted by laws or regulations. The pilot project for water- and land-intensive eco-agriculture in Qixinghe nature reserve and the pilot eco-tourism projects in the Xingkaihu and Zhenbaodao nature reserves are continuing, generating income of the nature reserves. Wetland protection education remains part of the curriculum of the selected 12 schools, and teachers continue to give lectures on wetland protection. Public awareness raising continues in the Anbanghe and other nature reserves. Staff training also continues. The executing and implementing agencies provided adequate counterpart funds for the project in a timely manner (paras. 16 and 39), and are providing funds for the activities that are continuing after project completion. The executing agency is setting aside a portion of local county revenues generated from forest development activities for deposit in a special fund account to meet the financing requirements for nature reserve management. Nature reserves are more financially sustainable than before.

E. Impact

34. **Environment.** The project fell in environmental category B. An overall initial environmental examination (IEE) was undertaken to assess the generic impact of each project component. As shown in the IEE, the project brought significant environmental benefits; and had a positive impact on both the project area environment and globally important biodiversity by increasing forest cover, improving wetland hydrology, restoring degraded wetlands, improving the status of threatened wildlife, providing wetland conservation education, and establishing wetland management capacity. During project implementation, in accordance with the project agreement, (i) an environmental management plan (EMP) was prepared for each of the 13 counties for new forest plantations and operation, including conversion of farmlands and alternative livelihoods (intercropping and NTFPs); and (ii) additional environmental assessments

²⁴ Financial and economic revaluations focused on the watershed management and alternative livelihood development components to which more than 80% of the total project cost was allocated, following the evaluation carried out at the appraisal.

²⁵ ADB's rating of efficient is equivalent to the GEF's rating of moderately efficient.

²⁶ ADB's rating of most likely sustainable is equivalent to the GEF's rating of highly sustainable.

²⁷ The wetland restoration conducted using the manual after the pilot wetland restoration was out of the project scope.

were conducted; and an EMP prepared for each of the five wetland restoration pilot projects, including conversion of farmlands.²⁸ A due diligence report was also prepared because new forest plantations and operation, some pilot restoration projects, conversion of farmlands, and alternative livelihoods had already begun. ADB accepted all the documents in May 2010. The environmental mitigation measures and monitoring requirements as outlined in the IEE, the additional environmental assessment reports, and the EMPs were appropriately conducted by the provincial and county environmental protection bureaus (EPBs), without any issues. The negative effects on the environment were localized and short-term, but not significant and were fully mitigated.

35. **Resettlement.** The resettlement impacts induced by the project were mainly associated with the pilot farmland-to-wetland restoration projects in the six model nature reserves. Resettlement plans for the Anbanghe and Qixinghe nature reserves, and a resettlement framework were prepared during project preparation. For the Naolihe nature reserve where 2,000 ha of farmlands were abandoned in 2001, ADB approved a due diligence report in 2004 during project preparation. During project implementation, the resettlement plans prepared for the Anbanghe and Qixinghe nature reserves were updated; new resettlement plans for the Dajiahe, Xingkaihu, and Zhenbaodao nature reserves were prepared;²⁹ and a new due diligence report for the Naolihe nature reserve was prepared. ADB approved all these documents and posted them on the ADB website. Overall, the number of affected people decreased greatly as most pilot project sites had changed since project appraisal; and the new sites were lands that had been abandoned or were in marginal use. Cultivation stopped and wetlands were restored on 3,441.3 ha of farmland, against the 3,433 ha planned at appraisal; 465 people were affected instead of the 1,138 expected at appraisal; and 3,140 square meters (m²) of houses were demolished in the Naolihe nature reserve. Cash compensation or replacement housing plots nearby were given to 318 people, or 102 households from the Hongqiling state farm who were affected by the house demolition. The livelihoods and incomes of these people were restored. To other affected units and individuals, compensation—including both cash and kind—was paid in line with the resettlement plans and local government decrees. As of the end of the project, CNY47,940,500 had been paid in compensation.

36. Under the forest improvement component of the project, 3,853 ha of farmlands were restored to forest. No land acquisition was required because the farmlands converted to forests belonged to the forest farms; provisions for livelihood restoration were stipulated in the resettlement framework and were complied with during implementation. The number of affected people was reduced from the estimated 2,217, including 337 villagers, to 476 regular, temporary, or contracted forest farm staff. No villagers were affected because only dry lands, slope lands, and wastelands were used. To ensure that affected forest farm workers had no loss of income, 923 ha were planted for NTFPs (24% of the converted farmland); and intercropping was conducted. The affected workers received wages for planting trees, and some of them simultaneously received income from intercropping for 3–5 years on the newly planted forest area as well as income from NTFPs on newly planted or existing forest area. Alternatively, some of them chose to accept other jobs on the forest farm. In this manner, the affected workers were able to maintain or even increase their incomes.

37. The prohibition of animal grazing and fishing in nature reserves in Sanjiang Plain did not affect anyone in the six model nature reserves in the project scope.

²⁸ For a pilot wetland restoration project in the Naolihe nature reserve, additional environmental assessment was not conducted; and an EMP was not prepared because the 2,000 ha of farmland had already been converted and due diligence was conducted during project preparation.

²⁹ For the Xingkaihu nature reserve, a due diligence report was also prepared because land acquisition and resettlement began before ADB approved the resettlement plan.

38. The two independent agencies engaged to conduct external M&E for resettlement and alternative livelihoods development—did so by monitoring 923 affected people and interviewing resettlement officials in all key agencies. They submitted M&E reports to ADB. Sample surveys of affected households showed that the incomes of affected people were restored or improved. Land acquisition and resettlement is detailed in Appendix 8.

IV. OVERALL ASSESSMENT AND RECOMENDATIONS

A. Overall Assessment

39. The project was fully consistent with the government's development program (footnote 2), ADB's country strategy and program for the PRC for 2004–2007 (footnote 3), the GEF operational strategy in biodiversity and the GEF's operational program 2, and ADB's water policy (footnote 4). The project design was sound, and the formulation was adequate. The project outputs anticipated during appraisal were achieved. Loan and GEF grant were fully disbursed. The provincial and county governments adequately provided counterpart funds. The project was implemented in line with the arrangements set at project appraisal. All loan and GEF covenants that were due for compliance were complied with. The PMO and project implementation units procured civil works and goods; and recruited consultants appropriately, fulfilling ADB requirements. The performance of all suppliers of equipment, materials, and vehicles; and also all consultants was satisfactory. The performance of the provincial government was satisfactory, with the PMO's high ownership, strong commitment, and strong leadership. The performance of ADB missions and ADB were also highly satisfactory.

40. The project is rated highly relevant; and its expected impact (or goal)—improvement of natural resources management, protection of globally significant species, and sustainable economic development—remains highly relevant at completion. The project was effective in achieving the expected outcome. The project adopted integrated watershed management in the Sanjiang Plain for wetland and forest conservation; and provided a model framework for integrated watershed management that can be expanded for comprehensive and long-term management of wetlands and biodiversity on the scale of a large river basin. The framework can be replicated throughout the Sanjiang Plain wetland nature reserves and other areas with similar environmental conditions. Despite the 20-month delay in project implementation, the economic and financial reevaluation indicated that the investment was highly efficient; and overall, the project is rated as efficient. The project is most likely sustainable overall, because the provincial government is continuing to protect the wetlands effectively using the achievements of the completed project.

41. The project is rated as successful, in accordance with the overall assessment methodology provided in the Guidelines for Preparing Performance Evaluation Reports for Public Sector Operations.³⁰ It was highly relevant, effective, and efficient; and its benefits are most likely to be sustainable.

B. Lessons

42. The major lessons were as follows:

- (i) Performance targets and indicators for impact, outcome, and outputs should be realistic and measurable through local efforts, particularly when a target or an indicator has a global perspective. Baseline indicators and targets for project performance, including environmental management, should be developed during project preparation.

³⁰ ADB. 2006. *Guidelines for Preparing Performance Evaluation Reports for Public Sector Operations*. Manila.

- (ii) Monitoring methods and frequencies need to be defined and agreed upon by the government and ADB at the beginning of a project, and followed during implementation by the executing or implementing agencies, to ensure the reliability and replicability of the monitoring data and the effectiveness of the project completion evaluation.
- (iii) To protect and restore wetlands, strong political support, including funding for nature reserves, is important. To disseminate lessons learned more widely and to help high-level decision making, executing agencies must publish policy briefs.
- (iv) The most successful elements of the project were those that had been discussed with the relevant authorities at an early stage so that plans developed under the project could feed into government plans. This provided a lasting and replicable impact from the project. Examples are the work with the water authorities on water allocation for the nature reserves, and the work with the tourism authorities on ecotourism development.
- (v) The steering committee established under the project effectively acted as an inter-agency working committee, with authorization from and representation across various sectors such as land, water, fisheries, and agriculture to coordinate wetland protection efforts. To ensure coordination on inter-sector activities in future projects, such a committee or similar agency should be established before project start-up.
- (vi) The consulting services for project implementation designed during project preparation did not meet the needs during implementation. This usually happens because needs change over time. To avoid having to undertake contract variations to correct this balance, an approach used in European Union contracts would have allowed greater flexibility; bidders for consulting services are typically evaluated on a small number of long-term key experts; while short-term expertise is not defined in the bidding but decided upon during implementation based on agreed work plans and government demands.

C. Recommendations

1. Project-Related

43. **Future monitoring.** The provincial government should continue to monitor indicators, particularly those which show how the project contributes to the global ecosystem; and evaluate the project performance, particularly for the impact (or goal), using the M&E database established under the project.

44. **Further action or follow-up.** The provincial government and nature reserves should continue to improve wild species monitoring, including staff capacity and monitoring methods, so that monitoring data are reliable for judging increases or decreases in wild species.

45. **Additional assistance.** Given the global significance of the project, technical assistance for capacity development³¹ should be financed by ADB or a cofinancer; and implemented to continue to improve the executing and implementing agencies' ability to implement and expand on the project achievements.³² In addition, to maintain those achievements and address remaining challenges, the government should carry out phase 2 of the project.

³¹ The Strengthening Capacity for Wetland Protection for Sanjiang Plain, which is in ADB's nonlending pipeline for the PRC as 2013 standby and 2014 firm, as indicated in ADB's country operations business plan, 2013–2015.

³² ADB. 2013. *Country Operations Business Plan: People's Republic of China, 2013–2015*. Manila.

46. **Timing of the project performance evaluation report.** A performance evaluation review should be conducted in 2 or 3 years, when the project's impact should become measurable.

2. General

47. The following are initial recommendations for the design and implementation of future projects:

- (i) ADB often finances projects with potential global benefits to improve the habitats of or conservation measures for a globally significant ecosystem or species, e.g., the eight key globally threatened species in this project (footnote 7). Such global benefits are sometimes difficult to verify only with the project's monitoring data because conservation efforts in other regions or countries also affect the global benefits. The performance targets or indicators for such a project thus need to be realistic and focused only on those that can be measured easily and cost-effectively within the context of the project.
- (ii) To allow flexibility in consulting services for a project that is usually implemented over 5–7 years, ADB could consider adopting the consultant recruitment method that is applied in the European Union. This method evaluates bidders' proposals on only a small number of long-term key experts, while needs for short-term expertise are determined later during implementation, on the basis of an agreed work plan and government demands.

PROJECT FRAMEWORK

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
Goal (Impact) Improved management of natural resources to protect globally significant species and to sustain economic development	(No change)	Conservation status of eight key globally threatened species in the Sanjiang Plain ^a lifted from the list of endangered to vulnerable species	(No change)	Of the eight key targeted globally threatened species, one was removed from the critically endangered, endangered, and vulnerable species lists.	World Conservation Union biodiversity surveys	
Purpose (Outcome) Achieve an integrated conservation and development model to protect natural resources of the Sanjiang Plain wetlands and their watersheds (biodiversity, water, forests) from continued threats, and to improve the well-being of local communities	(No change)	<p>By <u>2010</u>, populations of native species in six target NRs up by at least 10% (improved biodiversity)</p> <p>By <u>2010</u>, NR and watershed water resources management mechanisms in the Sanjiang Plain established and/or integrate wetland water requirements</p> <p>Income status of affected <u>villages</u> maintained or increased through</p>	<p>By <u>2012</u>, populations of native species in six target NRs up by at least 10% (improved biodiversity)</p> <p>By <u>2012</u>, NR and watershed water resources management mechanisms in the Sanjiang Plain established and/or integrate wetland water requirements</p> <p>Income status of affected <u>persons</u></p>	<p>Numbers of birds monitored in the six NRs were 510,559 in 2008; 1,081,353 in 2009; 1,063,532 in 2010; and 683,612 in 2011. ^b In the Xingkaihu NR, the number of stork pairs occupying nesting territories increased from 9 nests in 2005 to 44 nests in 2011. In the Qixinghe and Xingkaihu NRs, the recorded numbers of red-crowned cranes increased from 30 in 2004 to 44 in 2011; while white-nape cranes increased from 17 to 58.</p> <p>Water resources management plans were incorporated in the master plans of all six model NRs.</p> <p>The Sanjiang Plain Water Resources Master Plan and the Songhua River Master Plan, including water allocation to wetlands, were prepared and submitted to the Ministry of Water Resources for approval.</p> <p>Income status of affected people was maintained or increased</p>	<p>NR and provincial wetland inventories</p> <p>Targeted NR species censuses and associated habitat surveys</p> <p>Red Data Book and other endangered species status reports</p> <p>NR water allocation surveys</p> <p>Forest cover assessments</p> <p>Socioeconomic surveys</p> <p>Reports detailing</p>	<p>Assumptions: Provincial regulation preventing further wetland conversion in NRs was enforced.</p> <p>Government follows through on its commitment to implement the NDRC and/or SFA Farmland-to-Wetland Restoration Program.</p>

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
		environmentally sustainable alternative livelihood mechanisms By <u>2010</u> , wetland restoration model replicated in 5–6 additional Sanjiang Plain wetland NRs	maintained or increased through environmentally sustainable alternative livelihood mechanisms By <u>2012</u> , wetland restoration model replicated in 5–6 additional Sanjiang Plain wetland NRs	through compensation and/or provision of alternative livelihoods. Annual net income of affected people averaged in each NR, city, or county increased by 12.9% (Dajiahe NR) to 1,648.2% (Naolihe NR) against net income before resettlement. Drawings on experience from the pilot wetland restoration projects, a wetland restoration manual was produced and disseminated to all other NRs in the Sanjiang Plain. In 6 additional NRs, wetland restoration was conducted using the manual (out of the project scope).	changes in water resources management strategies (e.g., from engineered solutions to nonstructural solutions) National poverty census Statistics	
Outputs 1. Watershed Management 1.1 Forest Improvement	(No change)					
Increased forest cover	(No change)	By <u>2010</u> , upper watershed forest cover increased by 11,900 ha in 13 counties and 5 watersheds	By <u>2012</u> , upper watershed forest cover increased by 11,900 ha in 13 counties and 5 watersheds (including 4,300 ha of farmland-to-forest restoration in 5 counties)	Upper watershed forest cover increased by 10,090 ha in 13 counties and 5 watersheds (including 3,853 ha of farmland-to-forest restoration in 5 counties)	County and provincial forestry assessments County silviculture survey reports	Assumption: Government forestry sector and resettlement investments are carried out. Risk: External factors (e.g., climatic anomalies, regime change) lead to further upper watershed
Increased forestry-based income	(No change)					
Improved forest stand health and performance	(No change)	By <u>2010</u> , international silvicultural health standards achieved in 43,700 ha of existing upper watershed forest in 13 counties	By <u>2012</u> , international silvicultural health standards achieved in 43,700 ha of existing upper watershed forest in 13 counties	Some 39,769 ha of existing forestry plantation treated according to international silvicultural health standards.	NR water flow and recharge monitoring, baseline and annual water balances	

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
1.2. Local (NR) Level Water Resource Management	(No change)					deforestation.
Strengthened water resources management at the local level	(No change)	By project year <u>3</u> , water resources management sections incorporated into the <u>management</u> plans of six NRs	By project year <u>5</u> , water resources management sections incorporated into the <u>master</u> plans of 6 NRs	Water resource management sections were incorporated into the master plans of all the 6 NRs.	Baseline and annual reviews of NR planning status NR water flow and recharge monitoring, baseline and annual water balances	
Improved coordination among local stakeholder agencies for management of water resources	(No change)	By <u>2010</u> , local water allocation plan for NRs increased by at least 20% By <u>2010</u> , wetland protection criteria and management requirements included in water resource plans	By <u>2012</u> , local water allocation plan for NRs increased by at least 20% By <u>2012</u> , wetland protection criteria and management requirements included in water resource plans	Local water allocation plan for the NRs and wetland protection criteria and management requirements were included in water allocation plans and/or water resources plans of relevant cities and counties.	Working group meeting minutes	
1.3. Watershed Level Water Allocation Planning	(No change)					
Provision of adequate water to meet ecological water requirements in NRs	(No change)	By <u>2010</u> , wetland issues integrated into water resources allocation in the Anbang, Naoli–Qixing, Qihulin/Abuqin, and Wusuli rivers	By <u>2012</u> , wetland issues integrated into water resources allocation in the Anbang, Naoli–Qixing, Qihulin/Abuqin, and Wusuli rivers	A meeting organized by the HPWRD on request functioned as an inter-agency coordination body. Through the interagency coordination meetings, the HPFD's recommendations on wetlands protection criteria, wetlands management, and water allocation were reflected into two watershed-level water resources management plans: the Sanjiang Plain Water Resources Master Plan (which covers all six NRs)	Baseline and periodic institutional assessments of planning at provincial, county, and watershed levels NR water flow and recharge monitoring,	
Integration of management of water resources at the watershed level	(No change)	By project year 2, an inter-agency coordination body formed, and meeting quarterly	(No change)			

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
Incorporation of wetland protection criteria into flood management plans	(No change)	By <u>2010</u> , the Songhua River Basin Management Authority ready to adopt the integrated Songhua River Basin Management Plan, incorporating wetland protection	By <u>2012</u> , the Songhua River Basin Management Authority ready to adopt the integrated Songhua River Basin Management Plan, incorporating wetland protection	and the Songhua River Master Plan (which covers the Anbanghe NR). The two watershed-level water resources management plans were prepared and submitted to the Ministry of Water Resources.	baseline and annual water balances Comparisons of actual water flows and levels with provincial water resources allocation plans	
2. Wetland Nature Reserve Management 2.1. Conservation Management Improved conservation management practices with respect to wetlands and wildlife in NRs	(No change) (No change) (No change)	Significant recovery of biodiversity achieved within six NRs by <u>2010</u> : occurrence of key threatened species in NRs increased by 10% (number of individuals, population size, number of sightings, etc.)	Significant recovery of biodiversity achieved within six NRs by <u>2012</u> : occurrence of key threatened species in NRs increased by 10% (number of individuals, population size, number of sightings, etc.)	Numbers of birds monitored in the six NRs were 510,559 in 2008; 1,081,353 in 2009; 1,063,532 in 2010; and 683,612 in 2011 (footnote b). In the Xingkaihu NR, the number of stork pairs occupying nesting territories increased from 9 in 2005 to 44 in 2011. In the Qixinghe and Xingkaihu NRs, the recorded numbers of red-crowned cranes increased from 30 in 2004 to 44 in 2011; and of white-naped cranes from 17 to 58.	Baseline and annual review of NR management plans Baseline and annual review of NR water, wildlife, and habitat monitoring programs Baseline and annual NR biodiversity surveys	Assumption: Government provides adequate NR staff, salaries, and operational budget. Risk: Various threats to wildlife or habitats continue outside project area.

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
2.2. Pilot Wetland Restoration	(No change)					
Decreased farmland area in core and buffer zones; increased total wetland area in NRs	(No change)	Total wetland area in six pilot NRs increased by 3,433 ha by <u>2010</u>	Total wetland area in six pilot NRs increased by 3,433 ha by <u>2012</u>	Pilot farmland-to-wetland restoration was implemented in the six model NRs and 3,441 ha of farmlands were restored to wetlands. Drawing on the pilot restoration, a wetland restoration manual was prepared and disseminated to all NRs in the Sanjiang Plain. Using the manual, wetland restoration was conducted in six NRs other than the six model NRs (out of the project scope).	Baseline and annual NR wetland inventories and surveys NR administrative and/or progress reports Pilot wetland restoration plan reports and guidelines	Assumptions: Government provides resettlement funds to be used for village development investment rather than as direct compensation.
Development of model for farmland-to-wetland restoration	(No change)	Wetland restoration models and guidelines developed by year <u>4</u>	Wetland restoration models and guidelines developed by year <u>6</u>			
		Wetland restoration models replicated in at least five other NR sites in the Sanjiang Plain by end of the project, and restoration program functioning in all Sanjiang Plain wetland NRs by <u>2010</u>	Wetland restoration models replicated in at least five other NR sites in the Sanjiang Plain by end of the project, and restoration program functioning in all Sanjiang Plain wetland NRs by 2012			
2.3. Wildlife Species Recovery	(No change)					
Increased numbers of key threatened species in the six pilot NRs	(No change)	Target species habitat area increased by 10% in all six NRs	(No change)	Because it was impossible to exactly identify habitat area for target species, the increase in wetland areas is used as a proxy for this target. The pilot wetland restoration conducted in the six model NRs, and further wetland restoration in these six NRs (out of the project scope) expanded wetlands in the six NRs by 5%.	Baseline and annual census of populations of key targeted wildlife species Baseline and annual census of associated habitats of key targeted	Adequate seed populations of key species are extant for initiation of recovery program. A critical number of qualified

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
Improved condition of wetland habitats and increased wildlife populations	(No change)	Overall wildlife populations increased	(No change)	Numbers of birds monitored in the six NRs were 510,559 in 2008; 1,081,353 in 2009; 1,063,532 in 2010; and 683,612 in 2011 (footnote b).	wildlife species Baseline and annual NR biodiversity surveys	personnel are committed to the task.
Reduction in over-utilization of wildlife and plants in NRs, relative to the baseline	(No change)	Observed populations of eight key species of globally threatened waterfowl (see list) increased by 10% by project end List: Oriental stork (<i>Ciconia boyciana</i>); red-crowned (<i>Grus japonensis</i>) and white-naped (<i>Grus vipio</i>) cranes; scaly-sided merganser (<i>Mansergus squamatus</i>); swan goose (<i>Anser cygnoides</i>); three other geese of the genus <i>Anser</i> : the greater white-fronted goose (<i>A. albifrons</i>); the lesser white-fronted goose (<i>A. erythropus</i>); and the bean goose (<i>A. fabilis</i>); and Mezber's pipit (<i>Anthus [gustavi] menzbieri</i>).	(No change) List: Oriental stork (<i>Ciconia boyciana</i>); red-crowned (<i>Grus japonensis</i>); hooded (<i>Grus monacha</i>); white-naped (<i>Grus vipio</i>) cranes; scaly-sided merganser (<i>Mergus squamatus</i>); Baikal teal (<i>Anas formosa</i>); wwan goose (<i>Anser cygnoides</i>); and lesser white-fronted goose (<i>A. erythropus</i>).	Numbers of the eight key species monitored were 34,438 in 2008, 20,429 in 2009, 33,193 in 2010, and 34,006 in 2011. ^c In the Xingkaihu NR, the number of stork pairs occupying nesting territories increased from 9 in 2005 to 44 in 2011. In the Qixinghe and Xingkaihu NRs, the recorded numbers of red-crowned cranes increased from 30 in 2004 to 44 in 2011; and of white-naped cranes from 17 to 58.	NR progress reports	
2.4. Reduction of Resource Exploitation	(No change)					
Reduction in illegal exploitation of targeted wetland species, and recovery of population of target species in six NRs	(No change)	Extent of vegetation cover contributed by reeds, thatch grass, wild herbs, and wild fish populations in the project pilot area increased by 50% by <u>2010</u>	Extent of vegetation cover contributed by reeds, thatch grass, wild herbs, and wild fish populations in the project pilot area increased by 50% by <u>2012</u>	Because it was difficult to measure the achievement of this target exactly, the reduction in illegal international trade in endangered species and the populations of the target species in the six NRs are used as proxies for the output. No illegal international trade in animal species originating in the project	Baseline and annual census of key exploited species Baseline and annual survey and quantification	Adequate NR and local support for enforcement of existing legislation on core and buffer zones, and on protected species are

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
Reduction in Illegal international trade in endangered species (closely linked with awareness activities in 4.2)	(No change)	Illegal international trade in animal species originating in project area reduced by 50% by <u>2010</u>	Illegal international trade in animal species originating in project area reduced by 50% by <u>2012</u>	area has been reported. Regarding the population of the target species in the six NRs, see Output 2.3. No illegal international trade in animal species originating in project area has been reported.	of natural resource use in and around NRs Detailed vegetation surveys in NRs Customs seizure records	provided.
3. Alternative Livelihoods 3.1. Intercropping and NTFPs Sustainable income-generating opportunities for the <u>villagers</u> affected by farmland-to-forest restoration program through intercropping	(No change) (No change) Sustainable income-generating opportunities for the <u>persons</u> affected by farmland-to-forest restoration program through intercropping	Income levels in affected <u>villages</u> maintained or increased throughout life of the project <u>Income levels in affected villages maintained or increased throughout life of the project</u>	Income levels of affected <u>persons</u> maintained or increased throughout life of the project (Deleted because of duplication)	Only state farm workers were affected. Income levels of the affected people were maintained or increased throughout the life of the project. Annual net income of the people affected by farmland-to-forest restoration, averaged in each city or county, increased by 43.6% (Baoqing County) to 136.8% (Hulin City) against net income before resettlement.	Per capita and household income baseline and follow-up surveys Surveys of economic activities in NTFP and agroforestry	Markets are accessible. Product demand is adequate.
3.2. <u>Land Compensation and Village Development</u>	3.2 <u>Ecologically Sustainable Alternative Livelihoods (for Wetland Protection)</u>					

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
Sustainable income-generating opportunities for the villagers affected by farmland-to-wetland restoration program	(No change)	At least 30% of resettlement/land compensation costs utilized for village development At least <u>one</u> new livelihood project initiated and operational <u>in each of the eight affected villages</u> by project completion	(Deleted) At least <u>three</u> new livelihood projects initiated and operational <u>in or around NRs</u> by project completion	Overall, the number of affected people decreased greatly, as most pilot project sites were changed since project appraisal; the new sites were lands that had been abandoned or were in marginal use. Only 447 people were affected instead of the 1,138 expected at appraisal. Three pilot alternative livelihoods development projects were implemented in the Qixinghe, Xingkaihu, and Zhenbaodao NRs.	Per capita and household income baseline and follow-up surveys Surveys of economic activities and results of village development fund investments	Assumption: Government counterpart fund is available in timely manner.
3.3 Ecotourism Creation of ecotourism opportunities for communities and NRs, without adverse effects on wetland habitats or key species	(No change) (No change)	Economically and environmentally sustainable ecotourism activities in place in three NRs by end of the project	(No change)	Pilot ecotourism projects were implemented in the Xingkaihu and Zhenbaodao NRs.	Baseline and annual surveys of ecotourism activities, including assessment of community participation	NR management and local community are receptive to alternative, low-key ecotourism.
4. Capacity Building 4.1. Conservation Education Increased knowledge about conservation issues, and about local NRs, among schoolchildren and teachers	(No change) (No change) (No change)	Conservation awareness program incorporated into curriculum of schools and implemented in eight of pilot elementary and four secondary schools around six NR sites within first 2 years of the project, reaching approximately 5,000 schoolchildren	Conservation awareness program incorporated into curriculum of schools and implemented in eight of pilot elementary and four secondary schools around six	Wetland protection education was included in the curriculum of the selected 12 schools, and teachers gave lectures on wetland protection to more than 6,000 students during project implementation.	Review of school curricula School administrative records	

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
			NR sites within first 4 years of the project, reaching approximately 5,000 schoolchildren		Baseline and periodic conservation awareness surveys and evaluations administered through schools	
4.2. Conservation Awareness	(No change)					
Increased knowledge of conservation among general public around 6 NRs, including appreciation of importance of protecting endangered species	(No change)	Program for conservation on public awareness developed for 13 counties and in the province; and carried out over life of the project, including at least 45% women participants	(No change)	A public awareness master plan was produced, and a public awareness manual was distributed to community residents and schools. Seven conservation awareness activities were conducted in more than 20 communities. For each conservation awareness activity, 46%–48% of the participants were women.	Baseline and periodic surveys and evaluations of community awareness on conservation Community organization records	
		Measurable reduction in capture of and trade in endangered species for export	(No change)	No illegal international trade in animal species originating in project area has been reported.	Customs seizure records	
4.3. Wetland Management Training	(No change)					
Short-term technical staff at six NRs and community leaders (including women leaders) with enhanced conservation knowledge and skills	(No change)	Comprehensive, targeted awareness training administered to 300 NR staff and to 20 community leaders in 13 counties Comprehensive, targeted awareness training administered to at least 15 NR managers and staff during the life of the project	(No change) (No change)	During project implementation, 38 short- and long-term training courses, study tours, and workshops were conducted for more than 1,000 people, including government staff (local forestry bureau staff and PMO staff); most NR staff (directors, professional staff, and technical staff); and community leaders and residents.	Baseline and follow-up human resource surveys of knowledge and/or understanding of NR technical staff, and of teachers and/or	Assumption: Staff stability and availability in NRs Risk: Trained staff are transferred to another NR site.

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
Long-term professional NR managers in the northeastern region of the People's Republic of China prepared to assume responsibility for ongoing management by end of the project	(No change)				community leaders, regarding wetland conservation principles Baseline and follow-up surveys of wetland management skills of NR management staff	
4.4 Institutional and Behavioral Change	(No change)					
Internalization of sustainable environment principles and wetland conservation principles by key economic policy-makers and development planners at national, provincial, and county level	(No change)	By 2010, all new relevant legislation incorporating sections on sound environmental, water resources management, and wetland conservation Development plans at national, provincial, and county levels, incorporating principles of sound environmental and water resources management, and wetland conservation	By 2012, all new relevant legislation incorporating sections on sound environmental, water resources management, and wetland conservation (No change)	There is no new legislation that the project is aware of. The PRC's Biodiversity Protection Strategy and Action Plan (2011–2030) requires that each policy include a biodiversity plan or biodiversity consideration in its plan. Following this, each sector included a biodiversity plan or biodiversity consideration in its plan.	Records of new bills and enacted legislation Planning records School activity and curriculum reports NR annual reports Surveys to assess student-and-teacher attitudes on environment and conservation	
Changes in attitude and behavior among teachers,	(No change)	New elective environmental programs initiated in schools, with 30% more participating students and/or teachers than at project	(No change)	Wetland protection education was included in the curriculum of the selected 12 schools, and teachers gave lectures on wetland		

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
students, and community members		inception		protection to more than 6,000 students during project implementation.	Surveys to assess NR manager mentorship skills	
NR managers with greater sense of stewardship, strengthened conservation ethic	(No change)	Noncompliance cases reported on overuse and/or exploitation of wetlands resources (fishing nets, or reeds harvests) decline by 50% by the project end	(No change)	No cases of noncompliance in the project area have been reported.		
		NR managers pass on knowledge and skills through mentorship of junior staff—at least 2–3 mentor–apprentice relationships created among staff in each NR	(No change)	NR managers are passing on knowledge and skills by mentoring junior staff in each NR on the job.		
Activities	(No change)					
1. Watershed Management	(No change)					
1.1 Forestry Investments	(No change)					
Plant 11,900 ha of new forestry plantations	(No change)	Site preparation, planting, and treatment operations proceeding per county schedule over <u>5</u> -year period	Site preparation, planting, and treatment operations proceeding per county schedule over <u>7</u> -year period	Site preparation, planting, and treatment operations were conducted per county schedule over the 7-year period.	Annual operation plans and planting reports	Assumptions: Human resources are available for operations and technically competent at state forest farms.
Treat 43,700 ha of existing forestry plantations	Treat 43,700 ha of existing <u>forestry</u>				Project activity and progress report	
1.2. Local (NR) Level Water Resource Planning	(No change)					Stakeholders are interested in identifying and solving problems.
Establish local stakeholder working groups	(No change)	Six stakeholder working groups established (one per NR) and operational by year 1	(No change)	A water resources coordination-leading group, including all stakeholders, was established at each of the six NRs; and functioned as a stakeholder working group for coordinating the inclusion of a water resources	Review of stakeholder working group reports, workshop reports	County and provincial officials cooperate to share

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks information.
Original	Revised	Original	Revised	Actual		
Conduct workshops	(No change)	Biannual water monitoring workshops conducted	(No change)	management plan into the NR master plan. Monitoring of river water quality was conducted in the Anbanghe and Qixinghe NRs in 2007. Water quality monitoring plans were prepared for all six NRs and, reflected in each EPB's water quality monitoring plan. The EPBs with the six NRs are conducting water quality monitoring. Regular water quality monitoring has become routine work of EPBs and NRs.	Assessment of water resources management plans and NR management plans	
Prepare water resources management plan inputs to overall NR management plans	(No change)	Six NR <u>management</u> plans produced by year <u>2</u> , incorporating NR water allocation plans by year <u>3</u>	Six NR <u>master</u> plans produced by year <u>4</u> , incorporating NR water allocation plans by year <u>5</u>	Water resources management sections were incorporated into the master plans of all six NRs.		
1.3. Watershed Level Water Allocation Plan	(No change)					
Add conferences with local working groups	(No change)	Gross water balance estimates completed for five NRs by year 1	(No change)	Reports on water resources utilization status for all six NRs, and their watersheds were completed; and based on these reports, each NR's water demand was estimated.	Gross water balances and numerical computer models	
Conduct training on wetland water supply and watershed level water resource allocation	(No change)	Numerical computer models completed for the Anbang and Naoli watersheds by year 2	(No change)	A water resources allocation numerical model was established for a watershed, including the Naolihe NR. This model can be used for the other watersheds.	Provincial and county water allocation plans Water resources	

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
Develop and calibrate numerical models of water use and availability for the Anbang and Naoli watersheds	(No change)	Water allocation and flood control policies developed by year <u>3</u>	Water allocation and flood control policies developed by year <u>5</u>	Necessity of river water allocation for wetlands preservation has been stated in the Heilongjiang Province's Eleventh Five-Year Plan. The HPFD's recommendations on wetlands protection criteria, wetlands management, and water allocation were reflected in two watershed-level water resources management plans: the Sanjiang Plain Water Resources Master Plan (which covers all six NRs) and the Songhua River Master Plan (which covers the Anbanghe NR). The two watershed-level water resources management plans were prepared and submitted to the Ministry of Water Resources for approval.	engineering reports Workshop reports Project activity and progress reports	
		Provincial and county water management staff participates in five annual inter-agency coordination workshops over life of the project.	(No change)	Provincial and county water management staff participated in meetings organized by the HPWRD on requests, which functioned as an inter-agency coordination body.		
2. Wetland Nature Reserve Management	(No change)					
2.1. Conservation Management	(No change)					
Establish water, wildlife, and habitat monitoring programs in NRs	(No change)	Permanent monitoring stations established for water, wildlife, and habitat monitoring by year 1	(No change)	Permanent monitoring stations were established in five NRs, excluding the Dajiahe NR.	Water, wildlife, and habitat monitoring program reports	

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
Prepare annual monitoring reports, conduct workshops	(No change)	Monitoring protocols recorded in monitoring manuals by year <u>2</u>	Monitoring protocols recorded in monitoring manuals by year <u>4</u>	The general method for monitoring wildlife was developed. Monitoring manuals, including monitoring protocols, for wild life and habitat monitoring were produced.	Monitoring manuals Annual monitoring workshop reports	
Establish GIS for six NRs	(No change)	NR GIS set up by year <u>2</u> and data updated continuously	NR GIS set up by year <u>4</u> and data updated continuously	A GIS was established and incorporated into the HPFD's database.	NR adaptive management plans	
Draft management plans for all six NRs	(No change)	Draft management plans prepared for six NRs by year <u>3</u>	Draft management plans prepared for six NRs by year <u>5</u>	Conservation management components of the six NR master plans were improved in 2011.	Project activity and progress reports	
2.2. Pilot Wetland Restoration	(No change)					Assumption: Members of NR management staff remain unchanged throughout project implementation
Restore 3,433 ha of farmland to wetland at model sites in six wetland NRs	(No change)	Restoration of wetland areas from farmland, measured annually, achieving specified targeted area by year <u>5</u>	Restoration of wetland areas from farmland, measured annually, achieving specified targeted area by year <u>7</u>	In all, 3,441 ha of farmlands were restored to wetlands.	Annual inspection of restored wetland sites, and assessment of their functioning and condition	
Provide input to NR management plan	(No change)	Wetland restoration models, including appropriate technologies and tools for information dissemination, prepared by year <u>4</u>	Wetland restoration models, including appropriate technologies and tools for information dissemination, prepared by year <u>6</u>	Drawing on the pilot restoration experience, a wetland restoration manual was prepared and disseminated to all NRs in the Sanjiang Plain.	Progress according to detailed restoration plans, activity schedules, and quality standards	
Develop and disseminate replicable wetland restoration models	(No change)	By project year <u>4</u> , at least one national and one international study tour conducted	By project year <u>6</u> , at least one national and one international study tour conducted	A domestic study tour to Poyang Lake in Jiangxi Province was conducted in October 2008. Study tours to the United States were conducted in December 2009 and in the Mai Po NRs in Hong Kong	Wetland restoration	

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
Conduct workshops, conferences, study tours and training as venues for information exchange on wetland restoration	(No change)	By project year <u>5</u> , international conference on wetland restoration organized and implemented	By project year <u>7</u> , international conference on wetland restoration organized and implemented	in March 2010. Workshops on wetlands and lakes protection were organized and implemented in June 2008, September 2009, and July 2012.	model information packages Project activity and progress reports	
2.3. Wildlife Species Recovery	(No change)					
Prepare and implement recovery plans for 8 globally threatened species	(No change)	Species recovery plans completed for eight globally threatened species of waterfowl (footnote a) by end of year <u>2</u> , and measures implemented by year <u>3</u>	Species recovery plans completed for eight globally threatened species of waterfowl (footnote a) by end of year <u>4</u> , and measures implemented by year <u>5</u>	The consultants prepared and submitted to the HPFD recovery plans for 10 targeted globally threatened water bird species. These recovery plans were implemented in the six NRs. Incorporating the plans prepared by the consultants and reflecting the results of implementing the plans in the six NRs, the HPFD prepared its own recovery plans covering 18 water birds species and provided them to all NRs.	Species recovery plans Baseline and annual census of populations of key targeted wildlife species, and associated habitats	Risk: Various threats to the selected species continue to exist outside of the project pilot areas.
Conduct symposium on project species recovery experiences	(No change)					
2.4. Reduction of Unsustainable Harvesting in NRs	(No change)					
Conduct inventory of types and levels of exploitation of thatch grass, fish, wild herbs	(No change)	Utilization inventories conducted by end of year 1	(No change)	A baseline survey was completed and a report on nature resources exploitation was prepared. The species of plants and animals, status of land utilization in the six NRs, and general status of natural resources exploitation were identified.	Baseline and annual census of thatch grass, fish, wild herbs Harvest reduction	

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
Develop and implement plan for reducing unsustainable harvesting in NRs	(No change)	Harvesting reduction plans implemented by end of year <u>2</u> Prohibited activities minimized—number of apprehensions and/or seizures increased (with improved enforcement), then reduced and stabilized	Harvesting reduction plans implemented by end of year <u>4</u> (No change)	On the basis of proposals made under the project, animal grazing and fishing had been prohibited in all NRs in the Sanjiang Plain, except for those permitted based on laws or regulations.	monitoring Reports of violations and/or apprehensions Project activity and progress reports	
3. Alternative Livelihoods 3.1 Intercrop- ping and NTFP Plant <u>1,300</u> ha of NTFPs, in <u>six</u> counties Conduct studies on markets, prices, yields, and costs to assess expansion opportunities for NTFPs	(No change) (No change) Plant <u>860</u> ha of NTFPs, in <u>five</u> counties (No change)	Intercropping proceeds per county schedules over 5-year period At least 20% of area converted from farmland to forest allocated for NTFP production NTFP market feasibility study report prepared	Intercropping proceeds per county schedules over 7-year period (No change) (No change)	In all, 663 ha of intercropping was conducted. In all, 24% of the 3,853 ha converted from farmland to forest was allocated for NTFP production. An NTFP market feasibility study was conducted, and a report was prepared.	Annual agroforestry reports Annual plantation intercropping and/or NTFP reports NTFP market feasibility report Project activity and progress reports	
3.2 <u>Land Compensation and Village Development</u>	3.2 <u>Ecologically Sustainable Alternative Livelihoods (for Wetland Protection)</u>					

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
Develop detailed resettlement plans as per resettlement framework	(No change)	RPs for all 6 NRs prepared by year <u>1</u>	RPs for all 6 NRs prepared by year <u>4</u>	The RPs prepared for the Anbanghe and Qixinghe NRs during project preparation were updated; new RPs were prepared for the Dajiahe, Xingkaihu, and Zhenbaodao NRs; ^d and a new due diligence report for the Naolihe NR was prepared.	RPs Surveys of types of economic activity, and results of village development feasibility report	Assumption: State farms within the project area cooperate with the provincial Finance Bureau and finance resettlement costs in a timely manner
Prepare <u>village</u> development plans in affected <u>villages</u>	Prepare <u>alternative livelihood</u> development plans for <u>wetland protection</u>	<u>Village</u> development plans of <u>all eight villages</u> prepared and finalized by year <u>2</u>	<u>Alternative livelihood</u> development plans for <u>wetland protection</u> prepared and finalized by year <u>4</u>	Pilot alternative livelihood development projects were implemented in the Qixinghe, Xingkaihu, and Zhenbaodao NRs, based on prepared plans; and after consulting with communities and stakeholders.	Resettlement monitoring Project activity and progress reports	
Conduct community and stakeholder consultation	(No change)	At least <u>one</u> new livelihood project processed, funded, and tested for possible revolving fund mechanism by year <u>5</u>	At least <u>three</u> new livelihood projects processed, funded, and tested for wetland protection by year <u>7</u>			
3.3. Ecotourism	(No change)					
Develop ecotourism feasibility study, master plan and environmental guidelines	(No change)	Ecotourism feasibility study and master plan guidelines prepared by year 1	(No change)	A master plan on ecotourism development for Sanjiang Plain area was prepared.	Ecotourism feasibility and master plan Ecotourism guidelines	
Develop ecotourism pilot projects, incorporating capacity building for local community and NR staff	(No change)	At least <u>two to three community</u> -based ecotourism pilot projects initiated beginning in year <u>2</u> at <u>each NR</u> , according to appropriate planning and screening processes	At least <u>two replicable NR</u> -based ecotourism pilot projects initiated beginning in year <u>4</u> , according to appropriate planning and screening processes	Two ecotourism pilot projects were conducted in the Xingkaihu and Zhenbaodao NRs.	Ecotourism pilot project reports Project activity and progress reports	

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
4. Capacity Building	(No change)					
4.1. Conservation Education (schools)	(No change)					
Select pilot schools	(No change)	Conservation education programs developed by end of year 1	(No change)	A conservation education master plan was produced.	Surveys of school curricula at beginning and towards end of the project	Assumptions: Support comes from educational and NR authorities and/or staff. Teachers are willing to take on this extra task
Prepare teaching kits	(No change)	Teacher kits developed and teachers trained in their use by end of year <u>2</u>	Teacher kits developed and teachers trained in their use by end of year <u>4</u>	Teacher kits, such as conservation education cards and handbooks for wetland environmental education, were developed and distributed to teachers. Teachers training courses were conducted in the Anbanghe, Qixinghe, and Xingkaihu NRs.	Conservation program design reports	
Train teachers	(No change)				Attendance records of teachers at training events	
Develop and implement NR outreach and/or extension programs for schools	(No change)	Conservation awareness program for schools incorporated into curriculum and implemented in pilot elementary and secondary schools in five counties starting in year <u>2</u> and running for remainder of the project	Conservation awareness program for schools incorporated into curriculum and implemented in pilot elementary and secondary schools in five counties starting in year <u>4</u> and running for remainder of the project	Wetland protection education was included in the curriculum of the 12 selected schools in 6 counties, and teachers gave lectures on wetland protection to more than 6,000 students during project implementation.	Frequency of NR presentations at local schools	
					Number of teacher kits prepared and/or distributed	
4.2. Conservation Awareness (communities and/or SFFs)	(No change)					
Develop public awareness strategies and campaign materials	(No change)	Conservation public awareness strategies developed in year 1	(No change)	A public awareness master plan was produced.	Annual awareness program progress reports	Strong involvement of public authorities at all levels in

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
Implement public awareness strategies, including participation in national and international events (e.g., Earth Day, World Wetland Day)	(No change)	Conservation public campaign program developed for five counties by end of year <u>2</u> , and carried out over life of the project	Conservation public campaign program developed for five counties by end of year <u>4</u> , and carried out over life of the project	Seven conservation awareness activities were conducted in more than 20 communities in 5 counties. A public awareness manual, profile of the project, and posters were distributed to community residents and schools. Powerpoint presentations on conservation awareness were prepared. Four of the five NRs (for the exception being the Dajiahe NR) produced a video to raise awareness of conservation and distributed to communities. In all six NRs, training courses were conducted inviting community residents.	Monitoring of website hits, user feedback	promoting awareness of environmental policies
		Website up and running by year 2, and updated at least quarterly thereafter	Website up and running by year 4, and updated at least quarterly thereafter	A website for the project was launched and is accessible.	Project activity and progress reports	
4.3. Wetland Management Training	(No change)					
Conduct training needs assessment	(No change)	Training needs assessment completed by end of year 1	(No change)	Training needs assessment was conducted, consulting with officials from governments with jurisdiction in the 6 NRs and 13 counties.	Training needs assessment	The province supports professional quality improvements at NRs through staffing plans and incentives.
Develop and conduct short-term training courses and study tours for technical NR staff	(No change)	Beginning in year 2, short-term training courses for technical NR staff	(No change)	During project implementation, 38 short- and long-term training courses, study tours, and workshops were conducted for more than 1,000 people, including government staff (local forestry bureau staff and PMO staff); most NR staff (directors, professional staff, and technical staff); and community leaders and residents.	Annual short-term training and study tour reports	
		Beginning in year 2, formal higher-level courses for professional level NR staff	(No change)		Annual long-term training reports	There is commitment to maintaining high standards for training programs.
Develop and conduct formal courses for	(No change)	Exchange programs, study tours, internships, and workshops proceeding according to yearly	(No change)		Surveys and/or evaluations of participants in training programs	

Design Summary		Performance Indicators/Targets			Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original	Revised	Actual		
professional level NR staff		program				
4.4 Institutional and Behavioral Change	(No change)					
Institutionalize mechanisms for improved inter-agency coordination on a sustainable basis	(No change)	By project year 2, inter-agency coordination body (working group) formed, and meeting quarterly; working group transitioning into permanent working committee by end of the project	(No change)	The project steering committee established for the project effectively acted as an inter-agency working committee. The committee held 23 meetings. A meeting organized by the HPWRD on request basis also functioned as an inter-agency coordination body for water resources management.	Working group and/or working committee meeting minutes Project training records Awareness surveys	
Promote internalization of sustainable environment principles and wetland conservation principles	(No change)	Five key decision makers at national level, 10 in the province, and 40 in the counties, completing advanced environmental awareness training program by end of the project Conservation awareness programs reaching approximately 5,000 schoolchildren; 300 NR staff, 20 community leaders, and 15 NR managers and staff during life of the project	(No change) (No change)	Seven conservation awareness activities were conducted in more than 20 communities. Also, 38 short- and long-term training courses, study tours, and workshops were conducted for more than 1,000 people, including government staff (local forestry bureau staff and PMO staff); most NR staff (directors, professional staff, and technical staff); and community leaders and residents.	Mentorship skills evaluations	

Design Summary		Performance Indicators/Targets							Monitoring Mechanisms	Assumptions and Risks
Original	Revised	Original			Revised	Actual				
Inputs (\$ million)		Foreign Exchange	Local Currency	Total Cost	(No change)	Foreign Exchange	Local Currency	Total Cost	PPMS, including • Implementation schedule • Consultants' reports • Disbursement of ADB loan and GEF grant funds • Annual progress reports • Project review missions	Assumption: Allocation of local counterpart funds is timely.
1. Watershed Management		1.29	21.92	23.21		1.74	26.41	28.15		
2. Wetland NR Management		2.18	3.22	5.40		1.39	1.10	2.49		
3. Alternative Livelihood		0.55	15.21	15.75		0.29	14.83	15.12		
4. Education Capacity Building		2.48	1.15	3.63		1.33	0.78	2.11		
5. Project Management		0.42	2.29	2.71		0.45	2.99	3.44		
Total Base Cost		6.92	43.79	50.71		5.21	46.41	51.32		
Contingencies		0.31	2.35	2.66		...	...	...
IDC/Financial Charges		2.18	0.00	2.18		1.19	0.00	1.19		
Total		9.41	46.14	55.55	6.40	46.11	52.51			

(...) = data not applicable, ADB = Asian Development Bank, EPB = environmental protection bureau, GEF = Global Environment Facility, GIS = geographic information system, ha = hectare, HPFD = Heilongjiang Provincial Forestry Department, HPWRD = Heilongjiang Provincial Water Resources Department, IDC = interest during construction, NDRC = National Development and Reform Commission, NR = nature reserve, NTFP = nontimber forest product, PMO = project management office, PPMS = project performance management system, PRC = People's Republic of China, RP = resettlement plan, SFA = State Forestry Administration, SFF = state forest farm.

^a Include the Baikal teal, hooded crane, lesser white-fronted goose, scaly-sided merganser, oriental stork, red-crowned crane, swan goose, and white-naped crane.

^b The monitoring data do not necessarily reflect the actual population. The increase in the numbers of monitored birds in 2009 and 2010, and the decrease in 2011 seem to have been results of improved monitoring frequency and methods after training provided by consultants under the project in 2008, 2009, and 2010; and training was suspended in 2011.

^c It is unlikely that the populations of the key eight species had in fact decreased by 1% from 2008 to 2011. This change may have been due to changes in monitoring techniques during the time, severe weather, or other factors. Data need to be collected on a systematic basis over a longer period for any trend to be deductible.

^d For the Xingkaihu NR, a due diligence report was also prepared because land acquisition and resettlement began before ADB approved the RP.

Source: ADB.

Table A2.1: Project Costs by Expenditure Accounts and Financiers
(\$ million)

Item	Appraisal	Actual			Total	% Increase/ (Decrease)
	Total	ADB	GEF	Government/ County Government		
A. Investment Costs						
1.Civil Works	13.96	13.12	0.34	11.53	24.99	79
2.Equipment and Vehicles	2.49	1.34	0.00	0.42	1.76	(29)
3.Materials	3.88	0.00	6.55	0.65	7.20	86
4.Training	2.61	0.00	1.93	0.00	1.93	(26)
5.Consulting Services	7.60	0.00	2.67	0.00	2.67	(65)
6.Resettlement Compensation and Village Development	9.16	0.00	0.00	6.80	6.80	(26)
7.Intercropping and Nontimber Forest Products Works	6.48	0.53	0.00	0.53	1.06	(84)
B. Recurrent Costs						
1.Operation and Maintenance	2.48	0.00	0.00	2.16	2.16	(13)
2.Salary	0.79	0.00	0.66	1.01	1.67	111
Taxes and Duties	0.77	0.00	0.00	1.09	1.09	42
Total Baseline Costs	50.71	14.99	12.14	24.19	51.32	1
Contingencies	2.64	0.00	0.00			
Interest during Construction	1.96	0.00	0.00	0.96	0.96	(51)
Commitment Charges	0.22	0.00	0.00	0.23	0.23	5
Total Project Costs	55.55	14.99	12.14	25.38	52.51	(5)

ADB = Asian Development Bank, GEF = Global Environment Facility.

Note: Numbers may not sum precisely because of rounding.

Source: ADB.

Table A2.2: Project Costs by Components and Financiers
(\$ million)

Component	Appraisal				Actual			
	ADB	GEF	Government	Total ^a	ADB	GEF	Government	Total
A. Watershed Management	12.92	0.83	10.73	23.44	14.46	0.35	13.34	28.15
B. Nature Reserve	0.00	4.40	1.23	5.63	0.00	1.72	0.77	2.49
C. Alternative Livelihood	1.47	2.42	12.71	16.60	0.53	6.61	7.98	15.12
D. Capacity Building	0.00	3.17	0.63	3.81	0.00	2.11	0.00	2.11
E. Project Management	0.61	1.32	0.91	2.84	0.00	1.34	2.10	3.44
Subtotal	15.00	12.14	26.23	53.37	14.99	12.14	24.19	51.32
Interest during Construction	0.00	0.00	1.96	1.96	0.00	0.00	0.96	0.96
Commitment Charges	0.00	0.00	0.22	0.22	0.00	0.00	0.23	0.23
Total Project Cost	15.00	12.14	28.41	55.55	14.99	12.14	25.38	52.51

ADB = Asian Development Bank, GEF = Global Environment Facility.

Note: Numbers may not sum precisely because of rounding.

^a Including contingencies of \$2.64 million: \$1.27 million, \$0.23 million, \$0.85 million, \$0.18 million, and \$0.13 million in components A, B, C, D, and E, respectively.

Source: ADB.

PLANNED AND ACTUAL IMPLEMENTATION

Component Activities and Key Tasks	2005	2006	2007	2008	2009	2010	2011	2012
A. Watershed Management								
1. Forestry Improvement								
a. New Plantations								
b. Plantation Treatment								
2. Local-Level Water Management								
3. Watershed-Level Water Resources Planning								
B. Wetland Nature Reserve Management								
1. Conservation Management								
2. Pilot Wetland Restoration								
a. Design								
b. Implementation								
c. Monitoring								
3. Wild Species Recovery								
4. Reduction of Resource Exploitation								
C. Alternative Livelihood Program								
1. Agroforestry and Nontimber Forest Products								
2. Land Compensation and Village Development								
3. Sustainable Ecotourism								
D. Capacity Building								
1. Conservation Education								
2. Public Awareness								
3. Wetland Management Training								
E. Project Implementation Support								
Planned								
Actual								
Original Closing Date								

Source: Asian Development Bank.

STATUS OF COMPLIANCE WITH LOAN COVENANTS

Covenant	Reference in Loan Agreement	Status of Compliance
PROJECT MANAGEMENT		
Project Executing Agency HPG shall be the project executing agency; and shall have overall responsibility for coordinating, supervising, and implementing all project activities, including the forest management activities and wetland restoration and/or resettlement activities in the state farms.	Project Agreement, Schedule, para. 1	Complied with.
Steering Committee The steering committee, which has been established, shall oversee project implementation; and set general policies related to the project. The steering committee shall also be responsible for project coordination between the PMO and all concerned HPG authorities. The steering committee shall be composed of representatives of the relevant HPG agencies; and shall meet once every 6 months or more frequently, if necessary	Project Agreement, Schedule, para. 2	Complied with. The steering committee was established in 2002, with representatives from the HPDRC, the HPFB, the HPFD, and other relevant agencies. The committee held 23 meetings during project implementation. The committee effectively acted as an inter-agency working committee.
Project Management Office The PMO, which has been established within HPFD, shall be responsible for the day-to-day implementation of the project under the guidance of the steering committee. The principal functions and responsibilities of PMO shall include (i) the management of all project activities in coordination with HPG agencies and in accordance with the requirements and guidelines of the borrower, ADB, and the GEF; (ii) planning for, and monitoring and supervision of, the utilization of proceeds of the loan, the GEF grant, and counterpart funds, including from the state farm bureaus in the project area, HPFB, and Heilongjiang county finance bureaus, all in coordination with HPFB; and (iii) the administration, monitoring, reporting and coordination of all project activities, including preparation of the annual project-level work plan and budget, quarterly project implementation reports and project completion report, all for submission to ADB. The PMO shall be headed by a full-time project director, who will report to HPG through the steering committee. Through a financial management system set up for the project, the project director shall ensure timely budgetary allocations for day-to-day project implementation.	Project Agreement, Schedule, para. 3	Complied with. The PMO was established within the HPFD in November 2003. It comprised 12 full-time administrative and technical staff. Office space was equipped and furnished, including office space for consultants.
HPFB HPFB shall be responsible for the administration and supervision of disbursements of the proceeds or counterpart funds from the loan, the GEF grant, and the central government, state farm bureaus, and Heilongjiang county finance bureaus to the HPG agencies under the project.	Project Agreement, Schedule, para. 4	Complied with.

Covenant	Reference in Loan Agreement	Status of Compliance
<p>Project Implementing Agencies and Project Implementation Units</p> <p>The thirteen (13) CFBs and six (6) NRs shall be the project implementing agencies. A PIU shall be established in each project implementing agency. The PIUs shall carry out field operations and coordinate the flows of funds from the Heilongjiang county finance bureaus to the beneficiaries. The thirteen (13) PIUs in the CFBs shall be responsible for day-to-day implementation of forest management, agro-forestry, and NTFP activities in the project counties. The six (6) PIUs in the NRs shall be responsible for carrying out the day-to-day implementation of wetland NR management activities. HPG shall ensure that the PIUs have adequate qualified professional and technical staff provided by the CFBs or the NRs, as appropriate. Each PIU shall prepare and submit to the PMO bimonthly briefing notes detailing implementation activities, physical and financial accomplishments, problems encountered or anticipated, and actions taken to resolve such problems. Each PIU shall prepare its biannual operating plan detailing the physical and financial aspects of its programmed activities.</p>	<p>Project Agreement, Schedule, para. 5</p>	<p>Complied with.</p> <p>The PIUs were established at the CFBs for implementing forest management, agro-forestry, and NTFP activities; and at the NRs for implementing wetland NR management activities.</p> <p>The PIUs submitted briefing notes and an operating plan to the PMO biannually. The PMO communicated regularly with the PIUs on project-related matters.</p>
<p>Baoqing Field Office</p> <p>A field office in Baoqing County shall also be established to support field activities.</p>	<p>Project Agreement, Schedule, para. 7</p>	<p>Complied with.</p> <p>The Baoqing field office was established in October 2006.</p>
<p>Monitoring and Evaluation, and Midterm Review</p> <p>In consultation with ADB, HPG shall establish and implement a project performance management system, including performance indicators relating to forestry development, wetland restoration, NTFPs, resettlement and alternative livelihood schemes, use of the land compensation and village development plans, ecotourism, and beneficiary participation. HPG and ADB shall carry out a midterm review in 2008 on issues, including implementation of the exit strategy, incentive framework, and beneficiary participation.</p>	<p>Project Agreement, Schedule, para. 30</p>	<p>Complied with.</p> <p>The consultants drew up guidelines for project M&E, prepared detailed work plans, established an M&E database, and developed internal M&E procedures. The M&E coordination consultant produced monthly and semiannual M&E reports.</p> <p>The midterm review was conducted in May and June in 2009.</p>
<p>Reports</p> <p>HPG shall furnish to ADB all such reports and information as ADB shall reasonably request concerning (i) the loan, the GEF grant, and the expenditure of the proceeds thereof; (ii) the goods and services and other items of expenditure financed out of such proceeds; (iii) the project; (iv) the administration, operations, and financial condition of HPG to the extent relevant to the project; and (v) any other matters relating to the purposes of the loan and the GEF grant.</p>	<p>Project Agreement, Article II, Section 2.08 (a)</p>	<p>Complied with.</p> <p>The provincial government submitted reports and information requested by ADB, including the quarterly progress reports submitted by the PMO until August 2012. The provincial government also submitted its project completion report to ADB in July 2013.</p>

Covenant	Reference in Loan Agreement	Status of Compliance
<p>Without limiting the generality of the foregoing, HPG shall furnish to ADB quarterly progress reports on the execution of the project 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 3 months under review, steps taken or proposed to be taken to remedy these problems, and proposed program of activities and expected progress during the following 3 months.</p> <p>Promptly after physical completion of the project, but in any event not later 6 months thereafter or such later date as ADB may agree for this purpose, HPG 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 HPG of its obligations under this project agreement and the accomplishment of the purposes of the loan and the GEF grant.</p>	<p>Project Agreement, Article II, Section 2.08 (b)</p> <p>Project Agreement, Article II, Section 2.08 (c)</p>	
PROJECT ACTIVITIES		
<p>Conversion of Farmland to Forest</p> <p>In converting farmland to forest, HPG shall ensure, among others, that (a) a new forest plantation is not adjacent or near (within 1 km) to a NR; (b) the proposed site is in the upper watershed, not originally converted from wetlands and not too steep; (c) an appropriate buffer zone is maintained between the plantation and any riparian zones or sensitive habitats; (d) only indigenous species suited to local ecological conditions are planted; (e) affected forestry workers and villagers receive wage income from tree planting; (f) an area equivalent to 20% of the converted land is used for planting NTFP to benefit affected workers or villagers; (g) for the first 3 years to 5 years, intercropping is allowed at a nominal annual contract fee (around CNY6–CNY7 per mu); and (h) the remaining forestland is recontracted to all workers or villagers within each forest farm, so that the impacts are shared equally.</p>	<p>Project Agreement, Schedule, para. 9</p>	<p>Complied with.</p> <p>(a) Complied with. The new forest plantation was not adjacent nor near a NR.</p> <p>(b) Complied with. The sites were in the upper watersheds. They had not been originally converted from wetlands. They were not too steep.</p> <p>(c) Complied with. An appropriate buffer zone was maintained between the plantations and any riparian zones or sensitive habitats.</p> <p>(d) Complied with. Only indigenous species suited to local ecological conditions were planted.</p> <p>(e) Complied with. APs received wage income from tree planting.</p> <p>(f) Complied with. In all, 3,853 ha of farmland was converted to forest, of which 24% was used for planting NTFP.</p> <p>(g) Complied with. In all, 663 ha of intercropping was conducted.</p> <p>(h) Complied with. The remaining forestland was recontracted to forest workers.</p>

Covenant	Reference in Loan Agreement	Status of Compliance
<p>Watershed-level Inter-agency Coordination Body Prior to the second year of project implementation, an inter-agency coordination body shall be established at the provincial level; and shall include staff of HPFD, HPEPB, HPTB and HPWRB; representatives of the state forest farms and the six NRs to coordinate and execute watershed-level water resources allocation during planning, and during and after project implementation.</p>	Project Agreement, Schedule, para. 8	<p>Complied with.</p> <p>A meeting organized by the HPWRD on request (including the HPFD, the HPEPB, state farms, NRs, etc.) functioned as an inter-agency coordination body. In these meetings, the HPFD made recommendations about wetlands protection criteria, wetlands management, and water allocation, which were reflected in two watershed-level water resources management plans: the Sanjiang Plain Water Resources Master Plan (coverings all six NRs) and the Songhua River Master Plan (covering the Anbanghe NR). The two plans were submitted to the Ministry of Water Resources for approval.</p>
<p>Water Resource Allocation Planning at the Watershed Level HPG shall ensure the inter-agency coordination among HPEPB, HPTB, and HPWRD representatives of the six NRs; and HPFD regarding watershed-level water resource allocation and the establishment of an institutional body and/or committee to ensure this coordination and further adoption of wetland protection criteria to flood management planning in the Songhua River basin. HPG shall also ensure that model watershed-level water allocation plans incorporate flood control impact to protect wetland biodiversity and wetland protection aspects and that the process for developing and implementing water resource management is institutionalized.</p>	Project Agreement, Schedule, para. 10	<p>Partially complied with.</p> <p>A meeting organized by the HPWRD on request (including the HPFD, the HPEPB, state farms, NRs, etc.) functioned as an inter-agency coordination body. In these meetings, the HPFD made recommendations about wetlands protection criteria, wetlands management, and water allocation, which were reflected in the Sanjiang Plain Water Resources Master Plan and the Songhua River Master Plan.</p>
<p>Nature Reserve Technical Working Groups A NR technical working group shall be established at each NR and shall include county-level staff of HPFD, HPEPB, HPTB, and HPWRB; representatives of the state forest farms, state farms, or project villages; and local schoolteachers of project-affected areas. Such NR technical working groups shall provide coordination of local water resources management during and after project implementation.</p>	Project Agreement, Schedule, para. 6	<p>Complied with.</p> <p>A water resources coordination-leading group, including all stakeholders, was established at each of the six NRs. The leading group functioned as a stakeholder working group for coordinating the inclusion of the water resources management plan into the NR master plan.</p>
<p>Local (Nature Reserve) Water Resource Planning HPG shall ensure that local working groups of stakeholders at the project NRs are established and that NR managers develop water management plans with the help of water resource experts. These water management plans shall include water supply and water quality issues, and shall be part of the NR's</p>	Project Agreement, Schedule, para. 11	<p>Complied with.</p> <p>A water resources coordination-leading group, including all stakeholders was established at each of the six NRs; and functioned as a stakeholder working group for</p>

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management plans. HPG shall also ensure that a model coordination mechanism for water resource management in NRs is developed.		coordinating the inclusion of a water resources management plan into the NR master plan. The master plans of all six NRs were revised to incorporate water resources management plans. Discussions with water authorities were conducted at an early stage. Local water allocation plans for the NRs, wetland protection criteria, and management requirements were included in the water allocation plans or water resources plans of relevant counties and cities.
Conservation Management HPG shall ensure that permanent water, wildlife, and habitat monitoring programs in the six NRs are established to complement the information and recommendations from the water resources management, wetland restoration, wildlife recovery, resource use and exploitation, village development and community relations subcomponents. GISs for all six NRs as well as adaptive management plans shall also be developed.	Project Agreement, Schedule, para. 12	Complied with. A general method for monitoring wildlife was developed, and monitoring was conducted since 2007. Photographic monitoring of habitat from fixed points was conducted in the six NRs. This monitoring was improved with the assistance of consultants by using a GIS and remote sensing. Remote sensing was established for the Anbanghe, Qixinghe, and Xingkaihu NRs. Monitoring manuals, including monitoring protocols for wild life and habitat monitoring, were produced. Training was provided in sustainable monitoring of wildlife and habitat.
Experimental Zone of Nature Reserves Taking into account the relevant recommendations of the ADB technical assistance for Support for Environmental Legislation in the People's Republic of China and the legal consultant financed under the project, HPG shall prepare and submit for the consideration of the Heilongjiang Provincial People's Congress draft amendments to the Heilongjiang provincial regulations, so that the activities permitted in the experimental zone of NRs are consistent with the protection of wetland NRs and promotion of biodiversity. HPG shall also prepare recommendations for strengthening the National Regulation of NRs regarding the permissible activities in the experimental zone of NRs to protect wetland NRs and promote biodiversity.	Project Agreement, Schedule, para. 13	Complied with. Amendments to the Heilongjiang provincial regulations were approved by the Heilongjiang Provincial People's Congress. Based on some recommendations by the provincial government, a draft revision of the National Regulation of NRs has been prepared.
Pilot Wetland Restoration Heilongjiang shall ensure that manuals are prepared based on pilot testing, and that these manuals incorporate lessons learned, so that they can be	Project Agreement, Schedule, para. 14	Complied with. Drawing on experience in the pilot restoration, a wetland restoration

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used for other wetland restoration projects.		manual was prepared and disseminated to all NRs in the Sanjiang Plain. They used the manual to restore wetlands.
Wildlife Species Recovery HPG shall ensure that species recovery programs will be developed for specific globally threatened international migratory waterfowl. Programs shall include (i) applied research on the food and habitat requirements of each species; (ii) intensive monitoring and action programs to improve habitats; (iii) provision of proper nesting sites; and (iv) protection of key foraging, resting, and nesting areas. Data shall be monitored and provided as relevant to relevant parties, including international organizations, and programs shall be coordinated.	Project Agreement, Schedule, para. 15	Complied with. The consultants prepared and submitted to the HPFD recovery plans for 10 targeted globally threatened water bird species. These plans were implemented in the six NRs. Incorporating the plans and reflecting the results of implementation of the plans in the six NRs, the HPFD prepared its own recovery plans covering 18 water bird species and provided them to all NRs. Water bird monitoring activities were carried out from 2007 to 2012, and the monitoring data were incorporated into the project database.
Endangered Species HPG shall develop and implement species recovery programs and a public awareness program regarding endangered species, and shall strengthen the enforcement of penalties for violations of the relevant laws and regulations.	Project Agreement, Schedule, para. 16	Complied with. Recovery plans covering 18 water bird species were prepared and provided to all NRs in the Sanjiang Plain. These plans are being implemented. A public awareness master plan was produced, and a public awareness manual was distributed to community residents and schools. Seven conservation awareness activities were conducted in more than 20 communities.
Reduction of Resource Exploitation HPG shall ensure that programs are designed and implemented to reduce the unsustainable exploitation of NRs, with the cooperation of communities around the NRs and train NR staff in community relations and in the enforcement of related laws and regulations. Local working groups shall assist in the community participation and enforcement of legal requirements.	Project Agreement, Schedule, para. 17	Complied with. A baseline survey was completed, and a report on natural resources exploitation was prepared. It identified species of plants and animals, and the status of land utilization in the six NRs, as well as the general status of natural resources exploitation. On the basis of proposals made under the project, animal grazing and fishing has been prohibited in all NRs in the Sanjiang Plain, except for those permitted based on laws and/or regulations.

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Ecotourism Master Plan In consultation with ADB, HPG shall prepare a comprehensive ecotourism master plan and detailed planning and environmental guidelines for project NRs; and make them publicly available, so that they can be replicated elsewhere.	Project Agreement, Schedule, para. 21	Complied with. A master plan on ecotourism development for the Sanjiang Plain area was prepared.
Ecotourism Association HPG shall ensure that an ecotourism master plan and planning guidelines are prepared and that an ecotourism association for Heilongjiang Province, in collaboration with the Heilongjiang Provincial Tourism Agency, the Heilongjiang Tourism Association, and the tourism bureaus of the counties in which the NRs are located, is established. HPG shall ensure that master planning, development of awareness, safety and environmental guidelines; and development of pilot ecotourism approaches are included in the ecotourism master plan and planning guidelines, as well as certification of wetland ecotourism operators and other types of entities involved with ecotourism. The planning and environmental guidelines for ecotourism shall include the exclusion of physical infrastructure within NR boundaries or in sensitive areas outside the boundaries.	Project Agreement, Schedule, para. 22	Complied with. A master plan on eco-tourism development for the Sanjiang Plain area was prepared. Discussions with the tourism authorities were conducted at an early stage, and the HPTB adopted the proposals for the ecotourism pilot projects. The provincial tourism plan included ecotourism activities in the Anbanghe, Qixinghe, Xingkaihu, and Zhenbaodao NRs.
Education and Capacity Building HPG shall ensure that the following actions are implemented: (i) awareness and training for teachers and students in rural schools near NRs, including development of teaching kits on nature conservation topics, and for rural residents around the NRs, and for NR staff; (ii) development of website; (iii) involvement of academic and scientific communities to assist and to build up capacity on impact M&E. Teachers demonstrating initiative in using training materials shall be included in short-term technical training courses on wetland ecology and nature conservation. Mass media campaigns regarding the beneficial role of wetlands in the water cycle and international importance of nature conservation in the remaining wetlands of the Sanjiang Plain shall be carried out, as well as short-term training programs. Development and delivery of curriculum and course materials by local university, designed to increase the capacity of senior NR staff to carry out their responsibilities and institutionalize wetland management capacity in HPFD shall also be carried out.	Project Agreement, Schedule, para. 23	Complied with. A conservation education master plan was produced. Wetland protection education was included in the curriculum of 12 selected schools and teachers gave lectures on wetland protection to more than 6,000 students during project implementation. Teacher kits containing materials such as conservation education cards and handbooks for wetland environmental education were developed and distributed to teachers. Teachers training courses were conducted in the Anbanghe, Qixinghe, and Xingkaihu NRs. A public awareness master plan was produced. Seven conservation awareness activities were conducted in more than 20 communities. Four of five NRs (the exception being the Dajiahe NR) produced a video to raise awareness about conservation and distributed to communities. In all six NRs, training courses were

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		<p>conducted to which community residents were invited.</p> <p>A project website was launched and is accessible.</p> <p>In all, 38 short- and long-term training courses, study tours, and workshops were conducted for more than 1,000 people, including government staff (local forestry bureau staff and PMO staff); most NR staff (directors, professional staff, and technical staff); and community leaders and residents.</p> <p>Academic and scientific organizations such as the World Wildlife Fund and the Northeast Forestry University have been and will be involved in capacity development programs.</p>
<p>Pilot Testing and Reliability</p> <p>HPG, through HPFD, shall pilot test, monitor, and evaluate the farmland-to-wetland model and forest land restoration subprojects, taking into account methods to strengthen its capability to manage wetland biodiversity and to facilitate the replicability of such subprojects (including intercropping, NTFPs, and <i>eco-friendly</i> village development mechanism), particularly in connection with the <i>scaling up</i> of activities under the Master Plan for Heilongjiang Province Wetland Restoration. The borrower shall ensure that the project activities under the pilot testing and the lessons learned from such testing are replicated and applied, as relevant, in other national or provincial wetland restoration or forest land restoration projects.</p>	<p>Project Agreement, Schedule, para. 24</p>	<p>Complied with.</p> <p>In all, 663 ha of intercropping (e.g., soy bean, kidney bean, and indigowoad root) was conducted from 2005 to 2007. Of the 3,853 ha converted to forest, 24% was allocated to NTFP production. Pilot farmland-to-wetland restoration was implemented in the six model NRs, and 3,441 ha of farmlands were restored to wetlands. Drawing on the experience with the pilot restoration, a wetland restoration manual was prepared and disseminated to all NRs in the Sanjiang Plain. The six model NRs and six other NRs used the manual in restoring wetlands.</p>
<p>Master Plan for Heilongjiang Province Wetland Restoration</p> <p>HPG shall take all the necessary actions to promptly obtain NDRC endorsement of the master plan, and shall expand the application of the model approach developed under the project to restorations under such plan.</p>	<p>Project Agreement, Schedule, para. 25</p>	<p>Complied with.</p> <p>A 10-year national wetland conservation plan was established in 2005. Provincial master plans for wetlands, NRs, and wild species for the Eleventh Five-Year Plan were approved by the State Forestry Agency in 2005.</p>
<p>Exit Strategy</p> <p>In consultation with ADB, HPG shall implement the exit strategy developed under the project to refine policy measures and carry out activities in integrated watershed and wetland NR management following project completion. Such strategy shall be carried</p>	<p>Project Agreement, Schedule, para. 26</p>	<p>Complied with.</p> <p>The provincial government is setting aside a portion of county revenues generated from forest development activities for deposit in a special</p>

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out during project implementation to strengthen the overall sustainability of financing requirements and sources, capacity building, and institutional mechanisms for local and inter-sector planning and cooperation. For financial stability of NR management, HPG shall set aside a portion of local county revenues generated from forest development activities for deposit in a special fund account (in gradually increasing amounts of CNY2/ha/year from 0 in year 1 to CNY8/ha/year in year 5) to meet the financing requirements for NR management.		account to meet financing requirements for NR management.
ENVIRONMENTAL MANAGEMENT		
HPG shall ensure that the project complies with applicable environmental laws and regulations of the borrower and ADB's Environmental Policy (2002).	Project Agreement, Schedule, para. 28 (a)	Complied with.
HPG shall ensure that HPFD and the Heilongjiang provincial and county EPBs implement the environmental mitigation measures and monitoring requirements as outlined in the IEE and EMP. HPG shall ensure that an appropriate budgetary allocation (including vehicles, materials and equipment, operating expenses, and staff) is provided to HPFD, HPEPB, and the county EPBs to fulfill their responsibilities for implementation of mitigation measures and monitoring requirements as outlined in the IEE and EMP.	Project Agreement, Schedule, para. 28 (b)	Complied with. Environmental mitigation measures and monitoring requirements, as outlined in the IEE report and EMP, were appropriately conducted by the provincial and county EPBs.
Prior to commencement of activities in project components 1, 2, and 3, the preparation of county-level environmental plans, as recommended in the IEE and EMP, for siting and establishment of new plantations and operation of new and existing plantations; and the EMPs, as recommended in the IEE and EMP, for recoveries in each NR and that all individual subprojects will be subject to the environmental assessment and review procedures for subprojects outlined in the IEE and EMP.	Project Agreement, Schedule, para. 28 (c)	Complied with. An EMP was prepared for each of the 13 counties for new forestry plantations and operation, including relocation of farmlands and housing and alternative livelihoods. Additional environmental assessments were conducted; and an EMP was prepared for each of the five wetland restoration pilot projects, including relocation of farmlands and housing. ^a A due diligence report was also prepared because new forest plantations and operation, some pilot restoration projects, and alternative livelihoods development activities had already begun. ADB accepted all the documents in May 2010.
HPG shall ensure that adequate budget and human resources are made available for the implementation of EMPs and any mitigation measures and monitoring requirements that arise in connection with	Project Agreement, Schedule, para. 28 (d)	Complied with. Adequate budget and staffing were provided.

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the environmental assessment and review of subprojects.		
RESETTLEMENT AND SOCIAL DEVELOPMENT		
<p>Financing of Resettlement Costs</p> <p>HPG, through HPFB, shall establish a land compensation and resettlement account to finance resettlement costs of the villages and/or state farms. Funds from such account shall be channeled through the county-level finance bureaus to the affected villages in accordance with guidelines and procedures acceptable to ADB, including the following: (a) investments for alternative livelihood schemes are identified with the participation of APs, are eco-friendly according to the evaluation criteria in the EMP, and compatible with the master plans for the NRs; (b) a portion of the resettlement compensation may be used for alternative livelihood development based on the priority given to APs, village development plans, and RPs for the village collectives; and (c) training and technical assistance for alternative livelihoods and environmental protection provided if the investment proposals fit the <i>green</i>, eco-friendly investment criteria in the EMP.</p>	Project Agreement, Schedule, para. 18	<p>Not relevant.</p> <p>The provincial government did not need to establish a resettlement account because the compensation amount needed was much smaller than anticipated and all compensation was managed by state farms, state forest farms, and NRs, with assistance from county or city governments, not the provincial government.</p> <p>(a) Not relevant.</p> <p>Alternative livelihoods were to be provided for affected villages based on RPs and village development plans. The number of APs had been significantly reduced during implementation for both the forestry and the nature reserve components. Consequently, it was concluded that alternative livelihood plans should be formulated for APs instead of village development plans, not to mitigate adverse resettlement impacts but to identify pilot livelihood schemes that would benefit the longer-term strategy for wetland restoration.</p> <p>(b) and (c) Complied with.</p> <p>A portion of the resettlement compensation was used for alternative livelihood development.</p> <p>Training was conducted for alternative livelihoods and in environmental protection.</p>
<p>Village Development Plan</p> <p>HPG shall cause each affected village or state forest farm to prepare a village development plan in consultation with the affected farmers and county officials. The PIUs in the NRs shall review the village development plans to ensure that the types and locations of alternative livelihood schemes and village improvements conform to the master plans for the NRs. Once each plan has been screened for environmental impact, an agreement shall be signed between the NR and the village committee or state</p>	Project Agreement, Schedule, para. 19	<p>Not relevant.</p> <p>The number of APs had been significantly reduced during implementation for both the forestry and the nature reserve components. Consequently, alternative livelihood plans were formulated for APs instead of village development plans, not to mitigate adverse resettlement impacts but to identify pilot livelihood schemes that would</p>

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<p>forest farm. RPs, together with the village development plans, shall be submitted to the provincial PMO and to ADB for approval. After each RP is approved, land compensation and village development costs shall be disbursed by HPFB (through the county finance bureau) from the counterpart funds to the affected village committee or state forest farm, and farmers shall then abandon farming in the NR. HPG shall ensure that the counterpart funds pay for the land compensation and all resettlement activities in the RPs, including the implementation of the approved village development plans. HPG shall set up an account for the resettlement costs (i.e., for compensation and village development), which shall be managed by HPFB. HPG shall also ensure that village committees and APs are involved in determining the village development plans, and use of the expense thereof.</p>		<p>benefit the longer-term strategy for wetland restoration.</p>
<p>RF and RPs HPG, through HPFD, shall ensure (a) prompt and efficient implementation of the RF and subproject RPs in accordance with their terms; (b) all land and rights-of-way required by the project are made available in a timely manner; (c) the provisions of the RF and RPs, including compensation and entitlements for APs, will be implemented in accordance with all applicable government laws and regulations, and ADB's Policy on Involuntary Resettlement (1995) and Social Protection Strategy, and all APs legally or illegally using affected lands and structures will be adequately compensated; (d) all APs are given adequate opportunity to participate in resettlement and village development planning and implementation; (e) the compensation and resettlement assistance are given to APs prior to dispossession and displacement from their houses, land and assets such that they will be at least as well off as they would have been in the absence of the project; (f) timely provision of counterpart funds will be paid for land acquisition and resettlement activities and all compensation and resettlement assistance will be paid to the APs prior to their land acquisition and resettlement; (g) meeting any obligations in excess of the RP budget estimate. HPG shall ensure that (i) updated RPs are prepared for the Qixinghe and Xingkaihu NRs; (ii) RPs are prepared for the Anbanghe, Dajiahe, Naolihe, and Zhengbaodao NRs as defined in the project wetland restoration component; (iii) village development plans will be formulated by each affected village in consultation with APs and in accordance with the approved RF; and (iv) the RPs containing village</p>	<p>Project Agreement, Schedule, para. 20 (i)</p>	<p>(a) - (g) Complied with.</p> <p>(a) The resettlement framework was complied with. The RPs prepared for the Anbanghe and Qixinghe NRs during project preparation were updated; new RPs for the Dajiahe, Xingkaihu, and Zhenbaodao NRs were prepared;^b and a new due diligence report for the Naolihe NR was prepared. ADB approved all these documents and posted them on the ADB website. The RPs were implemented.</p> <p>(b) All land and rights-of-way required by the project were made available in a timely manner.</p> <p>(c) The provisions of the RF and RPs were properly implemented in accordance with all applicable government laws and regulations, and ADB's policy and strategy. All APs were adequately compensated.</p> <p>(d) All APs were given adequate opportunity to participate in resettlement and in planning and implementation of alternative livelihood development.</p> <p>(e) Compensation and resettlement assistance were given to APs before they were dispossessed and displaced from their houses, land,</p>

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<p>development plans are submitted to ADB for approval at least 3 months prior to dispossession and displacement from their houses, land and assets.</p>		<p>and assets; and the APs were thus at least as well off as they would have been in the absence of the project.</p> <p>(f) Counterpart funds were paid for land acquisition and resettlement activities in a timely manner, and compensation and resettlement assistance were paid to APs before land acquisition and resettlement.</p> <p>(g) All counterpart funds necessary for land acquisition and resettlement activities were paid in a timely manner.</p> <p>(i), (ii), and (iv) Complied with.</p> <p>The RPs prepared for the Anbanghe and Qixinghe NRs during project preparation were updated; new RPs for the Dajiahe, Xingkaihu, and Zhenbaodao NRs were prepared;^b and a new due diligence report for the Naolihe NR was prepared. ADB approved all these documents and posted them on the ADB website.</p> <p>(iii) Not relevant.</p> <p>During implementation, the number of APs was significantly reduced for both the forestry and the nature reserve components. Consequently, alternative livelihood plans were formulated for APs instead of village development plans, not to mitigate adverse resettlement impacts but to identify pilot livelihood schemes that would benefit the longer-term strategy for wetland restoration.</p>
<p>Land Compensation and Resettlement Account HPG shall ensure that a land compensation and resettlement account is established under the project and managed by HPFB, and funds are disbursed directly to affected village committee, state farms, or APs through the county finance bureaus. HPG shall ensure that the affected villages and state forest farms will use the portion of land and resettlement compensation expenses for alternative livelihood schemes as specified and/or approved in the village development plans, and is a condition for disbursement of at least 30% of the land compensation and resettlement expenses.</p>	<p>Project Agreement, Schedule, para. 20 (ii)</p>	<p>Not relevant.</p> <p>The provincial government did not need to establish a resettlement account because the compensation actually needed was much smaller than anticipated and all compensation was managed by state farms, state forest farms, and NRs, with assistance from county or city governments, not the provincial government.</p>

Covenant	Reference in Loan Agreement	Status of Compliance
<p>Supervision and Internal Monitoring of RP Implementation</p> <p>HPG, through HPFD, shall ensure that (i) adequate staff and resources are committed to supervising and internal monitoring of the RP implementation and providing quarterly monitoring unit resettlement is completed and semiannual monitoring and reporting to ADB for 2 years thereafter; (ii) an independent agency acceptable to ADB will be contracted to carry out M&E, including data disaggregated by gender, and forward reports to ADB as specified in the RPs; (iii) a summary of annual government audits of resettlement disbursements and expenditures provided to ADB; (iv) ADB is promptly advised of any substantial changes in the resettlement impacts; and if necessary, a new or revised RP is submitted to ADB for its approval; and (v) civil works contractors' specifications include requirements to comply with the RP and entitlements for permanent and temporary impacts to APs.</p>	<p>Project Agreement, Schedule, para. 20 (iii)</p>	<p>(i) to (iv) Complied with.</p> <p>In each NR, the staff were assigned responsibility for resettlement. The PMO also assigned two staff to assist resettlement consultants in conducting field surveys, training, etc. The PMO conducted internal monitoring of resettlement implementation with the assistance of the resettlement consultants, and submitted semiannual internal monitoring reports to ADB. Two independent monitoring agencies acceptable to ADB were contracted to carry out M&E for resettlement and alternative livelihood development for farmland-wetland and farmland-forest restoration. Their reports were submitted to ADB.</p> <p>(v) Not relevant.</p> <p>All civil works were conducted using the force account method.</p>
<p>Conversion of Farmland to Forest</p> <p>For conversion of farmland to forest, HPG, through HPFD, shall ensure that (i) affected forestry workers and villagers receive wage income from tree planting; (ii) an area equivalent to 20% of the converted land is used for planting NTFP to benefit affected workers or villagers; (iii) for the first 3 to 5 years, intercropping is allowed at a nominal annual contact fee (around CNY6–CNY7/mu); and (iv) the remaining forest land is recontracted to all workers or villagers within each forest farm, so that the impacts are shared equally.</p>	<p>Project Agreement, Schedule, para. 20 (iv)</p>	<p>Complied with.</p> <p>(i) APs received wage income from tree planting; (ii) 3,853 ha of farmland was converted to forest, of which 24% was used for planting NTFP; (iii) intercropping was conducted on 663 ha; and (iv) the remaining forestland was recontracted to forest workers. Income levels of the APs were maintained or increased throughout the life of the project.</p>
<p>FINANCIAL MANAGEMENT</p>		
<p>Records and Accounts</p> <p>HPG shall maintain, or cause to be maintained, records and accounts adequate to identify the goods and services and other items of expenditure financed out of the proceeds of the loan and the GEF grant, 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.</p>	<p>Project Agreement, Article II, Section 2.06</p>	<p>Complied with.</p> <p>The provincial government maintained such records and accounts.</p>

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Accounts and Audit HPG shall (i) maintain separate accounts for the project (including separate accounts for the loan and the GEF grant) and for its overall operations; (ii) have such accounts and related financial statements (balance sheet, statement of income and expenses, and related statements) 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 not later than 9 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 auditor's opinion on the use of the loan proceeds and the GEF grant and compliance with the covenants of the loan agreement), all in the English language. HPG 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.	Project Agreement, Article II, Section 2.09 (a)	Complied with. Two imprest accounts, one for the ADB loan and another for the GEF funds, were established on 12 October 2005. The initial advance to the imprest account for the loan was deposited in January 2006. The advance to the GEF imprest account was deposited in April 2007. Both imprest accounts were fully liquidated as of the closing dates. Audit reports were submitted to ADB.
ADB's Discussions with HPG's Auditors HPG shall enable ADB, upon ADB's request, to discuss HPG's financial statements and financial affairs from time to time with HPG's auditors, 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 HPG, unless HPG shall otherwise agree.	Project Agreement, Article II, Section 2.09 (b)	Not relevant. ADB did not make any requests for discussions with the provincial government's auditors.
Counterpart Funds HPG shall ensure the timely provision of all counterpart funds required for the successful implementation of the project, including incremental recurrent costs and land compensation and resettlement costs. HPG shall ensure that counterpart funds for land compensation and resettlement costs for the state farms are provided from the funds allocated by the central and local government.	Project Agreement, Schedule, para. 27	Complied with. As of the closing date, the provincial and county governments had provided counterpart funds of \$24.19 million.
OTHERS		
Borrower's General Responsibility The borrower shall cause HPG to carry out the project with due diligence and efficiency and in conformity with sound administrative, financial, engineering, and environmental practices.	Loan Agreement, Article IV, Section 4.01 (a)	Complied with. The borrower fulfilled all these general responsibilities.

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<p>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 6 to this loan agreement.</p> <p>The borrower shall make available, or cause to be made available, to HPG, promptly as needed and on terms and conditions acceptable to ADB, the funds, facilities, services, land and other resources which are required, in addition to the proceeds of the loan and the GEF grant, for the carrying out of the project.</p> <p>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.</p> <p>The borrower shall take all action which shall be necessary on its part to enable HPG to perform its obligations under the project agreement, and shall not take or permit any action which would interfere with the performance of such obligations.</p>	<p>Loan Agreement, Article IV, Section 4.01 (b)</p> <p>Loan Agreement, Article IV, Section 4.02</p> <p>Loan Agreement, Article IV, Section 4.03</p> <p>Loan Agreement, Article IV, Section 4.04</p>	
<p>HPG's General Responsibility</p> <p>HPG shall carry out the project with due diligence and efficiency, and in conformity with sound administrative, financial, engineering, and environmental practices</p> <p>In the carrying out of the project and operation of the project facilities, HPG shall perform all obligations set forth in the loan agreement and the schedule to this project agreement to the extent that they are applicable to it.</p> <p>HPG shall make available, promptly as needed, the funds, facilities, services, equipment, land and other resources which are required, in addition to the proceeds of the loan and the GEF grant, for the carrying out of the project.</p> <p>HPG shall carry out the project in accordance with plans, design standards, specifications, work schedules and construction methods acceptable to ADB. HPG 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.</p>	<p>Project Agreement, Article II, Section 2.01 (a)</p> <p>Project Agreement, Article II, Section 2.01 (b)</p> <p>Project Agreement, Article II, Section 2.02</p> <p>Project Agreement, Article II, Section 2.04</p>	<p>Complied with.</p> <p>The provincial government fulfilled all these general responsibilities.</p>

Covenant	Reference in Loan Agreement	Status of Compliance
<p>ADB and HPG shall cooperate fully to ensure that the purpose of the loan and the GEF grant will be accomplished</p> <p>HPG shall promptly inform ADB of any condition which interferes with, or threatens to interfere with, the progress of the project, the performance of its obligations under the project agreement, or the accomplishment of the purposes of the loan or the GEF grant.</p> <p>ADB and HPG 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, HPG, the loan, or the GEF grant.</p> <p>HPG shall enable ADB's representatives to inspect the project, the goods financed out of the proceeds of the loan or the GEF grant, all other plants, sites, works, properties and equipment of HPG in connection with the project and any relevant records and documents.</p> <p>Except as ADB may otherwise agree, HPG shall not sell, lease or otherwise dispose of any of its assets which shall be required for the efficient carrying on of its operations or the disposal of which may prejudice its ability to perform satisfactorily any of its obligations under this project agreement.</p> <p>Except as ADB may otherwise agree, HPG shall apply the proceeds of the loan and the GEF grant to the financing of expenditure on the project in accordance with the provisions of the loan agreement and this project agreement, and shall ensure that all goods and services financed out of such proceeds are used exclusively in the carrying out of the project.</p>	<p>Project Agreement, Article II, Section 2.07 (a)</p> <p>Project Agreement, Article II, Section 2.07 (b)</p> <p>Project Agreement, Article II, Section 2.07 (c)</p> <p>Project Agreement, Article II, Section 2.10</p> <p>Project Agreement, Article II, Section 2.11</p> <p>Project Agreement, Article II, Section 2.12</p>	
<p>Consultants and Contractors</p> <p>In the carrying out of the project, HPG shall employ competent and qualified consultants and contractors, acceptable to ADB, to an extent and upon terms and conditions satisfactory to ADB.</p>	<p>Project Agreement, Article II, Section 2.03 (a)</p>	<p>Complied with.</p> <p>All packages financed by ADB and the GEF under the project were procured in accordance with ADB's Procurement Guidelines and the Guidelines on the Use of Consultants.</p>
<p>Except as ADB may otherwise agree, all goods and services to be financed out of the proceeds of the loan and the GEF grant shall be procured in accordance with the provisions of Schedule 3 and Schedule 4 to the loan agreement. ADB may refuse to finance a contract where goods or services have not been procured under procedures substantially in</p>	<p>Project Agreement, Article II, Section 2.03 (b)</p>	<p>Complied with.</p> <p>All goods and services financed out of the proceeds of the loan and the GEF grant were procured in accordance with the provisions of Schedule 3 and Schedule 4 to the</p>

Covenant	Reference in Loan Agreement	Status of Compliance
accordance with those agreed between the borrower and ADB or where the terms and conditions of the contract are not satisfactory to ADB.		loan agreement.
Insurance HPG shall take out and maintain with responsible insurers, or make other arrangements satisfactory to ADB for, insurance of the project facilities to such extent and against such risks and in such amounts as shall be consistent with sound practice. Without limiting the generality of the foregoing, HPG undertakes to insure, or cause to be insured, the goods to be imported for the project and to be financed out of the proceeds of the loan and the GEF grant 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.	Project Agreement, Article II, Section 2.05 (a) Project Agreement, Article II, Section 2.05 (b)	Complied with. The project facilities were appropriately insured. Not relevant. No goods were imported for the project.
Participation HPG shall ensure that stakeholders in the project area (including women, minority groups and the poor) participate in project design, management and implementation, including formulation of the NR master plan, watershed management plan, alternative livelihood programs (including NTFPs, intercropping and village development plans), ecotourism planning and development, and project employment opportunities. HPG shall implement an incentive framework to encourage and maintain stakeholder ownership and support for the project, particularly for the alternative livelihood development component and conservation management activities.	Project Agreement, Schedule, para. 29	Complied with. Stakeholders were consulted during planning, design, and implementation to determine the project's scope and implementation arrangements. Particularly for water allocation for the NRs and ecotourism development, discussions with the relevant authorities were conducted at an early stage and developed plans were incorporated into government plans. This provided a lasting and replicable impact from the project.

ADB = Asian Development Bank, AP = affected person, CFB = county forestry bureau, CNY = Chinese yuan, EMP = environmental management plan, EPB = environmental protection bureau, GEF = Global Environment Facility, GIS = geographic information system, ha = hectare, IEE = initial environmental examination, HPDRC = Heilongjiang Provincial Development and Reform Commission, HPEPB = Heilongjiang Provincial Environmental Protection Bureau, HPFB = Heilongjiang Provincial Finance Bureau, HPFD = Heilongjiang Provincial Forestry Department, HPG = Heilongjiang provincial government, HPTB = Heilongjiang Provincial Tourism Bureau, HPWRB/HPWRD = Heilongjiang Provincial Water Resources Bureau/Department, km = kilometer, M&E = monitoring and evaluation, NDRC = National Development and Reform Commission, NR = nature reserve, NTFP = nontimber forest product, PIU = project implementation unit, PMO = project management office, RF = resettlement framework, RP = resettlement plan.

^a For a pilot wetland restoration project in the Naolihe NR, additional environmental assessment was not conducted; and an EMP was not prepared because the 2,000 ha of farmland had already been abandoned and due diligence was conducted during project preparation.

^b For the Xingkaihu NR, a due diligence report was also prepared because land acquisition and resettlement began before ADB approved the RP.

Source: ADB.

PROCUREMENT PACKAGES

Item	Appraisal			Actual		
	Estimated Total Cost (\$ million)	Packages (no.)	Mode of Procure- ment	Total Cost (\$ million)	Packages (no.)	Mode of Procure- ment
A. Civil Works						
1.Forest Improvement	19.17	Multiple	FA	24.74	Multiple	FA
2.Wetland Restoration	0.97	Multiple	FA	1.08	Multiple	FA
3.Nontimber Forest Products	2.78	Multiple	FA	1.05	Multiple	FA
B. Equipment, Materials, and Vehicles						
1.Forest Improvement Equipment	1.78	3	LCB	1.77	Multiple	DC
2.NR Equipment, Materials, and Vehicles	0.91	3	IS	5.81	Multiple	DC
3.PMO Equipment, Materials, and Vehicles	0.66	Multiple	IS/DP	0.74	Multiple	DC
C. Training and Study Tours						
1.Domestic Training	1.49	Multiple	IS/DS	1.30	Multiple	SSS
2.Overseas Training and Study Tours	1.19	Multiple	IS/DS	0.63	Multiple	SSS
D. Consulting Services						
1.PMO Management Support	1.83	1	QCBS	2.67	1	QCBS
2.Consulting Services for Implementation	5.22	1	QCBS			
3.External M&E for Resettlement and Alternative Livelihoods Development	...	...	...	0.11 ^a	2	CQS
E. Others						
1.Subcontract	...	...	...	0.14	Multiple	SSS
2.Incremental Staff	...	...	...	0.95	Multiple	SSS

(...) = data not available, CQS = consultants' qualification selection, DC = direct contracting, DP = direct purchase, DS = direct selection, FA = force account, IS = international shopping, LCB = local competitive bidding, M&E = monitoring and evaluation, no. = number, NR = nature reserve, PMO = project management office, QCBS = quality- and cost-based selection, SSS = single source selection.

^a This was fully funded by counterpart funds.

Source: Asian Development Bank estimates.

**CONSULTING SERVICES FOR THE PROJECT MANAGEMENT OFFICE'S
MANAGEMENT SUPPORT AND PROJECT IMPLEMENTATION**

Component and Experts' Field/Designation	Service (person-months)					
	Estimated at Appraisal			Actual		
	International	National	Total	International	National	Total
1. Watershed Management						
Stakeholder Working Group		10	10			
Water Studies in Nature Reserves	4	6	10			
Watershed Hydrologic Studies		3	3			
Policy Development	6	5	11		32.65	32.65
Hydraulic Engineering		7	7		25.61	25.61
Hydrology and Water Quality						
2. Wetland Nature Reserve Management						
2.1 Habitat Conservation Management						
Nature Reserve Management	16	42	58	3.34		3.34
Nature Reserve Planning				1.73	3.14	4.87
Institutional Planning					12.06	12.06
2.2. Pilot Wetland Restoration						
Wetland Restoration	16	48	64	9.57	22.34	31.91
2.3 Wildlife Species Recovery						
Species Recovery	16	42	58			
Wildlife Biology				21.35	19.00	40.35
Junior Field Survey Team					71.18	71.18
2.4 Reduction of Overuse						
Resource Productivity		24	24			
Evaluation and Planning		18	18			
Monitor and Modify Plan		18	18			
Produce Guidelines		18	18			
Natural Resource Management					4.82	4.82
3. Alternative Livelihoods						
3.1 Village Development Plan						
Village Development	11	11	22			
Alternative Livelihood Development				3.42	17.99	21.41
3.2 Pilot Ecotourism Development						
Ecotourism	8	12	20		2.75	2.75
Eco-Market Development					15.07	15.07
Natural Resource/Agriculture					3.41	3.41
4. Capacity Building						
4.1 Outreach to School System						
Training in Public Awareness	4	10	14			
Conservation Education					9.44	9.44
4.2 Increase Public Awareness						
Public Participation	2	5	7			
Media External Relation	2	5	7			
Public Awareness					7.58	7.58
4.3 Wetlands Management Training						
Wetlands Management	12	12	24			
Capacity Development				2.09	7.79	9.88
5. Project Management						
Wetlands Expert Advisor	15		15			
Monitoring and Evaluation (Specialist)		28	28	4.92		
Monitoring and Evaluation (Coordinator)		60	60		27.62	27.62
Monitoring Field Teams		120	120			
Financial Management		12	12			

Component and Experts' Field/Designation	Service (person-months)					
	Estimated at Appraisal			Actual		
	International	National	Total	International	National	Total
Resettlement		12	12		15.36	15.36
Nature Reserve Management					63.47	63.47
Environmental Assessment					13.79	13.79
Nature Reserve Development					1.33	1.33
Ecological Economy					1.36	1.36
Environment					0.85	0.85
Assistants					2.85	2.85
Total	112	528	640	46.42	381.46	427.88

PMO = project management office.

Source: Asian Development Bank estimates.

FINANCIAL AND ECONOMIC REEVALUATION

A. Scope of Reevaluation

1. Financial and economic reevaluations were conducted to assess the financial and economic viability of the project at project completion. The reevaluation focused on the watershed management component and alternative livelihood development component following the evaluation carried out at the appraisal.¹ The watershed management component comprises two types of activities—forest plantation and treatment—and the alternative livelihood development component is nontimber forest production (NTFP). These three activities were carried out in 13 counties in Heilongjiang Province. The analysis was done by county, activity, and the project as a whole. The project period was assumed to be 25 years, from 2005 to 2030.

B. Financial Reevaluation

2. Financial viability was assessed on the basis of financial internal rate of return (FIRR) in comparison with an estimated weighted average cost of capital of 3.33%, computation of which is given in Table A7.1. Financial costs and benefits were expressed in constant Q2 2013 prices. The incremental cost of the project was calculated based on the actual investment costs and operation and maintenance (O&M) costs to date, and the estimated costs for the remaining project period. The investment costs cover site preparation, fertilizer, weeding, seedlings for plantation, and overhead costs based on general and the administrative expenses directly connected to the plantation and treatment operations. O&M costs cover costs for maintaining, harvesting and transporting trees and NTFP.

Table A7.1: Weighted Average Cost of Capital Estimate

Item	ADB	GEF	Government	Total
a. Amount (\$ million)	14.99	12.14	25.38	52.51
b. Weighting	28.55%	23.12%	48.33%	100.00%
c. Normal cost	3.28%	7.00%	7.00%	
d. Tax rate	10.00%	0.00%	0.00%	
e. Tax adjusted nominal rate	2.95%	7.00%	7.00%	
f. Inflation rate	1.90%	1.90%	3.00%	
g. Real cost	1.03%	5.00%	3.88%	
h. Weighted component of WACC	0.29%	1.16%	1.88%	3.33%

ADB = Asian Development Bank, GEF = Global Environment Facility, WACC = weighted average cost of capital.
Source: ADB estimates.

3. The incremental capital costs are determined by the areas of forest activities and the cost per hectare (ha). The actual unit capital costs per ha are CNY6,886 for larch plantation, CNY4,600 for poplar plantation, and CNY4,495 for larch treatment. The area for larch plantation is 9,968 ha, for poplar plantation 342 ha, and for larch treatment 42,690 ha. The O&M costs include thinning, logging, and transportation costs. The thinning costs are assumed at CNY190

¹ The project comprises five components: (i) watershed management, (ii) wetland natural reserve management, (iii) alternative livelihood developments, (iv) education and capacity building, and (v) project management. However, financial and economic analysis for the appraisal focused on two components—watershed management and alternative livelihood development—to which about more than 80% of the total project cost was allocated.

per cubic meter (m^3) for larch and CNY180/ m^3 for poplar. The harvesting costs are assumed at CNY160/ m^3 for larch and CNY150/ m^3 for poplar. The transportation cost is assumed at CNY20/ m^3 for transport a distance of 25 kilometers (km). For NTFPs, the unit capital cost for berry fruit is CNY23,700, for wild grape at CNY75,960, and for potherb CNY71,950. Their respective area is 280 ha for berry fruit, 50 ha for wild grape, and 57 ha for potherb. The harvesting cost is CNY1.0 per kilogram (kg); and the transportation cost is CNY20 per ton, given an average distance from production area to market of 25 km.

4. The incremental revenue was calculated based on sales of project outputs (i.e., timber products and NTFP). For timber products (i.e., larch and poplar), the sales were derived from projected forest harvest volume per ha and price per volume. Assumptions regarding the cycle of growth and harvest of the timber trees follow those for the appraisal.² For NTFP (i.e., berry fruit, wild grape, and potherb), revenues were derived from quantities and unit prices of the products.

5. The revenues from forest improvement derived from the projection of the harvest and thinning volume, and the projection of harvesting and thinning prices. The current harvesting prices are CNY470/ m^3 for larch and CNY350/ m^3 for poplar; and the current thinning prices are CNY355/ m^3 for larch and CNY245/ m^3 for poplar. It was assumed that the current harvesting and thinning prices would remain unchanged over the life of the project. The economic life was assumed to be 20 years for larch and 10 years for poplar, the same as the assumptions at appraisal. The treatment operation for larch was assumed to begin at 5 years of growth, same as the assumptions at appraisal. The plantation fund surcharge is 10% of the total sales revenue. A sales tax of 5% was canceled by the government during project implementation. The prices of the NTFPs were assumed to be CNY7.5 per kilogram (kg) for berry fruit, CNY1.8 per kg for wild grape, and CNY5.0 per kg for potherb; and they were assumed to be constant during the life of the project. The effective tax rate on NTFPs is 7%, the same as the assumption at appraisal. It was also assumed that there is no salvage value at the end of the project life for forest improvement and NTFP development.

6. As seen in Table A7.2, FIRR for different activities range from 12.7% to 20.7%; while those for project counties range from 10.4% to 14.9%. For the overall project, the financial net present value (FNPV) was CNY325.1 million and the FIRR was 13.4%.³ As they are higher than the estimated weighted average cost of capital, all activities by type and project county, individually and as a whole, are considered financially viable at inception, which validated the financial evaluation at appraisal.

7. The FIRR of the overall project at completion was lower than the FIRR at appraisal (14.9%) primarily for two reasons. First, the capital and O&M costs increased significantly during project implementation due to labor cost increase. The unit costs for larch plantation have increased from CNY5,200 at appraisal to CNY6,886 at completion; for poplar plantation, from CNY 4,200 at appraisal to CNY4,600 at completion; and for larch treatment, from CNY3,500 at appraisal to CNY4,495 at completion. Secondly, the areas of the three NTFPs decreased by 1,993 ha from 2005 to 2012; and the NTFPs were supposed to have a higher rate of return than that of the larch plantation at appraisal.

² ADB. 2005. Appendix 12 of *Report and Recommendation of the President on a Proposed Loan and Global Environment Facility Grant to the Republic of China for the Sanjiang Plain Wetlands Protection Project*. Manila

³ At appraisal, the FNPV was CNY124.3 million; and the FIRR was 14.9%. The application of the lower weighted average cost of capital is considered to have contributed to the higher FNPV at completion.

Table A7.2: Financial Internal Rates of Return

	FIRR at Appraisal^a (%)	FIRR at Completion (%)
Plantation		
Larch		8.8
Poplar		12.7
Treatment		
Larch		20.7
NTFPs		
Berry Fruit		22.8
Wild Grape		13.4
Potherbs		12.2
County		
Baoqing		13.2
Boli		14.9
Fuyan		13.0
Hegang		14.6
Huanan		13.4
Hulin		13.7
Jidong		13.2
Jixian		10.4
Linkou		13.6
Luobei		13.9
Qitaihe		12.9
Raohe		11.2
Overall		13.4

FIRR = financial internal rate of return, NTFP = nontimber forest product.

^a At appraisal, FIRRs were not computed.

Source: Asian Development Bank estimates.

8. Sensitivity analysis was conducted to assess the robustness of the financial viability for three scenarios: O&M costs increase by 10%, output prices decrease by 10%, and sales volume decreases by 10%. The result of the sensitivity analysis in Table A7.3 confirmed that the financial viability would be maintained in any scenario.

Table A7.3: Sensitivity Analysis

Base FIRR	10% O&M Cost Increase	10% Output Price Decrease	10% Sales Volume Decrease
13.4%	11.8%	10.7%	10.9%

FIRR = financial internal rate of return, O&M = operation and maintenance.

Source: Asian Development Bank estimates.

C. Economic Reevaluation

9. Economic viability was assessed on the basis of economic internal rate of return (EIRR) in comparison with the cost of capital of 12%. Economic costs and benefits were expressed in local currency using an exchange rate of CNY6.29 = \$1.00 and valued using the domestic price numeraire. Economic costs were derived by removing taxes and duties, interest, subsidies, and price contingencies from the financial costs and then multiplying them with conversion factors. A shadow exchange rate factor of 1.01 was applied to traded goods.⁴ Conversion factors are assumed as 0.67 for unskilled labor and 1.0 for skilled labor.

10. Economic benefits comprise (i) the economic value of timber tree products and NTFPs generated by the project investment, and (ii) the economic value of carbon dioxide sequestration of the timber trees. Other than those, the project generated several unquantified economic benefits, which include economic benefits from eco-tourism; and various environmental benefits, such as restoration of wildlife habitat and rehydration of wetlands contributing to groundwater recharge, flood control, watershed improvement, and prevention of soil erosion.

11. As summarized in Table A7.4, EIRRs for project activities by activity type range from 12.1% to 27.3% while those by county range from 14.0% to 19.5%. EIRR for the whole project is 18.1%. As EIRRs are higher than the economic cost of capital of 18.1%, we can conclude that the project was economically viable as an individual activity and as a whole at completion. The EIRR of the overall project at completion is lower than the EIRR at appraisal (24.8%) for the reasons mentioned in the financial analysis. Sensitivity analysis, as shown in Table A7.5, confirmed that the project remains economically viable under any of the three scenarios.

D. Conclusion

12. The reevaluation was conducted using updated data at project completion. It reaffirmed the result of the evaluation at the appraisal—the financial and economic viability of the project as individual activities and as a whole. Results of the sensitivity analysis further confirmed the robustness of the financial and economic viability.

⁴ A shadow exchange rate factor of 1.01 is equivalent to the standard conversion factor of 0.99, which is widely accepted as the appropriate value for the People's Republic of China; and has been extensively used in similar projects, such as ADB. 2005. *Technical Assistance to the People's Republic of China for Preparing the Western Roads Development Project*. Manila (TA 4639-PRC); and ADB. *Technical Assistance to the People's Republic of China for Preparing the Gansu Baiyin Urban Development Project*. Manila (TA 4818-PRC).

Table A7.4: Economic Internal Rate of Return

	EIRR at Appraisal (%)	EIRR at Completion (%)
Plantation		
Larch	12.6	12.1
Poplar	29.7	19.6
Treatment		
Larch	17.5	24.5
NTFPs		
Berry Fruit	35.3	12.3
Wild Grape	24.4	13.5
Potherbs	25.4	27.3
County		
Baoqing	36.6	17.3
Boli	25.8	19.5
Fuyan	38.9	17.7
Hegang	16.2	19.1
Huanan	27.1	18.3
Hulin	33.1	18.1
Jidong	16.2	17.4
Jixian	24.8	14.0
Linkou	16.0	17.8
Luobei	17.2	18.1
Qitaihe	15.9	17.0
Raohe	51.4	15.0
Overall	24.8	18.1

EIRR = economic internal rate of return, NTFP = nontimber forest product.

Source: Asian Development Bank estimates.

Table A7.5: Sensitivity Analysis

Base EIRR	10% O&M Cost Increase	10% Price Decrease	10% Sales Volume Decrease
18.1%	16.7%	15.6%	15.8%

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

Source: Asian Development Bank estimates.

Table A7.6: Economic Analysis of Overall Project
(\$ million)

Year	Investment Cost				O&M Cost				Total Cost	Benefit			Total Benefits	Net Benefits
	Timber Plantation	Timber Treatment	NTPF	Total	Timber Plantation	Timber Treatment	NTPF	Total		Timber Sales	NTPF Sales	CO ² Sequest-ration		
2005	5.68	1.73	0.00	7.41	0.00	0.00	0.00	0.00	7.41	0.00	0.00	0.00	0.00	-7.41
2006	6.27	4.23	4.20	14.70	0.00	0.00	0.02	0.02	14.72	0.00	0.00	0.46	0.46	-14.26
2007	6.62	4.85	2.27	13.73	0.00	0.00	0.03	0.03	13.77	0.00	0.00	0.46	0.46	-13.31
2008	5.09	5.06	0.92	11.08	0.00	0.00	0.04	0.04	11.11	0.00	0.00	0.46	0.46	-10.65
2009	5.71	5.21	0.58	11.50	0.00	0.00	0.04	0.04	11.54	0.00	0.00	0.46	0.46	-11.08
2010	7.15	6.44	0.33	13.93	0.00	0.00	0.08	0.08	14.01	0.00	2.00	0.46	2.45	-11.56
2011	2.73	6.01	2.01	10.76	0.00	0.00	0.63	0.63	11.39	0.00	3.16	0.46	3.61	-7.78
2012	1.85	4.26	0.00	6.11	0.87	18.70	0.89	20.46	26.57	25.20	3.73	0.46	29.39	2.82
2013	1.52	4.26	0.00	5.78	0.88	18.25	1.30	20.43	26.21	24.64	5.72	0.46	30.81	4.60
2014	1.26	4.26	0.00	5.52	0.00	17.26	1.30	18.56	24.08	22.42	5.72	0.46	28.59	4.51
2015	0.93	4.26	0.00	5.19	0.00	14.37	1.30	15.66	20.85	18.66	5.72	0.46	24.83	3.98
2016	0.65	4.26	0.00	4.91	2.99	15.43	1.05	19.47	24.38	25.92	3.80	0.46	30.17	5.79
2017	0.63	4.26	0.00	4.89	8.07	21.01	0.75	29.82	34.71	39.78	2.60	0.46	42.83	8.12
2018	0.63	4.26	0.00	4.89	4.23	0.00	0.07	4.30	9.19	5.50	0.11	0.46	6.07	-3.12
2019	0.63	4.26	0.00	4.89	4.22	0.00	0.01	4.23	9.11	5.48	0.00	0.46	5.94	-3.18
2020	0.63	3.50	0.00	4.13	2.82	173.16	0.00	175.98	180.11	291.71	0.00	0.46	292.16	112.06
2021	0.63	2.76	0.00	3.39	3.58	169.06	0.00	172.64	176.03	285.88	0.00	0.46	286.33	110.30
2022	0.63	2.06	0.00	2.69	4.62	159.90	0.00	164.52	167.21	271.99	0.00	0.46	272.45	105.24
2023	0.63	1.48	0.00	2.10	0.00	133.06	0.00	133.06	135.16	221.34	0.00	0.46	221.80	86.63
2024	0.63	0.85	0.00	1.48	0.00	142.92	0.00	142.92	144.40	237.75	0.00	0.46	238.21	93.80
2025	0.50	0.00	0.00	0.50	46.71	194.55	0.00	241.26	241.76	434.63	0.00	0.46	435.09	193.33
2026	0.39	0.00	0.00	0.39	39.19	0.00	0.00	39.19	39.58	93.13	0.00	0.46	93.58	54.01
2027	0.28	0.00	0.00	0.28	39.10	0.00	0.00	39.10	39.38	92.91	0.00	0.46	93.37	53.99
2028	0.21	0.00	0.00	0.21	26.11	0.00	0.00	26.11	26.32	62.05	0.00	0.46	62.50	36.18
2029	0.12	0.00	0.00	0.12	33.17	0.00	0.00	33.17	33.29	78.83	0.00	0.46	79.29	46.00
2030	0.00	0.00	0.00	0.00	42.83	0.00	0.00	42.83	42.83	101.79	0.00	0.46	102.25	59.41
													NPV	59.99
													EIRR	18.1%

CO₂ = carbon dioxide, EIRR = economic internal rate of return, NPV = net present value NTPF = nontimber forest product, O&M = operation and maintenance.
Source: Asian Development Bank estimates.

LAND ACQUISITION AND RESETTLEMENT

A. Background

1. The resettlement impacts induced by the project were associated with the pilot farmland-to-wetland restoration projects in the six model nature reserves and farmland-to-forest conversion in five cities or counties. In all, 465 people—of which 403 people were on staff at state farms, forest farms, or nature reserves—were affected by the pilot farmland-to-wetland restoration projects, and 449 people—all forest farm staff—were affected by the farmland-to-forest conversion. On the basis of proposals made under the project, animal grazing and fishing have been prohibited in all nature reserves in the Sanjiang Plain, except where permitted by laws or regulations. However, in the six model nature reserves in the project scope, no one was affected by this prohibition.

B. Pilot Farmland-to-Wetland Restoration Projects

2. **Resettlement plans.** Resettlement plans for the Anbanghe and Qixinghe nature reserves and a resettlement framework were prepared during project preparation. For the Naolihe nature reserve, where 2,000 hectares (ha) of farmlands were abandoned in 2001, a due diligence report was approved by the Asian Development Bank (ADB) in 2004 during project preparation. The resettlement plans prepared for the Anbanghe and Qixinghe nature reserves during project preparation were updated; new resettlement plans for the Dajiahe, Zhenbaodao, and Xingkaihu nature reserves were prepared;¹ and a new due diligence report for the Naolihe nature reserve was also prepared. ADB approved all these documents and posted them on the ADB website.

3. **Resettlement impacts.** Overall, the number of people affected decreased greatly because most pilot project sites had changed since project appraisal. In all, 3,441.3 ha of farmland was no longer cultivated and had been restored to wetlands against 3,433 ha planned at appraisal. In all, 465 people were affected compared with 1,138 expected at appraisal, and 3,140 square meters (m²) of houses were demolished in the Naolihe nature reserve. All the farmlands restored to wetlands are in the core zones of the nature reserves. Table A8.1 summarizes the planned and actual impacts.

4. **Compensation.** Compensation was paid to affected units and individuals based on the resettlement plans and local government decrees. Besides cash compensation, non-cash compensation was also adopted to ensure compliance with ADB's safeguards. In the Dajiahe nature reserve, alternative lands were provided to the affected people to use for their sustainable livelihoods to ensure their income does not decline. In the Qixinghe nature reserve, instead of cash compensation, a road was constructed for the affected village. By the end of the project, CNY47,940,500 had been paid in compensation. In the Anbanghe nature reserve, the local government exempted non-operational revenues from the nature reserve for the farmland restored to wetland; and allowed the nature reserve to use the exempted funds for wetland construction.

5. **House demolition.** In all, 318 people, or 102 households, affected by the house demolition in the Naolihe nature reserve were staff of Hongqiling state farm. No villagers were affected by the house demolition. The affected staff was able to choose cash compensation or non-cash compensation (replacement of a demolished house with secondhand real estate of

¹ For the Xingkaihu nature reserve, a due diligence report was also prepared because land acquisition and resettlement began before ADB approved the resettlement plan.

the same quality). Most affected staff chose cash compensation, and all the affected staff were properly resettled. Their living conditions were improved.

C. Farmland-to-Forest Conversion

6. Under the forest improvement component of the project, 3,853 ha of farmlands in the state forests were restored to forest. No land acquisition was required because the farmlands converted to forests did not change ownership. The number of affected people was reduced from the estimate of 2,217, including 337 villagers at project appraisal to 476, all of them regular, temporary, or contracted forest farm staff. No villagers were affected because only dry lands, slope lands, and wastelands were used. To ensure that affected forest farm workers would have no loss of income, 923 ha of nontimber forest products (24% of the converted farmland) were planted and intercropping was conducted. The affected workers received wages for tree planting, and some of them simultaneously received income from intercropping for 3–5 years on the newly planted forest area and also from nontimber forest products on newly planted or existing forest area. Alternatively, some of them chose to be shifted to other jobs on the forest farm. In this manner, the affected workers were able to maintain or even increase their incomes. Table A8.2 summarizes the planned and actual impacts.

D. Monitoring and Evaluation

7. The project management office (PMO) engaged two independent agencies to conduct external monitoring and evaluation (M&E) for resettlement and alternative livelihoods development. The agencies conducted external M&E by monitoring 941 affected people and interviewing resettlement officials in all key agencies. They submitted to ADB external M&E reports that detailed the monitoring of all resettlement implementation under the project and changes in income and livelihoods of people affected. These surveys and investigations confirmed that the resettlement and alternative livelihood programs were implemented properly.

E. Economic Rehabilitation and Livelihood Restoration

8. Impacts on the income of affected people were limited. Most affected people were staff of nature reserves, state farms, and forest farms. During project implementation, multiple measures were adopted to assist these people in restoring their livelihoods. According to the external resettlement M&E reports, all affected units and individuals were better off than before. The annual net income of affected people, on average, increased by 12.9% (Dajiahe nature reserve) to 1,648.2% (Naolihe nature reserve) over net income before resettlement. Measures such as the exemption of non-operational revenues from the farmlands to wetland conversion, and ecotourism development increased income. Many of those affected changed their livelihoods, e.g., from a weed company to an eco-park. Table A8.3 summarizes the income status of affected persons before and after resettlement.

F. Consultation and Participation

9. In the process of resettlement implementation, implementing agencies undertook various measures to increase public participation and awareness of the project, including distributing a resettlement information booklet in the project areas and publicizing the resettlement policies through radio, television, newspaper, and public bulletins as well as meetings with the affected people. Through these efforts, affected people were made fully aware of the compensation policies, rehabilitation measures, and delivery methods, which ensured smooth implementation of resettlement.

G. Institutional Arrangement

10. The PMO was responsible for planning and organizing resettlement, monitoring internal resettlement, and engaging external resettlement monitors. The nature reserves, forestry bureaus, and local land reclamation bureaus² were responsible for planning, management, implementation, and supervision of resettlement. Village committees and state farms were responsible for land allocation and readjustment, alternative livelihoods development, and local village development. To ensure successful implementation of the project, the PMO employed national specialists for resettlement and alternative livelihoods development to help the nature reserves update or prepare their resettlement plans; and assist the affected people in developing alternative livelihood plans. The specialists gave advice to solve resettlement issues and ensured that the project was consistent with ADB's requirements. The PMO had experience in implementing a World Bank project, but not ADB project. The external monitors for resettlement M&E had not carried out that work for ADB projects. The external monitors performed satisfactorily, with guidance from ADB and the national specialists.

H. Conclusions and Lessons Learned

11. In summary, the implementation of the resettlement program is considered to be successful, owing to a number of factors: (i) strong leadership and commitment made by the PMO, with guidance from ADB and support from local agencies; (ii) good resettlement planning during project preparation and implementation which reduced resettlement impacts by converting marginal farmland; (iii) great efforts and supporting policies provided by local governments; (iv) extensive consultations with affected communities; (v) effective M&E; and (vi) close supervision by ADB.

12. Despite these positive aspects, the resettlement implementation was also marked by some shortcomings, such as (i) slow progress in choosing pilot wetland restoration sites; (ii) inexperienced external M&E monitors which caused delay in the submission of M&E reports; (iii) complicated land ownership within the nature reserves, which led to many difficulties in choosing pilot wetland restoration sites; and (iv) frequently changed management personnel of some nature reserves which also brought some difficulties during the resettlement implementation.

13. Three key lessons were learned: (i) policy support is sometimes more important than one-time cash compensation because it lasts longer; (ii) the combination of the proper choice of restoration sites to minimize resettlement impacts and the proper development of alternative livelihoods can ensure watershed and wetland protection, while maintaining livelihoods and incomes; and (iii) non-cash compensation can be a feasible measure for eco-resettlement, and sometimes achieve better results than cash compensation.

² The local land reclamation bureaus are under the Heilongjiang Land Reclamation Bureau (HLRM). The HLRM was established as the Heilongjiang Production and Construction Corps in 1968 and renamed to Heilongjiang General Bureau of State Farms in 1976. It had been under the jurisdiction of the Ministry of Agriculture; and in 2004, became under the jurisdiction of both the Ministry of Agriculture and the Heilongjiang provincial government; and was renamed to the current name. However, the HLRM is still independent from the Heilongjiang provincial government in terms of administration, having its own Farm Bureau, Grain Bureau, Development and Reform Commission, Housing and Urban Construction Bureau, Transportation Department, Civil Affairs Bureau, Justice Bureau, Health Bureau, Foreign Affairs Office, Tourism Bureau, Trade and Industry Bureau, Land and Resources Bureau, Public Security Bureau, and so on. The HLRM has 0.8 million staff, and administers 113 farms in 12 cities and 74 counties in Heilongjiang Province. The total area of the farms is 56,200 square kilometers accounting for 12.2% of the total area of Heilongjiang Province. Under the project, since all pilot farmland-to-wetland restoration site in the Naolihe nature reserve and a part of the site in the Xingkaihu nature reserve are in state farms of the HLRM; and the state farms have rights for use of the lands, nature reserves needed their cooperation for planning, management, implementation, and supervision of resettlement.

Table A8.1: Summary of Farmland-to-Wetland Restoration

City and/or County (NR)	Planned at Appraisal					Actual					
	Area to be Restored (ha)	People to be Affected		House Demolition		Area Restored (ha)	People to be Affected			House Demolition	
		Villagers and/or Farm Staff	Number of People	Area to be Demolished (m ²)	People to be Affected by the Demolition		Villagers and/or Farm Staff	Number of People	Number of HHs	Area to be Demolished (m ²)	People to be Affected by the Demolition
Raohe (Dajiahe NR)	350	Villagers	544			350.3	Villagers	20	6		
Mishan (Xingkaihu NR)	333	State farm staff	136			339.0	Villagers	27	9		
Hulin (Zhenbaodao NR)	100	Forest farm staff	50			102.0	Forest farm staff	1			
Baoqing (Qixinghe NR)	267	Villagers	39			57.8	Villagers	15	4		
	133	Reeds company staff	6			342.2	NR staff	44			
Jixian (Anbanghe NR)	250	NR staff	45			250.0	NR staff	40			
Naolihe (Naolihe NR)	2,000	State farm staff	318	3,140	318	2,000.0	State farm staff	318	102	3,140	318
Total	3,433		1,138	3,140	318	3,441.3		465		3,140	318

ha = hectare, HH = household, m² = square meter, NR = nature reserve.
Source: Asian Development Bank estimates.

Table A8.2: Summary of Farmland-to-Forest Conversion

City/ County	Planned at Appraisal		Actual							
	Area to be Converted (ha)	People to be Affected	Area Converted (ha)				People Affected			
			Dryland	Slope Land	Waste Land	Total	Regular Staff of Forest Farm	Temporary Staff of Forest Farm	Contracted Staff of Forest Farm	Total
Baoqing	1,000	775	370.0	0.0	431.7	801.7	49	0	0	49
Hulin	1,000	337	161.2	0.0	668.8	830.0	19	0	23	42
Huanan	300	234	59.9	207.8	32.7	300.4	38	4	0	42
Linkou	1,000	298	0.0	1,000.0	0.0	1,000.0	217	0	0	217
Luobei	1,000	573	0.0	820.0	100.7	920.7	126	0	0	126
Total	4,300	2,217	591.1	2,027.8	1,233.8	3,852.8	449	4	23	476

ha = hectare.

Source: Asian Development Bank estimates.

Table A8.3: Summary of Income Status of Affected People

City and/or County (NR)	Affected People	Year	Before Resettlement				Year	After Resettlement					
			Annual Income (CNY)		Annual Net Income (CNY)			Annual Income (CNY)			Annual Net Income (CNY)		
			Per Capita	Per HH	Per Capita	Per HH		Per Capita	Per HH	% ^a	Per Capita	Per HH	% ^a
Farmland-to Wetland Restoration													
Raohe (Dajiahe NR)	20 villagers (6 HHs)	2003	16,750	55,833	11,428	38,092	2008	18,425	61,417	110.0	12,898	42,992	112.9
Mishan (Xingkaihu NR)	27 villagers (9 HHs)	2009	62,703	188,109	29,286	87,858	2001	77,120	231,360	123.0	62,305	186,914	212.7
Hulin (Zhenbaodao NR)	1 FFS	2004	63,000	63,000	53,800	52,800	2012	125,000	125,000	198.4	112,000	112,000	208.2
Baoqing	15 villagers (4 HHs)	2003	13,168	49,380	1,865	6,993	2012	9,333	35,000	70.9	5,447	20,426	292.1
(Qixinghe NR)	44 NRS	2004	9,451		3,451		2012	24,970		264.2	11,470		332.4
Jixian (Anbanghe NR)	40 NRS	2003	10,475		6,605		2012	32,085		306.3	21,247		321.7
Naolihe (Naolihe NR)	318 SFS (102 HHs)	2000	23,369	72,857	656	2,046	2008	40,133	125,119	171.7	11,473	35,768	1,748.2
Farmland-to-Forest Conversion													
Baoqing	49 FFS	2005	7,776				2008	9,476		121.8	1,455		143.6
Hulin	42 FFS	2005	8,820				2012	12,729		144.3	2,938		236.8
Huanan	42 FFS	2005	7,776				2008	11,973		154.0	1,955		193.0
Linkou	217 FFS	2005	8,031				2008	13,500		168.1	2,000		197.6
Luobei	126 FFS	2005	8,671				2008	14,000		161.5	4,700		235.8

FFS = forest farm staff, HH = household, NR = nature reserve, NRS = nature reserve staff, SFS = state farm staff.

^a Against the income before resettlement.

Source: Asian Development Bank estimates.