



**PROJECT EXECUTIVE SUMMARY**  
**GEF COUNCIL WORK PROGRAM SUBMISSION**

**AGENCY'S PROJECT ID:** 3998-PRC  
**GEFSEC PROJECT ID:** 1126  
**COUNTRY:** The People's Republic of China (PRC)  
**PROJECT TITLE:** Sanjiang Plain Wetlands Protection  
**GEF AGENCY:** Asian Development Bank (ADB)  
**OTHER EXECUTING AGENCY(IES):** Heilongjiang Provincial Government (HPG)  
**DURATION:** 5 years  
**GEF FOCAL AREA:** Biodiversity conservation  
**GEF OPERATIONAL PROGRAM:** OP2: Coastal, Marine and Freshwater Ecosystems  
**GEF STRATEGIC PRIORITY:** BD-1. Catalyzing Sustainability of Protected Areas; BD-2. Mainstreaming Biodiversity in Production Landscapes and Sectors; and BD-4. Generation and Dissemination of Best Practices for Addressing Current and Emerging Biodiversity Issues

**Pipeline Entry Date:** 22 October 1999  
**ESTIMATED STARTING DATE:** 1 July 2005  
**EA FEE:** \$872,920

<b>FINANCING PLAN (US\$)</b>	
<b>GEF PROJECT/COMPONENT</b>	
Project	12,140,000
PDF A	
PDF B	330,000
PDF C	
<b>Sub-Total GEF</b>	<b>12,470,000</b>
<i>CO-FINANCING</i>	
ADB loan	15,000,000
Government	24,370,000
Bilateral	
NGOs	
Others(State Forest farms)	4,040,000
<i>Sub-Total Co-financing:</i>	<i>43,410,000</i>
<i>Total Project Financing:</i>	<i>55,880,000</i>
<b>FINANCING FOR ASSOCIATED ACTIVITIES IF ANY*:</b> 1,150,000	
<b>LEVERAGED RESOURCES IF ANY:</b>	

\*Details provided under the Financial Modality and Cost Effectiveness section

**CONTRIBUTION TO KEY INDICATORS OF THE BUSINESS PLAN:** The Project contributes to (i) improvements in management effectiveness of 470,000 ha of Protected Areas (PAs; in 6 reserves) for sustainable conservation and protection; (ii) improvements measured against baseline scenario for management capacity and budgets; (iii) replication of model wetland restoration approach; and (iv) improved knowledge and dissemination of successful demonstrations on wetlands watershed management approach for over 150,000 ha wetland Nature Reserve areas by 2010.

**RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT(S):**  
 WANG BING Date: 19 July 2004  
 Deputy Director, International Department,  
 Ministry of Finance

**Approved on behalf of the Asian Development Bank.** This proposal has been prepared in accordance with GEF policies and procedures and meets the standards of the GEF Project Review Criteria for work program inclusion

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## I. PROJECT SUMMARY

1. The wetlands in the Sanjiang Plain are an important nesting and stopover location at the northern end of the East-Asian-Australian Flyway for migratory waterfowls, most notable of which are the white-naped and red-crowned cranes. Over the last five decades, both forest and wetlands in Sanjiang Plain have been reduced to a fifth of their original size.<sup>1</sup> Globally significant migratory birds have been disappearing, and less than 10% of them can now be observed in the Sanjiang wetlands. The current problems in the Sanjiang wetlands are the result of intricately interrelated economic activities, competing for the use of scarce natural resources. Draining wetlands for farming, expanding farmland to feed growing populations, exploiting forests, channeling floodwaters to protect these economic activities—all have contributed to today's hydrologic and climatic changes in the Sanjiang Plain, desiccating and degrading wetlands. The problems are complex, and the geographical area involved is huge. A continuing, systematic approach is therefore needed.

2. Thus, the Project takes a holistic model approach aimed at replication, and consists of closely interlinked measures to remove threats to wetland biodiversity as an integrated watershed management package, by (i) rehabilitating and protecting degraded forests in the upper watershed areas; (ii) restoring and protecting wetland Nature Reserves (NRs) in the downstream areas; (iii) providing alternative livelihoods to farmers in and around NRs; and (iv) strengthening the capacity of the local agencies in charge of watershed wetland and NR management. About 13 counties in the Sanjiang Plain will undertake forest improvement and convert farmland back to legally required forest use, as part of the integrated watershed management approach. Six key NRs in the five contiguous watersheds (in these 13 counties) will be the focus of habitat and wildlife protection and wetland restoration activities. Xinhkaihu NR is one of the sites listed in the Ramsar Convention, and the others are all part of national NRs. By developing and testing a model framework to protect wetland biodiversity while promoting the sustainable development of the areas, the Project is expected to lead to a much larger farmland-to-wetland restoration program (over 150,000 ha), which has been already initiated and implemented by Heilongjiang Provincial Government (HPG) in 2003.

3. The proposed Project is in many ways innovative. Instead of directly addressing the foregoing problems, it deals with their underlying causes and provides a holistic model framework for wider replication. Overall, the government will, first of all, learn new ways of managing watersheds and wetlands; second, build the technical capacity to protect NRs; and, third, involve both government staff and communities in promoting environment-friendly practices. These measures are to build up long-term sustainability. The Project will also provide innovative financial frameworks. The subcomponent, Land Compensation and Village Development Plan will assist affected villages to develop (i) alternative livelihoods for farmers; (ii) compensate village collectives for their lost land-lease incomes; and (iii) ultimately lower the government's financial burden by turning sunk costs of land compensation into profitable investment opportunities. Also, forest development will involve financial model functions besides improving watershed management. It will (i) provide additional income for forest workers through intercropping; (ii) lead to economically viable forest development; and (iii) allow revenue from forest yields to be shared with NRs. The proposed Project is thus designed to promote an environmental conservation framework that is not only replicable and sustainable, but also financially viable.

4. To address the underlying causes of environmental problems arising from social economic development, the Project emphasizes a socially sustainable consultative development approach. As an environmental project, most of its subcomponents include environmental benefit monitoring activities, as part of an adaptive planning approach. The documentation of implementation, workshops, and information dissemination to share learning experiences are all aimed at systematic replication of the model. The Project approach is based in all respects on the policies and plans of the government. As the government itself has started a wetland restoration program, it has already made substantial commitments for replicating the proposed model. The conservation of soils, forests, and wetlands and the management of water resources are increasingly recognized as critical environmental interventions in the People's Republic of China (PRC). The Project is therefore highly consistent with the operation of the Asian Development Bank (ADB) and fits well with the strategic priorities under GEF OP2.

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<sup>1</sup> Wetlands currently cover a total of about 10,278 sq. km and forestlands coverage is about 11,000 sq. km.  
SApndxH1-GEF 14Jan2005

## II. COUNTRY OWNERSHIP

### A. Country Eligibility

5. The PRC ratified the Convention on Biological Diversity on 5 January 1993; notification of its participation in the restructured GEF was made on 16 May 1994.

### B. Country Drivenness

6. The PRC gives high priority to wetland biodiversity conservation, watershed protection, and sustainable management of natural resources. The country has 1,757 NRs covering 130 million ha, including 12 million ha of wetlands, and there are plans to expand the total area to 155 million ha by 2010. Heilongjiang Province has 58 NRs with 1.9 million ha of wetlands; 28 of these are in the Sanjiang Plain. The PRC ratified the Ramsar Convention on 31 July 1992, and three wetland NRs (Honghe, Sanjiang, and Xingkaihu NRs) in the Sanjiang Plain are already listed as wetlands of international importance (Ramsar sites). The PRC's Biodiversity Conservation Action Plan (BCAP; 1994) identified the biodiversity conservation of Sanjiang wetlands as the highest priority. In 1995, the Committee of Environmental and Resources Protection of the National People's Congress strongly urged the central and local governments to protect wetlands in the Sanjiang Plain, and in 1998, the HPG issued a decree suspending wetland development in the province and preventing further conversion to farmland. This was reinforced in June 2003 with the adoption of the Regulation on Wetland Conservation of Heilongjiang Province, which took effect on 1 August 2003. To address losses, HPG developed plans for the restoration of over 150,000 ha of farmland to wetlands within wetland NRs in the Sanjiang Plain, and in 2003 the Heilongjiang Province Forestry Department (HPFD) began implementing this wetland restoration program (funded by the National Development and Reform Committee, NDRC). HPG also plans to reverse loss of forest cover by restoring farmland and wasteland (secondary scrubland and denuded areas) to forest area by replanting 68,500 ha annually from 2006 to 2010. The conservation and sustainable management of Sanjiang Plain wetland resources are a listed priority in strategic government documents including BCAP; National Wetland Conservation Action Plan; National and Provincial Protected Area System; Agenda 21 White Paper on China's Population, Environment, and Development in the 21st Century; and 2003 Regulation on Wetland Conservation of Heilongjiang.

## III. PROGRAM AND POLICY CONFORMITY

### A. Consistency with GEF Operational Program and Strategic Priority

7. The objective of the Project is fully consistent with OP2, which is aimed at the conservation and sustainable use of biological resources in coastal, marine, and freshwater ecosystems. The activities of the Project support significant populations of globally threatened species by improving habitat and wildlife management, and are thus eligible for GEF funding support under OP2. The Project provides a holistic model approach. As a result, the global benefits from biodiversity conservation can be achieved effectively as the activities are supported by complementary sustainable development activities, such as improving the management of local water resources, forest areas, and local economic development.<sup>2</sup> As an integrated package, the Project will make a substantial contribution primarily with respect to OP2, Biodiversity.

8. The Project conforms to GEF Strategic Priority BD-1, Catalyzing Sustainability of Protected Areas, because it will (i) offer alternative livelihoods that are conducive to biodiversity protection, and (ii) catalyze community-indigenous initiatives by providing a village development planning mechanism. The Project also advances the objectives of BD-2, since it will mainstream biodiversity in the water sector by (i) establishing interagency working groups for water resources management, and (ii) developing model watershed water allocation plans that incorporate the impact of flood control measures in wetland protection. In addition, the Project contributes to the operational objectives of BD-4: Generation and Dissemination of Best Practices for

<sup>2</sup> Though the Project includes programs for the improvement of watershed, forest, and land management, their contribution to other GEF OPs (OP3: Forest Ecosystem, OP12: Integrated Ecosystem Management, and OP15: Sustainable Land Management) is minimal as individual programs, and their impacts are mainly local. As an integrated package, their overall outcome supports conservation of globally significant wetland biodiversity, and fits best under the objectives of OP2.

Addressing Current and Emerging Issues in Biodiversity, by supporting the dissemination of innovative model approaches and tools developed as part of training.<sup>3</sup>

## **B. Project Design**

### **1. Project Rationale, Objectives, Outputs/Outcomes, and Activities**

9. The Sanjiang Plain (with about 8 million people living on 108,900 km of land) is one of the PRC's richest in globally significant flora and fauna, supporting about 37 ecosystems, 1,000 species of plants, and 528 species of vertebrate fauna.<sup>4</sup> The Sanjiang Plain supports a rich biological diversity, including 23 species listed by IUCN/ the World Conservation Union as globally threatened. Of these, 10 species are waterfowl such as cranes, storks, and swan geese, which require extensive, undisturbed wetlands during their migration and breeding seasons. The Sanjiang Plain wetlands are an important nesting and stopover location at the northern end of the East-Asian-Australian Flyway for migratory waterfowls. The transformation of the Sanjiang Plain into a major grain production field over the last five decades was therefore achieved at considerable cost to the environment. Immense networks of drainage channels, pumping stations, and flood control dikes destroyed millions of hectares of natural marshes and wet meadows, and altered the water cycle of entire watersheds. The use of flood control dikes to protect farmlands prevented wetlands from being naturally recharged, thus dehydrating and reducing the wetland habitats. Large portions of the uplands were deforested,<sup>5</sup> further upsetting the water balance in the watersheds. As the altered water cycle in the wetlands reduced their habitat size and self-cleaning capacity, plant and animal biodiversity of global significance has declined. Large wildlife such as the northeast tiger, red deer, and bear were exterminated, and formerly abundant ducks, geese, cranes, and other waterfowls nearly disappeared. Key wetlands and globally threatened species are now primarily found in NRs, but the management of these areas is beset with challenges. Rather than simply addressing the sustainability of localized environmental issues in selected NRs, the Project is aimed at developing a model framework for replication that provides direct examples for ongoing HPG wetland and forestland restoration programs.

10. Twenty-eight of Heilongjiang's 58 wetland NRs are in this plain; of these, six are key NRs<sup>6</sup> providing a habitat for all 23 globally threatened species, and harboring significant populations of 14 of these species. Thus, these six NRs with the greatest concentration of biodiversity in five contiguous watersheds—Anbang, Dajiahe, Naoli, Muling, and Zhanbaodao watersheds—will be the focus of protection/restoration models. Thirteen counties, where these five watersheds are found, would strengthen the watershed approach through reforestation interventions in the Sanjiang watersheds.

11. The threats analysis identified four main threats to globally significant biodiversity in the Sanjiang Plain wetlands.<sup>7</sup> These are (i) changes in hydrology/desiccation; (ii) conversion to farmland; (iii) inappropriate resource use; and (iv) limited conservation capacity of NR staff and low awareness of adjacent communities. Key underlying causes contributing to biodiversity loss are (i) unsound local planning of water resources allocation; (ii) poor understanding of nonstructural flood mitigation and floodplains management; (iii) lack of alternative livelihoods, leading to exploitation of NR resources; (iv) weak inter-agency coordination for integrated watershed management; (v) weak technical capacity in NR management; (vi) lack of a replicable financing model for replacing arable farmland; (vii) low public awareness of wetland values and biodiversity conservation; and (viii) incorrect interpretation of legislation regarding experimental

<sup>3</sup> Further details regarding the contribution of the Project to key indicators of the business plan are provided in the Project Document, Annex E.3: Supplementary Appendix O.

<sup>4</sup> A detailed review and analysis is included in the full Project Document, Annex E: Supplementary Appendix A: Profile of Wetlands Biodiversity in the Sanjiang Plain.

<sup>5</sup> Over the last five decades, the forest cover has shrunk from 49% at the turn of the century to only 10% (about 11,000 sq km).

<sup>6</sup> The six target NRs are in Anbanghe, Dajiahe, Naolihe, Qixinghe, Xingkaihu, and Zhenbaodao. Xingkaihu NR is one of the three Ramsar sites included in the present Project. In the other two Ramsar sites (Honghe and Sanjiang NRs), the UNDP-GEF project is undertaking activities that are entirely different from those envisaged under the present Project. To avoid overlaps, these two sites were not included in the present Project. Details of site selection and a description of the six NRs are in the full Project Document—Supplementary Appendix C: Site Selection and the Selected Six Nature Reserves.

<sup>7</sup> These threats, and possible interventions to address them, are detailed in the Project Document, Annex E.3: Supplementary Appendix M.

zones.

12. The overall goal of the Project is the sustainable management of natural resources to protect globally significant biodiversity and to promote economic development. The immediate objective of the Project is the protection of the natural resources of the Sanjiang Plain wetlands and their watersheds (biodiversity, water resources, forests) from continued threats, and the promotion of their sustainable use through the integrated conservation and development of selected wetlands and forest areas of the Sanjiang Plain, and the improved well-being of local communities. The four main threats (and their underlying causes) are targeted by the following four closely linked project components.

14. **Component 1: Watershed Management.** Outcome: improved NR watershed management. The Project will enhance watershed-level water resource management, and improve forest management (to reduce surface runoff, and increase soil water retention and groundwater recharging). Activities include planting 11,900 ha of indigenous poplar and larch plantations on denuded slopes or farmlands to return these to legally required forest use; establishing interagency working groups among stakeholders at the local level for water resource management in targeted watersheds in and around NRs; developing model watershed-level water allocation plans incorporating flood control impact and wetland protection aspects, and institutionalizing this process.

15. **Component 2: Wetland Nature Reserve Management.** Outcome: enhanced biodiversity protection in wetland NRs. The Project will develop models and capacity for scientific wetland NR conservation management, and embed component outputs in NR management plans. Activities include the establishment of reliable information baselines and a GIS; management planning; pilot restoration of 3,342 ha (using a balance of restoration/habitat types); capacity building for the farmland-to-wetland restoration program; development of a monitoring program; production of a manual on farmland-to-wetland restoration; reduction of unsustainable resource use; and development and implementation of species recovery programs. The model wetland restoration approach will include alternative livelihoods (under component 3), to compensate for lost access to farmland and other resources.

16. **Component 3: Alternative Livelihoods.** Outcome: developed and sustained alternative livelihoods. The Project will develop and implement programs for sustainable livelihood in villages affected by the reforestation program (under component 1) and farmland-to-wetland restoration (under component 2).<sup>8</sup> This is to ensure that these restoration programs have a lasting beneficial effect. Villages affected by the forestry program will receive investments in agroforestry, intercropping, non-timber forest products (NTFPs), and apiculture. Villages affected by NR wetland restoration will be assisted through village development subcomponent, whereby villages submit development plans for approval; “green” investment plans (as listed by the Project) will be readily accepted and applicable for grant co-funding; and a separate “black list” will serve to eliminate unacceptable proposals. An ecotourism subcomponent will target NRs, and will include master planning for sustainable tourism, development of tourism guidelines, and pilot projects (capacity building and construction of basic NR infrastructure such as signboards).

17. **Component 4: Education and Capacity Building.** Outcome: increased conservation awareness and capacity for sustainable management of wetland NR biodiversity. The Project will develop and implement conservation education at local schools, public awareness programs for State Farms and communities in and around NRs; and a targeted training program for NR staff and other stakeholders, including water resource managers. A Project website will be established to facilitate information exchange and general awareness. The training program will include short-term on-the-job and long-term formal training, exchanges, study tours, and workshops. The training will be directly linked to component 2; for example, the development of the NR management plan and species recovery plans will be incorporated into the long-term training program.

18. The Project differs significantly from other wetland conservation and sustainable management projects in the PRC. First, it closely links integrated watershed management with the management of wetland

<sup>8</sup> No physical resettlement of people will be involved, but there will be compensation for loss of access to farmland in the wetland NRs. Because of the reallocation of the village’s remaining land, village collectives rather than individuals will be affected.

NRs, and establishes measures for replicating and mainstreaming this approach in other watersheds. The model approach for wetland restoration will guide wetland restoration in more than 150,000 ha in NRs in Heilongjiang Province, and throughout the country. Second, the Project will also provide innovative financial frameworks. While restoring farmland back to wetlands, Land Compensation and Village Development Plan subcomponent (using compensation funds made available by the government) will (i) provide alternative livelihoods for farmers; and (ii) ultimately lower the government's financial burden by turning sunk costs of land compensation into profitable investment opportunities. Third, forest development enhances the financial sustainability of wetland NRs management, as it allows the sharing of revenues from forest yields to cover the operation and maintenance costs of NRs. Finally, overall legal responsibility for coordinating integrated watershed management is placed under one provincial government; therefore, the Project has a strong advantage over inter-institutional coordination across sectors, as all activities are within the province. Interagency coordination between State Farms and HPG has already been occurring through the conversion of 333 ha in Xingkaihu Lake as a pilot site for the proposed Project, allowing lessons and learning from inter-institutional coordination to be further refined and replicated. The Project provides a valuable ground for mainstreaming inter-institutional coordination across sectors for wetland biodiversity protection.<sup>9</sup>

## 2. Key Indicators, Assumptions, and Risks

19. Key indicators of Project success are expansion in the Sanjiang Plain NR wetlands area, increase in wildlife populations, economically viable forestry investments, and absence of adverse effects on communities from farmland-to-wetland and farmland-to-forest restoration programs. Key assumptions are that the HPG's regulation prohibiting wetland conversion will be enforced, and that HPG's program to compensate farmers in the Project area with NDRC funds for farmland-to-wetland and farmland-to-forest restoration will be implemented. Key risks that may affect Project implementation and may affect Project success include (i) the level of cooperation in integrating inter-agency water resource management; (ii) the HPFD's capacity to manage wetland ecosystems; (iii) the presence of mutually beneficial relationships between protected areas and surrounding communities in undertaking the restoration program; and (iv) government counterpart financing for the Project. First, the Project will address the risks by nurturing good cooperation between agencies by establishing working groups at the county level for effective geographical and institutional distance from the target wetlands. Second, to address the matter of HPFD's capacity to manage wetland ecosystem, the Project supports technical expert inputs early on to build up necessary basic knowledge and to acquire equipment for basic functions (such as field surveys, long-term monitoring, data analysis, and enforcement), and develops exit strategy to sustain the capacity.<sup>10</sup> Third, the Project also induces mutually beneficial relationships with the communities, by providing incentives for eco-friendly development and a community awareness program to increase appreciation of the value of wetlands protection. Finally, regarding counterpart financing, the HPG has confirmed the earmarking of funds in its annual budget program for the wetland restoration program. To further reduce the risks associated with government counterpart financing, innovative approaches to alternative livelihoods for forest workers and the adoption of the village development approach as an investment alternative rather than sunk cost have been introduced. As NR management is within the purview of the Forest Department, HPG is also expected to demonstrate a high level of commitment to improve the economic potential of forest development, and thus share state forest revenues for the daily operation of NRs. Government financial commitments for the Project have been obtained through a Memorandum of Agreement, and will be further assured through a loan agreement with ADB.

## 3. Global Environmental Benefits and Incremental Cost Estimates

20. Global benefits from the Project will be derived from the (i) protection of globally endangered species, (ii) conservation of ecosystems that are under threat, and (iii) improvements in watershed management and wetlands habitat quality, leading to an increase in the number of wildlife. The replication of the Project model framework throughout the Sanjiang Plain will enhance these global environmental benefits.

<sup>9</sup> Details of the Project components and activities are in the Project document, Annex E.3: Supplementary Appendix E.

<sup>10</sup> Included in the Project Document, Annex E.3: Supplementary Appendix F.

21. Incremental cost estimates are based on the three levels of development inputs: business as usual (BAU), sustainable development (SD), and GEF alternative approach. The BAU baseline assumes continued investment by the government and donor agencies in watershed and water resource management, nature conservation, and further expansion of the protected area system. However, wetlands NRs continue to be operated without management plans and to use approaches that have proved to be less effective at stemming the decline of globally important species. The SD alternative adds to the BAU baseline investments by the government (including the ADB loan) in reforestation, and investments in economic development in villages affected by both the farmland-to-forest and farmland-to-wetland restoration programs. These investments will improve environmental management and conditions, but will mainly benefit the country. The GEF alternative scenario adds to both the BAU baseline and SD alternative activities that are designed to achieve the Project's global biodiversity objectives and are expected to generate significant global benefits. The cost of wetland restoration, for instance, will largely be borne by the PRC Government, and not by GEF. Physical interventions (GEF funded) amount to \$171 per ha, while associated farmland-to-wetland compensation (Government funded) amounts to \$3,000 per ha. GEF inputs largely go toward activities that reap global (46%) or shared (48%) benefits, and only a small percentage (6%) will go toward activities where national benefits are largely accrued. The estimated cost of the BAU baseline is \$39,850,000, that of the SD alternative \$ 79,510,000, and that of the GEF alternative \$90,557,000, resulting in an incremental cost of \$11,047,000. Intensive consultations have taken place during the Project preparation stage with the government stakeholders to jointly estimate incremental costs (Annex A: Incremental Cost Analysis).

### **C. Sustainability (including financial sustainability)**

22. Sustainability of benefits and achievements beyond the completion of the GEF Project will be positively affected by: (i) Promulgation of the "Regulation on Wetland Conservation of Heilongjiang Province," which took effect on 1 August 2003, and lays a solid foundation for long-term improvement in wetland conservation in the Sanjiang Plain; (ii) Financial commitments confirmed by the HPG for the implementation of the farmland-to-wetland and farmland-to-forest restoration programs; (iii) Availability of already on-going financial assistance by NDRC for affected communities from farmland-to-wetland program, rather than the simple provision of funds directly as compensation; (iv) Strong commitment of the PRC Government to improve water resource management flood protection, among others, by improving watershed management; (v) Development of practical/ workable models for wetland restoration (including restoration of local livelihoods) that are targeted to the local situation in the Sanjiang Plain; (vi) Strong emphasis of the Project on capacity building; this is included in each of the components, especially Component 4, which is entirely focused on education, awareness education, and training, along with development of training modules and curricula; (vii) Focusing on a single province (taking lessons from the current UNDP-GEF project on Wetlands Biodiversity and Sustainable Use in China) to bring decision-making closer to local stakeholders, facilitating bottom-up processes and inter-agency collaboration, communication and empowerment of local communities. Sanjiang plains are of tremendous importance to global biodiversity conservation and the project's focus on this region under a single province enhances sustainability.

23. Capacity developed under the project will be sustainable, as this is embedded in the following government commitments: (i) The model approach for wetland restoration will guide wetland restoration in more than 150,000 ha in NRs in Heilongjiang province, in the farmland-to-wetland restoration program funded by SFA-NDRC and implemented by HPFD. The Project is planned for implementation during the next 5-year period at an estimated cost to the PRC Government of over 7 billion yuan. A list of restoration sites and an outline of possible restoration methodologies have already been completed by FDHP. There will be a continued need for capacity building for wetland restoration and water resources management. (ii) NR management is a mandated function of HPFD. The provincial government's general budget sharing is the committed mechanism for continued funding, and is included as a covenant under the loan agreement with ADB. (iii) Affected villages will utilize part of land compensation costs allotted (at least 30% of the total), for implementing their respective village development plans, which will be pilot tested and functional, along guidelines established during the Project. Capacity developed under the Project will therefore remain operational.

#### **D. Replicability**

24. HPG has agreed to replicate wetland restoration models (including livelihood restoration) developed by the Project in its farmland-to-wetland restoration program, under which over 150,000 ha will be restored in wetland NRs in the Sanjiang Plain alone. Funds have been allocated for this replication by NDRC and HPG. The Project will facilitate this program by providing much-needed examples of how this can be achieved successfully, and maximizing benefits to biodiversity conservation. The watershed-level water resources management approach will provide a model for water resources management (and allocation for conservation) to the Song-Liao Water Resources Commission, allowing replication in subcatchments throughout the entire Songhua River basin and much of northeast PRC. The production of training manuals and development of training curricula will facilitate the further replicability of the model framework. In particular, the Project will be led by one provincial government, facilitating inter-agency coordination of water, forestry, agriculture, and environmental protection departments. Thus, lessons learned will be of great value in the course of replication in other contexts under the broader framework of river basin management.

#### **E. Stakeholder Involvement**

25. During Project formulation, stakeholders were identified at the local and provincial level and actively involved in Project formulation. The HPFD prepared a proposal for reforestation and improved forestry in June 2003, forming the basis for component one of the project, and consolidating plans produced by individual Sanjiang Plain counties. Meetings were held with NR management and staff, and with provincial agencies involved in NR management (especially State Forestry Administration/ SFA, State Environmental Protection Agency/ SEPA) in assessing reserve management requirements. Field work included social assessments, discussions with local community members, and assessments of local needs and constraints. Several provincial workshops were held in Harbin with key stakeholder agencies. Multi-stakeholder meetings have been held at the county level to discuss wetland NR resource management issues.

26. A Public Participation Plan (PPP)<sup>11</sup> has been formulated to promote the active participation of the affected populations (especially the poor and women) in Project implementation, monitoring, and evaluation, so that their problems, needs, and concerns can be addressed. The PPP will include Project stages of preparation, design, planning, implementation, monitoring and evaluation, and post-Project action. For each of these stages, the plan will lay out the type, purpose, and methods of participation, and assign responsibilities for accomplishing participation. Effective involvement of stakeholders, including local authorities, community members, and NR management, will be embedded in the PPP as part of Project implementation arrangements, i.e., working groups at the local level, and would continue during Project implementation.

#### **F. Monitoring and Evaluation**

27. ADB-GEF will monitor Project performance in line with the performance indicators included in the logical framework (Annex B)<sup>12</sup>, and as outlined in the Project review plan of the full Project document<sup>13</sup>. The Project will be overseen by the Project Steering Committee, and be subject to regular tripartite review by representatives from HPG, ADB, and GEF (national focal point) at least once every 12 months. The Executing Agency will be responsible for ensuring that 6-monthly and annual Project reports are prepared, translated, and submitted to members of the tripartite review panel well in advance of meetings. The Project Director of the Executing Agency is responsible for preparing, translating, and submitting quarterly, semi-annual, and annual Project reports to ADB, GEF, and HPG, and for preparing Project implementation reviews as required by GEF. About \$450,000 has been allocated for overall environmental monitoring and evaluation, excluding M&E planned directly under each subcomponent activity. At the Project inception stage, baseline indicators for environmental benefit monitoring and Project performance management system will be refined on the basis of the latest information.

<sup>11</sup> included in the Project Document, Annex E.3: Supplementary Appendix G.

<sup>12</sup> At present, a Project Information Form for Biodiversity (PIFB) is being developed by GEF as a tool for monitoring and evaluation of project results. It is expected that the form will make use of the same targets and indicators as described in the logframe, as the Project has already taken these indicators into consideration in anticipation of the PIFB.

<sup>13</sup> Project Performance Monitoring System, in the Project Document, Annex E.3: Supplementary Appendix K.



#### IV. FINANCIAL MODALITY AND COST-EFFECTIVENESS

28. The total cost of the Project is \$55.55 million, including a GEF grant of \$12.14 million, \$15.00 million in co-financing from an ADB loan, in-kind contributions of \$4.04 million from the county state forest beneficiaries, and counterpart contribution of \$24.37 million from the government. The government contribution will consist primarily of inputs from the State Forest Farms, HPG funding for livelihood support and land compensation, and labor input. Given the high degree of replicability anticipated under the farmland-to-wetland and farmland-to-forest restoration programs, and the drive to expand the total area under the NRs, this investment is regarded as being highly cost-effective.

Co-financing Sources				
Name of Co-financier (Source)	Classification	Type	Amount (US\$)	Status*
GEF Agency (ADB)	EA	Loan	15,000,000	Negotiation of Loan and Project Agreements completed on 27 December 2004
Government	EA/Government	Grant	24,370,000	Negotiation of Loan and Project Agreements completed on 27 December 2004
County level/State Forest Farms	Beneficiaries	In kind	4,040,000	Negotiation of Loan and Project Agreements completed on 27 December 2004
Subtotal Co-financing			43,410,000	

\* Reflects the status of discussions with co-financiers.

29. Also, the amount of associated financing (\$1,150,000) includes (i) ADB grant of \$250,000 for the poverty and environment fund to assist alternative livelihood development in three poverty counties in the Project area, (ii) ADB grant of \$500,000, for the PRC's Flood Management Strategy Study to incorporate wetland protection as part of flood management, and (iii) ADB grant of \$400,000 for Support for Environmental Legislation to strengthen laws and regulations on NR management and protection.

#### V. INSTITUTIONAL COORDINATION AND SUPPORT

##### A. Core Commitments and Linkages

30. The proposed GEF-funded intervention forms an integral part of the ADB loan program negotiated with the government, and is entirely consistent with the ADB's Country Strategy and Program (CSP). The CSP places strong emphasis on the following strategic areas: (i) pro-poor economic growth; (ii) enabling conditions for private sector expansion; (iii) financial sector reform; and (iv) environmental improvement, including land and water degradation issues. The sector and geographic areas of focus of ADB's lending in the 2005-2007 CSP deal with three areas: (i) agricultural and rural development, including land degradation, and soil and water management; (ii) transport and energy; and (iii) the environment, including water supply/wastewater/non-point pollution improvements. Green environment issues are of critical importance to the ADB in the PRC, especially where they relate to agriculture. Conservation of soils, forests, wetlands, and abatement of water pollution are recognized as critical environmental interventions with a positive economic impact. In this context, the proposed Project strongly supports ADB's principal strategic concerns. Also, PRC-GEF Partnership implemented by ADB on Land Degradation in Dryland Ecosystems is closely linked as it emphasizes institutional framework and capacity building for combating land degradation over 10 years at estimated investment of \$1.5 billion. This will facilitate forward linkages to strengthening capacity at national government level for overall ecosystem management.

##### B. Consultation, Coordination, and Collaboration Between IAs, and IAs and EAs, If Appropriate

31. ADB and HPG have worked together closely in the preparation of the Project proposal, and have held regular tripartite meetings to discuss and guide development of the proposal. In addition, there have been regular meetings for the exchange of information, data, reports, and ideas that have contributed to overall Project development. It is fully anticipated that this close cooperation will continue during Project implementation, and has been embedded in the Project Review Plan.

32. Close collaboration between UNDP, UNEP, and ADB during the preparatory phase has forged harmony in approaches adopted by each IA. The ongoing UNDP/GEF/SFA project will emphasize ecological principles and a technical approach, and continue its limited geographic focus, while technical advice on hydrological principles will be provided by this Project. UNEP has recently secured GEF PDF-B funds to prepare a full-size project: “Integrated Management of the Heilong/Amur River Basin” under OP9. This UNEP/SEPA project will provide an overall regional framework for transboundary river basin management, and cooperation among Russia, Mongolia, and PRC in broader institutional cooperation. Key differences between the UNEP/SEPA and ADB/HPG projects lie in the learning experiences and implications for wetlands protection policy: the proposed Project will provide knowledge and lessons in managing globally significant biodiversity protection under a provincial government for inter-sectoral coordination, while the UNEP project would elicit lessons for international cooperation in transboundary water issues at the national level. Other lessons learned from various biodiversity projects under PRC/GEF have been fully reflected and incorporated in the Project design.<sup>14</sup>

### **C. Project Implementation Arrangements**

33. HPG will have overall responsibility, as the Executing Agency for coordinating, supervising, and implementing all Project activities. A Project Management Office (PMO) will be set up within HPFD for the day to day implementation of the Project, under the guidance of a Project Steering Committee. The PMO will be composed of professional and administrative staff assigned from existing agencies and hired specifically for the Project. It will have the capacity to administer funds from grant, loan, and local government counterpart funding sources and execute Project activities in coordination with HPG Financial Bureau and its line agencies. The HPG Financial Bureau (HPFB) will be responsible for the administration and supervision of disbursements of the proceeds or counterpart funds, from the loan, the GEF grant, the central government, State farm bureaus and Heilongjiang country finance bureaus to the HPG agencies under the Project, in accordance with requirements and guidelines of HPG, ADB, and GEF. A field office will be based in Baoqing county, near the center of the Sanjiang Plain, to support field activities. In order to accord proper acknowledgement to GEF for providing funding to the project, all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds will be required to include GEF logo.

34. The four components of the project are integrated in order to accomplish the Project’s intended outcomes, and basic implementation arrangements are:

- (i) Component 1: Under the Watershed Management component, forestry plantation and treatment activities financed by the ADB loan will be implemented by County Forestry Bureaus using their staff and forest farm workers, with supervision from the Project Forestry Plantations Specialist. The NR Water Resource Management subcomponent will be implemented by the Wetlands Biodiversity Specialist and NR managers, with substantial assistance from consultants. The basin-level water resource allocation study and management will be carried out by the Provincial Department of Water Resources (led by the Heilongjiang Project Management Office team involved in Songhua Flood Management Project financed under ADB fund), in coordination with HPFD.
- (ii) Component 2: Wetlands Nature Reserve Management component will be implemented by the NR managers and staff, with substantial technical assistance from the Wetlands Biodiversity Specialist and consultants, including the International Wetlands Expert. The Reduction of Resource Exploitation subcomponent will be implemented by the Community Participation Specialist in coordination with local communities and NR managers.
- (iii) Component 3: The Alternative Livelihoods component will be implemented in two ways. First, the intercropping and NTFP investments under the ADB loan are to be implemented by the County Forestry Bureaus with the forest farm workers; the NTFP Specialist will provide supervision and technical assistance. The village development and ecotourism subcomponents will be implemented

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<sup>14</sup> Further details concerning other relevant GEF assistance to the PRC are presented in Annex E.3: Supplementary Appendix N.

by the Community Participation Specialist, in coordination with local communities and NR managers.

- (iv) Component 4: Education and Capacity Building component will be implemented by the PMO's Education and Capacity Specialist, with substantial help from consultants and provincial universities (e.g. Northeast Forestry University or Northeast Agricultural University).
- (v) Project Management Office will overview, coordinate, and supervise overall project implementation in coherent manner, and conduct integrated environmental monitoring program.

**List of Annexes:**

- Annex A: Incremental Cost Analysis
- Annex B: Logical Framework for Sanjiang Plain Wetland Protection Project
- Annex C.1: STAP Expert Review on 20 June 2004 and ADB Response
- Annex C.2: GEF Secretariat Review on 15 July 2004 for Work Program Inclusion and ADB Response
- Annex C.3: World Bank Review on 15 July 2004 and for Work Program Inclusion and ADB Response
- Annex C.4: Convention Secretariat Comments on 23 July 2004 and for Work Program Inclusion and ADB Response
- Annex C.5: GEF Council Review on 22 September 2004 and ADB Response
- Annex D: MOF Endorsement Letter for GEF
- Annex E.1: Project Document – RRP
- Annex E.2: Loan and Project Agreements
- Annex E.3: Supplementary Appendices
  - A. Profile of Wetlands Biodiversity in the Sanjiang Plain
  - B. Institutional, Legal, and Policy Analysis
  - C. Site Selection and the Selected Six Nature Reserves
  - D. GEF Executive Summary
  - E. Project Components and Activities
  - F. Exit Strategy enhancing Sustainability and Viability of the Intervention toward Scale-up
  - G. Social Assessment and Public Participation Plan
  - H. Full Resettlement Framework
  - I. Resettlement Plan of Mishan County (Xingkaihu NR)
  - J. Resettlement Plan of Baoqing County (Qixinghe NR)
  - K. Project Performance Monitoring System
  - L. Initial Environmental Examination and Environmental Management Plan
  - M. Threats Analysis
  - N. Other GEF Assistance to China
  - O. Project Contribution to Operational Programs and Key Indicators of GEF Business Plan
  - P. Financial Economic Analysis
  - Q. Outline Terms of Reference for Consulting Services
  - R. Details of Project Costs and Financing Plan

## ANNEX A: INCREMENTAL COST ANALYSIS

### A. BROAD CONTEXT AND DEVELOPMENT GOALS

1. The Government of China's development program was set out by the 16th Party Congress in 2002, the 10th National People's Congress of 2003, and the Tenth Five-Year Plan (2000-2005). The major focus of national economic policy has gradually shifted in the last few years from hard economic indicator targets towards quality of growth and sustainable development. In addition to continuing the strong emphasis on market-related reforms and non-state sector development, the Government is increasingly emphasizing protection of the environment and improving quality of life by reducing poverty.
2. Economic priorities include programs to increase rural incomes, reduce poverty in rural areas, improve income distribution and enable the private sector to create employment. One of the strategies for agricultural reform is to allow farmers to exit from the sector through selling land-use rights or taking advantage of government land conversion programs (e.g., farms to forests program).
3. The agricultural sector has been increasingly emphasizing environmental protection and sustainable farming since the Agenda 21 Agriculture Action Plan in 1998. This document mentions the need for biodiversity conservation and wise use of farmland, grassland, and fishery ecosystems, as well as monitoring and control of agricultural pollution. It sets a goal for "strengthening the conservation of wildlife resources in the agricultural/pasture/fishery areas," and for "establishing 160 conservation zones to cover a total area of 25 million hectares, including 100 key fishery water body conservation zones (including wetland)" so as to form a network of natural conservation zones (to include monitoring and research) in agricultural/pasture/fishery areas.
4. The PRC's Biodiversity Conservation Action Plan (BCAP) was promulgated on 13 June 1994. The BCAP lists and describes priority projects for biodiversity conservation. Project 18 is the "Establishment of Integrated Nature Reserve [Network] in the Sanjiang Plain, Heilongjiang Province." This has been accomplished in part by establishment of more than 50 national, provincial, and local NRs. Project 18 also requires "an integrated approach to conservation in the Sanjiang Plain."
5. The PRC's National Wetland Conservation Action Plan (NWCAP) was published in September 2000. It complements BCAP, and is the key guidance document on conservation, use, management, and exploitation of wetlands in China. The NWCAP lists among "important wetlands in the PRC" several that are to be included in the Project, i.e., the Sanjiang Plain in general, and the Qixing-Naoli River basin, the lower reaches of the Muling River, and Xingkai and Small Xingkai Lakes, specifically. Specific actions called for in the NWCAP include many activities for inventory and study of wetlands, as well as "comprehensive management of wetland and hydrologic basins," and specifically, in Project 20, "wetland conservation and sustainable use of the Sanjiang Plain."
6. These National policy initiatives set the stage for the Sanjiang Plain Wetland Protection project, establishing its priority in relevant national conservation programs, and the compatibility of its basic purpose with national government interests. The legal and regulatory framework for the Project is elaborated further at the Provincial level.

### B. GLOBAL BIODIVERSITY BENEFITS

7. The Project outputs listed in Table 1 will improve habitat and wildlife management at nature reserves and will result mainly in global benefits. This is because the six Project nature reserves (NRs) were selected on basis that they support significant populations of globally threatened species, whose conservation would benefit from interventions to remove threats to global survival. The benefits of these interventions – predominantly conservation activities – therefore, accrue mainly to the global community.
8. Activities financed include:
  - Output 2.1: Develop models and capacity for wetland NR conservation management, and embed component outputs in NR Management Plans. Activities include monitoring program (for wildlife, habitats) development; establishing reliable information baselines and a GIS; and developing management plans.

- Output 2.2: Design and implementation of farmland-to-wetland restoration pilot projects in six Project NRs to develop technologies for guidance of the larger government restoration project currently in planning; publication and dissemination of restoration manuals. Involves capacity building for the farmland to wetland restoration program, production of a manual on farmland to wetland restoration, and providing inputs to the NR Management Plans. Pilot wetland restoration will include replacing livelihood losses incurred by communities losing access to farmland and other resources (under component 3.2).
- Output 2.3: Development and implementation of recovery plans for globally threatened species; publication and dissemination of results; participation in regional and international conservation initiatives for globally threatened species; and incorporation of recovery plans into NR management plans.
- Output 2.4: Design and implementation of programs to reduce unsustainable use of natural resources through cooperation with communities surrounding NRs, and provision of training in enforcement. Includes production and distribution of guidance manuals to ensure replication at other protected areas, and providing inputs to NR Management Plans.

**Table 1. Project outputs that result in global benefits.**

Project Output	Global Benefits	
	GEF Contribution (US\$ millions)	Other Contribution (US\$ millions)
Output 2.1: Models and capacity developed for scientific monitoring of natural resources	1.256	0.569
Output 2.2: Models and capacity developed for farmland-to-wetland restoration	1.661	0.330
Output 2.3: Globally threatened species recovery plans drafted, implemented, and incorporated into NR management plans	1.005	0.394
Output 2.4: Reduced exploitation of globally threatened species and their habitats and prey	0.094	0.094
<b>TOTAL</b>	<b>4.016</b>	<b>1.387</b>

**C. SHARED GLOBAL AND NATIONAL BIODIVERSITY BENEFITS**

9. The Project outputs listed in Table 2 will yield global benefits by removing threats to globally threatened species and contributing to restoration of their local populations, while also yielding national benefits. These are summarized below:

- Output 1.2: The six Project NRs lie in watersheds in which the Project will develop cross-sectoral working groups for the purpose of integrating water resource and wetland biodiversity management. The working groups will bring together representatives from the range of natural resource and economic development interests surrounding each NR. These groups will be charged with integrating and addressing the broad range of issues around the NR. The main goal of the working group will be to ensure that wetland biodiversity conservation receives consideration, particularly in terms of local-level water allocation but will also pertain to other resources. The resulting benefits will accrue globally in terms of removal of threats to wetland-dependent species. National benefits will include restored wetland functions such as flood management, water supply and water purification.
- Output 1.3: Watershed-level models will be developed for integration of water resource allocation planning to ensure allocation of required water supplies to NRs required to maintain ecological functions. The resulting benefits will accrue globally in terms of enhanced migration and breeding habitats for globally threatened waterbirds. National benefits will include restored wetland functions such as flood management, water supply, and water purification, but also an improved water resource planning mechanism for other users.
- Output 3.3: Assessment of the potential for tourism development and drafting of development plans will yield national benefits in terms of potential for employment in an emerging tourism industry. Global and

national benefits will accrue from establishing ecotourism guidelines that will help reduce impacts and inappropriate development, and tourism revenues that help fund NR conservation activities for which the Government allocations have been historically inadequate.

**Table 2. Project outputs that result mainly in both global and national benefits.**

Project Output	Shared Benefits	
	GEF Contribution (US\$ millions)	Other Contribution (US\$ millions)
Output 1.2: Local (NR)-level water resource management improved	0.249	0.082
Output 1.3: Watershed-level water allocation planning enhanced	0.509	0.159
Output 3.3: Sustainable tourism opportunities created	0.919	0.058
Output 4.1: Conservation education program developed and implemented	0.274	0.179
Output 4.2: Conservation awareness program developed and implemented	0.159	0.086
Output 4.3: Wetland conservation management capacity enhanced	2.443	0.493
<b>TOTAL</b>	<b>4.553</b>	<b>1.057</b>

- Output 4.1: Conservation education in the local school systems will yield national benefits through increased awareness of environmental and ecological issues, and consequently increased capability to protect and restore natural resources. Global benefits will accrue from the impacts of these changes on NRs and populations of wild plants and animals, especially those under global threat.
- Output 4.2: Benefits of conservation awareness are similar to those of conservation education. The targets here are the farm communities and State Farms surrounding the Project NRs. The objective is to enable farmers, farm managers, and villagers to coexist with protected areas and threatened wildlife in ways that remove existing threats. Leading examples are the use of agricultural chemicals, and understanding the need for water allocation for wetland NRs.
- Output 4.3: Enhanced capability for natural resource management at the technical and managerial levels is critical to the long-term success of the Project. National benefits will accrue from increased educational and employment opportunities, increased wildlife abundance, and higher quality NRs that attract more visitors. Global benefits will accrue from improved NR management that enables protection and recovery of globally threatened species.

#### **D. NATIONAL BENEFITS**

10. The Project outputs listed in Table 3 will yield mainly national benefits. Examples are described below:

- Output 1.1: Forests will be restored as plantations of indigenous species on upland farmlands and degraded areas, and poorly managed plantation forests will be improved through targeted treatments. Sites for plantations and forest treatment have been selected in the watersheds of the six target NRs. National benefits will be slope stabilization, reduced sedimentation, improved hydrologic regimes, and increased economic opportunities due to increased timber production. A reduction in pressures on remaining natural forest will provide some global benefits. Carbon sequestration and increased surface water infiltration benefiting globally significant wetlands will accrue some global benefits as well, but these will be minor in contrast to the national benefits. Although the total area of new forest plantations is modest, the beneficial effect on watershed protection is disproportionately large as almost two-thirds will involve establishing larch plantations on denuded (moderately) steep slopes.
- Output 3.1: Increased incomes from NTFPs and agroforestry will yield mainly national benefits. Reduced reliance on crop farming will yield environmental benefits including reduced runoff and erosion, but these will be largely national benefits.
- Output 3.2: The resettlement compensation and village development plan will aim to replace or increase local incomes affected by the farmland to wetland restoration program. This will yield mainly national

benefits in the form of local economic development. GEF inputs are for stimulating ‘green development’ through the village development plan. Global benefits will be the sustainability of the farmland to wetland restoration program, and an increased sustainability of conservation area management programs aimed at reducing impacts to globally threatened species due to over-exploitation.

**Table 3. Project outputs that result mainly in national benefits.**

Project Output	National Benefits	
	GEF Contribution (US\$ millions)	Other Contribution (US\$ millions)
Output 1.1: Plantation forest cover increased and degraded forests improved	0	22.208
Output 3.1: Livelihoods improved based on NTFPs & agroforestry	0	4.340
Output 3.2: Village economic development project implemented	1.279	9.159
<b>TOTAL</b>	<b>1.279</b>	<b>35.707</b>

## **E. THE PROCESS OF ESTIMATING INCREMENTAL COST**

11. Estimation of the incremental cost of the project flowed from the threats analysis, and the logical framework matrix, guided by the GEF document GEF/C.20/6 on “Co-financing” (GEF 2002). Based on the threats analysis, the Project’s objectives, outputs, activities and their associated costs were defined and activities were categorized in terms of their potential for generating global and/or national benefits. Most activities generated at least some benefits in both categories, but were assigned to global, shared, or national on the basis of the proportion of benefit. For example, forest plantations will result in increased water infiltration and soil stabilization that are primarily of national benefit, but will also result in (limited) global benefit by improving water supply and quality in wetland NRs. While this would benefit globally threatened fish and piscivorous birds, the global benefit was considered relatively minor, therefore the entire benefit was considered national.

### **1. Incremental Cost Analysis**

#### **1.1 Baseline Scenario**

12. The ‘Business as Usual’ (BAU) baseline situation is what would have occurred in the ‘without project’ situation, and for the purpose of this calculation has been based on existing programs and budgets, for example, the operational budgets of NRs as they appear in the annual work plans produced for the reserves.

13. The BAU baseline scenario includes reforestation of upland farmlands and management of existing plantations, but selection of sites under the baseline would not be linked to wetland NR watersheds. There would be an established network of wetland NRs and annual government allocations of funds to manage them. They would, however, continue to operate without management plans and use approaches that have proved to be less effective at stemming the decline of globally important species. Recovery of globally threatened species would not be accelerated by projects specially designed for that purpose. Two programs would restore some farmlands to wetlands, but compensation payments to displaced farmers would not be designed to yield long-term economic benefits, nor would there be any incentives for adopting environmentally friendly approaches in economic development. Water resources would be allocated first to municipalities, then to industry and agriculture, and then, if a surplus remained, it would be available for NR use. Tourism facilities would be developed, but this would come at a cost in terms of wetland habitat. NR personnel would continue to be hampered in performance of their duties by lack of training and education. Communities surrounding NRs would not become involved in conservation management. Populations of globally threatened species would continue to decline or at best show only marginal recovery.

14. The present farmland to wetland and farmland to forest restoration programs will provide compensation to farmers as directed by the Government resettlement guidelines. Current practice is to provide compensation in kind (rice) or by direct payment for loss of income. These are sunk costs, however, and do not contribute to economic development. The long-term effect is that farmers remain dependent on handouts to maintain their

income or still have the need to replace lost farmland.

15. The Government has identified wetland biodiversity as a top priority for conservation action in its National Wetland Conservation Action Plan and Biodiversity Action Plan. The Agenda 21 White Paper and Agricultural Action Plan emphasize the importance of nature and wetland conservation and eco-friendly agriculture. Activities covered by these plans are substantive and are supported by a Heilongjiang Province ban on conversion of wetlands in NRs. Other baseline actions include the improvement of the legal framework, institutional reform, and research and monitoring by institutes and universities. Government efforts to expand the protected area system have been impressive but efforts to fund NR operations and upgrade reserve management have lagged behind the pace of expansion. The Government recognizes this shortcoming and is making efforts to correct it. In addition to the Government's own resources, many multilateral aid projects have contributed expertise and funding to enhance the protected area network and establish bases of information for wetland and biodiversity management.

16. In the BAU baseline situation sufficient funds would not be allocated and trained personnel would not be available to fully protect wetland biodiversity or carry out the mandates of the various conservation action plans. Nor would models be available to demonstrate environmentally sound and economically viable programs for long-term sustainable use of natural resources, restoration of wetlands, and integrated water resource management that takes wetland NR requirements into account. Taking only the Government contributions into account, the cost of the baseline scenario has been calculated at US\$ 39,850,000 (Table 4).

### **1.2 Sustainable Development (SD) Alternative**

17. The Sustainable Development (SD) Alternative alternative adds to the BAU baseline investments by the government and beneficiaries (including the ADB loan) in reforestation, and investments in economic development in villages affected by both the farmland to forest and the farmland to wetland restoration programs. These investments will improve environmental management and conditions, but will be mainly aimed for financial viability, and thus for national benefit. The total cost of the SD Alternative is US\$ 79,510,000, excluding contingencies and interest (Table 4).

### **1.3 GEF Alternative**

18. In contrast, the GEF alternative will establish mechanisms for restoring and protecting natural resources at the watershed scale while integrating the needs of diverse stakeholders including government agencies, state farms and farmers, and nearby municipalities. The Project will increase the tree cover in fragile uplands to protect soils, slopes and watersheds, while providing profitable crops and alternative employment opportunities to low-income farmers and villagers. The GEF alternative will promote increased ecosystem and economic productivity through better land use. This will enable local, regional, and global stakeholders to derive benefits from recovery of lost ecosystem functions. The alternative will provide much needed models for wetland restoration (that includes maintaining local livelihoods), watershed level water resources management, and species and habitat recovery and management. The GEF alternative will lead to enhanced knowledge and awareness of conservation issues, and a significantly increased capacity for sustainably managing wetland NRs. The GEF alternative is calculated to be US\$ 90,557,000.

19. Costs: The difference between the GEF alternative and the Sustainable Development baseline amounts to US\$ 11,047,000, which represents the incremental cost of achieving sustainable global environmental benefits. The GEF is therefore requested to fund US\$ 11,047,000 of the Project cost. If contingencies (\$1,093,000) are included, the amount requested from GEF is US\$ 12.14 million. Details are in Tables 4 & 6.

20. Table 5 gives a breakdown of BAU baseline, SD Alternative, GEF Alternative and Incremental Costs by component and output. Table 6 gives a breakdown of the SD Alternative, identifying the sources of funding for the SD Alternative by component and output. The inputs for the SD Alternative include US\$15.00 million in co-financing from an ADB loan, in-kind contributions of \$4.04 million from the county level state forest beneficiaries, and a counterpart contribution of US\$24.37 million from the Government. The latter will consist primarily of inputs from the State Farms and, HPG funding for village development livelihood support and land compensation, and labor input.



**Table 4. Incremental Cost Matrix for the Sanjiang Plain Project.**

Area relevant to the Project	Cost category	Cost (\$million)	Domestic Benefit	Global Benefit
<b>Component 1: Watershed management improved for NRs.</b>				
A. Reforestation under present program, and flood management	Business as usual (BAU) baseline	29.960	Increase in area under trees, and increased employment. Flood and drainage management	Increase of carbon storage in wood and forest soils.
B. Added investment in reforestation, and water resources management.	Sustainable development (SD) alternative	52.409	Better watershed protection. Technological & profit improvement. Replenished ground and surface water.	Some increase in biodiversity; limited effect on wetland water resources.
C. Local level (NR) and watershed water resources management incorporating wetland protection.	GEF alternative	53.167	Reduced risk of flood and drought. Improved water allocation and planning. Improvement in water allocation may reduce water shortages.	Water resources ensured for wetlands supporting globally significant biodiversity.
	<b>Increment</b>	<b>0.758</b>		
<b>Component 2: Biodiversity protection enhanced in wetland NRs.</b>				
A. Network of wetland NRs and annual government allocations of funds to manage them. No management plans, and applying ineffective approaches.	BAU baseline	6.300	Conservation efforts yield some national and economic benefits.	Losses of globally significant species occurs at slower rate than if network did not exist.
B. Reducing unsustainable resource use.	SD alternative	7.687	Economic benefits are more sustainable.	Rate of decline of globally significant species is reduced.
C. Models management of wetland NRs, embedded in management plans. Monitoring programs, pilot restoration, & guidelines for future restoration; species recovery programs.	GEF alternative	11.704	No change.	Rate of loss of migrant and globally significant species reduced. Prerequisites for rebounding of significant populations.
	<b>Increment</b>	<b>4.017</b>		
<b>Component 3: Sustainable alternative livelihoods provided.</b>				
A. Direct compensation payments to displaced farmers in farmland to wetland restoration program.	BAU baseline	3.050	Incomes are guaranteed, but economic benefit limited.	No change.
B. Investments for economic development programs (NTPPs, intercropping; village development funds).	SD alternative	16.607	Incomes guaranteed, along with increased economic development.	No change.

Area relevant to the Project	Cost category	Cost (\$million)	Domestic Benefit	Global Benefit
C. Stimulation of 'green investments' and appropriate forms of ecotourism	GEF alternative	18.805	No change.	Reduction of negative impacts on globally significant species.
	<b>Increment</b>	<b>2.198</b>		
<b>Component 4: Conservation awareness and management capacity of wetland NR biodiversity strengthened.</b>				
A. NR programs for staff training, extension and education continue.	BAU baseline	0.540	Conservation efforts yield some national social and environmental benefit.	Losses of globally significant species occurs at slower rate than if this program did not exist.
B. Increased extension, to reduce inappropriate use of agrochemicals.	SD alternative	1.298	Environmental and economic gains, due to improved water quality and reduced pesticide use.	Losses of globally significant species occurs at slower rate than if this program did not exist.
C. Education, awareness, outreach and extensive training programs.	GEF alternative	4.174	Limited gains.	Significant improvement of management of key wetlands; reduction of impacts on/ recovery of populations of globally significant species
	<b>Increment</b>	<b>2.876</b>		
<b>Project Management</b>				
	SD alternative	1.509		
	GEF alternative	2.707		
	<b>Increment</b>	<b>1.198</b>		
Totals	BAU baseline	39.850		
	SD alternative	79.510		
	GEF alternative	90.557		
	<b>Increment</b>	<b>11.047*</b>		

Note: \* Excludes US\$ 0.33 million Project Development Fund Block B grant for project preparation this does not include \$1.10 million for 10% contingencies

**Table 5. Cost Components by Outputs and Activities (US\$ million)**

Item	Business as Usual Baseline (C)	Sustainable Development Alternative (B)	GEF Alternative (A)	Incremental Cost (A-B)
<b>Component 1. Improved Watershed Management</b>				
Output 1.1 Forest Improvement	29.860	52.068	52.068	0.000
Output 1.2 Enhanced local water resource planning	0.000	0.082	0.331	0.249
Output 1.3 Enhanced watershed-level water resource planning	0.100	0.259	0.768	0.509
<i>Subtotal</i>	29.960	52.409	53.167	0.758
<b>Component 2. Wetland Nature Reserve Management</b>				
Output 2.1 Enhanced conservation management	5.000	5.569	6.825	1.256
Output 2.2 Models and capacity development for wetland restoration	0.240	0.570	2.231	1.661
Output 2.3 Wildlife species recovery	0.560	0.954	1.959	1.005
Output 2.4 Reduction of overuse of natural resources	0.500	0.594	0.688	0.094
<i>Subtotal</i>	6.300	7.687	11.704	4.016
<b>Component 3. Alternative Livelihoods</b>				
Output 3.1 Improved livelihoods based on NTFPs and agroforestry	0.050	4.390	4.390	0.000
Output 3.2 Land compensation and village development	0.000	9.159	10.438	1.279
Output 3.3 Sustainable ecotourism and opportunities created	3.000	3.058	3.977	0.919
<i>Subtotal</i>	3.050	16.607	18.805	2.198
<b>Component 4. Conservation education &amp; capacity building</b>				
Output 4.1 Conservation education program developed & implemented	0.120	0.299	0.573	0.274
Output 4.2 Conservation awareness program developed & implemented	0.120	0.206	0.365	0.159
Output 4.3 Wetland management capacity developed	0.300	0.793	3.236	2.443
<i>Subtotal</i>	0.540	1.298	4.174	2.877
<b>Components Subtotal</b>	<b>39.850</b>	<b>78.001</b>	<b>87.850</b>	<b>9.848</b>
<b>Project Management</b>				
Project Management Office	0.000	1.189	2.247	1.059
Environmental Management	0.000	0.320	0.460	0.140
<i>Subtotal</i>	0.000	1.509	2.707	1.199
<i>Total cost of alternatives</i>	39.850	79.510	90.557	
<i>Project baseline costs</i>		39.660	50.707	11.047
<b>Contingency</b>		<b>1.564</b>	<b>2.657</b>	<b>1.093</b>
<b>Interest Charges</b>		<b>2.181</b>	<b>2.181</b>	<b>0.000</b>
<b>Overall Project Cost</b>		<b>83.255</b>	<b>95.395</b>	<b>12.140</b>

Table 6. Contribution to SD Alternative  
Units = US\$ million

Item	Business as Usual Baseline (C)	Sustainable Development Alternative (B)	Contribution to SD Alternative	
			ADB	GoC
<b>Component 1. Improved Watershed Management</b>				
Output 1.1 Forest Improvement	29.860	52.068	12.262	9.946
Output 1.2 Enhanced local water resource planning	0.000	0.082	0.000	0.159
Output 1.3 Enhanced watershed-level water resource planning	0.100	0.259	0.000	0.159
<i>Subtotal</i>	29.960	52.409	12.262	10.188
<b>Component 2. Wetland Nature Reserve Management</b>				
Output 2.1 Enhanced conservation management	5.000	5.569	0.000	0.569
Output 2.2 Models and capacity development for wetland restoration	0.240	0.570	0.000	0.330
Output 2.3 Wildlife species recovery	0.560	0.954	0.000	0.394
Output 2.4 Reduction of overuse of natural resources	0.500	0.594	0.000	0.094
<i>Subtotal</i>	6.300	7.687	0.000	1.382
<b>Component 3. Alternative Livelihoods</b>				
Output 3.1 Improved livelihoods based on NTFPs and agroforestry	0.050	4.390	1.390	2.950
Output 3.2 Land compensation and village development	0.000	9.159	0.000	9.159
Output 3.3 Sustainable ecotourism and opportunities created	3.000	3.058	0.000	0.058
<i>Subtotal</i>	3.050	16.607	1.390	12.167
<b>Component 4. Conservation education &amp; capacity building</b>				
Output 4.1 Conservation education program developed & implemented	0.120	0.299	0.000	0.179
Output 4.2 Conservation awareness program developed & implemented	0.120	0.206	0.000	0.086
Output 4.3 Wetland management capacity developed	0.300	0.793	0.000	0.493
<i>Subtotal</i>	0.540	1.298	0.000	0.758
<b>Components Subtotal</b>	39.850	78.001	13.652	24.500
<b>Project Management</b>				
Project Management Office	0.000	1.189	0.300	0.889
Environmental Management	0.000	0.320	0.284	0.036
<i>Subtotal</i>	0.000	1.509	0.584	0.925
<i>Total cost of alternatives</i>	39.850	79.510	14.235	25.425
<i>Project baseline costs</i>		39.660		
<b>Contingency</b>		1.564	0.765	0.799
<b>Interest Charges</b>		2.181	0.000	2.181
<b>Overall Project Cost</b>		<b>83.255</b>	<b>15.000</b>	<b>28.405</b>

**ANNEX B: LOGICAL FRAMEWORK**

Design Summary	Key Performance Indicators	Monitoring Mechanisms	Assumptions/Risks
<b>GOAL:</b>			
Improved management of natural resources to protect globally significant species and to sustain economic development	Conservation status of eight key globally threatened species in the Sanjiang Plain lifted from the lists of endangered-to-vulnerable species	World Conservation Union biodiversity surveys	Improved management of natural resources to protect globally significant species and to sustain economic development
<b>PURPOSE:</b>			
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	<ul style="list-style-type: none"> <li>• By 2010, populations of native species in 6 target NRs up by at least 10% (improved biodiversity)</li> <li>• By 2010, nature reserve (NR) and watershed water resource management mechanisms in the Sanjiang Plain established and/or integrate wetland water requirements</li> <li>• Income status of affected villages maintained or increased through environmentally sustainable alternative livelihood mechanisms</li> <li>• By 2010, wetland restoration model replicated in 5-6 additional Sanjiang Plain wetland NRs</li> </ul>	<ul style="list-style-type: none"> <li>• NR and provincial wetland inventories</li> <li>• Targeted NR species censuses and associated habitat surveys</li> <li>• Red Data Book and other endangered species status reports</li> <li>• NR water allocation surveys</li> <li>• Forest cover assessments</li> <li>• Socioeconomic surveys</li> <li>• Reports detailing changes in water resource management strategies (e.g., from engineered solutions to nonstructural solutions)</li> <li>• National poverty census statistics</li> </ul>	<ul style="list-style-type: none"> <li>▪ Assumptions</li> <li>• Provincial regulation preventing further wetland conversion in NRs is enforced.</li> <li>• Government follows through on its commitment to implement the SFA/NDRC Farmland to Wetland Restoration Program.</li> </ul>
<b>OUTPUTS:</b>			
<b>1. Watershed Management</b>			
<b>1.1 Forest Improvement</b> <ul style="list-style-type: none"> <li>• Increased forest cover</li> <li>• Increased forestry-based income</li> <li>• Improved forest stand health and performance</li> </ul>	<ul style="list-style-type: none"> <li>▪ By 2010, upper watershed forest cover increased by 11,900 ha in 13 counties and 5 watersheds</li> <li>• By 2010, international silvicultural health standards achieved in 43,700 ha of existing upper watershed forest in 13 counties</li> </ul>	<ul style="list-style-type: none"> <li>• County and provincial forestry assessments</li> <li>• County silviculture survey reports</li> <li>• NR water flow and recharge monitoring, baseline and annual water balances</li> </ul>	<ul style="list-style-type: none"> <li>Assumptions</li> <li>• Government forestry sector and resettlement investments are carried out.</li> </ul>
<b>1.2. Local (NR) Level Water Resource Management</b> <ul style="list-style-type: none"> <li>• Strengthened water resources management at the local level</li> <li>• Improved coordination among local stakeholder agencies for management of water resources</li> </ul>	<ul style="list-style-type: none"> <li>• By project year 3, water resource management sections incorporated into the management plans of 6 NRs</li> <li>• By 2010, local water allocation plan for NRs increased by at least 20%</li> <li>• By 2010 wetland protection criteria and management requirements included in water resource plans</li> </ul>	<ul style="list-style-type: none"> <li>• Baseline and annual reviews of NR planning status</li> <li>• NR water flow and recharge monitoring, baseline and annual water balances</li> <li>• Working group meeting minutes</li> </ul>	<ul style="list-style-type: none"> <li>Risks</li> <li>• External factors (e.g., climatic anomalies, regime change) lead to further upper watershed deforestation.</li> </ul>
<b>1.3 Watershed Level Water Allocation Planning</b> <ul style="list-style-type: none"> <li>• Provision of adequate water to meet ecological water requirements in NRs</li> <li>• Integration of management of water resources at the</li> </ul>	<ul style="list-style-type: none"> <li>• By 2010, wetland issues integrated into water resources allocation in the Wusuli, Naoli-Qixing, Anbang, and Qihulin/Abuqin rivers</li> <li>• By project year 2, interagency coordination body formed, and meeting quarterly</li> <li>• By 2010 Songhua River Basin Management Authority ready to adopt</li> </ul>	<ul style="list-style-type: none"> <li>• Baseline and periodic institutional assessments of planning at provincial county, and watershed levels</li> <li>• NR water flow and recharge monitoring, baseline and annual water balances</li> </ul>	

Design Summary	Key Performance Indicators	Monitoring Mechanisms	Assumptions/Risks
watershed level <ul style="list-style-type: none"> <li>Incorporation of wetland protection criteria into flood management plans</li> </ul>	integrated Songhua River Basin Management Plan incorporating wetland protection.	<ul style="list-style-type: none"> <li>Comparisons of actual water flows and levels with provincial water resource allocation plans</li> </ul>	
<b>2. Wetland Nature Reserve Management</b>			
2.1 Conservation Management <ul style="list-style-type: none"> <li>Improved conservation management practices with respect to wetlands and wildlife in NRs</li> </ul>	<ul style="list-style-type: none"> <li>Significant recovery of biodiversity achieved within 6 NRs by 2010:</li> <li>occurrence of key threatened species in NRs increased by 10% (number of individuals, population size, number of sightings, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Baseline and annual review of NR management plans</li> <li>Baseline and annual review of NR water, wildlife, and habitat monitoring programs</li> <li>Baseline and annual NR biodiversity surveys</li> </ul>	Assumption <ul style="list-style-type: none"> <li>Government provides adequate NR staff, salaries, and operational budget.</li> </ul> Risks <ul style="list-style-type: none"> <li>Various threats to wildlife or habitats continue outside project area.</li> </ul>
2.2 Pilot Wetland Restoration <ul style="list-style-type: none"> <li>Decreased farmland area in core and buffer zones; increased total wetland area in NRs</li> <li>Development of model for farmland to wetland restoration</li> </ul>	<ul style="list-style-type: none"> <li>Total wetland area in 6 pilot NRs increased by 3,433 ha by 2010</li> <li>Wetland restoration models and guidelines developed by year 4</li> <li>Wetland restoration models replicated in at least 5 other NR sites in the Sanjiang Plain by end of Project, and restoration program functioning in all Sanjiang Plain wetland NRs by 2010</li> </ul>	<ul style="list-style-type: none"> <li>Baseline and annual NR wetland inventories and surveys</li> <li>NR administrative/progress reports</li> <li>Pilot wetland restoration plan reports and guidelines</li> </ul>	Assumptions <ul style="list-style-type: none"> <li>Government provides resettlement funds to be used for village development investment rather than as direct compensation</li> </ul>
2.3 Wildlife Species Recovery <ul style="list-style-type: none"> <li>Increased numbers of key threatened species in the six pilot NRs</li> <li>Improved condition of wetland habitats and increased wildlife populations</li> <li>Reduction in over-utilization of wildlife and plants in NRs, relative to the baseline</li> </ul>	<ul style="list-style-type: none"> <li>Target species habitat area increased by 10% in all 6 NRs</li> <li>Overall wildlife populations increased</li> <li>Observed populations of 8 key species of globally threatened waterfowl (see list)<sup>1</sup> increased by 10% by project end</li> </ul>	<ul style="list-style-type: none"> <li>Baseline and annual census of populations of key targeted wildlife species</li> <li>Baseline and annual census of associated habitats of key targeted wildlife species</li> <li>Baseline and annual NR biodiversity surveys</li> <li>NR progress reports</li> </ul>	Assumptions <ul style="list-style-type: none"> <li>Adequate seed populations of key species are extant for initiation of recovery program</li> <li>A critical number of qualified personnel committed to the task.</li> </ul>
2.4 Reduction of Resource Exploitation <ul style="list-style-type: none"> <li>Reduction in illegal exploitation of targeted wetland species, and recovery of populations of target species in 6 NRs</li> <li>Reduction in Illegal international trade in endangered species (closely linked with awareness activities in 4.2)</li> </ul>	<ul style="list-style-type: none"> <li>Extent of vegetation cover contributed by reeds, thatch grass, wild herbs, and wild fish populations, in the project pilot area increased by 50% by 2010</li> <li>Illegal international trade in animal species originating in project area reduced by 50% by 2010</li> </ul>	<ul style="list-style-type: none"> <li>Baseline and annual census of key exploited species</li> <li>Baseline and annual survey and quantification of natural resource use in and around NRs</li> <li>Detailed vegetation surveys in NRs</li> <li>Customs seizure records</li> </ul>	Assumptions <ul style="list-style-type: none"> <li>Adequate NR and local support for enforcement of existing legislation on core and buffer zones, and on protected species are provided.</li> </ul>
<b>3. Alternative Livelihoods</b>			
3.1 Intercropping (agroforestry) and Non-timber Forest Products (herbs/fungi/fruit)	<ul style="list-style-type: none"> <li>Income levels in affected villages maintained or increased throughout life of project</li> </ul>	<ul style="list-style-type: none"> <li>Per capita and household income baseline and follow-up surveys</li> </ul>	Assumptions <ul style="list-style-type: none"> <li>Markets are accessible.</li> <li>Product demand is adequate</li> </ul>

Design Summary	Key Performance Indicators	Monitoring Mechanisms	Assumptions/Risks
<ul style="list-style-type: none"> <li>Sustainable income-generating opportunities for the villagers affected by farmland-to-forest restoration program through intercropping</li> </ul>	<ul style="list-style-type: none"> <li>Income levels in affected villages maintained or increased throughout life of project</li> </ul>	<ul style="list-style-type: none"> <li>Surveys of economic activities in NTFP and agroforestry</li> </ul>	
<p>3.2 Land Compensation and Village Development</p> <ul style="list-style-type: none"> <li>Sustainable income-generating opportunities for the villagers affected by farmland-to-wetland restoration program</li> </ul>	<ul style="list-style-type: none"> <li>At least 30% of resettlement/land compensation costs utilized for village development</li> <li>At least one new livelihood project initiated and operational in each of 8 affected villages by project completion</li> </ul>	<ul style="list-style-type: none"> <li>Per capita and household income baseline and follow-up surveys</li> <li>Surveys of economic activities and results of village development fund investments</li> </ul>	<p>Assumptions</p> <ul style="list-style-type: none"> <li>Government counterpart fund is available in timely manner.</li> </ul>
<p>3.3 Ecotourism</p> <ul style="list-style-type: none"> <li>Creation of ecotourism opportunities for communities and NRs, without adverse effects on wetland habitats or key species</li> </ul>	<ul style="list-style-type: none"> <li>Economically and environmentally sustainable ecotourism activities in place in 3 NRs by end of Project</li> </ul>	<ul style="list-style-type: none"> <li>Baseline and annual surveys of ecotourism activities, including assessment of community participation</li> </ul>	<p>Assumptions</p> <ul style="list-style-type: none"> <li>NR management and local community are receptive to alternative, low-key ecotourism</li> </ul>
<b>4. Capacity Building</b>			
<p>4.1 Conservation Education</p> <ul style="list-style-type: none"> <li>Increased knowledge about conservation issues, and about local NRs, among schoolchildren and teachers</li> </ul>	<ul style="list-style-type: none"> <li>Conservation awareness program incorporated into curriculum of schools and implemented in 8 of pilot elementary and 4 secondary schools around 6 NR sites within first 2 years of project, reaching approximately 5,000 schoolchildren</li> </ul>	<ul style="list-style-type: none"> <li>Review of school curricula</li> <li>School administrative records</li> <li>Baseline and periodic conservation awareness surveys and evaluations administered through schools</li> </ul>	
<p>4.2 Conservation Awareness</p> <ul style="list-style-type: none"> <li>Increased knowledge of conservation among general public around 6 NRs, including appreciation of importance of protecting endangered species</li> </ul>	<ul style="list-style-type: none"> <li>Program for conservation on public awareness developed for 13 counties and at provincial level, and carried out over life of the Project, including at least 45% women participants, during the life of the Project</li> <li>Measurable reduction in capture of and trade in endangered species for export</li> </ul>	<ul style="list-style-type: none"> <li>Baseline and periodic surveys and evaluations of community awareness on conservation</li> <li>Community organization records</li> <li>Customs seizure records</li> </ul>	
<p>4.3 Wetland Management Training</p> <ul style="list-style-type: none"> <li>Short-Term Technical Staff at six NRs and community leaders (including women leaders) with enhanced conservation knowledge and skills</li> <li>Long-Term Professional NR managers in the northeastern of the People's Republic of China prepared to assume responsibility for ongoing management by end of the Project</li> </ul>	<ul style="list-style-type: none"> <li>Comprehensive, targeted awareness training administered to 300 NR staff and to 20 community leaders in 13 counties</li> <li>Comprehensive, targeted awareness training administered to at least 15 NR managers and staff during life of the Project</li> </ul>	<ul style="list-style-type: none"> <li>Baseline and follow-up human resource surveys of knowledge/understanding of NR technical staff, and of teachers/ community leaders, regarding wetland conservation principles</li> <li>Baseline and follow-up surveys of wetland management skills of NR management staff</li> </ul>	<p>Assumptions</p> <ul style="list-style-type: none"> <li>Staff stability and availability in NRs</li> </ul> <p>Risks</p> <ul style="list-style-type: none"> <li>Trained staff are transferred to another NR site</li> </ul>
<p>4.4 Institutional and Behavioral Change</p> <ul style="list-style-type: none"> <li>Internalization of sustainable environment principles and wetland</li> </ul>	<ul style="list-style-type: none"> <li>By 2010, all new relevant legislation incorporating sections on sound environmental, water resources management and wetland conservation</li> </ul>	<ul style="list-style-type: none"> <li>Records of new bills and enacted legislation</li> <li>Planning records</li> <li>School activity and</li> </ul>	

Design Summary	Key Performance Indicators	Monitoring Mechanisms	Assumptions/Risks
<p>principles and wetland conservation principles by key economic policy-makers and development planners at national, provincial, and county level</p> <ul style="list-style-type: none"> <li>• Changes in attitude and behavior among teachers, students, and community members</li> <li>• NR managers with greater sense of stewardship, strengthened conservation ethic</li> </ul>	<ul style="list-style-type: none"> <li>• Development plans at national, provincial, and county levels incorporating principles of sound environmental, water resources management and wetland conservation</li> <li>• New elective environmental programs initiated in schools, with 30% more participating students/teachers than at project inception</li> <li>• Noncompliance cases reported on overuse/exploitation of wetlands resources (fishing nets, or reeds harvests) decline by 50% by the project end</li> <li>• 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</li> </ul>	<p>curriculum reports</p> <ul style="list-style-type: none"> <li>• NR annual reports</li> <li>• Surveys to assess student-teacher attitudes on environment and conservation</li> <li>• Surveys to assess NR manager mentorship skills</li> </ul>	
<b>ACTIVITIES:</b>			
<b>1. Watershed Management</b>			
<p>1.1 Forestry Investments</p> <ul style="list-style-type: none"> <li>• Plant 11,900 ha of new forestry plantations</li> <li>• Treat 43,700ha of existing forestry plantations</li> </ul>	<ul style="list-style-type: none"> <li>• Site preparation, planting, and treatment operations proceeding per county schedule over 5-year period</li> </ul>	<ul style="list-style-type: none"> <li>• Annual operations plans and planting reports</li> <li>• Project activity and progress report</li> </ul>	<p>Assumptions</p> <ul style="list-style-type: none"> <li>• Human resources are available for operations and technically competent at State forest farms.</li> </ul>
<p>1.2 Local (NR) Level Water Resource Planning</p> <ul style="list-style-type: none"> <li>• Establish local stakeholder working groups</li> <li>• Conduct workshops</li> <li>• Prepare water resources management plan inputs to overall NR management plans</li> </ul>	<ul style="list-style-type: none"> <li>• stakeholder working groups established (1 per NR) and operational by year 1</li> <li>• Biannual water monitoring workshops conducted</li> <li>• 6 NR management plans produced by year 2 incorporating NR water allocation plans by year 3</li> </ul>	<ul style="list-style-type: none"> <li>• Review of stakeholder working group reports, workshop reports</li> <li>• Assessment of water resource management plans and NR management plans</li> </ul>	<p>Assumptions</p> <ul style="list-style-type: none"> <li>• Stakeholders are interested in identifying and solving problems.</li> </ul>
<p>1.3 Watershed Level Water Allocation Plan</p> <ul style="list-style-type: none"> <li>• Add conferences with local working groups</li> <li>• Conduct training on wetland water supply and water-shed level water resource allocation</li> <li>• Develop and calibrate numerical models of water use and availability for Anban and Naoli watersheds</li> </ul>	<ul style="list-style-type: none"> <li>• Gross water balance estimates completed for 5 NRs by year 1</li> <li>• Numerical computer models completed for Anban and Naoli watersheds by year 2</li> <li>• Water allocation and flood control policies developed by year 3</li> <li>• Provincial and county water management staff participates in 5 annual interagency coordination workshops over life of Project.</li> </ul>	<ul style="list-style-type: none"> <li>• Gross water balances and numerical computer models</li> <li>• Provincial/county water allocation plans</li> <li>• Water resource engineering reports</li> <li>• Workshop reports</li> <li>• Project activity and progress reports</li> </ul>	<p>Assumptions</p> <ul style="list-style-type: none"> <li>• County and provincial officials cooperate to share information.</li> </ul>
<b>2. Wetland Nature Reserve Management</b>			
<p>2.1 Conservation Management</p> <ul style="list-style-type: none"> <li>• Establish water, wildlife and habitat monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Permanent monitoring stations established for water, wildlife, and habitat monitoring by year 1</li> </ul>	<ul style="list-style-type: none"> <li>• Water, wildlife and habitat monitoring program reports</li> <li>• Monitoring manuals</li> </ul>	



Design Summary	Key Performance Indicators	Monitoring Mechanisms	Assumptions/Risks
<p>programs in NRs</p> <ul style="list-style-type: none"> <li>• Prepare annual monitoring reports, conduct workshops</li> <li>• Establish geographic information systems (GIS) for 6 NRs</li> <li>• Draft management for all 6 NRs</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring protocols recorded in monitoring manuals by year 2</li> <li>• NR GIS set up by year 2 and data updated continuously</li> <li>• Draft management plans prepared for 6 NRs by year 3</li> </ul>	<ul style="list-style-type: none"> <li>• Annual monitoring workshop reports</li> <li>• NR adaptive management plans</li> <li>• Project activity and progress reports</li> </ul>	
<p>2.2 Pilot Wetland Restoration</p> <ul style="list-style-type: none"> <li>• Restore 3,433 ha of farmland to wetland at model sites in 6 wetland NRs</li> <li>• Provide input to NR management plan</li> <li>• Develop and disseminate replicable wetland restoration models</li> <li>• Conduct workshops, conferences, study tours and training as venues for information exchange on wetland restoration</li> </ul>	<ul style="list-style-type: none"> <li>• Restoration of wetland areas from farmland, measured annually, achieving specified targeted area by year 5</li> <li>• Wetland restoration models, including appropriate technologies and tools for information dissemination prepared by year 4</li> <li>• By project year 4, at least one national and one international study tour conducted</li> <li>• By project year 5, international conference on wetland restoration organized and implemented</li> </ul>	<ul style="list-style-type: none"> <li>• Annual inspection of restored wetland sites, and assessment of their functioning and condition</li> <li>• Progress according to detailed restoration plans, activity schedules, and quality standards</li> <li>• Wetland restoration model information packages</li> <li>• Project activity and progress reports</li> </ul>	<p>Assumptions</p> <ul style="list-style-type: none"> <li>• Members of Nature Reserve management staff remain unchanged throughout project implementation</li> </ul>
<p>2.3 Wildlife Species Recovery</p> <ul style="list-style-type: none"> <li>• Prepare and implement recovery plans for 8 globally threatened species</li> <li>• Conduct symposium on project species recovery experiences</li> </ul>	<ul style="list-style-type: none"> <li>• Species Recovery Plans completed for 8 globally threatened species of waterfowl by end of year 2, and measures implemented by year 3</li> </ul>	<ul style="list-style-type: none"> <li>• Species recovery plans</li> <li>• Baseline and annual census of populations of key targeted wildlife species, and associated habitats</li> </ul>	<p>Risks</p> <ul style="list-style-type: none"> <li>• Various threats to the selected species continue to exist outside of the project pilot areas.</li> </ul>
<p>2.4. Reduction of Unsustainable Harvesting in NRs</p> <ul style="list-style-type: none"> <li>• Conduct inventory of types and levels of exploitation of thatch grass, fish, wild herbs</li> <li>• Develop and implement plan for reducing unsustainable harvesting in NRs</li> </ul>	<ul style="list-style-type: none"> <li>• Utilization inventories conducted by end of year 1</li> <li>• Harvesting reduction plans implemented by end of year 2</li> <li>• Prohibited activities minimized—number of apprehensions/seizures increased (with improved enforcement), then reduced and stabilized</li> </ul>	<ul style="list-style-type: none"> <li>• Baseline and annual census of thatch grass, fish, wild herbs</li> <li>• Harvest reduction monitoring</li> <li>• Reports of violations/ apprehensions</li> <li>• Project activity and progress reports</li> </ul>	
<b>3. Alternative Livelihoods</b>			
<p>3.1 Intercropping and NTFP</p> <ul style="list-style-type: none"> <li>• Plant 1,300 ha of NTFPs, in 6 counties</li> <li>• Conduct studies on markets, prices, yields and costs to assess expansion opportunities for NTFPs</li> </ul>	<ul style="list-style-type: none"> <li>• Intercropping proceeds per county schedules over 5-year period</li> <li>• At least 20% of area converted from farmland to forest allocated for NTFP production</li> <li>• NTFP market feasibility study report prepared</li> </ul>	<ul style="list-style-type: none"> <li>• Annual agroforestry reports</li> <li>• Annual plantation intercropping/ NTFP reports</li> <li>• NTFP market feasibility report</li> <li>• Project activity and progress reports</li> </ul>	
<p>3.2 Land Compensation and Village Development</p> <ul style="list-style-type: none"> <li>• Develop detailed resettlement plans as per resettlement framework</li> <li>• Prepare village development plans in</li> </ul>	<ul style="list-style-type: none"> <li>• Resettlement plans for all 6 NRs prepared by year 1</li> <li>• Village development plans of all 8 villages prepared and finalized by year 2</li> <li>• At least 1 new livelihood project processed, funded, and tested for possible revolving fund mechanism by</li> </ul>	<ul style="list-style-type: none"> <li>• Resettlement plans</li> <li>• Surveys of types of economic activity, and results of village development feasibility report</li> <li>• Resettlement monitoring</li> </ul>	<p>Assumptions</p> <ul style="list-style-type: none"> <li>• State farms within the project area cooperate with Heilongjiang Provincial Financial Bureau and finance resettlement cost in a timely manner</li> </ul>

Design Summary	Key Performance Indicators	Monitoring Mechanisms	Assumptions/Risks
affected villages • Conduct community and stakeholder consultation	year 5	• Project activity and progress reports	
3.3 Ecotourism • Develop ecotourism feasibility study, master plan and environmental guidelines • Develop ecotourism pilot projects, incorporating capacity building for local community and NR staff	• Ecotourism feasibility study and master plan guidelines prepared by year 1 • At least 2-3 community-based ecotourism pilot projects initiated beginning in year 2 at each NR, according to appropriate planning and screening processes	• Ecotourism feasibility and master plan • Ecotourism guidelines • Ecotourism pilot project reports • Project activity and progress reports	
<b>4. Capacity Building</b>			
4.1 Conservation Education (schools) • Select pilot schools • Prepare teaching kits • Train teachers • Develop and implement NR outreach/extension programs for schools	• Conservation education programs developed by end of year 1 • Teacher kits developed and teachers trained in their use by end of year 2 • Conservation awareness program for schools incorporated into curriculum and implemented in pilot elementary and secondary schools in 5 counties starting in year 2 and running for remainder of the Project	• Surveys of school curricula at beginning and towards end of Project • Conservation program design reports • Attendance records of teachers at training events • Frequency of NR presentations at local schools • No. of teacher kits prepared/distributed	Assumptions • Support comes from educational and NR authorities/staff. • Teachers are willing to take on this extra task.
4.2 Conservation Awareness (communities/SFFs) • Develop public awareness strategies and campaign materials • Implement public awareness strategies, including participation in national and international events (e.g., Earth Day, World Wetland Day)	• Conservation public awareness strategies developed in year 1 • Conservation public campaign program developed for 5 counties by end of year 2, and carried out over life of the Project Web site up and running by year 2, and updated at least quarterly thereafter	• Annual awareness program progress reports • Monitoring of web site "hits," user feedback • Project activity and progress reports	Assumptions • Strong involvement of public authorities at all levels in promoting awareness of environmental policies.
4.3 Wetland Management Training • Conduct training needs assessment • Develop and conduct short-term training courses and study tours for technical NR staff • Develop and conduct formal courses for professional level NR staff	• Training needs assessment completed by end of year 1 • Beginning in year 2, short-term training courses for technical NR staff • Beginning in year 2, formal higher level courses for professional level NR staff • Exchange programs, study tours, internships, and workshops proceeding according to yearly program	• Training needs assessment • Annual short-term training and study tour reports • Annual long-term training reports • Surveys/evaluations of participants in training programs	Assumptions • The provincial supports professional quality improvements at NRs through staffing plans and incentives. • There is commitment to maintaining high standards for training programs.
4.4 Institutional and Behavioral Change • Institutionalize mechanisms for improved interagency coordination on a sustainable basis • Promote internalization of sustainable environment principles and wetland conservation principles	• By project year 2, interagency coordination body (working group) formed, and meeting quarterly; working group transitioning into permanent working committee by end of project • key decision makers at national level, 10 at provincial level, and 40 at county level, completing advanced environmental awareness training program by end of project • Conservation awareness programs reaching approximately 5,000	• Working group/working committee meeting minutes • Project training records • Awareness surveys • Mentorship skills evaluations	

Design Summary	Key Performance Indicators			Monitoring Mechanisms	Assumptions/Risks
	reaching approximately 5,000 schoolchildren; 300 NR staff, 20 community leaders, and 15 NR managers and staff during life of Project				
<b>INPUTS:</b>					
(\$ million)	Foreign Exchange	Local Currency	Total Cost	Project performance Monitoring System (PPMS), including <ul style="list-style-type: none"> <li>• Implementation schedule</li> <li>• Consultants' reports</li> <li>• Disbursement of ADB loan and GEF grant funds</li> <li>• Annual progress reports</li> <li>• Project review missions</li> </ul>	Assumptions <ul style="list-style-type: none"> <li>• Allocation of local counterpart funds is timely</li> </ul>
1. Watershed Management	1.29	21.92	23.21		
2. Wetland NR Management	2.18	3.22	5.4		
3. Alternative Livelihood	0.55	15.21	15.75		
4. Education Capacity Building	2.48	1.15	3.63		
5. Project Management	0.42	2.29	2.71		
<b>Total Base Cost</b>	<b>6.92</b>	<b>43.79</b>	<b>50.71</b>		
Contingencies	0.31	2.35	2.66		
IDC/ Financial Charges	2.18	0.00	2.18		
<b>Total</b>	<b>9.41</b>	<b>46.14</b>	<b>55.55</b>		

GIS=geographic information system; NR=nature reserve; NDRC= National Development and Reform Commission; SFA=State forest administration; VDF= village development fund

**ANNEX C. 1: STAP EXPERT REVIEW AND ADB RESPONSE<sup>1</sup>**

**STAP Reviewer:** Drs Marcel J. Silvius, [Marcel.Silvius@wetlands.org](mailto:Marcel.Silvius@wetlands.org),  
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**Date:** 20 June 2004

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**A. Key Issues:****1. Assessment of scientific and technical soundness of the project.**

- a) In the proposal's Rationale and the Analysis of Key Problems and Threats, the proponents provide a thorough summary of the context and background for the project. As such it is well founded on a wide range of published information, policies, strategies and existing expertise in the region.
  - Response: Noted
- b) The proposal recognizes and has systematically described the need for the necessary wide range of activities to target the wide range of root causes of wetland deterioration. A threats analysis is provided, identifying root causes and required mitigating measures. A succinct but clear logical framework matrix is provided, addressing major root causes.
  - Response: Noted
- c) The project promotes a river basin-wide approach to conserving biodiversity, and this will have significant demonstration value. The Steering Committee provides a coordination mechanism at the provincial level, but the project should formalize or institutionalize mechanisms to ensure the continuation of local and inter-sectoral cooperation and planning.
  - Response: The Reviewer is correct that both coordination mechanisms need to be institutionalized to ensure continuity. This will be addressed by the Project by including working groups in the NR water management plans. In addition, a concrete proposal for institutional arrangements will be one of the outputs of the planned workshops/conferences.
- d) The project proposal does not specifically address problems related to peat land management, while the Sanjiang Plains are known as an important peat land region. Occurrence of peat lands in the target areas should be investigated during the project's inception phase and their sustainable management and restoration be given due priority.
  - Response: There is significant ambiguity about peat resources that need to be addressed during the Inception Phase: if peat resources are indeed an important (past) feature of the project area, changes will be made to the approach (e.g. wetland restoration; carbon trading finances; and links with peat restoration programs elsewhere, such as in the Ruorgai marshes).
- e) The proposal needs to identify clearer indicators for wetland restoration, and targets of wetland restoration should thus be further qualified.
  - Response: Agreed. Restoration targets have now been identified and expanded to include a balance of the three types of restoration approaches used, and specifying that these are to be selected so that they cover the full range of (formerly) naturally occurring wetland habitats.
- f) In case of Village Resettlement and Development Plans, the proposal mentions the requirement of EIAs; given the (potential) social impacts, the project needs to monitor both environmental and social impacts.
  - Response: The village resettlement and development plans are in fact measures to deal with social impacts and based on Social Impact Analysis. The plans will have to show that incomes and livelihoods can be restored with the compensation funds. The requirement of EIA was that some proposals may cause adverse impact on environment (e.g. setting up a brick kiln), and monitoring will be expanded for both social and environmental aspects.
- g) The proposal states (point 73) that it would annually provide employment opportunities for 7 months for about 36,000 forestry workers on larch plantations and for 6 months for 10,000 forestry workers on poplar plantations, amounting to >150% of the forestry investments.
  - Response: The words 'each year' (beginning of second sentence) was incorrect and has been deleted.

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<sup>1</sup> Based on the draft Project documents dated 15 June 2004.  
SAPndxD-GEF 16Jan05-AnnexC-ReviewResponses)

h) Agro-forestry and NTFP components lack reference to market research and/ or development of marketing capacity. In addition, there may be much benefit in product enhancement. These aspects should be addressed in the inception phase.

- Response: Market research was carried out during proposal development (para. 41 of the project document, selection of NTFP is based on the findings from Interim and Draft Final Reports of the feasibility study consultants' team). The same holds for creating added value to products. However, as markets often change, this analysis will be carried out and validated again during the Inception Phase.

## 2. Evaluation of the identification of global environmental benefits and/or drawbacks and risks of the project.

a) Alternative livelihoods are proposed, but only a limited specification of the nature and potential is provided. It does not provide an assessment of current markets for the products. The proposal should provide indications of such alternatives and their potential as a basis for the project's integrated conservation and development approach.

- Response: Attempts have been made to assess the markets for NTFPs, but experience shows that these can change quickly (reference to the response above item 1.h). Market assessment will be done as part of project implementation, and hence the reason why Village Development Plans (VDP) will be formulated and reviewed prior to commencement of wetland restoration. We believe the compensation will be adequate and an extra incentive, since many farmers have been forced to abandon lands with no monetary compensation but already with partial replacement of farmland outside of NRs. In case suitable alternatives appear to be insufficient in their potential, the project would have alternative approaches to ensure adequate compensation of opportunity costs of conservation. To optimize local stakeholder participation in planning, the project specifically recognizes the need for investments and assistance in the development of village development business plans.

b) The project does not address the population growth which is reported to fall outside of GEF's remit; expected population dynamics might place solutions within a clear perspective.

- Response: The natural population growth in Heilongjiang Province is 0.35%, which in rural areas is slightly higher than in urban areas. Restoration of wetland NRs will involve land compensation for replacement, but not involve physical relocation of persons. Compensation will be implemented via village committees, who will ensure that this benefits the affected villages. Rural to urban migrations are fluid, leaving village lands available for readjustment. In the given social and administrative context, it is highly unlikely that this will cause issues in the affected areas.

c) The proposal does not provide an assessment of the broader economic context, and is unclear whether alternative livelihoods will meet a market demand or if this can be created.

- Response: Alternative livelihoods identified in the proposal (mainly NTFPs and intercropping) were identified by the County authorities and confirmed through estimating financial rate of returns as being highly lucrative, i.e. there is a market and the products command a good price. This information has been reinstated in the proposal.

d) The farmers and farming communities affected by farmland to forest restoration will be compensated for loss of land and income through readjustment of rest farmland. Compensation for lost income – especially in the first years when no return from the forestry can be expected – depends also on successful development of income alternatives, including the NTFPs. An area equivalent to 20% of the farmland restored to forests will be used for developing NTFPs. The Supplementary Annex on Resettlement mentions that this percentage is based on specific investigations; details should be included in an annex to the proposal to use it as a basis for monitoring.

- Response: We have estimated the opportunity cost of continuing farming in forestlands, which was used to set amount for income restoration. Forest workers usually earns seasonally (three quarters annually) and market analysis shows on average, investment in NTFP will return 5 time the net income from the same unit of land as what is currently being planted (and would be lost for farmland to forest restoration). Monitoring mechanism will ensure 1 mu of NTFP is planted for every 5 mu of farmland converted to forestry, and indicators include incomes from the NTFP. Project performance

management system will be developed at the inception, and monitoring of such impact will be part of implementation and for evaluation of outputs.

- e) Resettlement schemes of farmers and communities for the NRs are linked to economic incentive schemes with a high degree of community participation and empowerment of APs. The standard procedures for compensation are very reasonable, with added prospects through VDFs. This provides a sound basis for implementation, but requires close monitoring.
  - Response: Noted
- f) The proposal involves the establishment of VDFs which, in combination with the environmental criteria and improvement of existing environmental legislation, will provide a strong financial mechanism for sustainable development. Part of the VDFs will be provided as revolving funds, thus providing a long-term incentive to engage in environmentally sound development. Strengthening of NR management and training of NR staff will lead to better protection of NRs against illegal incursions and other harmful activities. The project therefore provides a sound approach for ensuring long-term protection of biodiversity, and the combination of these aspects in this project will have a high demonstration value.
  - Response: Noted

### 3. Evaluation of the project's compliance or fulfillment of the goals of GEF

- a) While there is a strong commitment within the PRC and the Heilongjiang Provincial Government for wetland conservation, capacity is lacking and there is a need for increased awareness. Considering the clear need for addressing issues related to conservation of globally important biodiversity there is a strong justification for a GEF intervention of this kind. The integrated approach targeted by the project will undoubtedly catalyze related conservation initiatives and further cooperation, also in the other provinces of the PRC.
    - Response: Noted
  - b) The project document provides in the project brief and annexes (e.g. Technical Appendix A) a comprehensive overview of the global biodiversity values that would continue to deteriorate if no alternative would be developed and implemented. The document has appropriately outlined (in the incremental costs analysis) that GEF finances will be used to counter these root causes and ensuing threats. In addition, it is made clear that where there are domestic benefits, that these are primarily financed by the co-sponsors and governments.
    - Response: Noted
  - c) The selected project sites all have relatively high levels of species richness (24 globally endangered wildlife species) and habitat diversity, and are of high importance as staging areas for migratory waterbird populations, including many highly endangered species.
    - Response: Noted
- Feasibility:
- d) The project will be implemented over a period of 5 years, spending over US\$ 54 million. This seems a rather ambitious amount for a short-term project in a relatively poorly equipped region. The last year of the project should be without major capital inputs from ADB and GEF, and should focus on evaluation, monitoring and design or implementation of remedial actions where achieving results or sustainability of achievements may otherwise be impaired.
    - Response: Much of the investment (45%) will be in Heilongjiang Province's forestry development, which is the largest in China and capable of absorbing much larger investments; the Province is currently pursuing a target of 540,000 ha of new forest plantations for 2001-2015. Although remote, Heilongjiang Province's has been an economic hub since the early 1900s, and under the 10<sup>th</sup> Five-Year Development Plan (2001-2005), GDP is expected to increase 9-10% annually. It is agreed, projects such as this require well defined exit strategies, and certain activities need to be phased out rather than stopping abruptly; the implementation schedule (para. 59 & app.9) has therefore been revised to reflect this.

- e) Procurement of equipment and services will be implemented through centrally organized mechanisms (para 61). Such mechanisms may increase cost efficiency but generally require more time for effective delivery of materials. The project should provide authority to local project managers (PIUs) to manage relatively small but useful budget amounts for local procurements.
  - Response: Agreed, it would be best if PIUs had small but useful budgets for local procurement, and this will be possible out of the operational budgets provided. The proponents will also arrange for a force account and direct purchase of small items under the authority of local project units.
- f) The PIUs will be staffed by personnel from the County Forestry Bureaus or the NRs. Perhaps it is useful to consider also regular exchange of experts/staff with other sectors (e.g. through secondments) to optimize inter-sectoral cooperation.
  - Response: The PIUs will be based at County Forestry Bureaus and NRs, and most activities focus on either forestry or nature conservation, which are the responsibility of the Forestry Department, hence staffing by FD staff. Inter-sectoral cooperation is essential, but regarded as unfeasible during day-to-day project implementation at the PIU. Inter-sectoral cooperation, involving working groups, is therefore directly strived at in various sub-components

#### **4. Assessment of how the project fits within its regional context**

- a) The project is fully focused on the Heilongjiang province, amongst others to prevent the problems experienced with the current UNDP-GEF project on Wetlands Biodiversity and Sustainable Use in China (2001-2006). The single-province focus will bring decision-making closer to local stakeholders, facilitating bottom-up processes, communication and empowerment of local communities. The Sanjiang plains are of tremendous importance to global biodiversity conservation and the project's focus on this region is therefore fully justified, and the project is fully suited to the regional needs and requirements.
  - Response: Noted

#### **5. Evaluation of the replicability of the project**

- a) The project includes various key-elements that are innovative and as such will have a high demonstration value. This includes the concept of achieving wetland and biodiversity conservation through an integrated river basin approach, reforestation of water catchments through combined forestry and intercropping development, investments in economic alternatives such as eco-tourism as well as the establishment of Village Development Funds – thus combining biodiversity conservation and socio-economic development aspects and involving crucial mechanisms for empowering local communities. The project therefore has combined a strategic set of actions that will have a high potential for replication in similar settings elsewhere in the country and the world at large.
  - Response: Noted
- b) Project information, evaluations and monitoring reports should be made widely available e.g. through a project website, to ensure optimal sharing of lessons learned. This will facilitate and stimulate replication elsewhere. Development of a post-project monitoring and evaluation plan should be considered.
  - Response: Agreed, establishing a project website has now been added. Post project monitoring should be investigated during the Inception Phase, but included only if funding and support for this is made available by the government

#### **6. Evaluation of the sustainability of the project**

- a) The project does not have a well-developed exit strategy. Many of the main project activities will be running to the very end of the project (according to the implementation schedule). Mechanisms (such as the VDF) put in place or supported by the project will continue after the project has ended. Towards the end of the project these mechanisms should be (largely) self-sufficient, requiring less project input. It would be useful to clearly build this into the work plan/implementation schedule and budget.
  - Response: Although not termed an 'exit strategy', the project includes numerous safeguards against 'collapse' in a post project situation. Firstly, a series of models for replication will be produced, including wetland restoration and water resources/watershed management. Secondly, no new entities

will be created (all will be based on existing structures). Thirdly, key project elements will continue in a well defined manner after the life of the project, because of the mechanisms established (embedded in village development plans, NR management plans, water allocation plans). The revised implementation schedule now shows a phasing out of various activities, and handing over of responsibilities

- b) Intercropping between rows of trees in the plantation forests can be an effective tool during the project period to optimize economic return from new plantation area. To optimize economic returns, the system should rotate, perhaps also within existing forest plantations.
  - Response: Agreed, intercropping should become part of the forestry cycle and be introduced in existing forestry areas as well once these are felled and replanted; para. 41 has now been modified. Though this intercropping mechanism has been fully discussed and agreed with the HPG, this proposed mechanism will be discussed and reconfirmed by the HGP during appraisal.
- c) The project will make substantial investments in equipment. This will increase recurrent costs of local operations, which should be built into budgets.
  - Response: Noted, there will be substantial costs that are currently not being made. However, Management Plans will be formulated for all six target NRs, and these will include budgets that reflect the cost of enhanced operations
- d) Para. 82 mentions that the HPG is “expected” to demonstrate a high level commitment to share state forest revenues for daily operation of NRs management. This seems a crucial aspect for the sustainability of the project; the proposal should more clearly indicate the level of commitment (“expected” is not enough) and clarify the mechanisms to make this work.
  - Response: Nature Reserve management is a mandated function of the Forest Department of Heilongjiang Province. The Provincial Government’s general budget sharing is the committed mechanism, included as a covenant under the loan agreement with the ADB

## **B. Secondary issues**

### **7. Evaluation of linkages to other focal areas (international waters, climate change)**

- a) Peat lands are reported to be an important habitat in several areas of the Sanjiang Plains (Directory of Asian Wetlands) and have great value as carbon stores. Restoration of these sites and their carbon storage and sequestration functions will be of relevance to the aims of the UNFCCC. It would be pertinent for the project to refer to this.
  - Response: There is significant ambiguity about the occurrence and extent of peat lands in the Sanjiang Plain (see A.1.d). However, given the possibility that peat lands are important (or were important before the recent widespread conversion to agriculture), this will be addressed during the Inception Phase, and links established with the UNFCCC if resources or carbon sinks prove to be (potentially) significant

### **8. Evaluation of linkages to other programs and action plans at the regional and sub-regional level**

- a) Regarding the Wildlife Species Recovery (para. 37), the project should effectively link with the Asia-Pacific Migratory Waterbirds Strategy and its supporting networks (coordinated by Wetlands International).
  - Response: Agreed. This link was mentioned in earlier drafts, but has been lost in subsequent rounds of editing; it has now been reinstated
- b) Reference should also be made to the UNEP-GEF Siberian Crane project, and options explored for cooperation.
  - Response: Agreed. This link was mentioned in earlier drafts, but has been lost in subsequent rounds of editing. It should be noted that the Sanjiang Plain is only of peripheral importance to the Siberian Crane, and lessons learned from the Siberian Crane project will primarily be used for managing other large migratory waterbird species



- c) In the selection of consultants (para. 62) the project should include criteria that not only take account of the consultant's individual qualifications, but also whether the consultant (expert or agency) may bring linkage with additional networks.
  - Response: The consulting firm will be selected using ADB's quality-and-cost-based selection method. The institutional background and ability to network will normally be one of the consultants' qualities assessed by the selection committee

## 9. Assessment of other beneficial or damaging environmental effects

- a) The project follows a holistic integrated approach, and the document thus appears to describe all major global benefits for biodiversity conservation. It is unclear from the document what effects the project is expected to have on the transboundary waters.
  - Response: The project will have benefits for transboundary waters, but does not dwell on these, as an application has been submitted to the GEF Council for a \$1.075 million PDF-B grant for development of the UNEP Integrated Management of the Amur/Heilong River Basin project. This project is classified in the GEF focal area entitled International Waters, and Operational Program 9 (OP 9), Integrated Land and Water Multiple Focal Area
- b) In view of the potential benefits of improved management of peat lands in the Sanjiang plains in terms of carbon storage, as well as the limited expertise in the region with wetland restoration (para. 36), it would be pertinent for the project to exchange information and expertise with the current UNEP-GEF project on Peat lands, Biodiversity and Climate Change. It should be noted that the UNEP-GEF project will produce a peatland restoration handbook.
  - Response: Agreed, this is important and will be included in para. 24 in the section on lessons learned, and in para. 36 on pilot wetland restoration. Regarding restoration manuals, it should be noted that the focus will be on (non-peat) floodplain wetlands, hydrology and non-structural approaches (e.g. establishing village development plans), so there is no likelihood of duplication
- c) With respect to the financial and economic analysis it would be useful to include also consideration of potential revenues from voluntary carbon payments or Carbon Rights.
  - Response: Noted. See A.1.d.; if peat resources are found to be, or have been important in the project area, this financing opportunity will be developed during the Inception Phase

## 10. Evaluation of the degree of involvement of stakeholders in the project

- a) Mechanisms for participation and influencing the management of the project:
  - i) The project foresees in a project Steering Committee involving all relevant stakeholder Groups, as well as stakeholder groups at the local level. It focuses on one province only, facilitating communication and placing the project's management structures within the local setting - thus bringing decision making closer to the local stakeholders. It would be useful to specify more clearly the finance management procedures.
    - Response: Disbursement will be via the Heilongjiang Financial Bureau, and from there to the respective provincial agencies (mainly Forestry Department). The subsequent flow to the county level is mainly within the Forestry Bureau, and this will occur along well known and well defined channels
  - ii) The project foresees in a conference (para. 33) on wetland water supply and basin water resource allocation involving representatives of local and provincial agencies. Inviting international experts as well as representatives of adjacent provinces and key national authorities should also be considered.
    - Response: The aim of the 'conference' is to enhance the debate on water resources planning and allocation, and ultimately arrive at an agreement on water resource use in the region that takes care of all water users, including the NRs. To ensure that the debate will include key stakeholders, this should not be expanded to a much broader setting. Even a national conference may result in too broad for a debate and local 'voices' (e.g. NR staff) will be lost. There may, however, be merit in broadening the present arrangement to a regional context, as the Songhua basin also extends into adjacent provinces. Regional conference would be considered.

- iii Village Development Funds (ref. Para. 41): The project should more clearly define how Affected Persons (APs) will be structurally empowered within the VDF management procedures, to ensure that they will sufficiently benefit from chosen investment directions.
  - Response: Present village structure and organization means that the livelihood losses incurred due to wetland restoration do not affect individuals or families, but are absorbed by the village as a whole. One cannot (always) identify individual APs, but an affected village only. Village development plans, in turn, benefit the village as a whole and represent an appropriate mechanism for maintaining livelihood levels
- b) Provisions for the establishment of appropriate lines of communication:
  - i The project foresees in simple but therefore probably effective management and coordination structures, including a Project Management Office.
    - Response: Noted
  - ii This provides an adequate relatively flat management structure conducive to good communication.
    - Response: Noted
- c) Exchange of technical information between communities and stakeholders:
  - i The project foresees for information exchange through its inter-sectoral coordination mechanisms and workshops/conferences. It will produce also guidance, awareness and training materials and manuals and will implement training to all key target groups.
    - Response: Noted
  - ii It would be very useful if the project would establish a web site (in Chinese and English languages) as a means to more widely share important project results, experiences and other pertinent information that will add to the project's demonstration value.
    - Response: Agreed to establish website for information dissemination
- d) Participatory schemes and conflict issues
  - i The Project will establish and promote strong participatory mechanisms, particularly in the development of VDFs. In all aspects of the project that will directly impact on communities, farmers or forestry workers, appropriate means have been defined for empowering the local stakeholders, and enabling them to engage in developments that are both lucrative as well as sustainable and of benefit to biodiversity conservation.
    - Response: Noted
  - ii Water management of and for the wetlands in the NRs will involve the help of water resource experts (para. 32). The project foresees in building capacity of the HPWRD and HPFD in this respect (para. 33). Water management plans should become part, not only of the NR's management plans (para. 32), but also of future river basin management plans.
    - Response: Noted

## **11. Assessment of the capacity building aspects**

### **a) General**

- i The project has developed a good overview of envisaged training needs and provides on this basis a detailed preliminary training plan. There may be a need for some flexibility as other needs are likely to become clear during project implementation.
  - Response: Agreed, some extra flexibility has been added, both in App. 13 and para. 46
- ii The project provides adequate attention to capacity building of local communities and of the HPFD, and will also provide training to the multi-sectoral working groups on water resource management issues. It might be useful to add training programs that would focus on mainstreaming wetlands and environmental management in sectoral development.
  - Response: Capacity building focuses primarily on the HPFD (via Sub-component 4.3) and local communities (via Component 2, which may include training via the village development plans and ecotourism). As part of subcomponent 1.2 (see para. 33), working groups will be trained in water resource issues. Possibilities for involving other stakeholders in the training programs have been created by adding flexibility in allocation of funds and positions

- iii The proposal mentions that the project strategies intend to promote gender awareness and sensitivity in training. This is, however, not further specified in the proposal.
  - Response: The proposal states that “Project strategies <are> intended to promote gender awareness and sensitivity in training and awareness programs <and> should therefore have a positive impact on women”, but this is not included in the current formulation of the training and awareness programs. This omission has now been rectified
- iv The project establishes a model approach with intention of sharing this with other provinces of PRC. However, the only tools foreseen are technical reports, awareness and training materials/manuals. It would be useful to include in the capacity building program also training of key staff from relevant departments of other provinces.
  - Response: Noted, it would be useful to include a proviso in the training program that allows for exchanges with NR staff from other provinces, rather than only benefiting staff of the six targeted NRs
- b) Human capacity to tackle the issues addressed in the project
  - i The project will add much social and ecological expertise. It is unclear if the proposal foresees in sufficient expertise in (eco-)hydrology and wetland restoration requirements.
    - Response: Technical expertise (in a civil engineering sense) for hydrology restoration exists (e.g. Agricultural & Hydrology Design Institute). However, wetland restoration is not solely an engineering exercise – it also involves a host of social and ecological issues – and that’s where the Project will be invaluable. It is proposed that peat land restoration expertise will be assessed during the Inception Phase, along with the general issues of peat land in the Sanjiang Plain (see A.1.iv).
  - ii The Wetland Management Training (para. 46) is heavily oriented to wetland management and targeted to the HPFD, NR staff, teachers and local community leaders. The project should consider courses specifically for traditional development sectors, to ensure that wetlands functions and values are taken into account.
    - Response: Training will be provided in water resources management to various stakeholders as part of sub-component 1.2, and in addition, a wide range of local stakeholders will be targeted by awareness programs. It would be useful if training could be provided to a wider range, but the project does not want to spread itself too thinly by providing training for all possible stakeholders; current design therefore focuses on where the main needs exist
  - iii The proposal targets the long-term professional training targeted at senior NR staff and managers. It would perhaps be more useful to focus this at the next generation of managers, i.e. current middle management level staff.
    - Response: Re long-term courses: agreed – but note that the current formulation of subcomponent 4.3 does not exclude this possibility. However, in most cases staff are either senior management (with an academic background, capable of absorbing the university level long-term training) or technical staff (with a lower academic background), and the project will be obliged to involve senior staff in long-term courses given at universities

## 12. Innovativeness of the project

- a) The alternative model approach to compensate for lost income in relation to restoration of large areas of wetlands is laudable, and includes such innovative elements as village development funds. A World Bank report concluded that Trust Funds are very successful in most projects that address poverty-environment issues, and lead to increased sustainability of project outcomes. The VDFs can be expected to have a similar effect and provide within the local context probably the most appropriate as well as very innovative mechanism.
  - Response: Noted
- b) The project involves as innovative aspect resettlement compensation through alternative livelihoods that are conducive to wetland management. It names just a few (NTFP, Eco-tourism, Forestry, Inter-cropping), but it would be useful if it would identify during the course of the project a broader range of investment options, to enable a broader based economy.

- Response: A wide range of NTFPs (honey, wax, mushrooms, herbs, medicines, fruit, etc..) and other opportunities were identified, both by the consultant's team and the HPFB; these are listed in the Draft Final Report but not recorded exhaustively in the RRP or GEF Executive Summary. Similarly, a wide range of possible activities have been identified as part of ecotourism development and/or eligible for funding by the village development plans, but again these are not exhaustively dealt with. It is expected that many of these will become more concrete as they are assessed and selected in the Inception Phase
- c) The project intends to address the issue of unsystematic and unsustainable exploitation of natural resources by developing cooperation with the communities around the NRs and training of NR personnel in community relations and law enforcement (para. 38). The means for this includes eco-tourism development, the NTFP interventions and sustainable development initiatives that will be supported by the VDFs. These are all very promising and for the region innovative concepts. The project should closely monitor that the local land is sufficiently available for readjustment.
  - Response: Noted. Land is not a constraint here, but capital to invest in higher income generation schemes. Readjusting land is a social safety net; the key is to find good investments for the compensation, which is calculated based on the opportunity cost of farming in wetlands. The effectiveness of the social safety net will be closely monitored during the project, and current design foresees in this

### **C. Concluding remark**

The proposal is very interesting and well developed - also highly innovative by combining the river basin approach involving integrated water management and catchment reforestation, nature reserve protection and wetland restoration, community development through community-based funding and credit mechanisms as well as innovative forestry/inter-cropping systems. As such the project will have a high demonstration value for the rest of China as well as other countries. The project is feasible, as it has a good focus, the correct approach, is based on existing institutions and local practices, and will provide the necessary capacity building. The sustainability of the project's results stems particularly from the economic incentives that the project's finance mechanisms and development aspects will provide.

- Response: Noted with thanks.

**ANNEX C. 2:****GEF SECRETARIAT REVIEW ON 15 JULY 2004 FOR WORK PROGRAM INCLUSION  
AND ADB RESPONSE<sup>1</sup>****1. COUNTRY OWNERSHIP****(i) Country driven ness:**

- Letter of endorsement, substantive lending from ADB, interest to take a watershed approach, consultation of key stakeholders.

**(ii) Endorsement:**

- Letter of endorsement for PDF B only dated September 30, 1999. A new letter will be required as it does not endorse the WP brief. The new letter should include the agreement of the cofinancing proposal as well as the agreement of the GEF Executing Agency, and the executing agency in the field.
- **Response:** Letter of Endorsement for GEF Work Program Inclusion has been prepared by the MOF-GEF focal point, and is attached.

**2. PROGRAM AND POLICY CONFORMITY****(i) Program designation and conformity:**

- The project conforms well with OP#2. However, given the extensive forest aspects of the project, restoration proposed and the watershed level approach, the Secretariat wonders why OPs #3, 12 and 15 have not been quoted as addressed by the resulting project.
- **Response:** This omission has been rectified in the project document (Appendix 5) and GEF executive summary (paragraph 7, footnote 2).

**(ii) Project Design:**

- (ii).1.** Global benefits: The argument for global benefits to be secured under the project is based on threatened and endangered species. Proposed sites highlighted in Annex 6 and supplemental Annexes A and C of project document are identified. The project lists three Ramsar sites in the plains, are these part of the project to be supported? Please provide requested information and add a brief reference in the project summary.

- **Response:** Paragraph 3 of Supplementary Appendix C on Site selection and the selected six nature reserves clearly explains that only one of the three Ramsar sites (Xingkaihu NR) is included in the six targeted sites, and why the other two were dropped. It also subsequently describes the six sites in detail. A summary of this information has now been inserted in the GEF Executive Summary, para. 10 and footnote 5:

- (ii).2.** Underlying causes of biodiversity loss: please provide a brief statement of these in the project summary.

- **Response:** The following has been added to (para.11) of the GEF Executive Summary: “Key underlying causes contributing to wetland loss are i) unsound local planning of water resources allocation, ii) poor understanding of nonstructural flood mitigation and floodplain management, iii) lack of alternative livelihoods, leading to exploitation of nature reserve resources, iv) weak inter-agency coordination for integrated watershed management, v) weak technical capacity in NR management, vi) lack of replicable financing model to replace arable farming land, vii) low public awareness of wetland values and biodiversity conservation, and viii) incorrect interpretation of legislation regarding experimental zones. Biodiversity of global significance has declined as a result of wetland loss.”

- (ii).3.** Institutional Issues: These are generally complex in China and experience from other GEF projects in the country managing wetland issues highlights that a clear strategy is needed to address these. In particular, inter-institutional coordination across sectors and key actors is needed. Would the provincial level authority be able to coordinate efforts along all the watershed? This is fundamental as wetlands in the

<sup>1</sup> Review is based on the draft document submitted on 15 July 2004, and ADB response is based on the revised document submitted to GEF Secretariat on 27 July 2004.

plains will be affected by management of the watershed as a whole, where the provincial government may have very limited leverage.

- **Response:** Last few lines of the para. 18 of Executive Summary explains institutional coordination. Activities are all focused on Heilongjiang Province, including activities involving watershed management (Component 1.3, which focuses on all five watersheds in which the six target NRs and their wetlands are located). Provincial agencies such as the Forestry Department and Water Resources Department (HPWRD) therefore have the authority and ability to coordinate effectively. Note also that the basin-level water resource allocation study and management will be led by the Heilongjiang Project Management Office team (of HPWRD) involved in the ADB-funded Songhua Flood Management Project, in coordination with Heilongjiang Province Forest Department of (HPFD). This team is already effectively involved in coordination between provinces on Songhua River management issues. It is notable that inter-agency coordination between State farm and FDHP has been already occurring by converting 333 ha in Xingkaihu lake as a pilot site of the proposed project. Para 22 (vii) highlights that the sustainability of the project increases by focusing on the region all under single province.
- (ii).4. Absorptive capacity: The section of the provincial government to address this issue is said to be the forestry department. Would staff in this department have the capacity to manage wetland ecosystems?
  - **Response:** Para. 19 of Executive Summary summarize risk measures for absorptive capacity of the provincial government. As stated in the project document, the Heilongjiang Provincial Forestry Department (HPFD) now has formal authority for wetland protection. In terms of water resources, however, State Farms and other provincial agencies that work in drainage and irrigation projects has been allocating water resources and make watershed forest management decisions quite independently of each other. Integrated watershed management will strengthen inter-agency coordination. Capacity within HPFD for managing wetland ecosystems is lacking and has been identified as one of the main threats (see Executive Summary). Hence the strong emphasis on training in various areas (see Appendix 13), including inter-agency coordination, water resources and wetland biodiversity management for training of 700 government staff as well as communities over 5 years implementation.
- (ii).5. Level of degradation: The level of degradation of the overall watershed and restoration efforts. There is no information on the first issue. The level of restoration would likely vary in level of effort needed and costs. While land restoration through forestry are likely to be human and financial resource intensive and long-term, wetland restoration is likely to be less complex, cheaper and less time consuming. Please clarify. The targets for the latter proposed in the logframe seem small. Do these cover all key globally important sites? All geographic areas to be targeted or just a fraction of them? The proposed total acreage to be restored is about 3,440 hectares. Is this all?
  - **Response:** The project brief states that “both forests and wetlands have been reduced to below one fifth of their original area” (para. 3), and that (para. 5) “in the Sanjiang Plain, deforestation and cultivation of hillsides have caused soil erosion, diminished the water-retention capacity of uplands, and increased the vulnerability of farmland to both floods and droughts. Over the last five decades, the forest cover has also shrunk from 49% at the turn of the century to only 10% (about 11,000 sq km).” This has now been summarized in the executive summary (paras. 1, 9, and footnote 4). In fact, the total area of wetlands to be restored under the project is indeed 3,433 ha, spread over all six NRs targeted by the project. Wetland restoration is limited to this relatively small area for two main reasons: (a) While it is indeed cheaper to physically restore wetlands, than it is to establish plantations (US\$ 171/ha versus \$542/ha), the compensation that needs to be provided by the government to replace lost livelihoods (US\$4500-\$6300/ha) is many times larger than the physical cost of restoration. In practice, compensation needs to be paid in most cases in (former) wetland areas, but rarely in areas to be reforested. The project is therefore has to address the level of compensation the government is able to provide, and further foresees in utilizing these funds for development rather than sunk costs; and, thus, (b) The purpose of the pilot wetland restoration subcomponent (2-2) is not to restore all degraded wetland areas, but to develop and implement pilot farmland-to-wetland model restoration projects on a pilot basis. Aim is to provide models for replication in the much larger farmland-to-wetland restoration program funded by State Forest Administration and National Development and Reform Committee (SFA-NDRC), that will be

implemented by HPFD. This program is still at an early stage of development, but a list of restoration sites and an outline of possible restoration methodologies has been completed by FDHP. The project is planned for implementation over a 5-year period at an estimated cost of over ¥7 billion (US\$0.9 billion) for 150,000 ha to the Chinese government. The project will undertake farmland-to-wetland restoration at NRs throughout the Sanjiang Plain, based on the results at the model sites under the Sanjiang Plain Wetland Protection Project.

**(ii).6.** Project implementation: Five or six year? Please clarify.

➤ **Response:** Net is five years from July 2005 to June 2010, but spread over six calendar years.

**(ii).7.** Portfolio of China projects addressing wetland issues: The GEF and others are financing wetland conservation and sustainable management projects in various parts of China. All of them have similar project components including substantive capacity building, wetland inventories, elaboration and implementation of management plans for biodiversity conservation, alternative livelihoods and sustainable use of natural resources, substantive restoration activities, pollution control, etc. What is new in the project that makes it unique? How lessons from others have been taken into account in project design? Please provide a brief text in project summary.

➤ **Response:** Paragraph 3 has been added in the executive summary to explain innovative features of the Project. The following has been also added to the executive summary (para.18) from the project document (page 16, part C Special features): “The project differs significantly from other wetland conservation and sustainable management projects in China. Firstly, it closely links integrated watershed management with the management of wetland NRs, and establishes measures for replicating this approach in other watersheds. The model approach for wetland restoration will guide wetland restoration in more than 150,000 ha in NRs. Secondly, while restoring farmland back to wetlands, Village Development Funds (utilizing compensation funds made available by the government) will be attached to the restoration program to ensure that the livelihoods of villages affected by the farmland-to-wetland program remain at least at the same level. Village development plans will be part of resettlement plans, and guided by an Environmental Management Plan (EMP) to ensure that activities near the NRs are consistent with wetlands/ biodiversity protection. This will reduce the financial burden of the government for resettlement compensation, as this is no longer a sunk cost, but provided as environmentally sustainable investment opportunities for the villages.” Also, the proposed Project takes key lessons (stated in para. 24, Project document) from the mid-term evaluation of UNDP/GEF project by (a) dealing the barriers of wetland protection not simply focusing on a NR site level but from water resources and watershed management scale holistically, and (b) bringing project implementation closely at the local field level under the Heilongjiang Province government as an executing agency rather than at the central agencies in Beijing. This is re-stated in the executive summary (Annex E).

**(iii) Sustainability (including financial sustainability):**

• Brief analyses of capacity building requirements are included in Annex 13 of project brief. However, issues of the sustainability of the capacity built are important and not addressed. Please indicate the plans that the government will have to sustain this capacity after project completion.

➤ **Response:** The following has been added to the Executive Summary (para.23.): “Capacity developed under the project will be sustainable, as this is embedded in the following government commitments: (a) Wetland restoration will be carried out in more than 150,000 ha in NRs for the farmland-to-wetland restoration program funded by SFA-SDRC and implemented by FDHP. This will be implemented for the next 5 years at an estimated cost of over ¥7 billion to the Chinese government, and a list of restoration sites has been completed. There will therefore be a continued need for capacity for wetland restoration and water resources management; (b) Nature Reserve management is a mandated function of FDHP. The Provincial Government’s general budget sharing is the committed mechanism for continued NR funding, and is included as a covenant under the loan agreement with ADB. NR management capacity developed under the project will therefore continue to function; and (c) Individual VDFs will establish revolving

funds (at least 30% of the total), which will remain functional, operating along guidelines established during the project. Capacity developed under the VDF programs will therefore remain operational.”

- Project risks identified in project document should be summarized in project summary as Council members are keenly interested in this issue.
- **Response:** Agreed, and now added to the Executive Summary (para. 19.)

**(iv) Replicability:**

- Good potential for replicability in other watersheds and wetlands in the country. However, through the various projects on biodiversity and IW, the GEF seems to be assisting replication efforts nationally. Please consider that replication should be financed by others.
- **Response:** GEF fund is not used for replication. As stated in the GEF Executive Summary (para. 24): “HPG has agreed to utilize wetland restoration models (including livelihood restoration) developed by the project in its farmland to wetland restoration program, under which over 150,000 ha will be restored in wetland NRs in the Sanjiang Plain alone. Funds are allocated for this by NDRC. The Project will facilitate this program by providing much needed examples (model approach) of how this can be achieved successfully, and maximizing benefits to biodiversity conservation.”

**(v) Stakeholder involvement:**

- (v).1. Social aspects: Social aspects in the project are not well identified. Population size information in the watershed, demographic parameters in the watershed and in the specific project sites? Social pressures at each site? Human uses of biodiversity and its resources at each site? Please clarify.
  - **Response:** Social aspects had been fully analyzed and summarized in a separate volume of Full Initial Environment Examination (IEE), Chapter III. Section C. Socioeconomic Profile. Supplementary Appendix J is now added to project brief. In all the six nature reserves considered under the project, agriculture is by far the most important human use of the wetland resource and has been expanding over recent years. Less intense human uses are reed collection, small livestock (e.g. ducks and geese), hunting, and fishing, all of which lead to habitat and/or wildlife population degradation. Human uses of biodiversity and its resources at each site are discussed in Supplementary Appendix C.
- (v).2. Project participation plan: The draft highlights that it will be defined during implementation (p 6). It should be provided now and certainly not later than endorsement.
  - **Response:** A draft Public Participation Plan has been formulated and is now included as part of Project Document: Supplementary Appendix J. This will be further refined during the appraisal.
- (v).3. Resettlement plan: Any involuntary resettlement plans (I have checked Annex 10 and found no reference)? Would ADB policy be applied? Plans for compensation? Please recall that GEF funds are not authorized for these types of efforts.
  - **Response:** ADB strictly applies the policy to all ADB financed projects, as a safeguard against potential negative social impacts. ADB's Resettlement Policy is to assure that livelihoods and welfare of people affected by ADB projects remains at least at pre-project level. Resettlement compensation costs are all financed under the government budget. No GEF funds are allocated for resettlement efforts. Appendix 10 of the Project Document (i.e., RRP) is the simplified version of resettlement framework, and the full version of framework (including more detailed quantification data) are available upon request as indicated in the appendix lists (Supplementary Appendix D). As stated in paragraph 83 of the project brief, bullet point v) on Resettlement, and also as stated in paragraph 41 of the project document; the conversion of farmland to wetland, the provincial government will pay land compensation to the State Farms or village collectives, which in turn will provide replacement farmland to the affected households, readjust farmland among the other workers/villagers, and invest the compensation funds to benefit all villagers.

**(vi) Monitoring and Evaluation:**



- (vi).1. M&E Indicators: Page 6 paragraph (f) and Annex C briefly highlights the issue of M&E and indicators: baseline indicators should be established during final preparation not during early implementation, if possible, so these can actually be used as a benchmark when the project starts.
- **Response:** Page 6 of the Executive Summary (para.27) has been modified as follows: “At the Project inception stage, baseline indicators for environmental benefit monitoring and project performance management system will be refined.” The emphasis is on ‘refined’ rather than ‘prepared’, as was previously stated. Similarly, the logframe has been revised to include a defining of performance indicators relative to baselines, as appropriate. Baseline indicators will be selected during final preparation. Refinement during the inception phase is required in several areas, for example: i) populations of globally significant species fluctuate and a more up-to-date baseline will be required; and ii) areas of natural wetlands in target NRs are poorly mapped, and a project GIS will be established as early as possible during implementation. Targets will be set based on best available information, but it is acknowledged that there will be scope for refinement during the inception phase of the project.
- (vi).2. Process versus impact indicators: Most indicators seem to be process not impact indicators please clarify.
- **Response:** Many indicators are indeed process rather than impact indicators. The proponent acknowledges that this is less desirable. The project logframe has therefore been modified to incorporate impact indicators as appropriate.
- (vi).3. Key indicators for forests and wetlands: Some of the key indicators refer to plantations, forestry efforts including NTFPs and other elements of the watershed under consideration. Key indicators for wetlands components are also typically process not impact indicators. Please clarify.
- **Response:** See above; these indicators have been modified to incorporate impact indicators, where appropriate, in the logical framework. Further refined at the appraisal.
- (vi).4. Cost of M&E: Please clarify total costs of M&E efforts in the project.
- **Response:** Many of the costs listed under ‘monitoring’ include costs associated with iterative/ adaptive plans of sub-activity implementation, based on learning from monitoring (evaluating effectiveness of approaches, and adapting these accordingly). Such modification of plans and monitoring are inseparably inter-related and designed as adaptive procedures, and thus division of costs between two are not possible. However, considering 25% of those associated activities would be utilized for monitoring and evaluation, the total estimated cost of M&E is about \$1.41 million (\$0.294 from ADB, \$0.576 from GEF, and \$0.541 from Government).

### 3. FINANCING

#### (i) Financing plan:

##### (i).1. Proposed associated financing: \$1.350m. What would it do?

- **Response:** The GEF Executive Summary states: “Also, total amount of associated financing \$1,350,000, includes (a) ADB grant, \$250,000 on poverty and environment fund to assist alternative livelihood development in three poverty counties in the Project area, (b) ADB grant, \$500,000, on the PRC’s Flood Management Strategy Study to incorporate wetland protection as part of flood management, and (c) ADB grant, \$600,000, on Support for Environmental Legislation to strengthen laws and regulations on nature reserve management and protection.” Further details are provided below:

- (a) ADB grant (approved on 26 June 2004), \$250,000 from Poverty and Environment Program (PEP) – The objective of PEP is to promote targeted environmental interventions that contribute to poverty reduction and environmental improvement mainly through the provision of funding for “small-scale activities in the protection, conservation, and sustainable use of natural resources and ecosystem services to maintain the livelihoods of the poor”. The small-scale activities will demonstrate innovative institutional arrangements, participatory approaches, or technical solutions with clear potential for successful replication, mainstreaming, and/or upscaling in one or more countries. With this associated financing, the PEP project is to: (i) develop and pilot test sustainable alternative rural livelihood activities in poor villages in Raohe county near Naolihe nature reserves, (ii) develop and pilot-test participatory-based co-management of wetland reserves with community-based

organizations (CBOs), nongovernment organizations (NGOs), and/or local government; and (iii) to recommend and introduce policy measures that address the poverty-environment nexus on a sustainable and participatory based manner. The expected outcomes of this PEP project are—(i) Community-based co-management scheme of natural resources, (ii) at least 100 poor farm households/minority groups together with 3 CBOs have alternative livelihood activities in each village; and (iii) incorporating lessons learned from PEP subprojects into policy/institutional measures in Heilongjiang Wetland Conservation Program for further replication.

- (b) ADB grant (approved in April 2004), \$500,000, on the PRC's Flood Management Strategy Study to incorporate wetland protection as part of flood management -- The objective of the TA is to develop an integrated flood mitigation and floodplain management strategy appropriate for the unique flooding and development situations in the PRC (land shortage and population growth), by balancing structural and non-structural measures. This will include the protection of wetlands and holistic watersheds management as a way of integrated floodplain management approach. It will assist the Government in moving from flood control to an integrated, or total, flood management strategy. Though the Government recognizes various non-structural flood management measures, its wide applications and implementations have been limited due to knowledge constraints and lack of know-how. The part of the TA outcome will highlight (i) knowledge enhancement in adopting various non-structural measures (including incorporation of wetlands as flood absorption functions) and (ii) awareness increase on importance of wetlands for flood protection, thus improving watershed management.
- (c) ADB grant (proposed and approval for 2004 pipeline program), \$600,000, on Support for Environmental Legislation to strengthen laws and regulations on nature reserve management and protection – TA will assist Government reviewing relevant laws/regulations on nature reserve management, modifying/ rectifying inconsistencies in nature protection regulations, and drafting national law on nature reserve management and protection (none exist yet at the national law level). The TA will provide consistent regulations on defining/utilizing or protecting experimental zones of nature reserves.

**(i).2.** Counterpart funding, particularly from the government, has been an issue in the UNDP/GEF wetlands project. Please assure counterpart funding availability in a timely manner.

- **Response:** Last 10 lines of the paragraph 19 of the executive summary explains assurance and risk measures on counterpart funding. Heilongjiang Provincial Government identified funding sources from NDRC and demonstrates strong commitments for timely implementation. Loan covenants will include this.

**(ii) Implementing Agency Fees:**

- \$0.860 million requested. The project is a single country, GEF funding focused mostly in the wetlands on the floodplains.
- **Response:** We have sent our response to Kia Rassekh by email.

**4. INSTITUTIONAL COORDINATION AND SUPPORT**

**(i) Core Commitments and Linkages:**

- Substantive cofinancing from ADB. Please add to the project summary a brief description of the ADB portfolio in China and in the watershed if there are other projects.
- **Response:** A short sentence has been added to the executive summary (para. 30.) including ADB PRC-GEF Partnership on Land Degradation in Dryland Ecosystems, which addresses institutional framework and capacity building for combating land degradation over 10 years at estimated investment of \$1.5 billion. The phase I focuses on capacity building.

**(ii) Consultation, coordination, collaboration between IAs, and IAs/ EAs, if appropriate:**

- (ii).1.** Biodiversity portfolio: Key projects include the UNDP wetlands project and two UNEP migratory bird projects addressing wetland species. UNEP projects are not highlighted in the review. Although these projects may focus on other geographic areas in China, they are important as they address similar thematic

issues on capacity building, management plans, sustainable use, inter-sectoral coordination, restoration, etc...

- **Response** Added Annex E to summarize key relevant projects in the PRC. UNEP/GEF migratory bird project in China, is already mentioned in paragraph 24 of the project document, which states: “.The Project will exchange information and expertise with the ongoing UNDP-GEF project on Peatlands, Biodiversity and Climate Change, which is experimenting with wetland restoration in the Ruoergai marshes, and with the UNEP-GEF Siberian Crane project.” The GEF website lists 20 projects in China (<http://www.gefonline.org/projectList.cfm>), of which 11 with UNEP as GEF Agency, but only one (the aforementioned Siberian Crane project) dealing with migratory birds. For another one, perhaps the reviewer meant the UNDP/GEF wetland restoration project in the Ruoergai marshes? The project document does mention another UNEP/GEF project, which is described in response below (see ii. IW portfolio). There are several migratory bird programs active in the region that we are aware of, but did not include in the project brief or Executive Summary because of space limitations; these are: Anatidae Site Network in the East Asian Flyway, Northeast Asian Crane Site Network, and East Asian-Australasian Shorebird Site Network
- (ii).2. IW portfolio: The IW portfolio includes at least one UNEP regional project between China, Russia and possibly Mongolia seeking to manage the Amur/Heilong transboundary River basin. This is mentioned in the proposal and it seems that the Heilong River contributes to this watershed. Please clarify if there are any connections, overlaps, duplications, etc...
- **Response:** Added Annex E including explanation as follows: An application has been submitted to the GEF council for a \$1.075 million PDF-B grant for development of the UNEP Integrated Management of the Amur/Heilong River Basin project. This project is classified in the GEF focal area entitled International Waters, and Operational Program 9 (OP 9), Integrated Land and Water Multiple Focal Area. The project is to be executed by the State Environmental Protection Administration (SEPA), the Russian Federation Ministry of Natural Resources, the Mongolia Ministry for Nature and the Environment, and the International Lake Environment Committee Foundation. This project will develop a basin-wide international cooperation framework for the integrated management of the Amur/Heilong Basin and associated continental and Sakhalin Island coastal areas. The Framework includes: (i) a strategic action program to address land-based threats to the aquatic environment of the basin and associated continental and Sakhalin Island coastal areas, and (ii) an effective multi-national institutional mechanism to address transboundary effects of human land-based threats. One site in the Amur/Heilong River basin that has transboundary environmental issues and requires regional cooperation, is the Lake Xingkai/Khanka basin where important wetland ecosystems are under threats due to pollution, reclamation and insufficient transboundary coordination. This basin was chosen as a demonstration site in the Amur/Heilong basin for integrated land and water management. Activities will be developed and implemented: (i) to establish a common understanding of the baseline environmental conditions; (ii) to create enabling capability to develop and implement the Strategic Action Programme for the Lake Xingkai/Khanka basin; (iii) to develop and implement pilot activities that can address land-based threats; and (iv) to enhance capacity of the riparian countries to integrate land, water and biodiversity management into economic development planning. The proposed Project will complement UNEP efforts at Xingkaihu NNR by focusing on capacity building through training and provision of equipment, pilot projects for restoration of farmlands to wetlands, conservation education and public awareness. Key differences between the two projects will be the implications on wetlands protection policy; the proposed Project will provide knowledge/lessons on managing globally significant biodiversity/wetlands under provincial government for inter-sectoral coordination, while the UNEP project would elicit lessons for international cooperation on transboundary water issues.
- (ii).3. China/GEF program: There is an extensive China/GEF program to address land degradation and sustainable land management in the country. However, this is not mentioned at all in the proposal. Please clarify, as this proposal could well fit under it and the Secretariat is concerned that this larger effort is not mentioned in the proposal.

➤ **Response:** We are well aware of the GEF program on land degradation under OP 12, and closely coordinating to identify possible projects under the program. As indicated in our response under ADB/China Portfolio, we have been very selective what to mention in the Executive Summary and Project Documents due to the page constraints. As this project is <mainly> under OP2, we did not mention the GEF program under OP12, nor any other projects under different OP numbers. At the same time, the PRC-GEF Partnership on Land Degradation focuses in Dryland Ecosystems, under which the Country Programming Framework's (CPF) primary focus is on six priority provinces and/or nationally and globally significant autonomous regions in the PRC's Western region; these areas include Gansu, Inner Mongolia, Ningxia Hui, Qinghai, Shaanxi, and Xinjiang Uygur. Other dryland areas provinces/regions of the Western region are also eligible for support, but not the northeastern wetlands like Sanjiang. The proposed Sanjiang project is located at the northeast corner of the PRC, and dealing with wetlands. Now, the China/GEF program is mentioned in the para. 30 of the executive summary.

(ii).4. Others: Projects from others? Lessons? Best practice? Replication experience?

➤ **Response:** In addition to the projects and programs mentioned above: (a) ADB's Songhua River Flood and Wetland Management project, (b) UNDP-GEF Wetland Biodiversity Conservation and Sustainable Use in China project, (c) UNDP-GEF Peatlands, Biodiversity and Climate Change project, (d) UNEP-GEF Siberian Crane and other migratory waterbirds project, (e) UNEP-GEF Integrated Management of the Amur/Heilong River Basin project, (f) Anatidae Site Network in the East Asian Flyway, (g) Northeast Asian Crane Site Network, and (h) East Asian-Australasian Shorebird Site Network. The proponent is aware of and taken note of: The Integrated Agriculture Development Project funded by the Overseas Economic Cooperation Fund (OECF) of Japan, for development of state farms in Heilongjiang Province in the mid 1990s. Recommendations from this project will provide a useful foundation for farm and nature reserve management plans to be developed during the Project.

## 5. RESPONSE TO REVIEWS

### (i) Review by expert from STAP Roster:

- Good review by the STAP expert. The Secretariat supports the review and request ADB to fully respond to issues highlighted by the reviewer.
- ADB also supports the views of the STAP reviewer, and has taken steps to fully respond to the issues highlighted, with revisions to the project brief, its annexes, and the GEF Executive Summary.

### (ii) Review by Other IAs: World Bank Comments (follows on the next page)

**ANNEX C. 3:**  
**WORLD BANK REVIEW ON 15 JULY 2004 FOR WORK PROGRAM INCLUSION**  
**AND ADB RESPONSE<sup>1</sup>**

1. **Global biodiversity values.** This is an interesting proposal since it came about as a response to the massive floods which had huge social costs – and caused China to recognize the need to better protect its forests and wetlands. The national benefits should be substantial. What is less clear, especially from the executive summary, is the global biodiversity values of the existing wetlands and nature reserves (very large areas have already been converted for agriculture). It would be helpful to have a matrix which explains the global values, threats and activities at each site. The fact that the project intends to restore over 150,000 hectares of farmland to wetlands suggests that these areas are already under heavy human and livestock pressure and much degraded.

- **Response: Global biodiversity.** This is stated in the Executive Summary (para 10.), “the Sanjiang Plain includes some of China’s most important wetlands and supports 23 species listed by IUCN as globally threatened. 28 of Heilongjiang’s 58 wetland Nature Reserves (NRs) are located on this plain, of which 6 key NRs will be targeted by the Project.” This is further elaborated in the project document, paragraph 6, which further adds “Of these <23 species> 10 species are waterfowl such as cranes, storks, and swan geese, which require extensive, undisturbed wetlands during their migration and breeding seasons. The Sanjiang Plain wetlands are an important nesting and stopover location at the northern end of the East-Asian-Australian Flyway for migratory waterfowls, most notable of which are the white-naped and red-crowned cranes. These wetlands are also ranked as globally important in the Directory of Asian Wetlands.” Biodiversity values are further elaborated in Supplementary Appendix A (SA/A). Profile of Wetland Resources and Biodiversity in the Sanjiang Plain (51 pages) and Supplementary Appendix C (SA/C). Site Selection and the Selected Six Nature Reserves (17 pages). SA/A provides extensive matrix tables on species and habitat biodiversity in wetlands of the Sanjiang Plain. SA/C includes fact sheets (following the Ramsar Bureau’s format), indicating threats (‘Adverse factors’) and activities undertaken (‘Conservation measures’), and Table 1 provides an overview of all globally significant species recorded at the six targeted NRs. Lastly, as indicated in the STAP review (3. b) “The project document provides in the project brief and annexes (e.g. Technical Appendix A) a comprehensive overview of the global biodiversity values that would continue to deteriorate if no alternative would be developed and implemented.” Added to the Executive Summary is “The six targeted NRs provide a habitat for all 23 globally threatened species, and harbor significant populations of 14 of these.”
- **150,000 ha of wetlands targeted for restoration** is indeed a large area, but two things need to be emphasized here:
  - The project does not aim to restore the 150,000 ha of former wetlands – this is a program that the Government of China has committed itself to (also financially!) in a national ‘farmland to wetland’ restoration program aimed at restoring wetlands in NRs. Note that this is clearly stated in paragraph 50 of the project document, and has now also been added to the revised GEF Executive Summary (para 15.). The project will restore 3,433 ha of pilot areas only, to provide a model for the national program. This is a very significant opportunity for GEF to provide welcome support and would be highly cost effective in the context of Sanjiang Plain, as wetlands formerly extended over 5.3 million ha (1949), but have now declined to just under 900,000 ha, with most of the better quality ones located in the PA network. Human pressures are indeed high, but the aim is to remove these in the wetland NRs, where possible.

2. **Incremental costs and GEF financing.** Related to the above point, many of the activities seem to have strong local and national benefits, especially water resource planning, watershed-level water allocations, sustainable tourism, wetland management capacity - see table 2. Activities such as wetland restoration would

<sup>1</sup> Review is based on the draft document submitted on 15 July 2004, and ADB response is based on the revised document submitted to GEF Secretariat on 27 July 2004.

also seem to have some national benefits while global benefits are uncertain and cost-effectiveness is questionable, given the high costs of restoration activities. Much of the costs seem to be borne by the GEF grant (\$12.14 million) which seems a high figure given the very considerable national and provincial benefits and the fact that much of the habitat restoration is in to correct environmental damage caused by agricultural policies.

- **Response: Global versus national benefits and GEF funding.** ADB agrees that the project will have many local and national benefits, in addition to significant global benefits. However, GEF funds will be used for achieving global benefits. The Incremental Cost Analysis (Supplementary Appendix H2, GEF Annex A) clearly distinguishes between global, shared and national benefits, and also identifies clearly how these are to be funded. GEF inputs largely go towards activities that reap global (46%) or shared (48%) benefits, and only a small percentage (6%) will go towards activities where national benefits are largely accrued <this has now been added to the Executive Summary (para. 21.)>. Where benefits are shared, GEF funding is required to leverage global benefits. According to the STAP review (3. b) "... The document has appropriately outlined (in the incremental costs analysis) that the GEF finances will be used to counter these root causes and ensuing threats. In addition, it is made clear that where there are domestic benefits (mainly from site-based actions), that these are primarily financed by the co-sponsors and governments."
- **Cost of wetland restoration.** The cost of wetland restoration will be borne by the government of China, and not GEF. Physical interventions to restore the wetland will be covered out of GEF funds, but this amounts to an average of US\$ 171 per ha. Compensation to be paid to farmers for loss of livelihood, however, amounts to an average of US\$ 2500-\$3500 per ha, and this is paid solely by the government. The project is designed so that compensation is not 'lost' as a sunken cost, but invested in development (among others contributing to village development funds). This explanation has now been added to the Executive Summary (para. 24).

3. **Cofinancing.** GoC cofunding is generous but presumably much of the GOC and ADB funding (\$15m) will go into watershed reforestation efforts, plantations and rural developments. Unless plantations are carefully sited they could increase the pressure on biodiversity resources, both through further land conversion and additional water needs. Similarly developing livelihoods based on NTFP exploitation could further increase pressure on biological resources unless such harvesting is based on sustainable levels (to be determined how?), and carefully monitored and enforced to ensure that harvesting levels are sustainable.

- **New plantations** will be established in denuded areas (i.e. without forest cover, and subject to enhanced erosion), or under the government's farmland to forest program; this is explained under Component 1 (p.4) of the Executive Summary, and detailed further in paragraph 31 of the project document: "During the five-year Project, 4,500 hectares of low-quality agricultural land will revert back to legally required forestland, and 5,500 hectares of wasteland (secondary scrubland and denuded areas) will be converted into high-yield forest plantations growing indigenous larch and poplar species." From a biodiversity point of view, the situation is vastly improved, as forest cover will replace degraded area and farmland, erosion will be reduced, and water resources improved (less runoff/more infiltration, and lower water requirements of plantations compared to farmland). The net result is a decrease (and not an increase) of pressures on biodiversity resources. All new plantations will be required to strictly follow ADB's environmental guidelines, as elaborated in Supplementary Appendix G2/EMP, and in Supplementary Appendix G1/SIEE. Specifics include:
  - New plantations will not be sited adjacent to or near (within 1 kilometer) nature reserves.
  - Rapid surveys of surrounding land use and site location within the watershed are to be undertaken to confirm that proposed sites are upper watershed, were not originally converted from wetlands, and are not too steep.
  - Rapid biological surveys should also be undertaken in all sites to ensure the absence of any threatened or endangered flora and fauna, species of economic importance, and patches of upland wetland.
  - An appropriate buffer zone should be left between plantations and all riparian zones and any other sensitive habitats.

- Only indigenous species suited to local ecological conditions should be planted.
  - **NTFPs** will be promoted on the project directly in conjunction with the establishment and operation of plantations. These are all ‘farmed’ NTFPs, and not products harvested from natural forests – this is clearly outlined in paragraph 40 of the Project document, and in Supplementary Appendix G2/EMP. Specifics include:
    - Activities should take place on plantation areas within existing State Forest Farms only.
    - Intercropping should only involve non-exotic species already utilized for intercropping in the county or surrounding counties.
4. **Wetland management.** China has already benefited from one large multi-site wetlands project, through UNDP and funded with GEF resources. Hopefully guidelines and capacity developed under that project will be utilized, rather than developing new guidelines.
- **Response: Wetland management projects in China.** The project aims at complementing rather than replicating what has already been achieved on other wetland projects in China. Complementarities and lessons from key relevant GEF projects are now summarized in Annex E.
  - **UNDP-GEF Wetland Biodiversity Conservation and Sustainable Use in China.** In the Sanjiang Plain the 5-year, US\$35 million UNDP-GEF Wetland Biodiversity Conservation and Sustainable Use in China Project focuses on: (a) capacity building through provision of equipment and training; (b) development of a management plan for Honghe NNR; (c) review of the management plan for Sanjiang NNR; (d) demonstration of biodiversity-friendly land use planning through preparation of biodiversity overlays from database and GIS applications; (e) restoration of the surface water hydrologic regime at Honghe NNR; and (f) a strategic overview of wetland biodiversity conservation in the Sanjiang Plain.
    - Sanjiang Plain wetlands have an internationally recognized status: three sites are recognized as wetlands of global importance (i.e. Ramsar wetland sites, namely Honghe NNR, Sanjiang NNR and Xingkai Lake NNR) and three are potential Ramsar sites (Naolihe NNR, Qixinghe NNR and Zhenbaodao NR). The proposed Project preselected eight target NRs in the Sanjiang Plain because they support the largest numbers of globally threatened species. Honghe and Sanjiang NNRs, were later excluded from consideration because they were the focus of the UNDP-GEF project.
    - Whereas the UNDP-GEF project largely took an engineering approach (at the initial phase) to restoration of the hydrologic regime at Honghe NNR, this Project will take a watershed management approach that seeks to involve all local water users working in cooperation.
    - Whereas UNDP-GEF undertook nature reserve management planning using international technical assistance, this project seeks to develop capacity at nature reserves to develop their own management plans through participation in long-term professional training programs. This Project also seeks to compliment the planned GoC farmland-to-wetland restoration projects by simultaneously developing wetland habitat restoration demonstration projects and associated long-term monitoring programs.
    - The UNDP-GEF project established provincial Wetland Management Authorities (WMAs) in an attempt to foster cross-sector contribution to wetland biodiversity management. The WMAs were only partly effective because of their geographic and institutional distance from the wetlands. The proposed Project will establish local working groups in the target pilot NRs. Working group members will represent all local stakeholders in water and biodiversity resource management.
  - **UNEP-UNDP-GEF Siberian Crane Project.** A UNEP/UNDP/GEF project entitled "Conservation of the Globally Significant Wetlands and Migration Corridors Required by Siberian Cranes and Other Globally Significant Waterbirds in Asia" started in 2003. The project has a different geographic focus than the present project, but lessons learned from the Siberian Crane Project with respect to water management and capacity building in nature reserves will be applicable to the proposed Project.
  - **UNDP-GEF project on Peatlands, Biodiversity and Climate Change.** The Project will exchange information and expertise with the ongoing UNDP-GEF project on Peatlands, Biodiversity and Climate Change, which is experimenting with wetland restoration in the Ruorgai marshes. These ‘lessons learned’ are explained in paragraph 24 of the Project Brief.

5. **Conservation awareness and education.** The project is advancing considerable resources for reduced exploitation of globally threatened species and their prey. Also very substantial resources for conservation awareness. It would be very helpful and a real global benefit if awareness programs could be targeted at reducing trade in wildlife and other endangered species both from within the project area and nationally but also beyond China's borders. The wildlife trade to China is currently threatening the long-term viability of forest and other natural ecosystems across Asia - very much the 'empty forest syndrome'.

- Agreed. It was understood that reduction of trade in endangered species would be part of the awareness and education program (components 4.1 and 4.2), also as it meshes well with the species recovery program (component 2.3; see project brief). This will be specifically stated in the revised Project document, but is too detailed to include in the Executive Summary. Added to paragraph 45: "Eliminating or at least reducing the trade in endangered species will also be one of the aims of the program."

6. **Links to new SEPA-led PA program.** This year a new UNDP project to develop a biodiversity conservation partnership framework entered the GEF pipeline. It would be useful to understand the relationship between this project and that framework - for instance are the Sanjiang plain wetlands likely to represent the top priority national wetlands to be represented in a representative national system (as required through CBD COP7 obligations).

- Framework of the new SEPA-led activity emphasizes "mainstreaming biodiversity into socio-economic planning and investment decision making", and protecting biodiversity inside as well as outside nature reserves. In particular, the framework attempts to strengthening the national enabling environment for conserving and sustainably using biodiversity. The proposed Sanjiang project focuses on a model framework at the provincial level which could be (a) well integrated into this framework as a model and lessons toward nationwide policy implications, and (b) how socio-economic planning could be incorporated into wetlands/biodiversity protection, such as village development fund, or non-timber forest products covering both inside/outside of nature reserves protection. Sanjiang plain wetlands in the Heilongjiang province contain significant portion of PRC's protected area, and will represent at the top priority national wetlands as required through CBD COP7 obligations, as Heilongjiang province is one of the three environmental province designated by the national government.



**ANNEX C. 4:**

**CONVENTION SECRETARIAT COMMENTS ON JULY 2004 FOR WORK PROGRAM  
INCLUSION AND ADB RESPONSE<sup>1</sup>**

**Comment:** It is noted that public involvement and consultation in particular the involvement of scientific and academic communities could be enhanced in the project design or through the project implementation.

- **Response:** Agreed. Para. 34 (iv) of Executive Summary already stated involving scientific and academic communities in training and capacity building. Appropriate training modules for both government staff and communities in/around NRs will enhance the sustainability of capacity strengthening approach. Further environmental monitoring and evaluation program under the project implementation will recruit scientific/academic communities to assist impact evaluation of the project throughout the implementation. This is restated in the revised Project document (para. 43).

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<sup>1</sup> Review is based on the draft document submitted on 15 July 2004, and ADB response is based on the revised document submitted to GEF Secretariat on 27 July 2004.

**ANNEX C.5:****COMMENTS FROM COUNCIL MEMBERS AND ADB RESPONSE<sup>1</sup>**

- **Comments by Germany:**

(a). **Involvement of local groups / Resettlement/ Ethnic Minorities.** The transformation of farmland into wetland and forest requires not only technical expertise in landscape planning, monitoring and implementation but also a strong involvement and acceptance of the local population, especially regarding the envisaged resettlement activities. This seems to be one of the most controversial and challenging points of the whole project. Although an entire appendix 10 addresses the resettlement framework, some aspects regarding the participation of the local communities remain still unclear, inter alia: how far are the affected people involved in the planning process as a whole? Is there a co-management regarding the selection of the replacement areas? How far are the local communities involved whether their land will be compensated with (long term economical beneficial) forest-areas or wetlands (only monetary compensation)? Guidelines how to use the Village development funds (fed by 30% of the compensations) are very broadly mentioned. Which restrictions do the villagers have to face? In the proposal it is stated that the project has no impact on ethnic minorities or groups. It would be nice to read that there was a positive impact, as it is quite likely that indigenous people could benefit from the renaturation of the wetlands.

➤ **Response:** Under the ADB's social safeguard policy, resettlement procedure should follow the ADB's guidelines where local communities' participation and consultation must be included as part of planning, design, compensation and monitoring steps. Appendix 10: Resettlement Framework is only a summary, and full resettlement framework is provided in Annex E.3: Supplementary Appendix H. The Framework is to ensure a coherent approach for all the villages affected within the project, while detailed resettlement action plans are also prepared by village as a condition for receiving village development support. For Example, villages in Xingkaihu and Qixinghe NRs have already prepared its own detailed resettlement plans through participatory consultation process (attached in Annex E.3: Supplementary Appendixes I and J), and the rest 6 villages will submit their respective plans soon with the project effectiveness, but before applying for village development/ land compensation. Participatory meetings have been already conducted with affected villagers, who are directly involved in planning and implementation. Further meetings will be held to plan how compensation funds will be utilized to (i) restore lost incomes and (ii) prevent further adverse impacts on the wetland. Since the number of affected households is small, the affected people at village level can make direct decision on these issues. These affected villages require 2/3 majority support for land adjustment and ways to utilizing 30% of land compensation. Regarding the selection of the replacement areas, there will be a difference between villages and State Farms. The village lands are managed by elected leaders, and all villagers have clear rights to land use through long term tenureship. The state farms are operated like an enterprise and the people are its workers. Much of the state farmland is contracted annually which means its use can be more easily adjusted. Both cases will include participation of affected people but the final decision-maker is different - the village requires 2/3 majority support from villagers for land adjustment and spending collective compensation. The state farm makes their decision by its management. To utilize the village development fund, the affected villages should have resettlement and village development plans, and the proposed village development plan should be consistent with the Master Plan of a respective Nature Reserve. Further conditions and guidelines are included as part of Loan Covenants (Annex E.2), such that; *Financing for village development will be subject to guidelines and procedures including the following: (a) the alternative livelihood investments were identified with the participation of the affected persons (APs), and are eco-friendly according to the evaluation criteria in the Environmental Management Plan (EMP) and compatible with the master plans for the NRs; (b) Affected persons and then the hosts will have priority with respect to use; and (c) training and technical assistance for alternative livelihood schemes and environmental protection will be provided*

<sup>1</sup> Review is based on the draft document submitted on 27 July 2004, and ADB response is based on the revised document submitted to GEF Secretariat on 18 January 2005 (after appraisal and completing negotiations of loan/project agreements).

*if the investment proposals fit the “green,” eco-friendly investment criteria in the EMP(Annex E.3, Supplementary Appendix L).*

- Regarding ethnic minority group, “whether ethnic minority groups are affected or not” is a function of the project components. Since the Project attempts to set a pilot model approach with small number/size of selected areas, there are no ethnic minority groups were included at this stage. However, in the future, if ethnic minority peoples are affected by wetland restoration in Sanjiang plain, resettlement plans, framework and EMP would provide guidelines for their income/livelihood restoration, through which positive impacts and benefits are anticipated to protect ethnic minority groups.

(b). **Climate change aspects.** One of the socially and economically most striking arguments for the implementation of project is the augmentation of the water holding capacity of the plain (specially upper regions) in order to minimize the risks of floods and droughts. Shrinking forest- and wetland was bringing various local climate changes – even that e.g. flood control dikes were by far not able to protect economic goods and human lives sufficiently. But beyond local causes – which are dealt with in the project – impacts of global climate change will still affect the Sanjiang plain. Unfortunately this dimension, particularly important for wetland regions, seems not to be sufficiently considered in the project proposal. For example: is there a change of precipitation (amount/ variability) to be expected in the project region and in the catchments basin of the rivers “feeding” the wetlands? Are there any estimations regarding the future seasonal run-off behaviour of the main water-courses? The planning of the project and in particular of the resettlement should take into consideration possible impacts of climate change and adaptation measures. This includes the selection of the areas to be transformed, the location of settlements, the improvement of infrastructure (roads, wells,...) regarding inundation, landslides, soil erosion, fluctuation of ground water level, etc.

- **Response:** The Project deals with this water-balance/hydrology aspects at two levels; one at the local level through improved coordination across local inter-sector agencies for water resources management of competing requirements/ uses, and the other at the watershed level through water allocation planning in coordination with the main river basin commission in the region. The watershed level water allocation planning will particularly focus on modeling side of seasonal run-off, peak-floods and behavior of major river courses in the Sanjiang Plain. Intended outputs of this component, Watershed-level Water Allocation Planning, are to provide adequate water for ecological water requirements in nature reserves, as well as to incorporate wetland protection into flood management plans. Thus, utilizing the watershed-level water resource allocation planning will help the river basin commission and Heilongjiang provincial government to make informed decision effectively on where and to what level of improved infrastructure or resettlements/ irrigation should be provided, given the fluctuation of ground water level, flows of major water courses and wetlands water requirements. The Heilongjiang provincial water resources department, as part of the Songhua river basin commission and its working members, will first prepare hydrological modeling to assess water-flow behaviors at watershed level. Such water modeling and allocation planning will serve as basic information in determining whether the areas to be used for resettlements, where such infrastructure improvements should be carried out, if so, it is for protecting human settlement from floods or for protection of wetlands? It should be noted that the size of Sanjiang Plain is almost one-third of the land area of Germany. During the project preparation period, data concerning precipitation, surface water runoff, storage, groundwater resources, total water rechargeable back to Sanjiang plain wetlands, and needs for irrigations have been compiled and analyzed to the extent possible, but not included in the project documents because such detailed numbers are not appropriate for Board’s review/consumption. Analyses of these data revealed that the general water requirements for the remaining wetlands (20 % of the original size) may be possibly attainable on a gross regional level (the entire Sanjiang Plain), but importantly competition between agriculture and wetlands for water will be more critical issues at localized areas. Based on the analysis, the project design includes two-different levels of geographical scope, i.e., (i) alleviating this threat to wetlands/ biodiversity through local (county level) water resource management approach, yet at the same time, (ii) emphasizing watershed-level (provincial level) water allocation planning toward bigger scale coordination with river basin flood management planning. Climate

changes aspects at global scale, though difficult to quantify at the provincial level, if not possible, would be considered when modeling hydrological cycle/ balance of watershed-approach.

(c). **Cooperation with German TC.** As forestry and reforestation plays a major role in the project (36,000 forest workers for 7 months needed!), there might be an interesting interface with the GTZ Project: “Basic and Further Training in the Forestry Sector”, where one school is located in Heilongjiang. Furthermore in china three small scale projects regarding the Implementation of the Biodiversity Convention, supported by GTZ are running (2 in Yunnan) or in the pipeline. As it said in the proposal that “... wetlands and biodiversity conservation are relatively new concepts in China...” the Sanjiang Plain Wetlands Protection Project may wish to build on the experiences made, especially in the sector of community involvement and education / capacity building.

➤ **Response:** Agreed. Building up synergy with ongoing efforts of GTZ as well as other international efforts in similar area are essential and fully agree with the suggestion. Many of the training modules will be procured through international shopping and direct selection modes according to ADB’s guidelines, for which selection criteria will highlight the experiences gained through other similar international works on community involvement and capacity building. Para. 34 (iv) of Executive Summary stated involving local academic communities in training and capacity building.

(d). **Recommendation.** The proposal of this project is remarkably well structured and edited. Few additional aspects should be considered and to be integrated during further planning steps and during project implementation where applicable.

➤ **Response:** Noted with thanks. As responded above, where applicable, the Project integrates participatory measures in resettlement land compensation process and utilizes experiences of other similar international efforts.

• **Comments by the US:**

**Summary:** The immediate objective of this projet is the protection of the natural resources of the Sanjiang Plain wetlands and their watersheds from continued threats, the promotion of their sustainable use through the integrated conservation and development of selected wetlands and forest aeras of the plain, and the improved well-being of local communities.

**This project is consistent with the GEF Operational Program;** the government of China also gives high priority to wetland biodiversity conservation, watershed protection, and management of natural resources. Due to this commitment, capacity developed under this project is expected to be sustainable. The logical framework matrix details methods of monitoring and evaluation.

**The proposal is innovative** by combining the river basin approach involving integrated water management and catchment reforestation, nature reserve protection and wetland restoration, community development through community-based funding and credit mechanisms as well as forestry/ inter-cropping systems. As a result, the project will have a high demonstration value for the rest of China as well as other countries. It is feasible and has a good focus, although cost-effectiveness is predicated on the assumption that this would be replicated.

**U.S. Position: Support**

➤ **Response:** Noted with thanks. With the commitment and priority given by the government of China, wetlands restoration and conservation of biodiversity in an integrated manner, harmonizing environment and human existence, are recorded as high importance. This is demonstrated by Heilongjiang Provincial Government’s request for ADB/GEF to provide a model framework so that future similar work can be patterned after the project. It is estimated that the project (focusing on selected sites as a pilot model framework) will bring much greater impact throughout Sanjiang plain wetlands and biodiversity

conservation. To enhance replication and scale-up of the model framework, the sustainability of model framework will be strengthened by adopting exit strategy (Annex E.3: Supplementary Appendix F).

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MOF INTL DEPT

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July 19, 2004

TO: Mr. Daniele Ponzi  
 ADB-GEF Facilitator  
 Asian Development Bank

China: Endorsement Letter for GEF Sanjiang Plain Wetlands Protection Project

Dear Mr. Daniele Ponzi,

This is to advise you that the Ministry of Finance, as the GEF Focal Point for China, would like to endorse the captioned project to be submitted by Asian Development Bank for GEF support.

We confirm the Government's support on the above project, which entered in the GEF pipeline in December 1999, as Songhua River Flood and Wetland Management Project. The project, now titled as captioned, is a priority for the government, and consistent with (1) the Biodiversity Conservation Action Plan (June 1994), (2) National Wetland Conservation Action Plan (September 2000), and (3) Farm-to-Forest Program of the National Development and Reform Commission.

Therefore, Sanjiang Plain Wetlands Protection Project is in accordance with not only China development strategy but also GEF's priority supporting area. We believe that by participating in the proposed project and disseminating successful experiences, China will contribute to the global environmental benefits.

We are looking forward to fruitful cooperation with GEF and the Asian Development Bank on this project.

Best regards,



  
 ( Wang Bing )  
 Operational Focal Point for China

**DRAFT**

**PROJECT DOCUMENT**

**SANJIANG PLAIN WETLANDS PROTECTION PROJECT**

**FOR**

**THE PEOPLE'S REPUBLIC OF CHINA**

**FOR THE**

**SANJIANG PLAIN WETLANDS PROTECTION PROJECT**

**January 2005**

## CURRENCY EQUIVALENTS

(as of 5 January 2005)

Currency Unit	–	yuan (CNY)
CNY1.00	=	\$0.121
\$1.00	=	CNY8.277

## ABBREVIATIONS

ADB	–	Asian Development Bank
AP	–	affected persons
BCAP	–	Biodiversity Conservation Action Plan
BD	–	biodiversity
CSP	–	country strategy and program
EIRR	–	economic internal rate of return
EMP	–	environmental management plan
ENPV	–	economic net present value
EPB	–	Environmental Protection Bureau
FIRR	–	financial internal rate of return
GEF	–	Global Environment Facility
HPFB	–	Heilongjiang Provincial Financial Bureau
HPFD	–	Heilongjiang Provincial Forestry Department
HPG	–	Heilongjiang provincial government
IEE	–	initial environment examination
LIBOR	–	London interbank offered rate
NDRC	–	National Development and Reform Commission
NFPP	–	Natural Forest Protection Program
NPV	–	net present value
NR	–	nature reserve
NTFP	–	nontimber forest product
NWCAP	–	National Wetland Conservation Action Plan
OP	–	operational program
PIU	–	project implementation unit
PMO	–	project management office
PRC	–	People's Republic of China
PSC	–	project steering committee
RP	–	resettlement plan
SOE	–	statement of expenditures
TA	–	technical assistance
UNDP	–	United Nations Development Programme
UNEP	–	United Nations Environment Programme
VDP	–	village development plan
WACC	–	weighted average cost of capital

## WEIGHTS AND MEASURES

ha	–	hectare (= 15 mu)
km	–	kilometer
km <sup>2</sup>	–	square kilometer (= 100 ha)
m	–	meter
m <sup>3</sup>	–	cubic meter
mu	–	0.067 ha



## 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., FY2000 ends on 31 December 2000.
- (ii) In this report, "\$" refers to US dollars.

This report was prepared by a team consisting of K. Choe (team leader), X. Ma, S. Ferguson, L. Adriano, S. E. Yang, and V. You .

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## **SUPPLEMENTARY APPENDIXES** (available on request)

- A. Profile of Wetlands Biodiversity in the Sanjiang Plain
- B. Institutional, Legal, and Policy Analysis
- C. Site Selection and the Selected Six Nature Reserves
- D. GEF Executive Summary
  - Annex A: Incremental Cost Analysis
  - Annex B: Logical Framework for Sanjiang Plain Wetland Protection Project
  - Annex C.1: STAP Expert Review on 20 June 2004 and ADB Response
  - Annex C.2: GEF Secretariat Review on 15 July 2004 for Work Program Inclusion and ADB Response
  - Annex C.3: World Bank Review on 15 July 2004 and for Work Program Inclusion and ADB Response
  - Annex C.4: Convention Secretariat Comments on 23 July 2004 and for Work Program Inclusion and ADB Response
  - Annex C.5: GEF Council Review on 22 September 2004 and ADB Response
  - Annex D: MOF Endorsement Letter for GEF
- E. Project Components and Activities
- F. Exit Strategy enhancing Sustainability and Viability of the Intervention toward Scale-up
- G. Social Assessment and Public Participation Plan
- H. Full Resettlement Framework
- I. Resettlement Plan of Mishan County (Xingkaihu NR)
- J. Resettlement Plan of Baoqing County (Qixinghe NR)
- K. Project Performance Monitoring System
- L. Initial Environmental Examination and Environmental Management Plan
- M. Threats Analysis
- N. Other GEF Assistance to China
- O. Project Contribution to Operational Programs and Key Indicators of GEF Business Plan
- P. Financial Economic Analysis
- Q. Outline Terms of Reference for Consulting Services
- R. Details of Project Costs and Financing Plan

## LOAN PROJECT SUMMARY

<b>Borrower</b>	People's Republic of China (PRC)
<b>Classification</b>	Targeting Classification: General intervention Sector: Agriculture and natural resources Subsector: Environment and biodiversity Theme: Environmental sustainability
<b>Environment Assessment</b>	Category B: An initial environmental examination was undertaken, and a summary initial environmental evaluation was prepared.
<b>Project Description</b>	<p>The Sanjiang Plain comprises 108,900 square kilometers, where the Heilongjiang, Songhua, and Wusuli rivers are confluent in a vast alluvial floodplain in the northeast of Heilongjiang Province. The Plain is one of the most important grain production areas in the PRC. Supporting rich biological diversity, which includes 23 species listed in the World Conservation Union as globally threatened, the wetlands in the Sanjiang Plain are some of the most species-rich and endemic-rich ecosystems in Asia. However, the wetlands and forestlands have shrunk to one fifth of their original size in the last five decades because of increasing population and grain production, and flora and fauna in the wetland nature reserves (NRs) are threatened by farmland encroachment and water resource exploitation. To protect these ecosystems while supporting the sustainable development of the area, the Project adopts a holistic model framework of watershed management by (i) rehabilitating and protecting degraded forests in the upper watershed areas, (ii) restoring and protecting wetlands NRs in the downstream areas, (iii) providing alternative livelihood to farmers, and (iv) strengthening the capacities of local agencies in charge of watershed wetland and NRs management. By developing and pilot-testing a model framework to protect wetland biodiversity while promoting the sustainable development of the areas, the Project will be instrumental in establishing a wetland protection program in the PRC that protects wildlife biodiversity effectively and generates employment and income in a sustainable manner.</p>
<b>Rationale</b>	: In the PRC, the Sanjiang Plain wetlands are one of the richest areas with globally significant flora and fauna, which are mostly concentrated in NRs. However, over time, they have lost their self-cleaning and generation capacity with a resultant decline in plant and animal biodiversity of global significance. Further, the wetlands' biodiversity is under constant threat by local communities exploiting biological resources for their livelihood through unsustainable farming practices at NRs, and the limited management capacity of NR staff. Recent government policies and plans are aimed at halting and reversing environmental degradation in the area. However, the policies need improvement to achieve a "model" for sustainable management of the wetland ecosystem as part of an integrated river-basin management policy. Heilongjiang is designated as one of the three environmental provinces in the PRC, and the provincial government (HPG) is looking for development opportunities that integrate watershed and wetland

management in a sustainable way and that can be replicated throughout the Sanjiang wetland NRs and other areas with similar environmental conditions. The proposed Project will adopt integrated watershed management in the Sanjiang Plain for wetland and forest conservation, based on their potential to support ecologically sustainable economic development. It will provide a model framework that can be expanded for comprehensive, longer-term management of wetlands and biodiversity on a large river-basin scale.

### Objectives

The overall goal of the Project is sustainable management of natural resources to protect globally significant biodiversity and to promote economic development. The immediate objective is to protect the natural resources of the Sanjiang Plain wetlands and their watersheds (biodiversity, water, forests) from continued threats, and promote their sustainable use through the integrated conservation and development of selected wetlands and forest areas of the Plain and improve the well-being of local communities. The project scope includes watershed management, wetland nature reserve management, alternative livelihood, and education and capacity building. The project management component will carry out overall implementation, administration, and monitoring. The world will benefit from the enhanced conservation of globally significant biodiversity through the Project. The project area covers 18 counties situated in the Sanjiang Plain, in the northeast of Heilongjiang Province.

### Cost Estimates

The Project will cost about \$55.55 million equivalent, \$9.41 million of this in foreign exchange and \$46.14 million equivalent in local currency.

### Financing Plan

Source of Financing	(\$ million equivalent)			
	Foreign Exchange	Local Currency	Total Cost	Percent
Asian Development Bank	1.56	13.44	15.00	27
Global Environment Facility	5.67	6.47	12.14	22
Heilongjiang Provincial Government	2.18	22.19	24.37	44
County Governments	0.00	4.04	4.04	7
<b>Total</b>	<b>9.41</b>	<b>46.14</b>	<b>55.55</b>	<b>100</b>

Source: Asian Development Bank estimates

### Loan Amount and Terms

A loan to the PRC in the amount of \$15.00 million from the ordinary capital resources of the Asian Development Bank (ADB) will be provided under ADB's London interbank offered rate (LIBOR)-based lending facility. The loan will have a 25-year term, including a grace period of 5 years, an interest rate determined in accordance with ADB's LIBOR-based lending facility, a commitment charge of 0.75% per annum, and such other terms and conditions set forth in the draft loan and project agreements. Global Environment Facility (GEF) grant cofinancing of \$12.14 million, which will be administered by ADB, has been proposed for the Project.

### Period of Utilization

Until 31 December 2010

<b>Estimated Project Completion Date</b>	30 June 2010
<b>Executing Agency</b>	Heilongjiang provincial government
<b>Implementation Arrangements</b>	A project management office (PMO) has been established within the HPG Forestry Department to take charge of day-to-day administration and implementation of project activities, in cooperation with other key implementation agencies, civil society organizations, public and private enterprises, and local communities. The PMO will be guided by a project steering committee, and assisted by a team of international and domestic consultants under a project director. A total of 19 project implementation units (PIUs) will be established, one in each of 13 county forestry bureaus and 6 NRs.
<b>Procurement</b>	Goods and services to be financed by the ADB loan and the GEF grant will be procured in accordance with ADB's <i>Guidelines for Procurement</i> . Equipment or materials for each contract valued at \$1,000,000 equivalent or less will be procured through international shopping. Minor items costing less than \$100,000 equivalent will be procured by direct purchase. Civil works contracts will be relatively small—relating to site preparation, weeding or planting—and may be carried out through force account.
<b>Consulting Services</b>	Consultants will be selected and engaged in accordance with ADB's <i>Guidelines on the Use of Consultants</i> and other arrangements satisfactory to ADB for selecting and engaging domestic consultants. To provide implementation support to the PMO, international consulting firms in association with domestic firms will be selected using ADB's quality- and-cost-based selection method. The total consultant input for the Project is estimated at 640 person-months (112 international and 528 domestic) of technical assistance. Consultants are required in the management of water resources, wetland biodiversity, and NRs; eco-tourism; and conservation education and awareness subcomponents. The Project will also recruit qualified academic/research institutes for several studies, surveys, and long-term training programs, including those in water resources.
<b>Project Benefits and Beneficiaries</b>	The potential global environmental benefits will be (i) increases in areas of breeding and foraging habitats for waterfowl and other wildlife, and the resultant increases in populations of globally threatened species; (ii) improved water resources management locally and in watersheds leading to improved wetlands habitat quality and increasing wildlife numbers; and (iii) reduced threats to globally threatened wildlife through increased public and private awareness of the importance of wetlands for environmental conservation. The Project will result in positive global, national, and local environmental impacts. It is estimated that about 46,000 forestry workers will have working opportunities during the implementation period. In addition, using nontimber forest products and

adopting agroforestry intercropping as forest investments will enhance employers' benefits for forest workers. The overall financial internal rate of return of these forest developments is 14.9%, greater than the estimated weighted average cost of capital of 6.1%. The high financial return is due to low capital costs required in treating existing forests. The overall economic internal rate of return on national environmental benefits is 24.8% outweighing the social cost of capital of 12%.

**Risks and Assumptions**

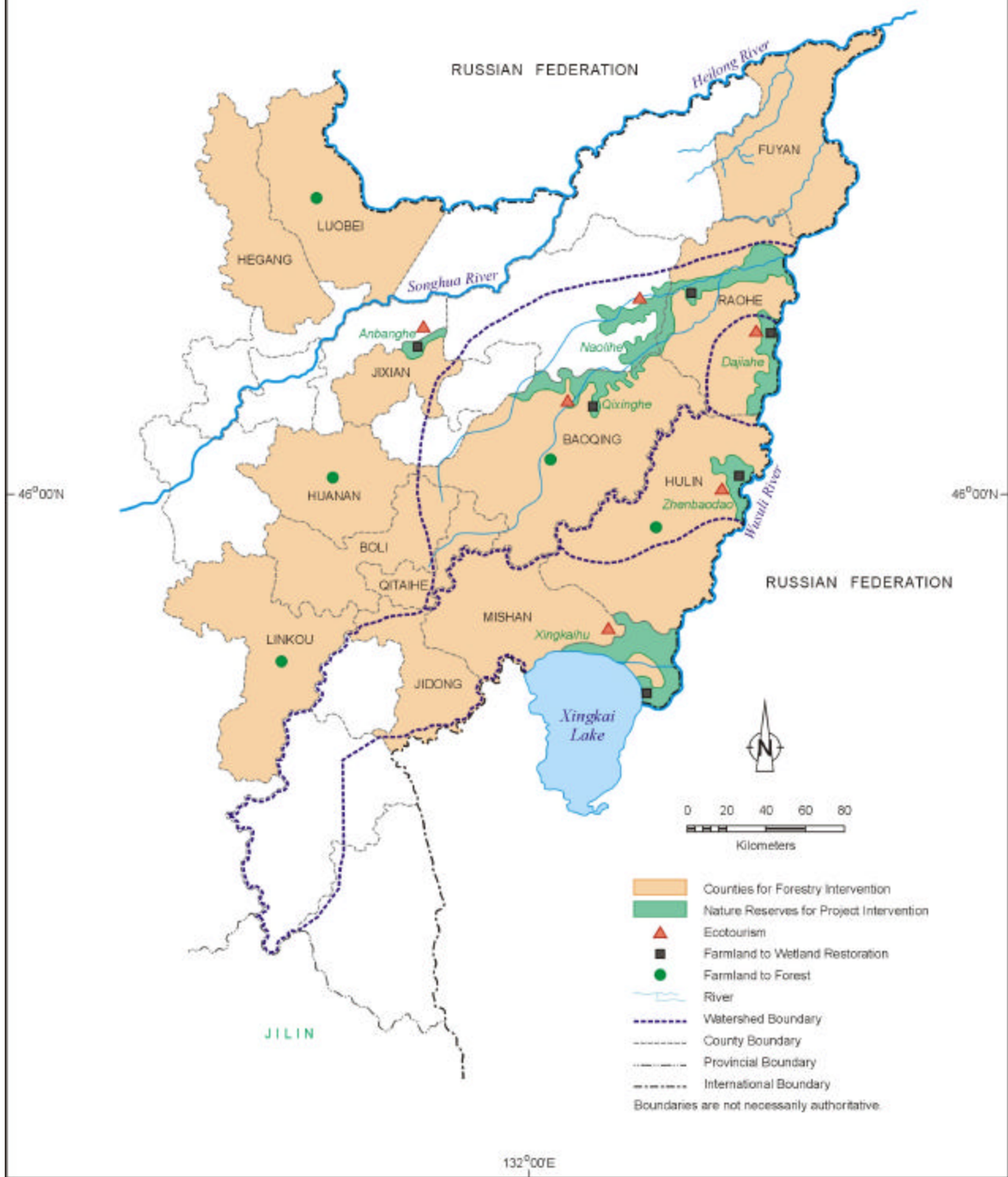
The removal of threats to wetland biodiversity in the Sanjiang Plain requires the following: (i) cooperation among resource authorities in integrating watershed management with development and conservation planning, (ii) improved NR management through better-trained personnel, (iii) mutually beneficial relationships between protected areas and surrounding communities, and (iv) sustainable financial support to NR management. The project design recommends measures to minimize the risks of failure.





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# SANJIANG PLAIN WETLANDS PROTECTION PROJECT PROJECT LOCATION SITE IN THE PEOPLE'S REPUBLIC OF CHINA



## I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on (i) a proposed loan to the People's Republic of China (PRC) for the Sanjiang Plain Wetlands Protection Project, and (ii) proposed administration of a grant from the Global Environment Facility (GEF) for the Sanjiang Plain Wetlands Protection Project.

## II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS, AND OPPORTUNITIES

2. The Project was prepared under Asian Development Bank (ADB) technical assistance (TA) and a project development facility block grant of \$330,000 from GEF.<sup>1</sup> The design of the proposed investment Project is based on integrated water resource management for the protection of wetland nature reserves (NRs), and thus the conservation of globally significant biodiversity. After the Project was included in the GEF Council's Work Program in July 2004, an ADB Appraisal Mission visited the PRC to refine the Project design and discuss with the Government the project objectives, scope, implementation arrangements, costs, financing plan, and components. This report is based on the findings of the Mission in the field and wide-ranging consultations with stakeholders. The project framework is in Appendix 1.

### A. Performance Indicators and Analysis

3. Agricultural and food security policies in the PRC in the second half of the 20th century included a massive effort to expand grain production into the last areas of uncultivated fertile soils. The Sanjiang Plain,<sup>2</sup> a vast complex of marshes, meadows, and forests along the Russian border in the northeast of Heilongjiang Province, was a major area of focus. Extensive development over five decades has shrunk the forestlands and wetlands<sup>3</sup> to a fifth of their original size and thus brought about various climatic changes (dry weather, drought, and frequent floods).

4. Deforestation and cultivation of hillsides in the Sanjiang Plain have caused deterioration of the wetlands due to soil erosion and diminished the water-retention capacity of uplands. Forest workers lost income from timber production and often fell into poverty.<sup>4</sup> A potentially self-sustaining sector is not realizing their growth and quality potential. Consequently, potential benefits of the upland forests to the hydrological cycle in the watersheds are undermined. As the Plain has become more densely settled and reclaimed as farmland, the water-holding capacity of the wetlands has diminished even as flooding has become more frequent and intense. To reduce economic damage to farmland and protect the people from destructive flooding, the Government has built flood control dikes. Wetland drainage and dike construction on river floodplains have helped increase the cultivated land base, but have also damaged the

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<sup>1</sup> ADB. 2002. *Technical Assistance to the People's Republic of China for the Sanjiang Plain Wetlands Protection Project*. Manila. The project concept entered the GEF financing pipeline in December 1999.

<sup>2</sup> *Sanjiang* means "three rivers"—the Heilong, Wusuli, and Songhua rivers. The Songhua River runs through the Sanjiang Plain, and the Heilong and Wusuli rivers run along the border between the PRC and Russia. The Sanjiang Plain (with about 8 million people living on 108,900 square kilometers (km<sup>2</sup>) of land, or slightly bigger than the Republic of Korea) accounts for 20% of Heilongjiang Province (both in area and population) and lies at the confluence of the three rivers. Before the agricultural development programs started in the 1950s, almost 50% of the Plain used to be wetlands.

<sup>3</sup> "Wetland" is a general term for marshes, swamps, wet meadows, shallow lakes, and streamside areas. Boundaries of wetlands are transitional and are shaped by precipitation, evaporation, watershed hydrology, and wetland vegetation.

<sup>4</sup> Heilongjiang has a poverty incidence of 9.7%–10.3% in the countryside, using official rural poverty indices at the national level, and a per capita net annual income for poor households of CNY1,000. About 10% of households in State forest farms are poor.

natural flood-retention capacity of wetlands that support globally significant fauna and flora, dehydrating those wetlands and threatening their biodiversity. As the population grows, development accelerates, and the floodplains are more densely settled, the economic cost of flood damage will also increase. The Government has therefore integrated nonstructural measures such as flood forecasting and development of decision support systems to better manage flood emergencies.<sup>5</sup> But these measures cannot fully reflect holistic watershed management approach as part of an integrated floodplains and wetland ecosystem management. A new policy<sup>6</sup> emphasizes the need to move toward natural resource management as a long-term, holistic way of floodplain management, which includes restoring farmland to wetlands and forest. The sector is challenged to increase the forest cover, to sustain agricultural production, as well as to ensure the livelihood of farm and forest workers.

5. The Sanjiang Plain, as one of the PRC's richest in globally significant flora and fauna,<sup>7</sup> supports about 37 ecosystems, 1,000 species of plants, and 528 species of vertebrate fauna including 23 of the globally threatened species on the World Conservation Union Red List. Ten of the globally threatened species are waterfowl such as cranes, storks, and swan geese, which require extensive, undisturbed wetlands during their migration and breeding seasons. The Sanjiang Plain wetlands are an important nesting and stopover location at the northern end of the East Asian–Australian flyway for migratory waterfowl, most notably the white-naped and red-crowned cranes. The wetlands are also ranked as globally important in the *Directory of Asian Wetlands*. The transformation of the Sanjiang Plain into a major grain production field over the last five decades has therefore been achieved at considerable loss of plant and animal biodiversity, and overall cost to the environment. As the altered water cycle in the wetlands reduced their habitat size and self-cleaning capacity, plant and animal biodiversity of global significance has declined. The northeast tiger, red deer, bear, and other large wildlife have been killed off, and formerly abundant ducks, geese, cranes, and other waterfowl have nearly disappeared. Less than one tenth of the original populations of cranes now nest in the Sanjiang Plain. For these wetland-dependent wildlife species to survive, the continuing trend toward the reduction and degradation of the Sanjiang Plain wetlands must be reversed.

6. The Government has adopted several important national policies and legal measures<sup>8</sup> to guide and direct habitat restoration and biodiversity conservation. The Wild Animal Protection Law of 1988 has reduced the overexploitation of wildlife from hunting and egg collecting. In 1993 the PRC ratified the Convention on Biological Diversity, which resulted from the Rio de Janeiro Conference on United Nations Environment and Development, and in 1994 it issued the Biodiversity Conservation Action Plan. The Heilongjiang provincial government (HPG) issued in

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<sup>5</sup> From 1999 to 2002, the Government invested CNY178.6 billion (\$22.3 billion) in building infrastructure for hydraulic projects, almost 2.5 times more than in the previous five decades. About 10% of such investments went to nonstructural measures; particularly flood detention basins and forecasting and modeling systems. The Australian Assistance for International Development is funding the Yangtze River Flood Control and Management Project (\$12 million), which will improve flood forecasting, flood warning, and the operation of 24 flood detention basins (up to 300 km<sup>2</sup> in the area) along the middle reaches of the Yangtze. The Canadian International Development Agency has recently completed a major hydraulic modeling study to improve flood forecasting for Dongting Lake, in the middle reaches of the Yangtze River. ADB's Songhua and Yellow River flood management projects also adopted nonstructural measures—flood forecasting and modeling.

<sup>6</sup> The policy initiatives, by former Premier Zhu, are written in 32 words in Chinese, but no other formal documentation is available. The policy calls for the following: enclosing mountains to plant trees, transforming arable land back into forests, demolishing polder fields to release floods, transforming farmland back into lakes, supplying labor as contribution, relocating people to build townships, reinforcing stem river levees, and dredging river channels and lakes. Under the initiatives, the PRC is renewing flood control plans for all major river basins.

<sup>7</sup> A detailed review and analysis is included in Supplementary Appendix A: Profile of Wetlands Biodiversity in the Sanjiang Plain.

<sup>8</sup> A detailed review and analysis is in Supplementary Appendix B: Institutional, Legal, and Policy Analysis.

1996 the Regulation of Nature Reserves, establishing priority wetland NRs,<sup>9</sup> and in 1998 the Decision on Wetland Conservation (Document of Heilongjiang Party Committee, No. 21, 1998), suspending further conversion of wetlands to farmland. In 2002, the National Wetland Conservation Action Plan, outlining priority actions to guide conservation, use, management, and institutional frameworks, was approved. The plan was reinforced a year later with the issuance of one of the PRC's first wetland regulations (Regulations on Wetland Conservation of Heilongjiang Province, HPG, 2003). The new regulations recognize the multiple values of wetlands, the necessity of conserving and managing them through the establishment of NRs, and the reality that wetlands and their wildlife remain threatened by agricultural expansion and exploitation of water and land resources. Despite the impressive legal steps, however, wetland restoration and protection are still new concepts in the PRC. Wetland restoration programs have been planned, but sound wetland management expertise and scientific knowledge, not to mention familiarity with healthy water resource management, are scarce.

7. The protected wetland area in the Sanjiang Plain now includes 28 NRs, which cover 10,278 square kilometers (km<sup>2</sup>),<sup>10</sup> or 9.4% of the Plain. Three of the NRs have been listed by the Ramsar Convention Bureau as wetlands of international importance. The NRs were established to protect the best remaining wetland habitats and their biodiversity, including most of the known sites for waterfowl nesting and migration. Nevertheless, wetland biodiversity is still threatened by local communities exploiting biological resources for income, inappropriate farming practices in NRs, commercial tourism, and the limited management capacity of NR staff. Wetland protection policies and laws should be further strengthened and supplemented with operational tools and enforcement measures. Moreover, the low community awareness of wetland values still presents a serious challenge, preventing the NRs from attaining their objectives of habitat conservation and environmental protection through laws.

8. Different economic activities and wetland-dependent wildlife species vie for land and water resources in the Sanjiang Plain. Economic decisions on wetland use are fragmented among various sectoral agencies of the HPG, such as the Agriculture Department, Water Resources Department, Forest Department, Environmental Protection Bureau, State farms, and State forest farms. The 2003 Heilongjiang Wetland Regulations, however, gave official authority and responsibility for wetland management to the Heilongjiang Provincial Forest Department (HPFD). An integrated water resource plan for wetland management and biodiversity conservation, with NRs playing a key role, is needed. The various institutions must also coordinate among themselves in water and land resource sharing, as well as in information gathering and planning. Such coordination mechanisms have yet to be established, and roles and responsibilities still have to be defined clearly. With funding from the National Development and Reform Committee (NDRC), HPFD is about to launch a project that will restore 1,500 km<sup>2</sup> of farmland to wetlands and replant 685 km<sup>2</sup> yearly from 2006 to 2010. HPG realizes that it must improve its wetlands management approach, knowledge, and capacity to tackle this challenging task. It has therefore sought ADB's assistance in developing a model approach that could be

<sup>9</sup> Nature reserves (NRs) are specially designated areas protected by PRC laws (National Regulation of Nature Reserves, effective 1 December 1994) to conserve wetland habitats. Current regulations based on these laws direct NR establishment and operation at all levels. Article 43 of the National Regulation, however, requires administrative levels below the State to use these regulations as a blueprint in developing and implementing their own regulations.

<sup>10</sup> The Convention on Wetlands, signed in Ramsar, Iran, in 1971, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. There are now 138 Contracting Parties to the Convention and 1,367 wetland sites, totaling 1.2 million km<sup>2</sup>, designated for inclusion in the Ramsar List of Wetlands of International Importance. The PRC ratified the Ramsar Convention on 31 July 1992. The Ramsar sites in the Sanjiang Plain—Honghe NR, Sanjiang NR, and Xingkaihu NR, which is one of the project sites—(i) support 23 globally threatened species and 16 endemic species, and (ii) represent 16% of the total area of the Ramsar sites in the PRC.

replicated effectively on a wider scale and in strengthening HPG's capability to manage wetland biodiversity.

## **B. Analysis of Key Problems and Opportunities**

### **1. Threats and Constraints**

9. Globally significant endangered species in the Sanjiang Plain rely on wetland habitats, and wetlands must have enough water to maintain their saturated soils (including peat), distinctive vegetation, and productivity. Agricultural development has dramatically altered the hydrology of the watersheds in the Plain, desiccating many of the remaining wetlands, even within NRs. Also, the construction of flood control dikes to protect farmlands, the deforestation in the middle and upper watersheds, and poor conservation practices on sloping agricultural lands have all tended to reduce water retention in entire watersheds in the Plain; accelerating runoff, increasing evaporation, or through soil erosion and sedimentation. These changes in watershed not only worsen flooding but also prolong droughts at critical times of the year. As farming expands and HPG faces a future of water scarcity, it becomes more difficult to maintain or increase the forest and wetland areas, and to provide the wetlands with the needed water supplies. The proposed Project aims to remove the barriers to balanced environmental protection, and to develop sustainable and replicable models to be applied elsewhere in the Sanjiang Plain and other provinces. The key barriers (Appendix 2) that restrict wetlands protection and biodiversity conservation in the Sanjiang Plain are as follows.

10. **Unsound Local Planning Water Resource Allocation.** Agricultural, industrial, and domestic water uses draw on water supplies that are also needed to sustain wetlands. Agriculture accounts for 70% of water use in Heilongjiang Province. Frequent droughts indicate serious problems of groundwater overdraft in the Sanjiang Plain. According to the Five-Year Comprehensive Water Plans for the Province, the "ecological water supply" is a marginal 3.6% of the total requirements. This is a gross underestimate that does not adequately cover the water requirements of the Sanjiang Plain wetlands. Water consumption for agriculture in the Province is expected to increase as the irrigated area expands from 9,530 km<sup>2</sup> to 14,130 km<sup>2</sup> by 2010. Any further expansion of irrigation diversions or groundwater overpumping would also reduce the available water for wetlands, besides lowering the groundwater table. Although Heilongjiang Province has formally halted further wetland drainage, agricultural interests in the Sanjiang Plain are still active in wetland drainage projects near NRs.<sup>11</sup> The great need for arable land is unavoidable as the population grows. To protect wetland NRs, water resource allocation at the local level must be optimized.

11. **Poor Understanding of Nonstructural Flood Mitigation and Floodplain Management.** Flood control and management have become a high-priority issue for HPG, especially after the devastating floods of 1998. Flood control measures are still mainly structural—dikes, pumping schemes, and food storage reservoirs, which often encroach on wetlands or obstruct water supply to wetland NRs. Wetland conservation has not been a significant consideration in flood control in the comprehensive water resource plans prepared every 5 years. However, flood control agencies of the Government now realize that allowing the natural flow of floodwater can be beneficial for wetlands conservation. An assessment must be made to (i) strike a suitable balance between flood protection and wetland conservation; (ii) analyze changes in precipitation in the catchment basin and the future seasonal runoff behavior of the main watercourses as part of forecasting; (iii) determine the factors for the efficient implementation of integrated floodplain management in watersheds; and (iv) develop the most

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<sup>11</sup> NRs are legally protected by land use zoning. Thus, threats to NRs from expanding agricultural land are not due to the land use conversion but due to a lowering groundwater table, which further affects the size of wetlands in NRs.

appropriate management model, which can be adapted to suit different watershed conditions.

12. **Lack of Alternative Livelihood Enterprises, Leading to Exploitation of Nature Reserve Resources.** The prospect of a net annual income of \$210 to \$256 per hectare from dryland grain production (wheat-soy-corn) strongly motivates farmers to expand the farmland in any way possible, including draining wetlands. Pesticide and fertilizer pollution, burning, grazing, and other agricultural practices within or near NRs adversely affect ecology. Rural residents exploit fish, wildlife (e.g., duck eggs), and other “common property” wetland resources to supplement their diet and income. Alternative livelihood enterprises must be provided to discourage such harmful natural resource exploitation in wetlands.

13. **Weak Interagency Coordination for Integrated Watershed Management.** Irrigation and drainage, flood control, agricultural development, and wetland protection responsibilities in the Sanjiang Plain are divided among agencies with little basis or incentive for coordination. Although HPFD now has formal authority for wetland protection, State farms and other provincial agencies that work in drainage and irrigation projects allocate water resources and make watershed forest management decisions independently of one another. Interagency coordination is urgently needed for integrated watershed management.

14. **Weak Technical Capacity in NR Management.** Personnel responsible for managing wetland NRs in the Sanjiang Plain rarely have the necessary training for duties such as enforcement, wildlife surveys, natural resource monitoring, and public outreach. Many staff members were recently reassigned to NRs from agricultural positions in State farms, reed production companies, or similar productive enterprises. Moreover, NR management is a new responsibility of HPFD, which has no training program for its wetland NR staff members, who are seriously underprepared for their duties. Thus, a training program for wetland NR staff and managers is urgently needed.

15. **Lack of a Replicable Financing Model and Shortage of Available Capital to Replace Arable Farmland.** Wetland restoration will require converting farmland back to wetlands within certain NRs. Farmers on State farms and villagers with agricultural leases within the NRs must be compensated for the income lost and provided with replacement land as required. On the other hand, the financial burden on the Government for replacing lost farmland should be manageable. To address the financial constraints, an alternative model approach that provides opportunities for revenue generation (sustainable livelihood) and positive returns on investment, instead of sunk compensation costs, is needed.

16. **Low Public Awareness of Wetland Values and Biodiversity Conservation.** Biodiversity conservation and wetland protection are hampered by the lack of education and training and low awareness of the environmental values of wetlands among the people in villages surrounding the NRs. Simply restoring farmland to wetlands would result in only temporary protection, which would be unsustainable over the longer term. Thus, an appropriate community awareness campaign is required.

17. **Incorrect Interpretation of Legislation on Experimental Zones.** NR establishment and management are governed primarily by regulations adopted by the State Council in 1994. As defined by the *Environment and Natural Resource Protection Legal Handbook* (1998), protected wetland NRs comprise three types of zones: core, buffer, and experimental. Human activities in core and buffer zones are clearly prohibited, but activities in the experimental zone (the outer portion of the NR surrounding the buffer zone) are permitted subject to interpretation of local regulations. Past activities in the experimental zone have disturbed wildlife nesting and breeding, and further unauthorized use could threaten wetland biodiversity conservation because of habitat loss and degradation. A clearer interpretation of NR legislation and more effective enforcement are required.

## 2. Government Policies and Plans

18. The Government's development program was set out by the 16th Party Congress in 2002, the 10th National People's Congress of 2003, and the Tenth Five-Year Plan (2000–2005). The major focus of national economic policy has gradually shifted in the last few years from hard economic indicator targets toward quality of growth and sustainable development. Besides its continued strong emphasis on market-related reforms and nonstate sector development, the Government is increasingly emphasizing the protection of the environment, sustained natural resource management, and a better quality of life. National economic priorities include programs to reduce poverty in rural areas, increase rural incomes, improve income distribution, and enable the private sector to create employment. Farmers may now leave their farming business by selling land-use rights or take advantage of government land conversion programs. One such program is the Farm-to-Forest Program of NDRC, which has converted vast areas of marginal farmland to forestland in upper watersheds of northern PRC. The conversion of farmland to wetlands in Heilongjiang, begun in 2003, is in line with this program.

19. **Agricultural Policy and Wetlands.** The PRC's Agenda 21 White Paper on China's Population, Environment and Development in the 21st Century requires, among others, holistic treatment of watersheds as fundamental to wetland management. The agriculture sector has increasingly emphasized environmental protection and sustainable farming since the Agenda 21 Agriculture Action Plan of 1998. This document mentions the need for biodiversity conservation and wise use of farmland, grassland, and ecosystems, as well as monitoring and control of agricultural pollution. It sets the goal of "establishing 160 conservation zones to cover a total area of 25 million hectares" (ha) to strengthen the conservation of wildlife, and will conduct monitoring and research in agricultural/pasture/fishery areas.<sup>12</sup>

20. **Forest Policy and Watersheds.** The Natural Forest Protection Program (NFPP) for 1998–2010 drastically restricts the harvesting of natural forests nationwide, allowing HPG to strengthen its commercial forests. The Sanjiang Plain has about 1.1 million ha of forests: over 0.7 million ha of natural forests and almost 0.4 million ha of commercial forest plantations. Heilongjiang Province has the country's largest standing timber reserves and timber production. Hence, current national and provincial policy is to replant forests on a commercial basis on excessively steep, erodible, or unproductive farmland, and compensate the farmers under the Farm-to-Forest Program. The availability of compensation funds limits State forest farms' ability to carry out this program only within their own forestlands, substantial portions of which are currently leased to forest workers for grain production as alternative income sources.

21. **Biodiversity Conservation.** PRC's Biodiversity Conservation Action Plan (BCAP), issued on 13 June 1994, lists and describes priority biodiversity conservation projects. Project 18—Establishment of an Integrated Nature Reserve Network in the Sanjiang Plain, Heilongjiang Province— has been achieved in part by the establishment of 28 national, provincial, and local NRs. The PRC is also a signatory to the Convention on Wetlands (Ramsar Convention). Complementing the BCAP is the National Wetland Conservation Action Plan (NWCAP), approved in 2002, which is the key document guiding the conservation, use, and management of PRC wetlands. The NWCAP lists among "important wetlands in China" several that are part of the project area: the Sanjiang Plain in general, the Naoli-Qixing river basin, the lower reaches of the Muling River, Xingkai; and the Small Xingkai lakes. The NWCAP calls for an inventory and study of the wetlands, as well as "comprehensive management of wetland and hydrologic basins" and, particularly in Project 20, "wetland conservation and sustainable use of the Sanjiang Plain."

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<sup>12</sup> Agriculture Action Plan for China's Agenda 21, Section 7.53, 1998.

### **3. ADB's Country Strategy**

22. ADB's country strategy and program (CSP 2004–2007) for the PRC places strong emphasis on (i) promoting equitable and inclusive growth, especially in remote rural areas; (ii) making the markets work better; (iii) improving the environment, including dealing with land and water degradation issues; and (iv) promoting regional cooperation. CSP 2004–2007 thoroughly reflects the PRC's medium- and long-term strategy and is focused on the following sectors: (i) agricultural and rural development, including land degradation; (ii) transport and energy; and (iii) the environment, including water and soil management. Conservation of soils, forests, and wetlands and abatement of water pollution are recognized as critical environmental interventions with a positive impact on the poor. In this context, the proposed Project strongly supports ADB's principal strategic concerns. The wetlands and forests of the Sanjiang Plain are major environmental assets. Appropriate conservation of wetlands and their forested watersheds will have a positive effect on flood management and overall watershed management in the river basins, while encouraging agricultural interests to use water more wisely. Project income-generating initiatives are aimed at remote forest farms and wetland areas, supporting ADB's focus on equitable and inclusive growth.

### **4. The Global Environment Facility**

23. The Project addresses both the underlying and proximate causes of wetland habitat loss by creating a model framework to protect high-quality wetlands, and by building community relations and NR management capacity to maintain the health of these wetlands. HPG actions and project initiatives strongly complement each other. HPG took concrete regulatory steps in 2003 to clarify responsibility for wetland management and to emphasize its commitment to improving the management of wetland NRs in the Sanjiang Plain. HPG will implement activities specifically identified in the BCAP and NWCAP of the PRC. The Project addresses a national priority and therefore meets a GEF criterion. GEF supports only strategic operational program (OP) areas with global benefits.

### **5. External Assistance to the Sector and Lessons Learned**

24. Wetlands protection and biodiversity conservation are relatively new concepts in the PRC, as well as in HPG, and there has been very little external assistance directly for NRs and Sanjiang Plain wetlands protection (Appendix 3). (One exception, a project of the United Nations Development Programme (UNDP)/GEF had Honghe and Sanjiang NRs in the Sanjiang Plain as two of four pilot study cases.) ADB and World Bank assistance in the natural resources and environment sectors has focused on improving flood management and increasing agricultural production. ADB's forest development projects in general provide lessons from various countries, indicating (i) community participation and (ii) partnership between forest department and participants, as key factors in the success of plantations and reforestation. More recently, ADB assistance to the PRC in the environment sector has focused on developing the institutional framework for combatting land degradation in the western region. The \$12 million UNDP/GEF project Wetland Biodiversity Conservation and Sustainable Use in China, 2001–2006, may complement the proposed Project. However, this project has taken an engineering approach to restoring the hydrologic regime at specific NRs, and its institutional arrangements for NR management from the nation's capital have been complicated and difficult to implement at the local level. The proposed Project addresses these two weaknesses by (i) treating wetland protection and water resource management holistically at the watershed scale, not simply at the level of NR sites; and (ii) implementing and administering the Project at the provincial level to improve coordination and minimize interagency conflicts. A new initiative of the United Nations Environment Programme (UNEP)/GEF, the Amur River Basin Transboundary Cooperation Project, focusing on land-based pollution along the Amur and Heilong rivers on the boundary between the PRC, Mongolia, and Russia, falls under the



international water issue dealt with in OP 9, Integrated Land and Water Multiple Focal Area. The UNEP/GEF initiative requires international cooperation for biodiversity conservation, while the proposed Project seeks to minimize the complexities of institutional coordination in wetland management by working under one provincial government with a strong sense of ownership. The Project will exchange information and expertise with the ongoing UNDP/GEF project—Peatlands, Biodiversity and Climate Change—which is experimenting with wetland restoration in the Ruoergai marshes, and with the UNEP/GEF Siberian crane project.

### III. THE PROPOSED PROJECT

#### A. Objectives

25. The overall goal of the Project is the sustainable management of natural resources to protect globally significant biodiversity and to promote economic development. The immediate objective is to protect the natural resources of the Sanjiang Plain wetlands and their watersheds (biodiversity, water, forests) from continued threats, and promote their sustainable use through the integrated conservation and development of selected wetlands and forest areas of the Sanjiang Plain and the improved well-being of local communities. The Project will give priority attention to the protection of globally significant wetlands in contiguous watersheds, by expanding the upstream forest areas while protecting downstream wetlands and NRs. The project area covers 18 counties, situated in the Sanjiang Plain. These 18 counties are grouped into five contiguous watersheds. Six NRs<sup>13</sup> with the greatest concentration of biodiversity in the five watersheds will be the focus of protection/restoration models. Xingkaihu NR is one of the sites listed by the Ramsar Convention, and the others are all national NRs. Thirteen out of 18 counties have investment proposals of reforestation interventions in the Sanjiang watersheds (Map 2).

26. The proposed project intervention is based on the need to integrate sustainable environmental management strategies with rural economic development. Rather than simply address the sustainability of localized environmental issues in the six selected pilot NRs, the Project aims at developing a model framework that can be replicated to provide direct examples for ongoing HPG wetland and forestland restoration programs. The project approach conforms to ADB's CSP (2004–2006); is fully compatible with the objectives of GEF's biodiversity conservation focal area; and is consistent with the following strategic priorities indicated in *GEF Business Planning: Directions and Targets*: Strategic Priority Biodiversity (BD)-1: Catalyzing Sustainability of Protected Areas, BD-2: Mainstreaming Biodiversity in Production Landscapes and Sectors, and BD-4: Generation and Dissemination of Best Practices for Addressing Current and Emerging Biodiversity Issues. Appendix 4 summarizes the rationale for GEF involvement and the Project contributions to national sustainable development and incremental global benefits.<sup>14</sup>

#### B. Components and Outputs

27. The four principal project components will address the main threats to globally significant biodiversity in the Sanjiang Plain. The primary global benefit will be the increase in the population of globally endangered species through improved wetland habitat and wildlife management at NRs. The country itself will benefit from strengthened forest development and sustainable environmental management. A fifth component, project management, covers project

<sup>13</sup> Supplementary Appendix C discusses the site selection analysis and the selected six NRs, such as Anbanghe, Dajihe, Naolihe, Qixinghe, Xingkaihu, and Zhenbaodao.

<sup>14</sup> GEF Executive Summary is in Supplementary Appendix D.

implementation and management support.<sup>15</sup>

28. **Component 1: Watershed Management.** This component will address the threat to wetlands from competition for water resources and altered water balance in the Sanjiang Plain. The subcomponents are (i) forest Improvement in watersheds, to improve forest management, reduce surface runoff, and increase soil water retention and groundwater recharging; (ii) local NR water resource management, to restore natural water balance within wetland NRs; and (iii) water resource planning in watersheds, to enhance watershed-level water resource management. Activities include planting 11,900 ha of indigenous poplar and larch on denuded slopes or farmland, and improving an additional 43,700 ha of existing plantations; establishing interagency working groups among stakeholders at the local level for water resource management in targeted NRs; and developing model watershed-level water allocation plans in and around watersheds, incorporating flood control impact and wetland protection aspects, and institutionalizing this process.

29. **Component 2: Wetland Nature Reserve Management.** This component is designed to address the threats from past wetland conversion and degradation of habitat, and to promote enhanced biodiversity protection in wetland NRs. The subcomponents are (i) conservation management, to develop monitoring and management plans and methodologies; (ii) pilot wetland restoration, to provide models of well-designed and well-monitored wetland restoration in the six project NRs; (iii) wildlife species recovery, to promote repopulation of NR wetlands with globally threatened wildlife species, especially high-profile migratory waterfowl (cranes, storks, and swan geese); and (iv) reduction of resource exploitation, by establishing of reliable information baselines and a geographic information system (GIS); management planning; pilot restoration of 3,433 ha of wetlands, including testing various restoration techniques (natural, supported, and engineered recovery) as appropriate at different habitats/sites; building the capacity for farmland-to-wetland restoration; developing restoration guidelines; producing a manual on farmland-to-wetland restoration; and developing and implementing species recovery programs. The model wetland restoration approach will be linked to alternative livelihood schemes, to compensate for lost access to farmland and other resources. Seminars, workshops, and conferences will be held to share the learning experiences, to extract lessons, and to identify core elements for successful replication and scaling up.

30. **Component 3: Alternative Livelihood Programs.** In this component, the Project will develop and implement programs for sustainable livelihood in villages affected by reverting farmland to legally designated forestlands or NR wetlands,<sup>16</sup> to ensure lasting benefits for both the environment and the affected communities. The subcomponents are (i) agroforestry and nontimber forest product (NTFPs) interventions, providing investments in agroforestry (intercropping) and NTFPs to State forest farms affected by the reversion program, to increase income-earning opportunities for workers whose farming activities may be curtailed; (ii) village development, providing compensation to villages affected by the reversion of farmland to NR wetlands, including support for eco-friendly livelihood enterprises, or village development based on resettlement and village development plans; and (iii) sustainable ecotourism, including master planning for NRs, preparation of tourism guidelines, and implementation of pilot projects (e.g., construction of basic NR infrastructure such as signboards).

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<sup>15</sup> Supplementary Appendix E includes a summary table of the Project's physical components by location, and describes the project components in greater detail.

<sup>16</sup> Except for 43 households, there will be very little physical resettlement of people, but compensation will be given for loss of access to farmland in the wetland NRs. Because the remaining land in villages will be reallocated, village collectives rather than individuals will be affected. Under the subcomponent intercropping and nontimber forest products, the farmland to be reverted to forestlands in State forest farms already belongs to those farms and so there will be no need to transfer landownership.

31. **Component 4: Education and Capacity Building.** This component will address the root causes of overexploitation, human disturbances, and habitat degradation in NRs by increasing the capacity of NR staff and building community knowledge about wetlands, wildlife, and nature conservation. Where possible and appropriate, there will be gender awareness and sensitivity training programs. The three subcomponents are (i) conservation education, for teachers and their students in rural schools near NRs; (ii) public awareness, to improve understanding of the importance of conserving wetland resources among rural residents around NRs; and (iii) wetland management training, primarily to give NR staff practical skills and knowledge to better manage the wetland NRs. The Project will actively involve academic/scientific communities in building benefit monitoring and evaluation capacity.

32. **Component 5: Project Management.** The consulting services in this component will strengthen the coordination of technical support and improve the capacity of the executing and implementing agencies to manage and supervise project activities. Project implementation capability at the provincial, county, and NR levels will be strengthened through technical support and training for finance and technical personnel. Environmental monitoring will also be strengthened through (i) mitigations, specifically for forestry improvement components, as part of the integrated watershed management approach; (ii) further environmental assessment for the pilot wetland, agroforestry, and NTFP components and village development subcomponents; and (iii) monitoring and review activities of the Heilongjiang provincial environmental bureaus, as part of mitigation implementation and environmental assessment.

### C. Special Features

33. The Project will develop a model framework for dealing with root causes, and adopt a holistic approach for wider replication. The model framework will incorporate root problems of different scales at both local and watershed levels by integrating the management of upper watershed forested areas and low-lying wetland habitats, and will lay the foundation for widening the scale to the river-basin level in later stages. To protect globally important biodiversity resources, the landscape must be protected so that globally threatened waterfowl and mammals have enough room for migration pathways, feeding grounds, and breeding sites. However, longer-term benefits depend, not only on the simple multiplication of activities but also on the ability to scale up activities to cover larger areas. For these reasons, the scaling up of project interventions is an integral part of the exit strategy,<sup>17</sup> especially as HPG is expected to restore 150,000 ha of farmland to wetlands by 2010 under the Master Plan for Heilongjiang Province Wetland Restoration. Thus, the Project will build an exit strategy to strengthen these key aspects of viability and sustainability, and formulate target indicators for monitoring the success of its scaling-up efforts.

34. Key elements of the exit strategy are (i) strengthening financial sustainability by (a) improving forest management to increase the financial returns of the sector; (b) covering recurrent costs of NR management through successive yearly increases in payments by county forest bureaus of CNY0, 2, 4, 6 and 8 ha/yr during implementation; and (c) financing village development as part of land compensation and resettlement costs to support sustainable livelihood; (ii) building community participation and awareness of the importance of biodiversity to broaden support; (iii) strengthening institutional sustainability through scaled-up interagency coordination between local and provincial water resource management agencies by (a) linking water resource allocation planning by individual agencies and integrating this with development and conservation planning, (b) sharing information, and (c) setting up working groups as coordinating committees; and (iv) institutionalizing working group arrangements. Resources

<sup>17</sup> The exit strategy is to strengthen these key aspects of sustainability and viability, namely, (i) financing, (ii) institutional framework, (iii) capacity building, (iv) stakeholder participation, and (v) monitoring and evaluation. Further details are in Supplementary Appendix F.

have been allocated for workshops and conferences to identify factors for successful scaling up, and for training relevant to the exit strategy.

35. The Project's model approach will guide wetland restoration in more than 150,000 ha of NRs throughout the province. As 3,433 ha of farmland reverts to wetlands, village development plans (VDPs) will be attached to the restoration program to ensure that livelihood enterprises in villages affected by the farmland-to-wetland program can increase alternative income opportunities in a sustainable manner. Part of the land compensation will be targeted for village development. Individuals who give up farmland in the NRs will receive replacement land in their village, provided by the village collective. Land compensation will be paid to the village collective, which will reallocate land use. Depending on the village, about 30% of resettlement compensation will go to alternative livelihood enterprises, particularly those that are conducive to wetland management. Livelihood activities will be approved only after all the affected villagers are consulted and consensus is reached on the VDPs. The VDPs will form part of the resettlement plans, and will be guided by the environmental management plan (EMP) to ensure that activities near the NRs are consistent with wetlands/biodiversity protection. For the farmland-to-forest restoration program, investments will be made in agroforestry and NTFPs, to ensure that villagers losing farmland retain at least the same standard of living.

36. The elements of the project design will (i) ensure that the Project benefits the people, (ii) provide a model framework that can be replicated extensively, and (iii) reduce the financial burden of resettlement compensation on the Government from sunk cost into environmentally sustainable investment opportunities for the affected villages.

#### D. Cost Estimates

37. The Project will cost about \$55.55 million equivalent, with \$9.41 million in foreign exchange and \$46.14 million equivalent in local currency costs. Table 1 summarizes the cost estimates; details of the project costs and financing plan are in Appendix 5.

**Table 1: Cost Estimates**  
(\$ million)

Item	Foreign Exchange	Local Currency	Total Cost
<b>A. Base Costs</b>			
1. Watershed Management	1.29	21.92	23.21
2. Wetland Nature Reserve Management	2.18	3.22	5.40
3. Alternative Livelihood	0.55	15.21	15.75
4. Education and Capacity Building	2.48	1.15	3.63
5. Project Management	0.42	2.29	2.71
<b>Subtotal (A)<sup>a</sup></b>	<b>6.92</b>	<b>43.79</b>	<b>50.71</b>
<b>B. Contingencies<sup>b</sup></b>	<b>0.31</b>	<b>2.35</b>	<b>2.66</b>
<b>C. IDC and Commitment Charges<sup>c</sup></b>	<b>2.18</b>	<b>0.00</b>	<b>2.18</b>
<b>Total Cost</b>	<b>9.41</b>	<b>46.14</b>	<b>55.55</b>

IDC=interest during construction

Note: Figures may not add up to the given totals because of rounding.

<sup>a</sup> Value-added tax is computed at 17% on equipment and materials that will be financed by the Government

<sup>b</sup> Physical contingencies are based on 2% of base cost. For price contingencies, the local currency inflation is projected as 2.7% in 2005, 3.0% in 2006 and onward; US dollar inflation is projected as 1.53% in 2005, 0.89% in 2006 and onward, based on the manufacturer's unit value index.

<sup>c</sup> No front-end fee included, if approval is obtained by June 2005.

Sources: Asian Development Bank estimates.

#### E. Financing Plan

38. It is proposed that ADB provide the PRC with a loan of \$15.00 million (27% of the project cost) from its ordinary capital resources to finance the foreign exchange cost of \$1.56 million

and \$13.44 million equivalent of the local currency cost (Table 2). The proposed financing plan is justified given the important pilot nature of the environmental protection strategy and goals. The loan will have a 25-year term, including a grace period of 5 years, an interest rate determined in accordance with ADB’s London interbank offered rate (LIBOR)-based lending facility, an annual commitment charge of 0.75%, and such other terms and conditions set forth in the draft loan and project agreements. The front-end fee of 1.0% will be waived if the loan is approved by ADB before July 2005. The Government has provided ADB with (i) the reasons for its decision to borrow under ADB’s LIBOR-based lending facility on the basis of these terms and conditions, and (ii) an undertaking that these choices were its own independent decision and not made in reliance on any communication or advice from ADB. GEF will cofinance the Project through a grant administered by ADB.<sup>18</sup> The GEF grant will be for \$12.14 million equivalent (22% of the Project cost): \$5.67 million in foreign exchange and \$6.47 million equivalent in local currency. The Government will contribute \$24.37 million equivalent (44% of project cost) to finance interest during construction and commitment charges of \$2.18 million in foreign currency and \$22.19 million equivalent in local currency. Local currency costs will also be financed partly by GEF and ADB. The remaining \$4.04 million equivalent in local currency costs will be financed in kind by the participating beneficiaries and county governments as part of their equity contribution for the income-generating activities.

**Table 2: Financing Plan**  
(\$ million)

Source	Foreign Exchange	Local Currency	Total Cost	Percent
Asian Development Bank	1.56	13.44	15.00	27
Global Environment Facility	5.67	6.47	12.14	22
Heilongjiang Provincial Government	2.18	22.19	24.37	44
County Governments	0.00	4.04	4.04	7
<b>Total</b>	<b>9.41</b>	<b>46.14</b>	<b>55.55</b>	<b>100</b>

Source: Asian Development Bank estimates.

**F. Implementation Arrangements**

39. **Executing Agency.** HPG will be the Executing Agency for the Project, and will have overall responsibility for coordinating, supervising, and implementing all Project activities.

40. **Project Steering Committee.** The Project Steering Committee (PSC), which has been established, will oversee Project implementation and set general policies related to the Project. The Steering Committee will also be responsible for Project coordination between the PMO and all concerned HPG authorities. The Steering Committee will be composed of representatives of the relevant HPG agencies, and will meet once every six months, or more frequently if necessary.

41. **Project Management Office.** A project management office (PMO) has been established within HPFD for the day-to-day implementation of the project, under the guidance of the PSC. Composed of professional and administrative staff assigned from government agencies for the Project, the PMO will have the capacity to carry out the project activities in coordination with HPG agencies. It will be headed by a full-time project director who will report to HPG through the PSC. The principal functions and responsibilities of the PMO are (i) managing all Project activities in coordination with HPG agencies and in accordance with the requirements and guidelines of the national government, HPG, ADB, and GEF; (ii) planning for, and monitoring and supervising of use of the project funds in coordination with HPFB, including from the State

<sup>18</sup> Cofinancing is subject to the final approval of the Project by the GEF.

farm bureaus, and (iii) administering, monitoring, reporting, and coordinating all Project activities. The HPG Financial Bureau (HPFB) will be responsible for the administration and supervision of disbursements of the proceeds or counterpart funds, from the loan, the GEF grant, the central government, State farm bureaus and Heilongjiang country finance bureaus to the HPG agencies under the Project.

42. **Project Implementing Agencies and Implementation Units.** Besides the PMO, 19 project implementation units (PIUs) with adequate professional and technical staffing will carry out field operations and coordinate the flow of funds from county financial bureaus to the beneficiaries. Thirteen PIUs will be housed at the county forestry bureaus, and will be responsible for the day-to-day implementation of forest management, agroforestry, and NTFP activities in the 13 project counties. The six other PIUs will be housed at six NRs where wetland NR management activities will be implemented, and will be responsible for carrying out those activities. The PIUs will be staffed by adequate professional and technical personnel provided by either the county forestry bureaus or the NRs, depending on the type of PIU. The PIUs will prepare their annual operating plans detailing the physical and financial dimensions of their programmed activities. The PMO will consolidate the PIU annual plans into a project-level annual work plan and budget.

43. **Coordination.** PSC will be composed of representatives of the relevant HPG agencies. PSC will be responsible for supervision of PMO and for coordination of agencies involved in the Project. The PMO will report directly to the PSC, which will be composed of representatives of provincial government agencies, thus ensuring coordination between project management and all concerned provincial authorities. The HPFD has responsibility for wetland management in the province, as well as the forest management activities in state forest farms in the 13 project counties. This will give the PMO staff clear lines of authority for project activities in both the upland and wetland project sites. Provincial-level coordination will also require close links with HPFB, which will be responsible for flow of funds from ADB (including GEF) and the national and provincial governments. The PSC will oversee project implementation and set general project policies relevant to the project. A field office will be based in the Baoqing County PIU, near the center of the Sanjiang Plain, to support field activities. Technical working groups, to be formed at each NR, will include county-level staff of the Forestry Department, Environmental Protection Bureau, Water Resource Bureau, and Tourism Bureau; representatives of State forestry farms, State farms, or villages involved; and local school teachers. Watershed-level interagency coordinating body will be established at the provincial level to coordinate the component, water resource planning in watersheds. The project implementation organization chart is in Appendix 6.

44. **Beneficiary Participation.** Since the lands for project components are still owned by the state farms, village collectives, or State forest farms, engagement and joint planning and development are essential. The Project will support the involvement of local communities in project design, implementation, and management through participation in preparing the (i) NR master plans, (ii) watershed management plans, (iii) VDPs and alternative livelihood programs, (iv) ecotourism plans, and (v) employment opportunities related to project implementation (e.g., tree plantation and treatment). To promote participation and strengthen a sense of ownership, improved compensation and access to alternative livelihood development will be provided to affected communities.<sup>19</sup>

45. **Implementation Schedule.** The Project will be implemented from July 2005 to June 2010. Year 1 will involve management and implementation arrangements and other preparatory tasks. Year 5 will focus more on evaluation, monitoring, sustainability and exit strategy, and the

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<sup>19</sup> Supplementary Appendix G discusses the social assessment and public participation plan.

handover of responsibilities. The project implementation schedule is in Appendix 7.

46. **Land Acquisition and Resettlement.** The Project involves the conversion to wetlands of 3,433 ha of farmland—1,433 ha in five NRs and 2,000 ha in Naoli NR—allocated for conversion in 2002, and the provision of supplementary alternative livelihood support. Since 260 farmers<sup>20</sup> from eight villages (in six NRs) will have to abandon farming in the NRs and future land use will be restricted, the farmers will have to be compensated for lost land use and nonmovable assets. A resettlement framework and resettlement plans (RPs) for Qixinghe and Xingkaihu NRs have been prepared,<sup>21</sup> endorsed by HPFD and approved by ADB. In the alternative livelihood component, RPs will be prepared for each of the six NRs, including updates of the RPs for Qixinghe and Xingkaihu NRs. Each affected village (or State farm) will prepare a VDP in consultation with the affected farmers and county officials. The PIUs in the NRs will review the VDPs<sup>22</sup> 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 will be signed between the NR and the village committee or State farm. RPs, together with the VDPs, will be submitted to the provincial PMO and to ADB for approval. After each plan is approved, land compensation and village development costs can be disbursed by HPFB (through the County Financial Bureau) from the counterpart fund to the affected village committee or State farm, and farmers will then abandon farming in the NRs. The counterpart funds will pay for the land compensation and all resettlement activities in the RPs, including the implementation of the approved VDPs. EA will set up an account for the resettlement costs (compensation and village development), which will be managed by HPFB. Internal and external monitoring and evaluation will be conducted to ensure compliance with ADB's resettlement policy. The summary resettlement framework is in Appendix 8.

47. **Procurement.** All supplies, equipment, and services to be financed by ADB will be procured in accordance with ADB's *Guidelines for Procurement*. For cost efficiency, most items will be procured centrally (by the PMO) for distribution to the subproject areas, spread widely over the 13 project counties. The Government's domestic procurement procedures will be followed, provided they are acceptable to ADB. Equipment or materials for each contract valued at \$1,000,000 equivalent or less will be procured through international shopping. Other minor miscellaneous equipment and supply packages, each valued below \$100,000 equivalent, will be procured through direct purchase. The force-account procedure will be applied to civil works for forest improvement and wetland restoration, i.e., the county governments (the implementing agencies) will use their own work force and equipment, since each contract will have a value of less than \$1 million equivalent and the locations are remote, making competitive bidding unsuitable. Also, the implementing agencies can efficiently handle civil works at reasonable cost. Indicative procurement packages are listed in Appendix 9.

48. **Consulting Services.** Consultants will be selected and engaged in accordance with ADB's *Guidelines on the Use of Consultants* and other arrangements acceptable to ADB for selecting and engaging domestic consultants. Consulting firms will be selected using ADB's quality- and cost-based selection method. The total consultant input for the Project is estimated at 640 person-months of consulting services: 112 international and 528 domestic. Consultants will be required for water resources, wetland biodiversity and nature reserve management; ecotourism; conservation education, and public awareness subcomponents. The Project will

<sup>20</sup> Only 43 families will be physically relocated; the rest will require land compensation only.

<sup>21</sup> The full resettlement framework and the RPs for Xingkaihu NR in Mishan City and Qixinghe NR in Baoqing county have been posted on ADB's web site (Supplementary Appendix H, I, and J, respectively).

<sup>22</sup> The percentage of compensation cost allocated for alternative livelihood schemes will depend on the VDP, but is estimated to average 30%.

also engage the services of qualified academic/research institutes for studies, surveys, and short- and long-term training programs. The institutes will be selected by HPG according to competitive selection criteria and procedures acceptable to ADB. The consultant requirements are summarized in Appendix 10. The training and education requirements for capacity building are summarized in Appendix 11.

49. **Disbursement Arrangements and Fund Flows.** GEF funds will be channeled through ADB, and ADB will disburse both ADB loan and GEF grant funds to HPFB. To expedite the disbursement of the loan and GEF grant proceeds, HPG will set up imprest accounts in a commercial bank acceptable to ADB, in accordance with ADB's *Loan Disbursement Handbook* of January 2001 and detailed arrangements between the Government and ADB. The initial deposit in the imprest account will not exceed 6 months of estimated expenditure, or 10% of the total loan amount, whichever is less. HPG will disburse eligible expenditures under the Project through either (i) the imprest account, to be set up immediately after the loan agreement takes effect and managed by HPFB; or (ii) ADB's direct payment, commitment, force account, or reimbursement procedures. ADB's statement of expenditures (SOE) procedures will be followed in liquidating the imprest account and reimbursing individual SOE payments up to \$100,000 equivalent.

50. **Accounting, Auditing, and Reporting.** NRs and county PIUs will keep records and accounts according to sound accounting principles and in sufficient detail to identify subprojects financed by the loan and to disclose the use of funds under the Project. The records and accounts will be forwarded regularly to the provincial PMO. HPFB will be responsible for overall project accounting and will ensure that the consolidated provincial project accounts are prepared for final consolidation and audited yearly by independent auditors acceptable to ADB. The audit report should include a separate audit opinion on the use of the imprest account and SOE procedures. The audited financial statements will be submitted to ADB not later than 9 months after each fiscal year. The PIUs will submit quarterly reports to the PMO detailing implementation activities, physical and financial accomplishments, problems encountered or anticipated, and actions taken to resolve the problems.<sup>23</sup> The PMO will compile quarterly reports from the PIUs and submit the compilation to ADB for review. Also, the PMO will prepare consolidated project progress reports twice a year, following the project performance report format proposed by ADB at inception. Within 6 months after project completion, the PMO will prepare, in coordination with the PIUs, and submit to ADB a completion report summarizing loan and grant funds utilization, project implementation, attainment of objectives and targets, implementation experience, project performance, actual costs incurred, benefits, and other information requested by ADB or GEF. Copies of annual reports, and other reports as required, will be provided to GEF.

51. **Project Review.** The PMO will submit an annual work plan and annual reports to be reviewed in meetings with the PSC, ADB, and GEF, and will also be responsible for the final report. The PMO will prepare progress reports every 6 months, indicating progress, problems met in the past 6 months, remedies taken or proposed, proposed program of activities, and progress expected in the next 6 months. In year 3, ADB and GEF will conduct a comprehensive midterm review and detailed evaluation of the Project, including an assessment of (i) the project design and scope as formulated at appraisal; (ii) HPFD's capacity for effective implementation, and PIU effectiveness in implementing the Project; (iii) physical and financial progress of implementation (including contracts and disbursements), and performance of consultants; and

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<sup>23</sup> HPG can effectively manage its financial resources and has already dealt with several ADB-funded projects. To strengthen the project accounting and auditing systems and the Forest Department's capacity to manage financial resources, implementation support includes the services of financial management specialists.



(iv) beneficiary participation. The project performance management system (PPMS)<sup>24</sup> will support regular and timely feedback between components, as well as project performance reports updated every 6 months, to guide the adjustment of project activities to enhance their effectiveness and beneficial impact.

52. **Advance Action and Retroactive Financing.** The Government has requested and ADB has approved (i) advance procurement action for early planting of seedlings, and (ii) retroactive financing of eligible expenses (i.e., ground preparation, seedlings and planting, and advance mobilization payment for consultants preparing subproject feasibility reports), incurred by HPG on or after 15 September 2004, up to \$200,000 equivalent. HPG has been advised that approval of advance actions and retroactive financing does not commit ADB to finance the proposed Project.

53. **Anticorruption Policy.** ADB's anticorruption policy was explained to the Government and HPG's attention was drawn to the section on fraud and corruption in ADB's *Guidelines for Procurement* and *Guidelines on the Use of Consultants*, particularly the need for bidders, suppliers, contractors, and consultants to observe the highest standard of ethics in procuring and executing ADB-financed contracts, and the sanctions if fraud and corruption are discovered.

#### IV. PROJECT BENEFITS, IMPACT, AND RISKS

54. The Project derives its overall economic rationale from the need to protect globally significant flora and fauna, reduce natural resource losses, achieve sustainable management of wetland NRs, and improve the economic potential of forest areas in the Sanjiang Plain. Increasing the forest cover and improving water resource planning will strengthen wetland protection and promote balanced agricultural development in an environmentally sustainable manner. More balanced allocation and use of water resources will bring local economic benefits, as they will help reduce flooding and drought and recharge groundwater. Restoring the wetlands and protecting endangered species will increase biodiversity in the Plain. Institutional strengthening in forestry and NR management activities, training, and campaigns to make the public more aware of the value of biodiversity will also bring substantial incremental global benefits over the long term. Alternative income-generating opportunities, including village development plan-supported alternative livelihood enterprises, agroforestry, and NTFP will ensure that the affected communities will stay away from natural resources as their primary income sources, thus promoting sustainable development. Project intervention at the national level is further justified as (i) converting barren lands to forests, and (ii) reverting farmland to legally assigned forestland with intercropping and NTFP activities are expected to bring higher net benefits.

##### A. Financial and Economic Benefits

55. The financial analysis for the Project focused on revenue-generating activities: (i) establishment of new forest plantations of native species of larch and poplar, and treatment of existing forest plantations of the same species; (ii) agroforestry and intercropping; and (iii) investments in NTFPs, particularly potherbs, berry fruit, and wild grapes. The overall financial internal rate of return (FIRR) of the Project is 14.9%, which is higher than the weighted average cost of capital (WACC) of 6.1%.<sup>25</sup> The overall project net present value (NPV) is CNY124.33 million. Therefore, the proposed Project is financially viable. The FIRR and NPV by nature of activity and by county were also calculated. The computations show that all types of activities are financially viable, and so are the operations programmed for each county. The

<sup>24</sup> The PPMS is described in detail in Supplementary Appendix K.

<sup>25</sup> The FIRR has been computed on an incremental basis, after tax in real terms. The WACC is also computed in real terms on an after-tax basis.

FIRR is lowest (8.8%) for new forest plantations of larch because of the long waiting period of 20 years from planting to harvest. Hegang, Jidong, Linkou, and Qitaihe have lower FIRRs than other counties, only slightly more than 10%, because they are programmed for planting more heavily with larch (yielding lower returns than poplar) in new plantations and treated stands. Sensitivities for FIRRs and financial NPVs were computed at plus and minus 10% of the (i) wood price, (ii) wood harvest, (iii) investment costs, and (iv) total costs. The results show that unfavorable changes do not reduce the FIRRs below the WACC, neither in the aggregate nor in any particular county. A switching value analysis was conducted for wood prices, which turned out to be the most sensitive variable in the sensitivity analysis. A drop of 12% in wood prices will still allow for a viable operation in the counties with the lowest FIRR. Details of the financial analysis are in Appendix 12.

56. Economic evaluation of the Project focused on the economic benefits and costs of forestry and NTFP investments. The significantly positive annualized NPV per hectare of land converted from currently barren lands to legally required forestlands (zero versus CNY2,078/ha) gives strong economic justification for the Project. On the other hand, when the current croplands revert to the legally required forestlands, combining forest and NTFP investments to replace crop cultivation opportunities lost may provide economic justification. Economic analysis was conducted for the project duration of 25 years, including construction. The costs and benefits were expressed in yuan in constant 2004 prices. In the case of economic NPVs, a discount rate of 12% was applied. A shadow exchange rate factor of 1.01 was applied to all financial costs and benefits to derive the economic cost and benefit streams. The economic wage rate of unskilled labor is 80% of the financial wage rates. The major benefits from forestry plantation were related to timber before tax, expressed in economic prices. Economic benefits derived from NTFPs were adjusted to reflect economic values based on the financial benefits. Incremental economic costs include investment costs and expenditures expressed in economic value for the forestry plantation components but not the GEF-supported investments. The economic internal rate of return (EIRR) for the Project as a whole is 24.8%, higher than the economic opportunity costs of capital (12%). The economic NPV, at a 12% discount rate is CNY93.03 million, which is positive. Therefore, the Project is economically viable. Details of the economic analysis are also in Appendix 12.

## **B. Environmental Impact and Benefits**

57. The Project falls under environmental category B. An overall initial environmental examination (IEE)<sup>26</sup> was undertaken to assess the generic impact of each Project component. The IEE shows that the Project will bring significant environmental benefits and have 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. The IEE also shows that the potential negative effects on the environment are localized and short-term but not significant, and can be fully mitigated. Therefore, no full environmental impact assessment is required.

58. The six project NRs were selected because they support significant populations of globally threatened species, whose survival depends on the successful implementation of interventions to remove the root causes of problems and threats. The benefits of these interventions—predominantly conservation activities—therefore accrue to the global community. The benefits include (i) expanded breeding and foraging habitats of birds and other wildlife, and, hence, increased populations of globally threatened species; (ii) improved management at the local and watershed levels, leading to secure water resources for wetlands, support for globally

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<sup>26</sup> The IEE along with the environmental management plan is in Supplementary Appendix L.

threatened biodiversity, and improved habitat quality, and thus to increased wildlife populations; (iii) increased carbon sequestration in standing wood and forest soils through reforestation and sustainable forest management; and (iv) minimized threats to globally endangered wildlife as a result of greater public awareness of globally threatened biodiversity and the importance of wetlands in environmental conservation. Replicating and scaling up the model framework throughout the Sanjiang Plain will intensify these global environmental benefits.

59. Local communities will benefit from restored wetland functions, such as water storage for use in the dry season and groundwater replenishment. In upland areas, barren lands and marginal agricultural lands will be put to more appropriate use, for forest plantation. The conversion will reduce erosion, improve water infiltration, and lead to a more reliable supply to streams and aquifers during the dry season. Because of wider tree spacing, agroforestry intercropping as well as the growing of NTFP crops, can be promoted. Global and national environmental benefits will accrue from the establishment of ecotourism guidelines that will help reduce adverse effects, limit inappropriate development, and ensure sustainability. Both NTFP enterprises and ecotourism development will stimulate local employment. The promotion of environment-friendly livelihood enterprises will provide long-term financial benefits to communities and heighten the demonstration potential of the Project.

### **C. Social Dimensions and Impact on Poverty**

60. The Project will provide employment opportunities to state farm forestry workers in tree planting, stand treatment, logging, and wood transport. During the implementation period, there will be work opportunities for 7 months for about 36,000 forestry workers on larch plantations, and for 6 months for about 10,000 forestry workers on poplar plantations. Preferential access to employment and intercropping agroforestry opportunities will increase incomes for the Project's beneficiary forestry workers. Investments in various NTFPs such as potherbs, berry fruit, and wild grapes will increase off-season income and employment benefits.

61. In accordance with resettlement and village development plans, about 30% of resettlement compensation from the counterpart funds will finance village development investments in alternative livelihood activities. The actual mix and scale of alternative livelihood outputs in each village are, by intent, not predetermined, as the Project aims to be both participatory and flexible. Farmers and villages affected by wetland restoration activities can themselves decide the most suitable types of alternative livelihood investments, instead of being provided with a blueprint. The farmers are mostly concerned with the yields and price of their grain crops. Village development can add value to their farm outputs through support for agroprocessing businesses. The benefits of alternative enterprises under VDPs are expected to outweigh simple cash resettlement compensation, as that result will (i) ensure longer term project benefits to the intended beneficiaries,; (ii) provide a model framework that can be replicated beyond project implementation, and (iii) assist the Government in adopting a model of compensation, not as sunk cost but as sustainable investment opportunities.

62. **Impact on Poverty.** Poverty incidence is 9.7% in Heilongjiang and about 10% in the project areas. Of the 13 project counties in the Sanjiang Plain, 4 are nationally designated poverty counties (Fuyuan, Huanan, Raohe, and Tongjiang), with a slightly higher poverty incidence (15%). Overall, the Project will enhance livelihood enterprises in agriculture and create new economic opportunities for state forest workers through intercropping, NTFPs, and VDPs. Benefit distribution and poverty impact analysis shows that the poverty impact ratio of the Project is about 22%. The Project is classified as a "General intervention" (Appendix 13).

63. **Ethnic Minorities.** The Project's components and locations have all been identified, and no significant adverse impact on ethnic minority villages or groups is envisaged. Ethnic individuals who may be affected by project activities will be compensated and, if required, special measures will be included in the RPs. Based on ADB's *Policy on Indigenous Peoples*, a

full plan is not required but a specific action for indigenous peoples is included in the resettlement framework.

64. **Gender.** Women in the Project areas are actively involved in both productive activities and household chores, except where physical strength is required (e.g., for logging or wood transport). Men and women have equal access to land resources. However, women are less well-represented than men are in decisions on public affairs and are burdened with household chores, and may, for these reasons, receive less awareness training in the value of wildlife or wetlands biodiversity conservation. The project strategies intended to promote gender awareness and sensitivity in training and awareness programs should therefore have a positive impact on women.

#### **D. Project Risks**

65. The removal of threats to wetland biodiversity in the Sanjiang Plain requires the following: (i) cooperation among resource authorities in integrating watershed management with development and conservation planning, (ii) improved NR management through better-trained personnel, (iii) mutually beneficial relationships between protected areas and surrounding communities, and (iv) sustainable financial support to NR management. The project design recommends measures to minimize the risks of failure.

66. **Cooperation to Integrate Resource Management.** Integrated watershed management is a new concept in the Sanjiang Plain. The UNDP-GEF Sustainable Use of Wetlands in China Project established provincial wetland management authorities (WMAs) in an attempt to foster cross-sector contribution to wetland biodiversity management. The WMAs were only partly effective because of their geographic and institutional distance from the wetlands. The proposed Project will establish local working groups in the target pilot NRs. Working group members will represent all local stakeholders in water and biodiversity resource management.

67. **Improved NR Management.** Barriers to the success of the 5-year Project must be removed early on. NR management standards are low at present, partly because equipment and materials for basic functions, such as field surveys, long-term monitoring, data analysis and reporting, and patrol and enforcement, are lacking. NRs should be supported with appropriate technologies and their capacity should be enhanced through short- and long-term training.

68. **Alternative Livelihood.** If the proposed activities were to impoverish or disenfranchise local communities, the Project would be less likely to succeed. To foster community support, the Project will address the need for alternative livelihood enterprises at both forest and wetland sites. Communities will also be involved in programs to reduce NR resource exploitation and will participate in local watershed working groups. A public awareness and conservation education program will make the communities more aware of the relationship between resource protection and community welfare.

69. **Sustainable Financial Support to NR Management.** Several factors will contribute to the sustainability of project benefits beyond the life of the Project. One is the financial commitment of the Government to conserve the wetlands. Innovative approaches to providing alternative livelihood for forest workers and the adoption of VDPs as part of RPs will enhance benefits from investment alternatives rather than burden the Government with sunk cost. To strengthen the financial sustainability of NR management, HPG will improve the financial returns from forest sector development through better management of existing forests, and will successively increase its yearly budget for recurrent costs of NR management from CNY0 to 2, 4, 6, and 8 /ha during implementation.

## V. ASSURANCES

### A. Specific Assurances

70. In addition to the standard assurances, the PRC Government and HPG have given the following assurances, which are incorporated in the legal documents:

- (i) **Environmental issues.** The HPG will ensure that
  - a. the Project complies with applicable PRC environmental laws and regulations and ADB's *Environmental Policy* (2002).
  - b. HPFD, HPG and county environmental protection bureaus (EPBs) implement the environmental mitigation measures and monitoring requirements as outlined in the IEE and the environmental management plan (EMP); further, HPG will 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 implementing mitigating measures and monitoring requirements as outlined in the IEE and EMP;
  - c. before starting activities in components 1, 2, and 3, the preparation of county-level environmental plans for siting and establishing of new plantations and operating new and existing plantations, the environmental management plans for recoveries in each NR, and all individual subprojects will be subject to the environmental assessment and review procedures for subprojects outlined in the IEE and EMP; and
  - d. adequate budget and human resources are made available for the implementation of EMPs and any mitigation measures and monitoring requirements that may arise for the environmental assessment and review of subprojects.
- (ii) **Experimental zone of nature reserves.** HPG will commit the necessary resources to enforce the National Regulation of Nature Reserves and the related Heilongjiang provincial regulations regarding permissible activities in the experimental zone of NRs, to limit incompatible and unsustainable practices, and to promote the intended conservation management purposes of the three zones. Taking into account the relevant recommendations of the ADB TA for Support for Environmental Legislation in the PRC and the legal consultant financed under the Project, HPG will 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 nature reserves and promotion of biodiversity.
- (iii) **Conversion of farmland to forest.** In converting farmland to forest, the HPG will ensure, among others, that (a) a new forest plantation is not adjacent to or near (within 1 kilometer) a NR; (b) an appropriate buffer zone is maintained between the plantation and any riparian zones or sensitive habitats; (c) affected forestry workers and villagers receive wage income from tree planting; (d) an area equivalent to 20% of the converted farmland is used for planting NTFPs to benefit affected workers or villagers; (e) for the first 3-5 years, intercropping is allowed at a nominal annual contract fee (around CNY6–CNY7 per mu); and (f) the remaining farmland is recontracted to all workers or villagers within each forest farm, so that they share equally in the benefits.
- (iv) **Ecotourism.** In consultation with ADB, HPG will prepare a comprehensive ecotourism master plan and detailed planning and environmental guidelines for the project NRs, and make the plan and guidelines publicly available, for possible replication elsewhere.

- (v) **Endangered species.** The HPG will develop and implement a public awareness program regarding endangered species, and strengthen the enforcement of penalties for violations of the relevant laws and regulations.
- (vi) **Resettlement.** HPG will ensure that any resettlement conforms, in a timely manner, to the relevant PRC laws and regulations, ADB's *Policy on Involuntary Resettlement (1995)*, and the resettlement framework agreed between HPG and ADB. The activities will include (a) preparing subproject RPs acceptable to ADB before any subproject activities and before award of civil works contracts for each subproject (for the six NRs with farmland-to-wetland restoration); (b) submitting to ADB for approval any NR RPs and VDPs before farmers are displaced and before award of civil works contracts for each subproject; (c) submitting to ADB updated RPs for Qixinghe and Xingkaihu after subproject detailed design and livelihood development plan for ADB review and approval; (d) consulting with and disclosing subproject RPs to affected persons and the public, and on the ADB web site; (e) making provisions for compensation eligibility, compensation rates, rehabilitation measures, institutional arrangements, resettlement costs, grievance redress, and monitoring and evaluation; and (f) ensuring that in relevant subprojects, compensation and allowances are paid and assets are replaced before displacement of affected people.
- (vii) **Village development.** HPG will ensure that (a) a portion of the land compensation and resettlement costs under the Project is used for village development; and (b) village development plans for alternative livelihood schemes and community infrastructure improvements, and their activities and locations are compatible with the master plans for the NRs. Once a plan is approved by the provincial PMO and ADB, counterpart funds for village development will be disbursed by HPFB through the County Financial Bureau to the affected village committee or State farm. Financing for village development will be subject to guidelines and procedures including the following: (a) the alternative livelihood investments were identified with the participation of the affected persons (APs), and are eco-friendly according to the evaluation criteria in the EMP and compatible with the master plans for the NRs; (b) APs and then the hosts will have priority with respect to use; and (c) training and technical assistance for alternative livelihood schemes and environmental protection will be provided if the investment proposals fit the "green," eco-friendly investment criteria in the EMP.
- (viii) **Pilot testing and replicability.** HPFD will pilot-test, monitor, and evaluate the farmland-to-wetland model and forestland restoration subprojects. HPG will ensure that manuals are prepared based on pilot testing, and these manuals incorporate lessons learned, so that they can be used for other wetland restoration. HPG will ensure that such subprojects (including intercropping, NTFPs, and village development as part of resettlement compensation) are replicable and can be scaled up, particularly in connection with the Master Plan for Heilongjiang Province Wetland Restoration.
- (ix) **Master Plan for Heilongjiang Province Wetland Restoration.** HPG will take the necessary actions to promptly obtain NDRC endorsement of the Master Plan and then apply the model approach developed under the Project more widely to restorations under such plan, as appropriate to specific sites.
- (x) **Participation.** HPG will ensure that stakeholders in the project area (including women, minority groups, and the poor) participate in project design, management, and implementation, including the formulation of the NR master plan, watershed management plan, alternative livelihood programs, 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,

in particular for the alternative livelihoods development component and conservation management activities.

- (xi) **Exit strategy.** In consultation with ADB, HPG will 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. The strategy will be carried out during Project implementation to strengthen the overall sustainability of financing requirements and sources, capacity building, and institutional mechanisms for local and intersectoral planning and cooperation. For the financial sustainability of NR management, HPFD, county forestry bureaus, and State farms will successively increase budget amounts by CNY2 ha/yr from CNY0 ha/yr in year 1 to CNY8 ha/yr in year 5.
- (xii) **Counterpart funds.** The HPG will ensure the timely provision of all counterpart funds required for the successful implementation of the Project, including incremental recurrent costs, land compensation, resettlement costs and post completion recurrent costs. The HPG will ensure that the counterpart funds for the land compensation and resettlement costs for the State farms are provided from the funds allocated by the central and local governments.
- (xiii) **Monitoring and evaluation.** In consultation with ADB, HPG will establish and implement a project performance monitoring system, including performance indicators relating to forestry development, wetland restoration, NTFPs, resettlement and alternative livelihood schemes, counterpart financing for village development, ecotourism, and beneficiary participation. HPG and ADB will carry out a midterm review in 2008 on issues including the implementation of the exit strategy, incentive framework, and beneficiary participation.

## B. Conditions for Loan Effectiveness

71. Effectiveness of the Loan Agreement will be subject to the following special condition: confirmation of GEF financing through the endorsement by the Chief Executive Officer of the GEF Secretariat.

## VI. RECOMMENDATION

72. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve

- (i) the loan of \$15,000,000 to the People's Republic of China for the Sanjiang Plain Wetlands Protection Project from ADB's ordinary capital resources, with interest to be determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; a term of 25 years, including a grace period of 5 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft Loan and Project Agreements presented to the Board; and
- (ii) the administration by ADB of a grant not exceeding the equivalent of \$12,140,000 to the Government of the People's Republic of China for the Sanjiang Plain Wetlands Protection Project to be provided by the Global Environment Facility.

Tadao Chino  
President

Date

## PROJECT FRAMEWORK

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions/Risks
<p><b>GOAL:</b></p> <p>Improved management of natural resources to protect globally significant species and to sustain economic development</p>	<p>Conservation status of eight key globally threatened species in the Sanjiang Plain lifted from the lists of endangered-to-vulnerable species</p>	<p>World Conservation Union biodiversity surveys</p>	
<p><b>PURPOSE:</b></p> <p>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</p>	<p>By 2010, populations of native species in 6 target NRs up by at least 10% (improved biodiversity)</p> <p>By 2010, nature reserve (NR) and watershed water resource management mechanisms in the Sanjiang Plain established and/or integrate wetland water requirements</p> <p>Income status of affected villages maintained or increased through environmentally sustainable alternative livelihood mechanisms</p> <p>By 2010, wetland restoration model replicated in 5-6 additional Sanjiang Plain wetland NRs</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 changes in water resource management strategies (e.g., from engineered solutions to nonstructural solutions)</p> <p>National poverty census statistics</p>	<p>Assumptions</p> <p>Provincial regulation preventing further wetland conversion in NRs is enforced.</p> <p>Government follows through on its commitment to implement the SFA/NDRC Farmland to Wetland Restoration Program.</p>
<p><b>OUTPUTS:</b></p> <p><b>1. Watershed Management</b></p> <p>1.1 Forest Improvement</p> <p>Increased forest cover</p> <p>Increased forestry-based income</p> <p>Improved forest stand health and performance</p> <p>1.2. Local (NR) Level Water Resource Management</p> <p>Strengthened water resources management at the local level</p> <p>Improved coordination among local stakeholder agencies for management of water resources</p> <p>1.3. Watershed-Level Water Allocation Planning</p> <p>Provision of adequate water to meet ecological water requirements in NRs</p> <p>Integration of management of water resources at the watershed level</p> <p>Incorporation of wetland protection criteria into flood management plans</p>	<p>By 2010, upper watershed forest cover increased by 11,900 ha in 13 counties and 5 watersheds</p> <p>By 2010, international silvicultural health standards achieved in 43,700 ha of existing upper watershed forest in 13 counties</p> <p>By project year 3, water resource management sections incorporated into the management plans of 6 NRs</p> <p>By 2010, local water allocation plan for NRs increased by at least 20%</p> <p>By 2010 wetland protection criteria and management requirements included in water resource plans</p> <p>By 2010, wetland issues integrated into water resources allocation in the Wusuli, Naoli-Qixing, Anbang, and Qihulin/Abuqin rivers</p> <p>By project year 2, interagency coordination body formed, and meeting quarterly</p> <p>By 2010 Songhua River Basin Management Authority ready to adopt integrated Songhua River Basin Management Plan incorporating wetland protection.</p>	<p>County and provincial forestry assessments</p> <p>County silviculture survey reports</p> <p>NR water flow and recharge monitoring, baseline and annual water balances</p> <p>Baseline and annual reviews of NR planning status</p> <p>NR water flow and recharge monitoring, baseline and annual water balances</p> <p>Working group meeting minutes</p> <p>Baseline and periodic institutional assessments of planning at provincial county, and watershed levels</p> <p>NR water flow and recharge monitoring, baseline and annual water balances</p> <p>Comparisons of actual water flows and levels with provincial water resource allocation plans</p>	<p>Assumptions</p> <p>Government forestry sector and resettlement investments are carried out.</p> <p>Risks</p> <p>External factors (e.g., climatic anomalies, regime change) lead to further upper watershed deforestation.</p>

Continued on next page



Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions/Risks
<b>2. Wetland Nature Reserve Management</b>			
<b>2.1. Conservation Management</b>			
Improved conservation management practices with respect to wetlands and wildlife in NRs	Significant recovery of biodiversity achieved within 6 NRs by 2010: occurrence of key threatened species in NRs increased by 10% (number of individuals, population size, number of sightings, etc.)	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. Risks Various threats to wildlife or habitats continue outside project area.
<b>2.2. Pilot Wetland Restoration</b>			
Decreased farmland area in core and buffer zones; increased total wetland area in NRs Development of model for farmland to wetland restoration	Total wetland area in 6 pilot NRs increased by 3,433 ha by 2010 Wetland restoration models and guidelines developed by year 4 Wetland restoration models replicated in at least 5 other NR sites in the Sanjiang Plain by end of Project, and restoration program functioning in all Sanjiang Plain wetland NRs by 2010	Baseline and annual NR wetland inventories and surveys NR administrative/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.
<b>2.3. Wildlife Species Recovery</b>			
Increased numbers of key threatened species in the six pilot NRs Improved condition of wetland habitats and increased wildlife populations Reduction in over-utilization of wildlife and plants in NRs, relative to the baseline	Target species habitat area increased by 10% in all 6 NRs Overall wildlife populations increased Observed populations of 8 key species of globally threatened waterfowl (see list) <sup>1</sup> increased by 10% by project end	Baseline and annual census of populations of key targeted wildlife species Baseline and annual census of associated habitats of key targeted wildlife species Baseline and annual NR biodiversity surveys NR progress reports	Assumptions Adequate seed populations of key species are extant for initiation of recovery program A critical number of qualified personnel committed to the task.
<b>2.4. Reduction of Resource Exploitation</b>			
Reduction in illegal exploitation of targeted wetland species, and recovery of populations of target species in 6 NRs Reduction in Illegal international trade in endangered species (closely linked with awareness activities in 4.2)	Extent of vegetation cover contributed by reeds, thatch grass, wild herbs, and wild fish populations, in the project pilot area increased by 50% by 2010 Illegal international trade in animal species originating in project area reduced by 50% by 2010	Baseline and annual census of key exploited species Baseline and annual survey and quantification of natural resource use in and around NRs Detailed vegetation surveys in NRs Customs seizure records	Assumptions Adequate NR and local support for enforcement of existing legislation on core and buffer zones, and on protected species are provided.
<b>3. Alternative Livelihoods</b>			
<b>3.1. Intercropping and NTFPs</b>			
Sustainable income-generating opportunities for the villagers affected by farmland-to-forest restoration program through intercropping	Income levels in unaffected villages maintained or increased throughout life of project Income levels in affected villages maintained or increased throughout life of project	Per capita and household income baseline and follow-up surveys Surveys of economic activities in NTFP and agroforestry	Assumptions Markets are accessible. Product demand is adequate
<b>3.2. Land Compensation and Village Development</b>			
Sustainable income-generating opportunities for the villagers affected by farmland-to-wetland restoration program	At least 30% of resettlement/land compensation costs utilized for village development At least one new livelihood project initiated and operational in each of 8 affected villages by project completion	Per capita and household income baseline and follow-up surveys Surveys of economic activities and results of village development fund investments	Assumptions Government counterpart fund is available in timely manner.

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions/Risks
<p>3.3 Ecotourism Creation of ecotourism opportunities for communities and NRs, without adverse effects on wetland habitats or key species</p>	<p>Economically and environmentally sustainable ecotourism activities in place in 3 NRs by end of Project</p>	<p>Baseline and annual surveys of ecotourism activities, including assessment of community participation</p>	<p>Assumptions NR management and local community are receptive to alternative, low-key ecotourism</p>
<p><b>4. Capacity Building</b> 4.1. Conservation Education Increased knowledge about conservation issues, and about local NRs, among schoolchildren and teachers</p>	<p>Conservation awareness program incorporated into curriculum of schools and implemented in 8 of pilot elementary and 4 secondary schools around 6 NR sites within first 2 years of project, reaching approximately 5,000 schoolchildren</p>	<p>Review of school curricula School administrative records Baseline and periodic conservation awareness surveys and evaluations administered through schools</p>	
<p>4.2. Conservation Awareness Increased knowledge of conservation among general public around 6 NRs, including appreciation of importance of protecting endangered species</p>	<p>Program for conservation on public awareness developed for 13 counties and at provincial level, and carried out over life of the Project, including at least 45% women participants, during the life of the Project Measurable reduction in capture of and trade in endangered species for export</p>	<p>Baseline and periodic surveys and evaluations of community awareness on conservation Community organization records Customs seizure records</p>	
<p>4.3. Wetland Management Training Short-Term Technical Staff at six NRs and community leaders (including women leaders) with enhanced conservation knowledge and skills Long-Term Professional NR managers in the northeastern of the People's Republic of China prepared to assume responsibility for ongoing management by end of the Project</p>	<p>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 life of the Project</p>	<p>Baseline and follow-up human resource surveys of knowledge/understanding of NR technical staff, and of teachers/ community leaders, regarding wetland conservation principles Baseline and follow-up surveys of wetland management skills of NR management staff</p>	<p>Assumptions Staff stability and availability in NRs  <u>Risks</u> Trained staff are transferred to another NR site.</p>
<p>4.4 Institutional and Behavioral Change Internalization of sustainable environment principles and wetland conservation principles by key economic policy-makers and development planners at national, provincial, and county level Changes in attitude and behavior among teachers, students, and community members NR managers with greater sense of stewardship, strengthened conservation ethic</p>	<p>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, water resources management and wetland conservation New elective environmental programs initiated in schools, with 30% more participating students/teachers than at project inception Noncompliance cases reported on overuse/exploitation of wetlands resources (fishing nets, or reeds harvests) decline by 50% by the project end NR managers pass on knowledge and skills through mentorship of junior staff—at least 2-3 mentor-apprentice relationships created among staff in</p>	<p>Records of new bills and enacted legislation Planning records School activity and curriculum reports NR annual reports Surveys to assess student-teacher attitudes on environment and conservation Surveys to assess NR manager mentorship skills</p>	

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions/Risks
	each NR		
<b>ACTIVITIES:</b>			
<b>1. Watershed Management</b>			
<p>1.1. Forestry Investments Plant 11,900 ha of new forestry plantations Treat 43,700ha of existing forestry plantations</p>	<p>Site preparation, planting, and treatment operations proceeding per county schedule over 5-year period</p>	<p>Annual operations plans and planting reports Project activity and progress report</p>	<p>Assumptions Human resources are available for operations and technically competent at State forest farms.</p>
<p>1.2. Local (NR) Level Water Resource Planning Establish local stakeholder working groups Conduct workshops Prepare water resources management plan inputs to overall NR management plans</p>	<p>6 stakeholder working groups established (1 per NR) and operational by year 1 Biannual water monitoring workshops conducted 6 NR management plans produced by year 2 incorporating NR water allocation plans by year 3</p>	<p>Review of stakeholder working group reports, workshop reports Assessment of water resource management plans and NR management plans</p>	<p>Assumptions Stakeholders are interested in identifying and solving problems.</p>
<p>1.3. Watershed Level Water Allocation Plan Add conferences with local working groups Conduct training on wetland water supply and watershed level water resource allocation Develop and calibrate numerical models of water use and availability for Anban and Naoli watersheds</p>	<p>Gross water balance estimates completed for 5 NRs by year 1 Numerical computer models completed for Anban and Naoli watersheds by year 2 Water allocation and flood control policies developed by year 3 Provincial and county water management staff participates in 5 annual interagency coordination workshops over life of Project.</p>	<p>Gross water balances and numerical computer models Provincial/county water allocation plans Water resource engineering reports Workshop reports Project activity and progress reports</p>	<p>Assumptions County and provincial officials cooperate to share information.</p>
<b>2. Wetland Nature Reserve Management</b>			
<b>2.1. Conservation Management</b>			
<p>Establish water, wildlife and habitat monitoring programs in NRs Prepare annual monitoring reports, conduct workshops Establish geographic information systems (GIS) for 6 NRs Draft management plans for all 6 NRs</p>	<p>Permanent monitoring stations established for water, wildlife, and habitat monitoring by year 1 Monitoring protocols recorded in monitoring manuals by year 2 NR GIS set up by year 2 and data updated continuously Draft management plans prepared for 6 NRs by year 3</p>	<p>Water, wildlife and habitat monitoring program reports Monitoring manuals Annual monitoring workshop reports NR adaptive management plans Project activity and progress reports</p>	
<b>2.2 Pilot Wetland Restoration</b>			
<p>Restore 3,433 ha of farmland to wetland at model sites in 6 wetland NRs Provide input to NR management plan Develop and disseminate replicable wetland restoration models Conduct workshops, conferences, study tours and training as venues for information exchange on wetland restoration</p>	<p>Restoration of wetland areas from farmland, measured annually, achieving specified targeted area by year 5 Wetland restoration models, including appropriate technologies and tools for information dissemination prepared by year 4 By project year 4, at least one national and one international study tour conducted By project year 5, international conference on wetland restoration organized and implemented</p>	<p>Annual inspection of restored wetland sites, and assessment of their functioning and condition Progress according to detailed restoration plans, activity schedules, and quality standards Wetland restoration model information packages Project activity and progress reports</p>	<p>Assumptions Members of Nature Reserve management staff remain unchanged throughout project implementation</p>
<b>2.3. Wildlife Species Recovery</b>			
<p>Prepare and implement</p>	<p>Species Recovery Plans completed for 8</p>	<p>Species recovery plans</p>	<p>Risks</p>

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions/Risks
<p>recovery plans for 8 globally threatened species</p> <p>Conduct symposium on project species recovery experiences</p>	<p>globally threatened species of waterfowl by end of year 2, and measures implemented by year 3</p>	<p>Baseline and annual census of populations of key targeted wildlife species, and associated habitats</p>	<p>Various threats to the selected species continue to exist outside of the project pilot areas.</p>
<p>2.4. Reduction of Unsustainable Harvesting in NRs</p> <p>Conduct inventory of types and levels of exploitation of thatch grass, fish, wild herbs</p> <p>Develop and implement plan for reducing unsustainable harvesting in NRs</p> <p><b>3. Alternative Livelihoods</b></p> <p>3.1 Intercropping and NTFP</p> <p>Plant 1,300 ha of NTFPs, in 6 counties</p> <p>Conduct studies on markets, prices, yields and costs to assess expansion opportunities for NTFPs</p> <p>3.2 Land Compensation and Village Development</p> <p>Develop detailed resettlement plans as per resettlement framework</p> <p>Prepare village development plans in affected villages</p> <p>Conduct community and stakeholder consultation</p> <p>3.3. Ecotourism</p> <p>Develop ecotourism feasibility study, master plan and environmental guidelines</p> <p>Develop ecotourism pilot projects, incorporating capacity building for local community and NR staff</p> <p><b>4. Capacity Building</b></p> <p>4.1. Conservation Education (schools)</p> <p>Select pilot schools</p> <p>Prepare teaching kits</p> <p>Train teachers</p> <p>Develop and implement NR outreach/extension programs for schools</p> <p>4.2. Conservation Awareness (communities/SFFs)</p> <p>Develop public awareness strategies and campaign materials</p> <p>Implement public awareness strategies, including</p>	<p>Utilization inventories conducted by end of year 1</p> <p>Harvesting reduction plans implemented by end of year 2</p> <p>Prohibited activities minimized—number of apprehensions/seizures increased (with improved enforcement), then reduced and stabilized</p> <p>Intercropping proceeds per county schedules over 5-year period</p> <p>At least 20% of area converted from farmland to forest allocated for NTFP production</p> <p>NTFP market feasibility study report prepared</p> <p>Resettlement plans for all 6 NRs prepared by year 1</p> <p>Village development plans of all 8 villages prepared and finalized by year 2</p> <p>At least 1 new livelihood project processed, funded, and tested for possible revolving fund mechanism by year 5</p> <p>Ecotourism feasibility study and master plan guidelines prepared by year 1</p> <p>At least 2-3 community-based ecotourism pilot projects initiated beginning in year 2 at each NR, according to appropriate planning and screening processes</p> <p>Conservation education programs developed by end of year 1</p> <p>Teacher kits developed and teachers trained in their use by end of year 2</p> <p>Conservation awareness program for schools incorporated into curriculum and implemented in pilot elementary and secondary schools in 5 counties starting in year 2 and running for remainder of the Project</p> <p>Conservation public awareness strategies developed in year 1</p> <p>Conservation public campaign program developed for 5 counties by end of year 2, and carried out over life of the Project</p>	<p>Baseline and annual census of thatch grass, fish, wild herbs</p> <p>Harvest reduction monitoring</p> <p>Reports of violations/ apprehensions</p> <p>Project activity and progress reports</p> <p>Annual agroforestry reports</p> <p>Annual plantation intercropping/ NTFP reports</p> <p>NTFP market feasibility report</p> <p>Project activity and progress reports</p> <p>Resettlement plans</p> <p>Surveys of types of economic activity, and results of village development feasibility report</p> <p>Resettlement monitoring</p> <p>Project activity and progress reports</p> <p>Ecotourism feasibility and master plan</p> <p>Ecotourism guidelines</p> <p>Ecotourism pilot project reports</p> <p>Project activity and progress reports</p> <p>Surveys of school curricula at beginning and towards end of Project</p> <p>Conservation program design reports</p> <p>Attendance records of teachers at training events</p> <p>Frequency of NR presentations at local schools</p> <p>No. of teacher kits prepared/distributed</p> <p>Annual awareness program progress reports</p> <p>Monitoring of web site "hits," user feedback</p> <p>Project activity and progress</p>	<p>Assumptions</p> <p>State farms within the project area cooperate with Heilongjiang Provincial Financial Bureau and finance resettlement cost in a timely manner</p> <p>Assumptions</p> <p>Support comes from educational and NR authorities/staff.</p> <p>Teachers are willing to take on this extra task.</p> <p>Assumptions</p> <p>Strong involvement of public authorities at all levels in promoting awareness of</p>

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions/Risks																																								
participation in national and international events (e.g., Earth Day, World Wetland Day) 4.3. Wetland Management Training Conduct training needs assessment Develop and conduct short-term training courses and study tours for technical NR staff Develop and conduct formal courses for professional level NR staff 4.4 Institutional and Behavioral Change Institutionalize mechanisms for improved interagency coordination on a sustainable basis Promote internalization of sustainable environment principles and wetland conservation principles	Web site up and running by year 2, and updated at least quarterly thereafter Training needs assessment completed by end of year 1 Beginning in year 2, short-term training courses for technical NR staff Beginning in year 2, formal higher level courses for professional level NR staff Exchange programs, study tours, internships, and workshops proceeding according to yearly program By project year 2, interagency coordination body (working group) formed, and meeting quarterly; working group transitioning into permanent working committee by end of project 5 key decision makers at national level, 10 at provincial level, and 40 at county level, completing advanced environmental awareness training program by end of project Conservation awareness programs reaching approximately 5,000 schoolchildren; 300 NR staff, 20 community leaders, and 15 NR managers and staff during life of Project	reports Training needs assessment Annual short-term training and study tour reports Annual long-term training reports Surveys/evaluations of participants in training programs Working group/working committee meeting minutes Project training records Awareness surveys Mentorship skills evaluations	environmental policies. Assumptions The provincial supports professional quality improvements at NRs through staffing plans and incentives. There is commitment to maintaining high standards for training programs.																																								
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(\$ million)	<table border="1"> <thead> <tr> <th></th> <th>Foreign Exchange</th> <th>Local Currency</th> <th>Total Cost</th> </tr> </thead> <tbody> <tr> <td>1. Watershed Management</td> <td>1.29</td> <td>21.92</td> <td>23.21</td> </tr> <tr> <td>2. Wetland NR Management</td> <td>2.18</td> <td>3.22</td> <td>5.4</td> </tr> <tr> <td>3. Alternative Livelihood</td> <td>0.55</td> <td>15.21</td> <td>15.75</td> </tr> <tr> <td>4. Education Capacity Building</td> <td>2.48</td> <td>1.15</td> <td>3.63</td> </tr> <tr> <td>5. Project Management</td> <td>0.42</td> <td>2.29</td> <td>2.71</td> </tr> <tr> <td><b>Total Base Cost</b></td> <td><b>6.92</b></td> <td><b>43.79</b></td> <td><b>50.71</b></td> </tr> <tr> <td>Contingencies</td> <td>0.31</td> <td>2.35</td> <td>2.66</td> </tr> <tr> <td>IDC/ Financial Charges</td> <td>2.18</td> <td>0.00</td> <td>2.18</td> </tr> <tr> <td><b>Total</b></td> <td><b>9.41</b></td> <td><b>46.14</b></td> <td><b>55.55</b></td> </tr> </tbody> </table>		Foreign Exchange	Local Currency	Total Cost	1. Watershed Management	1.29	21.92	23.21	2. Wetland NR Management	2.18	3.22	5.4	3. Alternative Livelihood	0.55	15.21	15.75	4. Education Capacity Building	2.48	1.15	3.63	5. Project Management	0.42	2.29	2.71	<b>Total Base Cost</b>	<b>6.92</b>	<b>43.79</b>	<b>50.71</b>	Contingencies	0.31	2.35	2.66	IDC/ Financial Charges	2.18	0.00	2.18	<b>Total</b>	<b>9.41</b>	<b>46.14</b>	<b>55.55</b>	Project performance Monitoring System (PPMS), including - Implementation schedule - Consultants' reports - Disbursement of ADB loan and GEF grant funds - Annual progress reports - Project review missions	Assumptions Allocation of local counterpart funds is timely
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GIS=geographic information system; NR=nature reserve;NDRC= National Development and Reform Commission; SFA=State forest administration; VDF= village development fund

<sup>1</sup> Oriental stork (*Ciconia boyciana*); red-crowned (*Grus japonensis*) and white-naped (*Grus vipio*) cranes; scaly-sided merganser (*Mergus squamatus*); swan goose (*Anser cygnoides*) and three other geese of the genus *Anser*, the greater white-fronted goose (*A. albifrons*), the lesser white-fronted goose (*A. erythropus*), and bean goose (*A. fabilis*); and Menzbier's pipit (*Anthus (gustavi) menzbieri*).

## THREATS ANALYSIS

1. The Global Environment Facility (GEF) project design is based on threats analysis to remove the underlying causes of the problems identified. To facilitate project design, an analysis identified the immediate threats to biodiversity, along with underlying and root causes and possible avenues for addressing them. The outcome of the analysis is illustrated in Figure A2. The indicative threats analysis is summarized in Table A2. An extensive discussion, history of these threats, and an account of current threats are in Supplementary Appendix M.

2. The indicative threats analysis identified four main threats to globally significant biodiversity in the Sanjiang Plain: as (i) changes in hydrology/desiccation; (ii) conversion to farmland; (iii) inappropriate practices in the use of resources (overexploitation of resources, disturbances, and habitat degradation); and (iv) limited conservation awareness and capacity of nature reserve (NR) staff and adjacent communities. Underlying causes of water pollution are closely related to incorrect use or overuse of agricultural fertilizers in their farming activities and farmers' awareness on conservation. Following this analysis and the logical framework, the four main threats (and their underlying causes) are targeted by four closely linked project components, each with a set of subcomponents that address various aspects of the underlying causes.

3. Some of the underlying causes will not be addressed by the present Project, as they are already the focus of another project or beyond the scope of a GEF intervention. One of the unaddressed underlying causes pertains to NR legislation, regulations and zoning, and differences in how they are applied or interpreted at national and provincial levels. An Asian Development Bank (ADB) technical assistance,<sup>1</sup> being developed at present that will address environmental legislation. The underlying cause of pressures on natural resources due to increases in the human population is regarded as being outside the scope of a GEF intervention.

**Table A2: Threats Analysis and Project Response Matrix**

Threats/Constraints	Root Cause	Required Response	Proposed Project Intervention
<p><b>Increasing Wetland Dehydration</b></p> <p>Surface water drainage, diversion and/or storage systems</p> <p>Deforestation changing water balance</p>	<p>Government crop production policy and practice</p> <p>Limited understanding of water requirements of various users, including wetland nature reserves (NR)</p> <p>Road construction</p> <p>Flood management</p> <p>Irrigation supply</p>	<p>Forestry investments in watershed</p> <p>Integrated watershed-level water resource planning</p>	<p>Subcomponent 1.1, reforestation of 10,880 hectares (ha)</p> <p>Subcomponent 1.2, local-level (NR) water management</p> <p>Subcomponent 1.3, watershed-level water resources management</p>
<p><b>Wetland Conversion</b></p> <p>State Farm cropland expansion</p> <p>Leasing of farmland within NRs</p> <p>Expansion of road, rail transport corridors</p>	<p>Pressure to increase incomes by expanding crop production</p> <p>Some farmland existing before NR establishment</p> <p>Need for lease income for NR operations</p>	<p>Government farmland-to-wetland restoration with compensation</p> <p>Policy, regulation, and enforcement to prohibit conversion and do land use planning</p> <p>Increased financial</p>	<p>Subcomponent 2.1, management planning to guide transport development</p> <p>Subcomponent 2., pilot wetland restoration, including development of model, and development of manual.</p> <p>Subcomponent 3.2</p>

*Continued next page*

Threats/Constraints	Root Cause	Required Response	Proposed Project Intervention
	Incorrect interpretation of legislation regarding experimental zones	allocation to NRs Integrated transport development planning and engineering Review of protected area legislation (focus of technical assistance on environmental legislation currently being formulated)	establishing village development mechanism for maintaining livelihood of villages affected by wetland restoration program Subcomponent 3.3, to stimulate sustainable ecotourism development Subcomponent 4.3, wetland management training to include capacity building in wetland restoration
<b>Overexploitation of Wildlife and Plants</b>  Overfishing Overhunting Excessive plant product harvest Excessive medicinal herb harvest Excessive reed harvest	Increase household food supply Income generation Paper production Roofing material needs Fuel needs Construction material needs Few economic alternatives	Alternative income sources Improved enforcement of existing regulations and training Reduce exploitation to sustainable levels Education and training of NR staff in enforcement, management, and wildlife conservation	Subcomponent 2.4, reduction of overuse, to focus on achieving sustainability and eliminating unsustainable use forms Subcomponent 3.2, village development plans for maintaining livelihood schemes affected by resource use reduction program Subcomponent 4.2 focuses on raising awareness of farmers and state farm staff
<b>Human Disturbance of Wildlife During Sensitive Periods (Nesting, Rearing, Migration)</b>  Households in wetlands Farms in wetlands Fishermen in wetlands Hunters in wetlands Tourists in wetlands Capturing wildlife for display in NR visitor centers	Existence before NR establishment To increase crop production To increase household income To obtain food supply Recreation Low awareness of wildlife biology and general conservation needs	Enforcement of existing regulations on use of NR zones Resettlement of households and removal of farmland from NRs Development of tourism management plans Conservation education among villagers Education and training of NR staff	Subcomponent 2.2, pilot wetland restoration, including development of model, and development of manual Subcomponent 2.4, reduction of overuse, to focus on achieving sustainability and eliminating unsustainable use forms Subcomponent 3.3, development of ecotourism master plans and guidelines Subcomponents 4.1 (education), 4.2 (awareness), and 4.3 (training)
<b>Habitat Degradation (Other Than Related to Conversion)</b>  Anthropogenic fire Overgrazing	Forage improvement Livestock industry development "Controlled burns" as precaution against catastrophic fire Untrained NR personnel	Relocation & compensation of grazers Husbandry programs for grazing, hay, fire Education and training of NR staff	Subcomponent 2.4, reduction of overuse, to focus on achieving sustainability and eliminating unsustainable use forms Subcomponent 4.2, awareness of local farmers and State farms Subcomponent 4.3, training of NR staff

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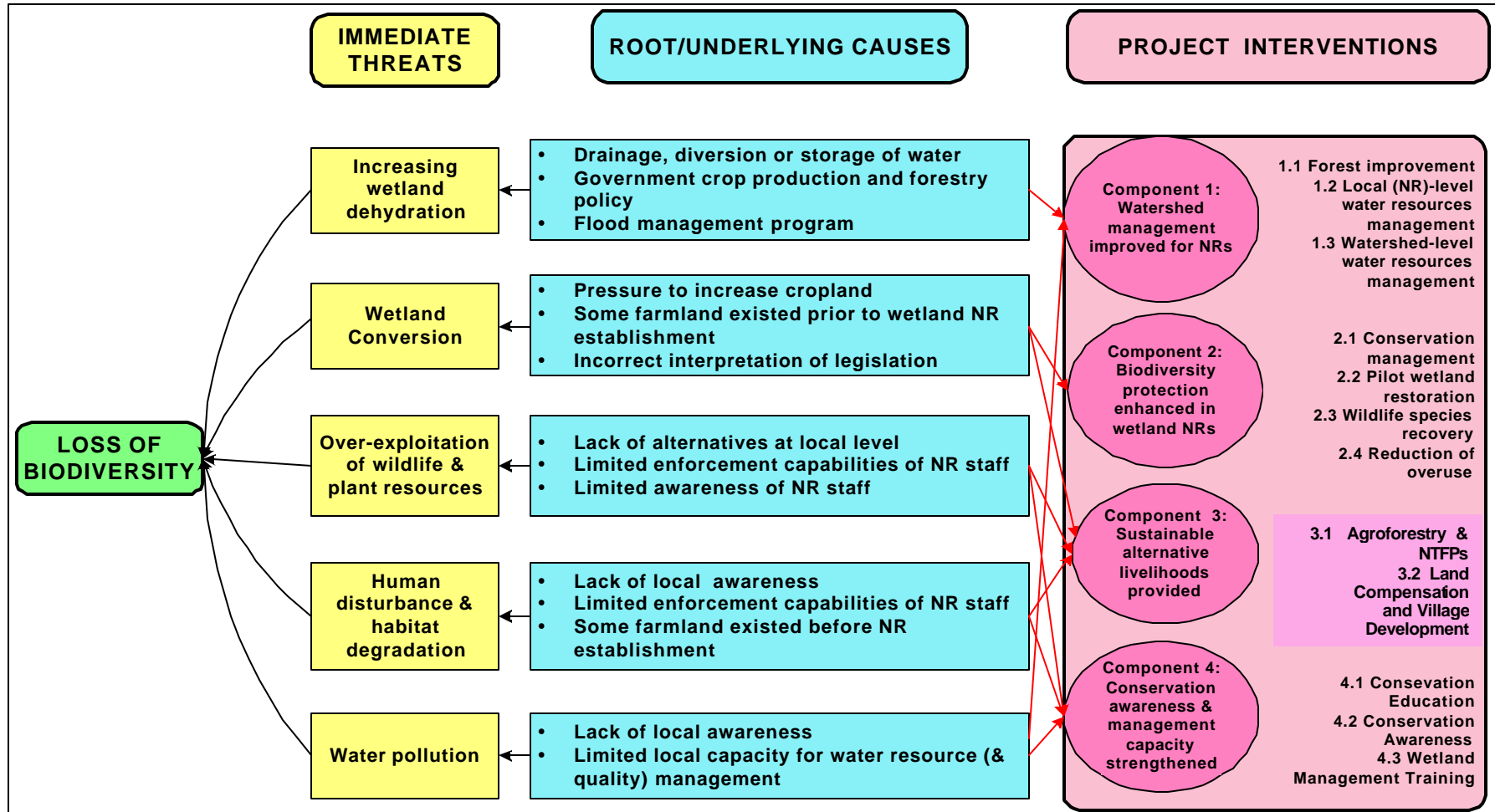
<b>Threats/Constraints</b>	<b>Root Cause</b>	<b>Required Response</b>	<b>Proposed Project Intervention</b>
<b>Water Pollution</b> Agricultural fertilizers and pesticides Sedimentation Sewage	To increase crop production Excessive use of agrochemicals due to poor user practice No facilities for treatment of effluents	Increase public/state farm awareness Water resource planning for water quality Development of best management practice	Subcomponent 1.2, local-level (NR) water resources management Subcomponent 4.2, awareness of local farmers and State farms

NR= nature reserve; TA= technical assistance.

<sup>1</sup> ADTA-PRC. Support for Environment Legislation for \$600,000, programmed for 2004. One of the focal areas of this to-be-approved TA will be legislation related to protected area management.



Figure A2: Threats To Biodiversity and the Project Conceptual Model



NR = nature reserve, NTFP = nontimber forest product

**KEY EXTERNAL ASSISTANCE RELEVANT TO HEILONGJIANG PROVINCE AND  
TO THE ENVIRONMENTAL SECTOR (1994-2004)**

Source	Project Name	Sector*	Loan/TA (\$'million)	Year of Approval
<b>Loan Projects</b>				
ADB	1. Changchun-Harbin Expressway: Hashuang Expressway	Transport	170.00	1998
	2. Qitaihe Thermal Energy and Environmental Improvement	Energy	165.00	1994
	3. Changchun-Harbin Expressway: Changyu Expressway	Transport	220.00	1998
	4. Northeast Flood Damage Rehabilitation: Heilongjiang Province	Multisector	110.00	1999
	5. Yellow River Flood Management (Sector) Project	Others	150.00	2001
	6. Songhua River Flood Management Project	Others	150.00	2002
	7. Harbin City Water Supply	Social infrastructure	100.00	2003
	<b>Total</b>		<b>1,065.00</b>	
World Bank	1. Grain Marketing Development	Agriculture	6.30	1994
	2. Comprehensive Agricultural Development in HLJ	Agriculture	12.00	1997
	3. Social Welfare System in HLJ	Health, Nutrition and Social Protection	0.25	1999
	4. Milk Production Base	Agriculture	10.00	2003
	<b>Total</b>		<b>28.55</b>	
<b>Technical Assistance Projects</b>				
ADB	1. Soil and Water Conservation in the Upper Yangze River Basin	Agriculture	0.10	1998
	2. Provincial Legislation on Environmental Protection and Natural Resources Conservation	Others	0.30	1998
	3. Policies and Strategies for Sustainable Development of the Lancang River Basin	Agriculture	0.66	1998
	4. Capacity Building in Ministerial Status Responsibilities in State Environmental Protection Administration	Others	0.81	1999
	5. Yellow River Flood Management Sector Project	Agriculture	0.93	1999
	6. Songhua River Flood Wetland and Biodiversity Management	Agriculture	1.55	1999
	7. Preparing National Strategies for Soil and Water Conservation	Agriculture	0.80	2000
	8. Global Environmental Facility Partnership on Land Degradation in Dryland Ecosystems	Agriculture	0.10	2000
	9. Transjurisdiction Environment Management (TA cluster)	Others	2.10	2000
	10. Ningxia Shapoutou Water Resources	Agriculture	0.93	2000
	11. Strategic Planning Study for the Preparation of the Yellow River Law	Agriculture	0.97	2001
	<b>Total</b>		<b>9.24</b>	

- Sector Classification for ADB projects are based on PPIS record. Others may be considered as environment.
- Other GEF assistance to China is summarized in Supplementary Appendix N.

## THE ROLE OF THE GLOBAL ENVIRONMENT FACILITY (GEF) IN THE PROJECT

### A. Broad Development Objective

1. The northeastern part of the People's Republic of China (PRC) is one of the last areas in this huge and biologically rich country to be drained and converted to agriculture. Because of this late development, threats and risks are high on some of the last remaining tracts of wetland and native forests with their associated biological diversity, including many endangered and rare species.

2. The PRC gives high priority to wetland biodiversity conservation, watershed protection and sustainable management of natural resources. By the end of 2000 the PRC had established 1,276 nature reserves (NRs) covering 123 million hectares (ha), or 12.4% of the national land area. Some 12 million ha of the total protects wetlands, representing nearly half of the estimated total of 25 million ha of natural wetlands in the PRC. The PRC ratified the Ramsar Convention on 31 July 1992, and three wetland NRs (Honghe, Sanjiang, and Xingkaihu NRs) in the Sanjiang Plain are listed as wetlands of international importance (i.e., Ramsar sites). The PRC subsequently ratified the Convention on Biological Diversity on 5 January 1993, followed by notification of participation in the restructured GEF on 16 May 1994. The PRC's Biodiversity Conservation Action Plan gives conservation of the Sanjiang Plain highest priority.

3. The Sanjiang Plain (or Three Rivers Plain) is located in Heilongjiang Province in the far northeastern part of the PRC. The Plain formerly extended over 108,900 (km<sup>2</sup>), with half forest and half wetlands, but these forest and wetlands have been reduced to one fifth of their original area, mainly due to the expansion of agriculture. Key wetlands and globally threatened species are now primarily found in NRs, but management of these areas is beset with challenges. Given the presence of key populations of globally important species in the Sanjiang Plain, the Project is expected to have significant global environmental benefits.

### B. Rationale for GEF Involvement

4. The Sanjiang Plain has some of the PRC's most important and largest (almost one million ha, or 10,000 km<sup>2</sup>) floodplain wetlands. Located on this plain are 28 of Heilongjiang's 58 wetland NRs of which the 6 key NRs (Anbanghe, Dajihe, Naolihe, Qixinghe, Xingkaihu, and Zhenbaodao) will be targeted by the Project. The six NRs support key populations of 23 species listed by the International Union for the Conservation of Nature (IUCN) as globally threatened (i.e., endangered or vulnerable), and include breeding populations of Oriental stork, red-crowned crane, white-naped crane, Baikal teal and Chinese softshell turtle. The six support unique wetland habitats that have largely disappeared in the region, nowadays.

5. In 1998, the Heilongjiang provincial government (HPG) issued a decree suspending wetland development in the province and preventing further conversion to farmland; the suspension was reinforced in June 2003 with the adoption of the Regulation on Wetland Conservation of Heilongjiang Province. To address losses, HPG developed plans for restoring of >150,000 ha (or 1,500 km<sup>2</sup>) of farmland to wetlands within wetland NRs in the Sanjiang Plain, and in 2003 the provincial Forestry Department began implementing of the restoration program.

6. The Project aims at sustainable management of natural resources to protect globally significant species and promote economic development. The Project's global biodiversity objective is to protect the Sanjiang Plain wetland ecosystems and their associated globally significant biodiversity by relieving threats and associated root causes of their decline. Globally significant biodiversity in the Sanjiang Plain faces four main threats, namely, (i) changes in

hydrology/desiccation, (ii) conversion to farmland, (iii) inappropriate land use practices, and (iv) limited conservation awareness and capacity of NR staff and adjacent communities. These threats and their underlying causes will be targeted by four interdependent Project components

- (i) **Component 1. Outcome: NR watershed management improved.** The Project will increase forest cover, improve forest management (to reduce surface runoff, and increasing soil water retention and groundwater recharge), and enhance watershed-level water resource management.
- (ii) **Component 2. Outcome: Biodiversity protection in wetland NRs enhanced.** The Project will develop models and the capacity for wetland NR conservation management, and embed component outputs in NR management plans.
- (iii) **Component 3. Outcome: Alternative livelihoods developed and sustained.** The project will develop and implement programs for sustainable livelihood in villages affected by the reforestation program (under component 1) and farmland-to-wetland restoration (under component 2)<sup>1</sup> to ensure that the restoration programs have lasting beneficial effects.
- (iv) **Component 4. Outcome: Conservation awareness and capacity for sustainable management of wetland NR biodiversity increased.** The Project will develop and implement conservation education at local schools, public awareness programs for State farms and communities in/around NRs; and a targeted training program for NR staff and other stakeholders. This will be directly linked to component 2; for example, development of the NR management plan and species recovery plans will be incorporated into the long-term training program.

7. The Project is fully compliant with the GEF operational strategy in the focal area of biodiversity and consistent with GEF's Operational Program 2 (OP#2) aimed at conservation and sustainable use of biological resources in coastal, marine, and freshwater ecosystems. The project may further have linkages with the other OPs as sustainable development activities. However, efficiencies are achieved in the Project by combining complementary baseline and incremental activities as an integrated package. Individual programs alone would contribute to only local and national benefits. But when integrated, the linkages provided by sustainable development activities will further enhance global incremental benefits, which largely contribute to the objectives of OP#2. The Project will also enhance the objectives of

- (i) OP#3 Forest Ecosystems, as a total of 11,900 ha of new forest plantations will be planted on degraded, unproductive farmland and deforested/eroding areas. In addition, 43,700 ha of existing forestry plantations will be subjected to improved management and upgrading;
- (ii) OP#12 Integrated Ecosystem Management, as it takes an integrated, basin wide approach to the management of water and other natural resources, and will establish an institutional framework (based on existing structures) to achieve this; and
- (iii) OP#15 Sustainable Land Management, as management of catchments will be upgraded and vastly improved via the forestry program (i), and also assist with identifying, developing, and promoting sustainable land management in areas adjacent to/near the wetland protected areas.

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<sup>1</sup> No physical resettlement of people is involved, but the compensation is for loss of access to farmland in the NRs. Due to readjustment of villages' remaining land, village collectives rather than individuals are affected.

8. The Project aims at developing models that can be replicated to provide much-needed examples for ongoing provincial programs. This approach is fully compatible with the objectives of GEF's Strategic Priority BD-1: catalyzing sustainability of protected areas; BD-2: mainstreaming biodiversity in production landscapes and sectors; and BD-4: generation and dissemination of best practices for addressing current and emerging biodiversity issues. The Project will significantly contribute to BD-1, BD-2, and BD-4, as outlined in Project Contribution to Operational Programs and Strategic Directions of GEF Business.<sup>2</sup>

9. Sustainability of benefits and achievements beyond the completion of the GEF Project will be positively affected by (i) promulgation of the Regulation on Wetland Conservation of Heilongjiang Province, which took effect on 1 August 2003, and lays a solid foundation for long-term improvement in wetland conservation in the Sanjiang Plain; (ii) financial commitments confirmed by HPG for implementing of the farmland-to-wetland and farmland-to-forest restoration programs; (iii) availability of already ongoing financial assistance by National Development Reform Commission (NDRC) for affected communities from the farmland-to-wetland program, rather than the simple provision of funds directly as compensation; (iv) strong commitment of the PRC Government to improve water resource management, among others, by improving watershed management; (v) development of practical/workable models for wetland restoration (including restoration of local livelihood schemes) that are targeted to the local situation in the Sanjiang Plain; (vi) strong emphasis of the Project on capacity building; this is included in each of the components, especially component 4, which is entirely focused on education, awareness education, and training, along with development of training modules and curricula; (vii) emphasis on interagency collaboration under a single provincial government and in all project areas under the jurisdiction of Heilongjiang Province, increases sustainability.

10. HPG has agreed to utilize wetland restoration models (including livelihood restoration) developed by the Project in its farmland-to-wetland restoration program, under which over 150,000 ha will be restored to wetland NRs in the Sanjiang Plain alone. Funds have been allocated for this replication by NDRC. The Project will facilitate the program by providing much-needed examples of how restoration can be achieved successfully, and maximizing benefits to biodiversity conservation. The watershed-level water resources management approach will provide a model for water resources management (and allocation for conservation) to the Song-Liao Water Resources Commission, allowing replication in subcatchments in the entire Songhua River basin and much of northeast PRC. The production of training manuals and development of training curricula will facilitate further replicability of the model framework. In particular, the Project will be led by one provincial government, facilitating interagency coordination of water, forestry, agriculture, and environmental protection departments. Thus, lessons learned will be of great value in the course of replication in other contexts under the broader framework of river basin management.

### **C. Quantification of GEF Contribution**

11. GEF funds the incremental costs of activities required to secure global environmental benefits that would not normally be undertaken as part of national sustainable development (SD) intervention. Therefore, GEF involvement is justified for activities aimed at achieving global environmental objectives (OP#2) over and above national SD costs.

12. Global benefits from the Project will be derived from (i) protection of endangered species, (ii) conservation of ecosystems that are under threat, and (iii) improved watershed

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<sup>2</sup> Supplementary Appendix O: Project Contribution to Operational Programs and Key Indicators of GEF Business Plan.

management and wetlands habitat quality, leading to increased number of wildlife. Replicability of the project model framework throughout the Sanjiang Plain will enhance the global environmental benefits. Quantification of incremental costs in achieving global benefits over and above national SD costs is presented in Annex B of the GEF Executive Summary (Supplementary Appendix D). The key approach in quantifying GEF contribution is summarized below.

13. **Business as Usual (BAU) Baseline.** The BAU baseline assumes continued investment by the Government and aid agencies in watershed and water resource management, nature conservation, and further expansion of the protected area system. It also assumes continued (but modest) investment by the Government in wetland restoration and reforestation, but under the following practices: (i) There will be an established network of wetland NRs and annual government allocations of funds to manage them. (ii) NRs would, however, continue to operate without management plans and use approaches that have proved to be less effective at stemming the decline of globally important species. (iii) Recovery of globally threatened species would not be accelerated unless projects are specially designed for that purpose. (iv) Existing programs would restore some farmlands to wetlands, but compensation payments to displaced farmers would not be designed to yield long-term economic benefits, nor would there be any incentives for adopting environment-friendly approaches compatible with wetland protection. (v) Water resources would be allocated first to municipalities, then to industry and agriculture; if a surplus remained, it would be available for NR use. (vi) Commercialized tourism facilities would be developed in the experimental zone of NRs due to incorrect interpretation of regulations, but this would come at a cost in terms of disturbing wetland habitat. (vii) Lack of training and education would continue to hamper NR personnel in performing their duties. (viii) Communities surrounding NRs would not be aware of the importance of conservation management. (ix) Populations of globally threatened species would continue to decline or at best show only marginal recovery. (x) Sufficient funds would not be allocated and trained personnel would not be available to fully protect wetland biodiversity or carry out the mandates of the various conservation action plans. The cost of the baseline scenario has been calculated at \$39,850,000.

14. **Sustainable Development (SD) Alternative.** The SD alternative adds to the BAU baseline investments by the government (including the Asian Development Bank loan) in reforestation, and investments in economic development in villages affected by both the farmland-to-forest and the farmland-to-wetland restoration programs. The investments will improve environmental management and conditions, but will be mainly of national benefit. Implementation of the SD alternative over the 5 years of the Project is expected to cost approximately \$79,510,000.

15. **GEF Alternative.** The GEF alternative scenario adds to both the BAU baseline and SD alternative activities that are designed to achieve the Project's global biodiversity objectives, and that are expected to generate significant global benefits. Implementation cost of the GEF alternative scenario over the 5 years of the Project (July 2005–June 2010) is as follows.

16. **Incremental Cost of GEF Alternative.** The estimated cost of the BAU baseline is \$39,850,000; that of the SD alternative, \$79,510,000; and that of the GEF alternative, \$90,557,000. The incremental cost is \$11,047,000.<sup>3</sup> If contingencies (\$1,100,000) are included, the amount requested from GEF is \$12.14 million.

<sup>3</sup> \$90.5 million minus \$79.5 million equals to \$11.0 million, which is the base cost of the GEF financing portion. Then, \$90.5 million minus \$39.8 million equals \$50.7 million, which is the total baseline cost of the Project.

## PROJECT COSTS AND FINANCING PLAN

Table A5.1: Whole Project Cost Summary

Component	CNY Million			\$ Million			Foreign Exchange (%)	% Total Base Cost
	Foreign	Local	Total	Foreign	Local	Total		
<b>1. Watershed Management</b>								
1. Forest Improvement	9.77	174.04	183.81	1.18	21.03	22.21		
2. Local Watershed Resource Management	0.75	1.99	2.74	0.09	0.24	0.33		
3. Watershed Level Resource Management	0.16	5.36	5.53	0.02	0.65	0.67		
<b>Subtotal</b>	<b>10.68</b>	<b>181.39</b>	<b>192.08</b>	<b>1.29</b>	<b>21.92</b>	<b>23.21</b>	<b>6</b>	<b>46</b>
<b>2. Wetland Nature Reserve Management</b>								
1. Habitat Conservation Management	7.78	7.32	15.10	0.94	0.88	1.82		
2. Pilot Wetland Restoration	4.72	11.76	16.48	0.57	1.42	1.99		
3. Wildlife Species Recovery	5.58	6.00	11.58	0.67	0.72	1.40		
4. Reduction of Overuse	0	1.56	1.56	0	0.19	0.19		
<b>Subtotal</b>	<b>18.09</b>	<b>26.64</b>	<b>44.72</b>	<b>2.18</b>	<b>3.22</b>	<b>5.40</b>	<b>40</b>	<b>11</b>
<b>3. Alternative Livelihoods</b>								
1. Agroforestry and nontimber forest products	0	35.92	35.92	0	4.34	4.34		
2. Resettlement Compensation and Village Development <sup>a</sup>	0	86.39	86.39	0	10.44	10.44		
3. Ecotourism	4.54	3.55	8.09	0.55	0.43	0.97		
<b>Subtotal</b>	<b>4.54</b>	<b>125.86</b>	<b>130.40</b>	<b>0.55</b>	<b>15.21</b>	<b>15.75</b>	<b>3</b>	<b>31</b>
<b>4. Education and Capacity Building</b>								
1. Conservation Education	1.76	1.99	3.75	0.21	0.24	0.45		
2. Public Conservation Awareness	0.90	1.13	2.03	0.11	0.14	0.24		
3. Wetland Management Training	17.86	6.44	24.30	2.16	0.78	2.94		
<b>Subtotal</b>	<b>20.52</b>	<b>9.56</b>	<b>30.08</b>	<b>2.48</b>	<b>1.15</b>	<b>3.63</b>	<b>68</b>	<b>7</b>
Project Management Office	3.45	18.96	22.41	0.42	2.29	2.71	15	5
<b>Total Baseline Costs</b>	<b>57.28</b>	<b>362.40</b>	<b>419.68</b>	<b>6.92</b>	<b>43.79</b>	<b>50.71</b>	<b>14</b>	<b>100</b>
Contingencies	4.67	40.39	45.06	0.30	2.25	2.65	24	5
<b>Total Project Costs</b>	<b>61.96</b>	<b>402.79</b>	<b>464.75</b>	<b>7.23</b>	<b>46.14</b>	<b>53.36</b>	<b>14</b>	<b>105</b>
Interest During Implementation	16.96	0	16.96	1.96	0	1.96		
Commitment Charges	1.96	0	1.96	0.22	0	0.22		
<b>Total Costs to Be Financed</b>	<b>80.87</b>	<b>402.79</b>	<b>483.66</b>	<b>9.41</b>	<b>46.14</b>	<b>55.55</b>	<b>17</b>	<b>110</b>

Source: Asian Development Bank estimates.

<sup>a</sup> Includes resettlement compensation costs of \$9.16 million.

**Table A5.2: Project Costs, by Expenditure Accounts**

Item	CNY Million			\$ Million		
	Foreign	Local	Total	Foreign	Local	Total
<b>A. Investment Costs</b>						
1. Civil Works	0.00	115.52	115.52	0.00	13.96	13.96
2. Equipment and Vehicles	15.37	5.19	20.56	1.86	0.63	2.49
3. Materials	4.24	27.89	32.13	0.51	3.37	3.88
4. Training	10.5	11.13	21.63	1.27	1.34	2.61
5. Consulting Services	27.17	35.75	62.92	3.28	4.32	7.60
6. Resettlement Compensation and Village Development	0.00	75.81	75.81	0.00	9.16	9.16
7. Intercropping and nontimber forest products Work	0.00	53.67	53.67	0.00	6.48	6.48
<b>B. Recurrent Costs</b>						
1. Operation and Maintenance	0.00	20.49	20.49	0.00	2.48	2.48
2. Salary	0.00	6.55	6.55	0.00	0.79	0.79
Taxes/Duties	0.00	6.38	6.38	0.00	0.77	0.77
<b>Total Baseline Costs</b>	<b>57.28</b>	<b>362.40</b>	<b>419.68</b>	<b>6.92</b>	<b>43.79</b>	<b>50.71</b>
Contingencies	4.67	40.38	45.05	0.30	2.34	2.64
Total Project Costs	61.96	402.79	464.75	7.23	46.14	53.36
Interest during Implementation	16.96	0.00	16.96	1.96	0.00	1.96
Commitment Charges	1.96	0.00	1.96	0.22	0.00	0.22
<b>Total Costs to Be Financed</b>	<b>80.87</b>	<b>402.79</b>	<b>483.66</b>	<b>9.41</b>	<b>46.14</b>	<b>55.55</b>

Source: Asian Development Bank Estimates.

**Table A5.3: Components, by Financier (\$ million)**

Component	ADB	GEF	Government	County	
				Government	Total
A. Watershed Management	12.92	0.83	7.23	3.50	23.44
B. Nature Reserve	0	4.40	1.23	0	5.63
C. Alternative Livelihood	1.47	2.42	12.18 <sup>a</sup>	0.53	16.60
D. Capacity Building	0	3.17	0.63	0	3.81
E. Project Management	0.61	1.32	0.91	0	2.84
<b>Total Project Cost</b>	<b>15.00</b>	<b>12.14</b>	<b>22.19</b>	<b>4.04</b>	<b>53.37</b>
Interest during Construction	0	0	1.96	0	1.96
Commitment Charges	0	0	0.22	0	0.22
<b>Total Project Cost to Be Financed</b>	<b>15.00</b>	<b>12.14</b>	<b>24.37</b>	<b>4.04</b>	<b>55.55</b>

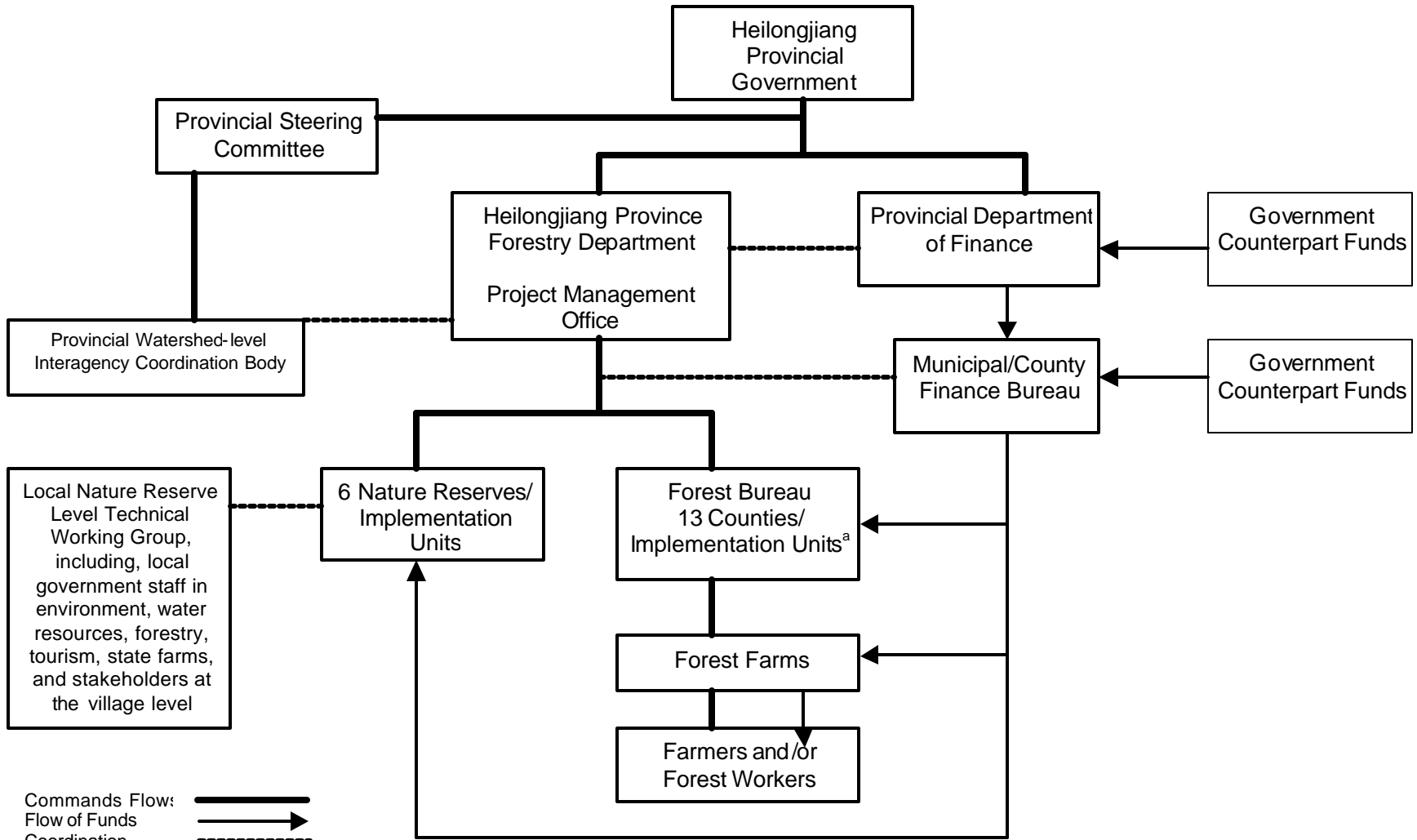
<sup>a</sup> Including resettlement compensation costs of \$9.16 million.

Source: Asian Development Bank Estimates

ADB=Asian Development Bank, GEF = Global Environment Facility



Figure 1: PROJECT ORGANIZATION CHART



<sup>a</sup> PIU at Baoqing county as a field coordination office.

## IMPLEMENTATION SCHEDULE

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

Full implementation



Project phase out



## SUMMARY RESETTLEMENT FRAMEWORK

### A. Scope of Resettlement Impacts

1. The Project will finance wetland protection and forest plantation in projects in the Sanjiang Plain, covering 13 counties<sup>1</sup> in 6 prefectures<sup>2</sup>, and involving 6 nature reserves.<sup>3</sup> The Project will include four components: watershed management, wetland NR management, alternative livelihood program, and education and capacity building. Environmental policies in Heilongjiang Province require restoration of ecological conditions, especially in the Sanjiang Plain. Environmental policies, in general, have substantial impacts on farming activities in wetlands, and involve significant cost implications for resettlement compensation. This issue has delayed the Government's environmental programs for wetland and forest restoration. The Project will pilot a livelihood development approach that will ensure income opportunities are restored or improved at lower cost to the Government, and will benefit community relations with the NR management. The success of the approach depends on the participation of affected persons (APs) and NRs in planning, and implementing viable and sustainable alternative livelihood options.

2. The resettlement impacts induced by the Project are mainly associated with the sub-component of farmland-to-wetland restoration. Of the total 3,433 hectares (ha) to be converted from farmland to wetland, about 1,433 ha (1,183 ha in core zones and 250 ha in experimental zones) will be in 5 NRs and will affect 820 persons, of whom 186 are State farm workers. Along with land acquisition, 1,950 square meters (m<sup>2</sup>) of houses owned by the State farm will be demolished. The demolition will necessitate the physical relocation of about 43 households or 136 individuals who occupy these shelters during the farming season. The other 2,000 ha of farmland in Naolihe NR has already been abandoned, but the wetland still needs to be restored. In 2001, about 318 workers from the Honqiling State farm were affected and provided replacement farmland in nearby villages. An assessment of the situation found that the state farm has already restored the livelihood schemes and incomes of these people. Under the Project, the abandoned land would be restored to wetland, and the State Farm (or villages affected) would be eligible for compensation funding for alternative livelihood development. In 13 counties, 10,800 ha of land will revert to its original legal use as commercial forest, of which 4,300 ha is currently being farmed by 1,770 forest workers in 28 State forest farms and 447 farmers in 12 villages; these workers are employees of State forest farms and are contracted to attend to the lands with salary payments. No minority villages or groups will be affected by the Project. However, the subproject resettlement plans (RPs) will verify whether any individual ethnic minority people will be affected by resettlement.

### B. Legal Framework

3. People are strictly prohibited from living in the core zone of wetland NRs. Those who are presently farming in the core zone of the wetland NRs will be relocated immediately and all productive activities will stop. Those who live in the buffer zone should move out step by step.<sup>4</sup> According to the Chinese Land Administration Law, land acquisition caused by an infrastructure project will require the developer to pay compensation to the current land owners/users. For this Project, the impacts caused by ecological restoration are in accordance with the wetland protection regulation by which land use rights are restricted, and there may be no transfer of

<sup>1</sup> The 13 counties are Baoqing, Boli, Fuyuan, Hegang, Huanan, Hulan, Jixian, Linkou, Luobei, Mishan, Ningan, Qitahe, and Raohe.

<sup>2</sup> The six prefectures are Hegang, Jiamusi, Jixi, Mudanjiang, Qitaihe, and Shuangyashan.

<sup>3</sup> Anbanghe NR, Dajiahe NR, Naolihe NR, Qixinghe NR, Xingkaihu NR, and Zhenbaodao NR.

<sup>4</sup> The Heilongjiang Provincial Wetland Protection Regulation (2003).

landownership. The Nature Reserve Protection Regulation of PRC, Article 27 states, “For those people who live in the core zone of nature reserve, the local government should resettle them appropriately.” But there is no detailed regulation of land compensation rates about farmland restoration to wetland. According to the Asian Development Bank’s (ADB) *Policy on Involuntary Resettlement*, if any project causes individuals or a community to lose all or part of their land, housing, infrastructure, resources, income sources, and services, they will be compensated in cash or kind so that their economic and social circumstance will be at least restored to the pre-project level. Thus, all compensation is based on the principle of replacement cost.<sup>5</sup>

4. For the farmland-to-forest restoration, there is potential for loss of incomes during the years that the trees are growing. The standard practice in the People’s Republic of China is to provide an annual subsidy of 100 kilograms of grain and CNY20 in cash to local farmers for each mu (1/15 ha) of farmland converted to forestland, for 8 years for natural forest or 5 years for commercial forest.<sup>6</sup> This practice is considered costly and welfare oriented, and may not fully restore lost incomes. Therefore, under this Project, a different approach has been taken—the Project will finance the planting of nontimber forest products (NTFPs) for people affected by the conversion. They will receive replacement forestland and wages for tree planting, and simultaneously implement intercropping for 3-5 years on the newly planted forest area at a nominal fee of CNY6-7/mu/year (or land contracting fees may be waived). In this manner, the affected people will be able to maintain or even increase their income from the land. The project will finance the NTFP for these people at the estimated cost of CNY35.92 million (\$4.34 million).

5. The Heilongjiang Provincial Government (HPG) will ensure that any resettlement under the Project is carried out in accordance with relevant PRC laws and regulations, ADB’s *Policy on Involuntary Resettlement* and *Handbook on Resettlement*, and the resettlement framework agreed upon by HPG and ADB (including the provisions on eligibility for compensation, compensation rates, rehabilitation measures, institutional arrangements, resettlement costs, consultation, disclosure and grievance redress, and monitoring and evaluation). For the six NRs with farmland-to-wetland restoration, RPs with village-level resettlement and development plans must be disclosed to APs, and submitted to ADB for approval before the award of civil works contracts or displacement of farmers.

### **C. Eligibility for Compensation**

6. All APs, regardless of their legal status, will be compensated and rehabilitated. Lack of legal documents of their customary rights or occupancy certificates will not bar them from obtaining compensation. The resettlement policy will apply to all components of the Project regardless of whether or not they are directly financed by ADB. Particular attention will be paid to the needs of vulnerable groups among those affected, especially the poor, the elderly, women, and children. Based on the principle of replacement cost, the annual income loss from land will be the annual net output value. The dry land compensation rate is CNY2,500/mu, and the paddy compensation rate is CNY3,500/mu. The compensation rates for houses will be CNY700/m<sup>2</sup>.

### **D. Rehabilitation Measures**

7. After land acquisition, the affected villages or State farms will readjust the farmland within the groups, thus ensuring that the APs obtain adequate farmland to replace lost crop production. Development of alternative livelihood programs will be encouraged as part of the RP

<sup>5</sup> ADB. 2003. *Involuntary Resettlement, Operations Manual (Section F2/OP)*. Manila. Available Lotus Notes database, LNADBG1.

<sup>6</sup> Farmland to Forestry and Grassland Restoration Notice (2000).

to increase the income of villagers through alternative livelihood or investment opportunities. The villages or State farm will utilize part of the land compensation costs to implement a village development plan.<sup>7</sup> The villages and State farms will be encouraged to invest in production activities that enhance or are at least compatible with wetland protection.

8. In Xingkaihu State farm, 43 households need to be relocated from the core zone of the NR. The affected houses belong to the State Farm, so the house compensation will be paid to the farm directly, and the farm will select the new site outside the NR, rebuild the new houses, and then allocate them to all affected families. In addition, a transfer and transportation allowance and cash compensation for loss of other private properties will be provided to each household. Xingkaihu State Farm will be responsible for site preparation, electricity connection, water supply, and road construction.

9. For those who will be affected by farmland conversion to forestland, landownership will not be transferred. The affected workers or villagers will receive wages for tree planting and maintenance and can share in the profits of forestry. Due to the long period for trees to mature, the APs will be permitted to practice intercropping between the seedlings for 3-5 years. Also, the Project will develop at least 860 ha of NTFPs for the APs to ensure incomes will be maintained or increased. In addition, villagers can benefit from the subsidy policy (footnote 6) of the central Government and the provincial governments.

#### **E. Resettlement Cost and Funding**

10. About \$9.16 million (CNY75.8 million) of the \$24.37 million government counterpart fund will be required to pay for resettlement, i.e., compensation, physical resettlement, and village development. HPG will set up an account for the resettlement costs (compensation and village development), which will be managed by the Heilongjiang Province Financial Bureau (HPFB). After the VDP is approved, HPFB will disburse the fund to the affected village committee or State farm through the County Financial Bureau. The funds for land compensation and resettlement have been guaranteed by HPG. The proposed funding sources are the Provincial Wetland Restoration Fund and the central Government fund of the State Farm Bureau.

#### **F. Institutional Arrangement for Resettlement**

11. County-level project implementation units (PIUs) under the Forestry Department will be set up and be responsible for supervising RP preparation and implementation. The county land administration bureaus will assist the county management office to implement the RP, and will be responsible for land inventory and acquisition approvals.

#### **G. Consultation, Disclosure, and Grievance Redress**

12. Consultation with the APs has taken place in the early process of resettlement planning. The draft RPs have been disclosed to the county and township offices and the affected villages. A resettlement information booklet for two draft RPs has been distributed to the affected villagers. Further information will be provided to all APs before implementation. Such consultation and participation will be continued throughout the planning and implementation process. A formal mechanism for grievances will be established, in addition to standard informal procedures.

#### **H. Monitoring and Evaluation**

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<sup>7</sup> Tentatively, 30% will be utilized for livelihood development.

13. Following the requirements of ADB, there will be both internal and external monitoring and evaluation of both the farmland-to-wetland, and the farmland-to-forestland programs. The aim is to ensure that all APs are compensated adequately and timely, and assess whether their incomes and livelihood are restored after resettlement and rehabilitation. Each county PIU will carry out internal monitoring and report to the project management office (PMO) and ADB. For external monitoring and evaluation, the PMO will engage an independent institution such as a university or a social research institute. Monitoring and evaluation will cover the progress of implementation, compliance with resettlement policies, delivery of compensation funds, allocation of replacement land, changes in income and livelihood among APs, consultation, and participation.

#### **I. Procedural Guidance for Resettlement Plan Preparation**

14. For the farmland-to-wetland restoration component, a resettlement framework and two preliminary RPs for Xinkaihu NR and Qixinghe NR have been prepared for ADB approval. The reason for the resettlement framework is the need for a community-based process to formulate alternative livelihood schemes as the basis for resettlement. Further consultation with the APs and with the NR PIUs will be carried out to formulate VDPs. This approach will ensure that viable and sustainable alternative livelihood schemes are developed to offset lost income from farming, especially activities that are compatible with wetland protection. It will take time to set up the PIUs, strengthen the staff of NRs, and prepare VDPs for the affected villages. The six subprojects RPs (two draft RPs and four new RPs) will require further community consultation and participation of villagers, local officials, and NR staff to identify and agree on alternative livelihood schemes. VDPs will specify (i) where the compensation funds will be invested, (ii) what activities will be established under resettlement compensation counterpart, according to the VDP agreed upon, and (iii) how the village collectives and affected farmers will share the benefits from the planned village development activities. The proposed activities should meet environmental and income-generating criteria. The VDPs should be approved by the PMO of HPG and ADB, before the State farm or village committee receives the compensation and before displacement of farmers from the NRs. The Project will provide some technical assistance in formulating VDPs and consultations.

#### **J. Action Plans and Schedule**

15. The project implementation schedule will be refined during the first year of the Project. However, resettlement planning will be carried out once the Project is approved. The full resettlement framework is in Supplementary Appendix H, including preliminary action plans and schedules for farmland-to-wetland restoration.

## INDICATIVE CONTRACT PACKAGES

Item	Estimated Total Cost (\$ million) <sup>a</sup>	Packages (no.)	Mode of Procurement
A. Civil Works			
1. Forest Improvement	19.17	Multiple	FA
2. Wetland Restoration	0.97	Multiple	FA
3. Nontimber Forest Products	2.78	Multiple	FA
B. Equipment, Materials, and Vehicles			
1. Forest Improvement Equipment	1.78	3	LCB
2. Nature Reserve Equipment, Materials, and Vehicles	0.91	3	IS
3. PMO Equipment, Materials and Vehicles	0.66	Multiple	IS/DP
C. Training and Study Tours			
1. Domestic Training	1.49	Multiple	IS/ DS
2. Overseas Training and Study Tours	1.19	Multiple	IS/DS
D. Consulting Services <sup>b</sup>			
1. PMO Management Support	1.83	1	QCBS
2. Consulting Services for Implementation	5.22	1	QCBS

DP = direct purchase, DS = direct selection, FA = force account, LCB = local competitive bidding, IS = international shopping, PMO = project management office, QCBS = quality-and cost-based selection.,  
Source: Asian Development Bank estimates.

<sup>a</sup> Excluding resettlement compensation costs.

<sup>b</sup> International consulting firm in association with domestic firms.

## CONSULTING SERVICES REQUIREMENTS

Component <sup>a</sup> and Experts' Field/Designation	Services (person-months)			Cost (\$'000)		
	Domestic	Int'l.	Total	Domestic	Int'l.	Total
<b>1.0 Watershed Management</b>						
- Stakeholder Working Group	10		10	25		25
- Water Studies in Nature Reserves	6	4	10	15	80	95
- Watershed Hydrologic Studies	3		3	8		8
- Policy Development	5	6	11	13	120	133
- Hydraulic Engineering	7		7	18		18
<b>2.1 Habitat Conservation Management</b>						
- Nature Reserve Management	42	16	58	127	320	447
<b>2.2 Pilot Wetland Restoration</b>						
- Wetland Restoration	48	16	64	145	320	465
<b>2.3 Wildlife Species Recovery</b>						
- Species Recovery	42	16	58	127	320	447
<b>2.4 Reduction of Overuse</b>						
- Resource Productivity	24		24	58		58
- Evaluation and Planning	18		18	44		44
- Monitor and Modify Plan	18		18	44		44
- Produce Guidelines	18		18	44		44
<b>3.2 Village Development Plan</b>						
- Village Development Consultant	11	11	22	33	275	308
<b>3.3 Pilot Ecotourism Development</b>						
- Ecotourism	12	8	20	36	160	196
<b>4.1 Outreach to School System</b>						
- Training in Public Awareness	10	4	14	30	80	110
<b>4.2 Increase Public Awareness</b>						
- Public Participation Specialist	5	2	7	15	40	55
- Media External Relation Specialist	5	2	7	15	40	55
<b>4.3 Wetlands Management Training</b>						
- Wetlands Management Specialist	12	12	24	43	178	220
<b>5.0 Project Management Office</b>						
- Wetlands Expert Advisor		15	15		300	300
- Monitoring and Evaluation Specialist <sup>b</sup>	28		28	84		84
- Monitoring and Evaluation Coordinator	60		60	120		120
- Monitoring Field Teams	120		120	60		60
- Financial Management Specialist	12		12	24		24
- Resettlement Specialists	12		12	18		18
<b>Total</b>	<b>528</b>	<b>112</b>	<b>640</b>	<b>1,143</b>	<b>2,233</b>	<b>3,376</b>

<sup>a</sup> Components are in boldface.

<sup>b</sup> specialist will spend approximately 50% of his/her time on environmental compliance and benefit monitoring, which is covered by an environment management plan budget, and is essentially a full-time position.

Source: Asian Development Bank estimate.



## CAPACITY BUILDING PROGRAM

Capacity Building Course	Course Duration (days)	2005		2006		2007		2008		2009		Total	
		C	T	C	T	C	T	C	T	C	T	C	T
<b>A. Short Course National (Activity 4-3-2)</b>													
1. Habitat and vegetation mapping (using GPS, GIS)	10	1	10	1	10	1	10	1	10	1	10	5	50
2. Biodiversity survey, monitoring, and data management (GPS, GIS)	10	1	10	1	10	1	10	1	10	1	10	5	50
3. Conservation law, enforcement, and patrolling	10	1	10	1	10	1	10	1	10	1	10	5	50
4. Wetland restoration	10	1	10	1	10	1	10	1	10	1	10	5	50
5. Protected area management	10	1	10	1	10	1	10	1	10	1	10	5	50
6. Methods in education, public awareness, and outreach	10	1	10	1	10	1	10	1	10	1	10	5	50
<b>B. Long Course International (Activity 4-3-3)</b>													
1. Wetland science	45	1	1	1	1	1	1	1	1	1	1	5	5
2. Wildlife management and species recovery using GIS	45	1	1	1	1	1	1	1	1	1	1	5	5
3. Watershed management and GIS	45	1	3	1	3	1	3	1	3	1	3	5	15
4. Community relations and participation	45	1	3	1	3	1	3	1	3	1	3	5	15
5. Nature reserve management and conservation law and regulation	45	1	1	1	1	1	1	1	1	1	1	5	5
6. Tourism in protected areas	45	1	3	1	3	1	3	1	3	1	3	5	15
<b>C. Language for International Training</b>													
1. English language	45	6	12	6	12	6	12	6	12	6	12	30	60
<b>D. Long Course National/University (Activity 4-3-4)</b>													
1. Wetland science	45	1	2	1	2	1	2	1	2	1	2	5	10
2. Wildlife management & species recovery using GIS	45	1	2	1	2	1	2	1	2	1	2	5	10
3. Watershed management and GIS	45	1	4	1	4	1	4	1	4	1	4	5	20
4. Community relations and participation	45	1	4	1	4	1	4	1	4	1	4	5	20
5. Nature reserve management and conservation law and regulation	45	1	2	1	2	1	2	1	2	1	2	5	10
6. Tourism in protected areas	45	1	4	1	4	1	4	1	4	1	4	5	20
<b>E. Exchanges and Study Tour (Activity 2 and 4)</b>													
1. National	14	2	12	2	12	2	12	2	12	2	12	10	60
2. International	14	2	12	2	12	2	12	2	12	2	12	10	60
<b>F. Conference, Workshops and Seminar</b>													
1. National	Various	3	6	3	6	3	6	3	6	3	6	15	30
2. International	Various	3	6	3	6	3	6	3	6	3	6	15	30
<b>G. Unallocated</b>	90	1	3	1	3	1	3	1	3	1	3	5	15
<b>Total</b>		<b>35</b>	<b>141</b>	<b>30</b>	<b>142</b>	<b>30</b>	<b>141</b>	<b>30</b>	<b>141</b>	<b>30</b>	<b>139</b>	<b>155</b>	<b>704</b>

C = courses; GIS = geographic information system, GPS = global positioning system; T = Trainees  
Source: Asian Development Bank estimates.

## FINANCIAL AND ECONOMIC ANALYSES

### A. Introduction

1. This is an evaluation of the financial and economic benefits and costs of the Sanjiang Plain Wetland Protection Project. The Project has five components: (i) watershed management, (ii) wetland nature reserve management, (iii) alternative livelihood, (iv) education and capacity building, and (v) project implementation. Wetland nature reserve management is largely associated with global environmental benefits, while subcomponents of watershed management (forest improvement) and alternative livelihood (nontimber forest product [NTFP] intercropping) components will generate financial and economic analyses are based mainly on the benefits and costs associated only with national benefits. The financial cash flows and economic value flows were estimated on an incremental basis.

2. The proposal is to use 55,600 hectares (ha) of land for forestry improvement—11,900 ha for new plantations and 43,700 ha for treatment of existing stands—and 2,380 ha for NTFPs. About 25% of forestry improvement will involve poplar, and the rest, larch. The plantations will cost CNY55 million; treatment, CNY129 million; and NTFPs, CNY35 million. The Project will have a total cost of CNY420 million, excluding contingencies, and a construction period of 5 years (from mid-2005 to mid-2010). The Project will use funds from ADB, Global Environment Facility (GEF), and the Government of the People's Republic of China (PRC), as well as labor inputs from State forest farm workers. These sources can be categorized into three: debt (ADB loan), equity (GEF and labor input), and government funds. GEF and labor input are treated as equity because they are assumed to have the same required rate of return. The weighted average cost of capital (WACC)—the weighted sum of estimates of the cost of debt, cost of government funds, and cost of equity—is 6.11%.

### B. Least Cost Analysis of Alternatives

3. The Project provides a major opportunity to examine the possibility of reducing tree planting density, thereby improving the economic efficiency of forest plantations over current practices. Both provincial and county reports were reviewed very thoroughly, and numerous discussions were held with technical staff of the Heilongjiang Provincial Forestry Department. Forest plantation practices in Heilongjiang Province are based on traditional standards, which in this particular case involve narrow spacing with one thinning for larch and no thinning for poplar. Two options with varied spacings and tending costs were compared, and the spacing distance of 2 meters (m) x 2.5m for larch (2,000 stems/ha) and poplar (1,250 stems/ha) was selected to allow wider spacing between trees—and therefore lower plantation and tending costs—with one thinning for both larch (at age 12) and poplar (at age 6). The financial and economic analyses are based on this option, as it lowered plantation and tending costs and added the opportunity for NTFPs.

### C. Financial Analysis

4. **Focusing on Revenue-generating Activities.** The activities include (i) establishing new forest plantations of native species of larch and poplar, (ii) treating of existing forest plantations of the same species, and (iii) producing NTFPs. The assumptions in computing the financial internal rate of returns (FIRRs) and net present values (NPVs) and the results of the financial analysis are as follows. The incremental cash flow for the financial analysis includes sales revenue from commercial forestry and NTFP development. Final harvest volume projections per hectare are based on a 20-year rotation (with one thinning at age 12) for larch, and a 10-year

rotation (with one thinning at age 6) for poplar. The Faustmann model<sup>1</sup> was used to estimate optimal rotation years for poplar and larch, using the WACC as a discount rate for maximum NPV with a single rotation during the Project. Net thinning volumes removed are 9 cubic meters (m<sup>3</sup>)/ha for larch and 22 m<sup>3</sup>/ha for poplar, while final harvest net volume removals are 115 m<sup>3</sup>/ha for larch and 99 m<sup>3</sup>/ha for poplar. These volume parameters were applied to both new and existing plantations. New forest plantations and stand treatment operations will take place in all 13 project counties. It is assumed that most of the total net volume of larch and poplar will be old to pulp mills, while some will be sold as mine pit props and as raw material for other wood products. County reports and additional surveys indicate larch prices of CNY400/m<sup>3</sup> at final harvest and CNY300/m<sup>3</sup> at thinning, and poplar prices of CNY380/m<sup>3</sup> at final harvest and CNY350/m<sup>3</sup> at thinning.

**5. Estimated Costs and Expenditures for Plantations.** Per hectare, cost structures for new forest plantations add up to CNY5,200 for larch and CNY4,600 for poplar, and treatment costs for existing plantations total CNY3,500/ha for both larch and poplar. These cost structures include overhead costs based on general and administrative expenses directly connected to the plantation operations under the proposed project. Additionally, the cost of goods sold includes logging and transportation costs. Logging cost is assumed at CNY170/m<sup>3</sup> for larch thinning, and CNY140/m<sup>3</sup> for felling; and CNY140/m<sup>3</sup> for poplar thinning and CNY 110/m<sup>3</sup> for poplar felling. Transportation cost is assumed at CNY12.5/m<sup>3</sup> for both species. Additional financial charges include a plantation fund surcharge and a sales tax. The plantation fund surcharge is estimated at 10% of sales revenue, which is the current effective in the PRC. Sales taxes for timber raw material and surcharges are estimated at 5% of sales revenue. Price contingencies and interest during the construction period are excluded from the financial analysis. In treatment of existing plantations, it is assumed, on the basis of the with and without principle, that untreated plantations would have 30% of the harvest value of a healthy plantation on account of much deadwood, small diameters, trees with poor form, and damage from insects and diseases.

**6. Financial Assumptions for NTFPs.** In addition to timber products, three NTFPs (berry fruit, wild grape, and potherbs) will be planted in the commercial forestry plantations. While forestry operations will take place in all 13 project counties, only those counties with new plantations will participate in NTFP production. These are Boli for berry fruit; Huanan for wild grape; and Baoqing, Hulin, Linkou, and Luobei for potherbs. The NTFP yields are projected very conservatively in light of spotty information obtained in the field. A price of CNY2/kg for all three products was assumed. The cost of harvesting has been projected at CNY1/kg and transportation cost at CNY42/metric ton, assuming an average distance to markets of 50 kilometers. NTFP sales are subject to a 7% sales tax on agricultural products. The project life is released at the end of the Project for commercial forestry and NTFP development. The WACC was calculated as 6.11%, which is used for calculating the financial NPV of the Project.

**7. Results of Financial Analysis.** The overall FIRR of the Project is 14.93%. Detailed calculations are shown in Supplementary Appendix P. The NPV evaluated at the WACC is CNY124 million, which is greater than zero. Since the FIRR is higher than the WACC and the NPV is positive, the proposed Project is financially viable under the above assumptions. The FIRR and NPV by activity and by county were also calculated and the results are shown in Table A12.1. An important conclusion from the calculations is that all types of activities included are financially viable, and so are the operations programmed for each county. Treating existing plantations has a higher FIRR than establishing new ones. The main reasons are that existing plantations have the advantage of a sunk cost from their original planting, treatment costs are

<sup>1</sup> The Faustmann analysis shows that larch can reach maximum NPF at 20 years as the optimal rotation year. For poplar, the optimal rotation year is chosen at 20 years from the analysis, since there are not enough historical data to show the maximum output level.

lower than plantation costs, volume outputs from treatment are assumed to be the same as those from new plantations, and benefits are reaped more quickly from treated plantations than from new ones. Additionally, the FIRR for treating poplar is higher than that for treating larch, mainly because the waiting period with poplar is shorter. This is so even after considering an opportunity cost of 30% of harvest value if the stand were left untreated. Among the counties, Hegang, Jidong, Linkou, and Qitahe show FIRRs slightly in excess of 10%, while Raohe has the highest FIRR, at more than 29%. The first four counties are heavy in larch and new plantations and treatment, while Raohe has major areas of poplar treatment. The three NTFPs are also shown to be profitable, with FIRRs from 12.2% to 22.78%, based on the current market data analysis.

8. FIRRs and financial NPV sensitivities were tested at plus and minus 10% for the following variables: (i) wood prices, (ii) wood final harvest volumes, (iii) investment costs, and (iv) all costs. The sensitivity analysis for the major components shows that the 10% changes, when unfavorable, do not reduce the FIRRs below the WACC, neither in the aggregate nor in any particular county. While the Project is most sensitive to wood prices, it remains quite robust at a 10% change in any of these variables. The sensitivity analysis is summarized in Table A12.2. Switching-value analysis was conducted for wood prices, which turned out to be the most sensitive variable in the sensitivity analysis. Even with a drop of 12% in wood prices, the counties with the lowest FIRR could still have a viable operation.

#### **D. Economic Analysis**

9. The GEF-supported activities emphasize global environmental values such as protection of globally endangered species. Various components of the Project are expected to generate either global environmental benefits, national environmental benefits, or both. However, the economic evaluation of the Project is conducted from the perspective of national benefits to assess its investment rationale.

10. **Economic Benefits Related to Forestry and NTFP Investments.** The major economic benefits from forestry plantation are the cash inflow from timber production, expressed in economic prices, as well as plantations, new seedlings, and maturing trees providing improved soil cover. Other related benefits include watershed improvement, flood control, protection from soil erosion, and potential production of other NTFPs. Flood control benefits may often be estimated on the basis of flood damage avoided or minimized, especially in public and private infrastructure and in industrial and agricultural outputs. In the proposed Project, flood control benefits can take the form of reduction in losses of agricultural output. The proposed plantations will also help the PRC reduce greenhouse gas emissions while protecting watershed and wetland biodiversity.<sup>2</sup> However, these other benefits are not easily quantified and for this reason were not included in the economic analysis. Economic benefits derived from NTFPs were converted from financial benefits, but valued at prices before tax.

11. **Economic Benefits Related to GEF-Supported Investments.** The four other components are designed to improve global environmental values through various interventions, including those that will produce marketable products as well as secondary benefits. Rehydrating the wetlands will recharge the groundwater, moderate stream flows (thus mitigating floods and drought), reverse changes in the microclimate, and protect the water supply, among other benefits. Recreational activities can include nature observation, bird watching, and camping. But biodiversity and critical habitat benefits, although they could be substantial, are

<sup>2</sup> Like other trees, larch and poplar sequester carbon dioxide from the atmosphere during their natural growth. It has been estimated that forests can sequester more than 0.5 million tons of carbon over their rotation periods. However, the value of sequestered carbon is highly variable since the market for this commodity has not been established, and is therefore not used in this analysis.

not easily valued, especially since they are based on non-use values. Hence, only economic benefits related to plantation, treatment, and NTFPs are included in the economic analyses.

12. **Economic Costs and Other Technical Parameters.** Basic costs and prices are the same as those used in the financial analysis. However, all financial values were adjusted to reflect economic values. A shadow exchange rate factor of 1.01 was applied to all costs and benefits other than labor. For labor, a shadow wage rate of 0.8 was applied. Taxes (5% sales tax on timber, 10% plantation fund surcharge on total timber revenue, and 7% sales tax on NTFPs) were excluded from the economic calculations. In the case of economic NPVs, a discount rate of 12% was applied. Incremental economic costs of the Project include expenditures expressed in economic values for forestry plantations, but not for the GEF-supported investment costs and subsequent cash outflows. The analysis was conducted for a project life of 25 years, including the construction period, which is conservative for the types of environmental benefits. Costs and benefits are expressed in yuan, in constant 2004 prices.

13. **Opportunity Cost of Land Converted to Forest Plantation.** Two types of land are acquired to prepare sites for plantations. One is barren land owned by the State forest farms, with an opportunity cost of zero. The second type is land in State forest farm territory but currently being cultivated for crop production, mainly to provide partial welfare as off-season work to employees, or to retired former employees of the State forest farms. Nevertheless, current regulations severely restrict crop production on forestlands. These lands, if cultivated, must revert to forests. The opportunity cost of these lands reverting to forests is lost crop production. In the Sanjiang Plain the marginal loss of crop production has been estimated at CNY938/ha, or RMB63/mu. NTFP production was designed to offset this lost crop revenue for those who previously cultivated the land. Table A12.3, which compares the NPVs of plantation, NTFP production, and crop production (per year on average), shows that NTFP is sufficient to offset lost crop revenue and that plantation forests have positive NPV.

**Table A12.3: NPV Per Hectare for Various Land Use Options (yuan; 12% discount rate)**

Land Use Options	NPV/ha
Barren land	0
Plantation	2,078
NTFP	8,939
Total Forestry (Plantation + NTFP)	11,017
Crop Production	7,406

NPV = net present value, NTFP = nontimber forest product.

Source: Asian Development Bank estimate

14. **EIRR and ENPV Calculations.** The economic internal rate of return (EIRR) for the Project as a whole is 24.8%, which is higher than the economic opportunity cost of capital (12%). The economic net present value (ENPV) at 12% discount rate is CNY93.03 million, which is positive. Therefore, the Project is viable from the economic point of view. The EIRR and ENPV for different activities and for all the counties are summarized in Table A12.1.

15. **Sensitivity Analysis for EIRR and ENPV.** Sensitivity analyses conducted in the economic analysis of the same variables as in the financial analysis show that the Project is not only financially but also economically robust. All the counties continue to have economically viable operations despite unfavorable changes of up to 10% in the variables considered. (Table A12.2). Additionally, switching-value analysis indicates that, to reduce the EIRR to below 12% for the lowest-performing counties (Hegang, Jidong, Linkou, and Qitahe), wood prices would have to drop by more than 15%.

16. **Labor and Impact on Poverty.** In addition to the cited economic benefits, the Project also provides farmers with employment opportunities in tree planting, stand treatment, logging, and wood transport. Once the plantations are mature, there will be further employment opportunities in harvesting, conversion, and use of forest products, especially wood. Assuming 55,600 ha of forestry operations (both new plantations and treated plantations remain under tree cover and labor-intensive methods are used for forestry operations), about 10,000 full-time jobs can be created in planting, treatment, logging, and transport to woodyards (7 months for about 36,000 forestry workers on larch plantations, and 6 months for about 10,000 forestry workers on poplar plantations).

**Table A12.1: Summary of FIRR and EIRR by Investment Type and by County**

Item	FIRR (%)	Financial NPV (CNY)	EIRR (%)	Economic NPV (CNY million)
Plantation				
Larch	8.81	1,976	12.62	256
Poplar	22.16	7,907	29.74	6,451
Treatment				
Larch	10.79	1,519	17.50	1,126
Poplar	44.98	6,008	74.17	6,820
NTFP				
Berry Fruit	22.78	16,689	35.33	18,630
Wild Grape	13.43	6,121	24.39	8,273
Portherb	12.20	1,845	25.38	3,185
Total	14.93		24.77	
<b>County</b>				
Baoqing	21.95	14.32	36.60	11.83
Boli	15.46	14.88	25.82	12.31
Fuyan	25.16	6.61	38.87	5.44
Hegang	10.21	8.2	16.15	4.40
Huanan	15.72	14.42	27.14	12.81
Hulin	21.07	14.94	33.06	12.08
Jidong	10.22	4.89	16.18	2.64
Jixian	15.53	9.27	24.79	6.44
Linkou	10.15	6.59	16.02	3.45
Luobei	11.00	7.03	17.24	4.02
Mishan	19.13	13.74	33.31	10.63
Qitaihe	10.11	3.45	15.92	1.78
Raohe	29.37	5.99	51.39	5.20
Total	14.93	124.33	24.77	93.03

EIRR = economic internal rate of return, FIRR = financial internal rate of return, NPV = net present value, NTFP = nontimber forest product.

Source: Asian Development Bank estimates.

**Table A12.2 Summary of the Results of Sensitivity Analysis**

	Financial Analysis		Economic Analysis	
	FIRR (%)	FNPV (CNY million)	EIRR (%)	ENPV (CNY million)
Wood Price -10%	11.34	65.72	21.66	64.80
Wood Harvest Volume -10%	13.76	103.01	23.69	81.42
Investment Cost +10%	14.02	117.11	23.61	89.11
Total Costs +10%	11.07	70.26	21.16	69.10

EIRR = economic internal rate of return, ENPV = economic net present value, FIRR = financial economic internal rate of return, FNPV = financial net present value.

Source: Asian Development Bank estimates.

**SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY**

**A. Linkages to the Country Poverty Analysis**

<p><b>Is the sector identified as a national priority in country poverty analysis?</b></p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p><b>Is the sector identified as a national priority in country poverty partnership agreement?</b></p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p><b>Contribution of the sector or subsector to reduce poverty in the People's Republic of China (PRC):</b> Through plantation, treatment of existing plantations, development of nontimber forest products, many employment opportunities and diversified and more sustainable livelihood opportunities will be available to poor forest workers and farmers, as well as minority groups and women. The development of alternative livelihood schemes will also help the poor shift to sustainable use of natural resources while generating income, thus reducing the poor households' wanton cultivation of environmentally fragile areas of the Sanjiang Plain. In the medium to long -term, they can also benefit from the high returns from forest plantations when these reach maturity. With farmland conversion to wetland and the establishment and rejuvenation of natural reserves, the local vulnerable environment will be improved, which in turn will reduce the occurrence of natural disasters such as flooding, and will improve the yield performance of poor households that are producing nontimber products. The proposed Project's good practices in the development of sustainable livelihood options, plantation of forest products, treatment of existing plantations, and sustainable development of nature reserves can serve as models that may be replicated in the PRC's other environmentally fragile areas with a poor population base.</p>	

**B. Poverty Analysis**

**Targeting Classification: General Information**

**What type of poverty analysis is needed?**

The national-level official rural poverty lines for Heilongjiang Province are RMB1,300 per capita net annual income for the poverty villages and RMB1,000 RMB per capita net annual income for the poverty households (which is comparable to the ADB's poverty threshold for the country). Of the 13 cities and counties of the Project in the Sanjiang Plain, there are three nationally designated poverty counties (Raohe, Huanan, and Fuyuan). The rural poverty population in these counties is 388,692 persons, accounting for 15% of the total poverty population of the province. Poverty incidence is 9.7% in Heilongjiang and 9.19% in the directly affected project area. Therefore, there is no severe poverty issue in the directly affected project areas , and this Project is classified as "general intervention."

Compared with the average household in the province, poor households in the poverty villages of the project area obtain their income from farming and have less income from livestock and migrant labor. Many of the poor farmers in the project area live in and around the nature reserve (NR). They depend primarily on earnings from the cultivation of land from the nature reserve that have been converted to farmland or from work in the state forestry/agricultural farms that are located in or adjacent to the NRs. Some of these farmers (referred to as permanent residents) have obtained long-term user rights of arable land that have been allocated to them by the village committees. Other farmers (or contract farmers) who are not recognized by the local governments as local residents of the area obtained short-term contracts to farmland plots owned by state forest and agricultural farms. Aside from these poor farm households, about 10% of the total households in the state forest and agriculture farms can be considered poor. The income sources of these poor households are 60% from farming, 10% from collecting agarics, mushrooms, and wild vegetables gathered from the NR area, 10% from forest/agriculture farm salaries, and 20% from other sources such as animal husbandry and fruit trees. Because of the various national and provincial policies to protect forestry and wetland resources, incomes of forest workers have declined through the years as their tasks have been limited largely to tending the trees and to tree planting. Underemployment is high, with a typical farm worker providing about 34 months of work in a year and earning RMB2,500 for that work.

Though poverty is not extensive, a key cause of income poverty is the limited livelihood opportunities both on-farm and off-farm. Where there is work in the state forest/agriculture farms, these are more and more being constrained by public policies that protect and conserve the already fragile and limited forestry and wetland areas of the Sanjiang Plain. With limited skills for other income-earning activities and constraints to credit access, poor farm households and workers tend to be averse to changing their farming work, which at present provides them secure and stable income, despite the more frequent occurrence of natural disasters (like drought, waterlogging, flood, early forest, and soil erosion) that adversely impact their farm income.

The other disadvantaged groups in the project area include women and minority groups. Not only do women perform household chores; they are also engaged in productive activities. Women contribute 50%, 70%, and 60% of forest,

agarics, and crop production. In crop (mainly rice, corn, and soybeans) production, women take about 60% of the workload in preparing the land planting, weeding, applying fertilizer, and harvesting. In logging operations, women are responsible for cutting limbs, preparing fuelwood, and tending trees. About two thirds of those employed in the paper processing and other agroprocessing facilities are women. Because of their huge contribution to farming and forestry-related activities, women often make decisions in their respective households over the sale of most of the products. However, within the villages and the state forestry/agriculture farm levels, women's participation in the planning and decision-making process is still limited; they are constrained to borrow funds; and they have limited access to skills-enhancing activities.

Raohe is the main county with a small group of ethnic minority. Currently, there is no project component in the vicinity of Hezhe minority villages in Raohe. Koreans in the villages of Yongfeng and Dongsheng in Raohe might be affected by conversion of 300 ha of farmland to wetlands in the Dajiahe NR if the selected areas are confirmed. Loss of land and related income from paddy farming will affect 37 households. The adverse impacts on the two Korean villages can be compensated under the resettlement plans and mitigated under the village development plans to develop alternative livelihoods schemes.

**C. Participation Process**

**Is there a stakeholder analysis?**  Yes  No  
**Stakeholder analysis:** A stakeholder analysis was conducted during the project preparatory TA (technical assistance) and roles of each stakeholder were well-defined. The stakeholders at each level were consulted during the TA: government ministries/agencies at the national to local levels, local governments from provincial down to village levels, state-owned and local forest/agriculture farm leaders, workers, women, rural community leaders, the poor farmer households, minorities, and nongovernment organizations. Their expectations and needs were identified, the potential project impacts on them were identified, and the resettlement plans, gender development plans, minority development plans, and public participation plans were developed in consultation with the stakeholders.

**Is there a participation strategy?**  Yes  No  
**Participation strategy:** To strengthen the project design and enhance the sustainability of the Project, a community-based approach to project planning, implementation, monitoring and evaluation will be emphasized during all phases of implementation. To enhance the sense of ownership, three community-level project working groups will be set up: project planning working group, project implementation group, and project monitoring group. The groups will play different roles throughout the Project. Each group will include community leaders, women, and the poor. The social assessment and public participation plan is in Supplementary Appendix G.

**D. Gender Development**

**Strategy to maximize impacts on women:**  
**Gender Analysis:** Division of labor by gender is evident in the project area—men are more inclined to conduct outside activities, operate as migrant labor, and conduct heavy physical activities, while women are more responsible and tend to carry out farming and household chores. Women have lower education levels than men and have less representation in community affairs. Other features of women is participation and involvement in economic activities have been detailed above.  
**Gender and development plan:** Project will not have significant negative impacts on women, but equal representations of both gender in development planning and implementation have been strengthened in the project design, given the fact that local project staff have low gender sensitivities and lack the knowledge and skills for gender analysis and incorporation. The gender development action will facilitate and encourage women's involvement throughout project implementation, ensure tangible benefits for both female and male community members, and address the gender impact on the proposed activities in the project areas.

**Has an output been prepared?**  Yes  No

**E. Social Safeguards and Other Social Risks**

Item	Significant/ Not Significant/ None	Strategy to Address Issues	Plan Required
Resettlement	<input checked="" type="checkbox"/> Significant <input type="checkbox"/> Not significant <input type="checkbox"/> None	Resettlement plan (RP) will be prepared in line with ADB policy.	<input type="checkbox"/> Full <input type="checkbox"/> Short <input type="checkbox"/> None



<b>Affordability</b>	<input type="checkbox"/> Significant <input type="checkbox"/> Not significant <input checked="" type="checkbox"/> None	This Project does not provide services in nature. The affected people do not need to buy services that are generated from this Project and will not be affected by affordability of other services.	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Labor</b>	<input type="checkbox"/> Significant <input type="checkbox"/> Not significant <input checked="" type="checkbox"/> None	Surplus laborers (working time) are common in the project area. Alternative livelihood projects have been designed in the Project.	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Indigenous Peoples</b>	<input type="checkbox"/> Significant <input type="checkbox"/> Not significant <input checked="" type="checkbox"/> None	The minorities are primarily located in Raohe county, but are not directly affected by the Project. Some farmland, which may have to be converted to wetland in individual cases, will be given special consideration in employment opportunities in new forest plantations, and treatment of existing plantations and alternative livelihood. They can also own the trees to be planted in their contracted land. The local government will fully compensate them for their land converted to wetland according to the resettlement framework.	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Other Risks and/or Vulnerabilities</b>	<input type="checkbox"/> Significant <input type="checkbox"/> Not significant <input checked="" type="checkbox"/> None		<input type="checkbox"/> Yes <input type="checkbox"/> No

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LOAN NUMBER \_\_\_\_\_ - \_\_\_\_\_

LOAN AGREEMENT  
(Ordinary Operations)  
(Sanjiang Plain Wetlands Protection Project)

between

PEOPLE'S REPUBLIC OF CHINA

and

ASIAN DEVELOPMENT BANK

DATED \_\_\_\_\_

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LAL:PRC 35289

**LOAN AGREEMENT  
(Ordinary Operations)**

LOAN AGREEMENT dated \_\_\_\_\_ between PEOPLE'S REPUBLIC OF CHINA (hereinafter called the Borrower) and ASIAN DEVELOPMENT BANK (hereinafter called ADB).

WHEREAS

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

(B) the Global Environmental Facility (hereinafter called GEF) has approved a grant (hereinafter called the GEF Grant) to the Borrower of twelve million one hundred forty thousand dollars (\$12,140,000), to be administered by ADB, to finance the remaining portion of the Project;

(C) the Project will be carried out by the Heilongjiang Provincial Government (hereinafter called HPG), and for this purpose the Borrower will make available to HPG the proceeds of the Loan and the GEF Grant provided for herein upon terms and conditions satisfactory to ADB; and

(D) ADB has agreed to make a loan to the Borrower from ADB's ordinary capital resources and to administer the GEF Grant upon the terms and conditions set forth herein and in the Project Agreement of even date herewith between ADB and HPG;

NOW THEREFORE the parties hereto agree as follows:

**ARTICLE I**

**Loan Regulations; Definitions**

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

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

(a) "EMP" means the Environmental Management Plan for the Project;

(b) "GEF Grant Account" means the account opened or to be opened by ADB on its books in the name of the Borrower to which the amount of the GEF Grant has been or will be credited;

(c) "HPEPB" means the Heilongjiang Provincial Environmental Protection Bureau;

(d) "HPFB" means the Heilongjiang Provincial Financial Bureau;

(e) "HPFD" means the Heilongjiang Provincial Forestry Department;

(f) "HPTB" means the Heilongjiang Provincial Tourism Bureau;

(g) "HPWRD" means the Heilongjiang Provincial Water Resources Department;

(h) "IEE" means the Initial Environmental Examination agreed between HPG and ADB in October 2004;

(i) "NREMP" means an environmental management plan for a nature reserve under the Project;

(j) "NTFP" means non-timber forest products;

(k) "PMO" means the Project Management Office described in paragraph 2 of Schedule 6 to this Loan Agreement;

(l) "Project Executing Agency" for the purposes of, and within the meaning of, the Loan Regulations means HPG, which is responsible for the carrying out of the Project; and

(m) "Project facilities" means the equipment and other items to be provided under the Project.

## **ARTICLE II**

### **The Loan**

Section 2.01. (a) ADB agrees to lend to the Borrower from ADB's ordinary capital resources an amount of fifteen million dollars (\$15,000,000), as such amount may be converted from time to time through a Currency Conversion in accordance with the provisions of Section 2.06 of this Loan Agreement.

(b) The Loan has a term of 25 years, including a grace period of 5 years, as provided in Schedule 2 to this Loan Agreement.

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

Period equal to the sum of LIBOR and 0.60% as provided by Section 3.02 of the Loan Regulations.

Section 2.03. (a) The Borrower shall pay a commitment charge at the rate of three-fourths of one percent (0.75%) per annum. Such charge shall accrue on amounts of the Loan (less amounts withdrawn from time to time), during successive periods commencing sixty (60) days after the date of this Loan Agreement, as follows:

during the first twelve-month period, on \$2,250,000;  
 during the second twelve-month period, on \$6,750,000;  
 during the third twelve-month period, on \$12,750,000; and  
 thereafter, on the full amount of the Loan.

(b) If any amount of the Loan is cancelled, the amount of each portion of the Loan stated in paragraph (a) of this Section shall be reduced in the same proportion as the cancellation bears to the full amount of the Loan before such cancellation.

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

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

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

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

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

### **ARTICLE III**

#### **Use of Proceeds of the Loan and the GEF Grant**

Section 3.01. (a) The Borrower shall provide the proceeds of the Loan and the GEF Grant to HPG upon terms and conditions satisfactory to ADB.

(b) The Borrower shall cause HPG to apply the proceeds of the Loan and the GEF Grant to the financing of expenditures on the Project in accordance with the provisions of this Loan Agreement and the Project Agreement.

Section 3.02. The goods and services and other items of expenditure to be financed out of the proceeds of the Loan and the GEF Grant and the allocation of amounts of the Loan and the GEF Grant among different categories of such goods and services and other items of expenditure shall be in accordance with the provisions of Schedule 3 to this Loan Agreement, as such Schedule may be amended from time to time by agreement between the Borrower and ADB.

Section 3.03. Except as ADB may otherwise agree, 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 4 and Schedule 5 to this Loan Agreement. ADB may refuse to finance a contract where goods or services have not been procured under procedures substantially in accordance with those agreed between the Borrower and ADB or where the terms and conditions of the contract are not satisfactory to ADB.

Section 3.04. Except as ADB may otherwise agree, the Borrower shall cause all goods and services financed out of the proceeds of the Loan and the GEF Grant to be used exclusively in the carrying out of the Project.

Section 3.05. The closing date for withdrawals from the Loan Account and the GEF Grant Account for the purposes of Section 9.02 of the Loan Regulations shall be 31 December 2010, or such other date as may from time to time be agreed between the Borrower and ADB.

### **ARTICLE IV**

#### **Particular Covenants**

Section 4.01. (a) The Borrower shall cause HPG to carry out the Project with due diligence and efficiency and in conformity with sound administrative, financial, engineering, and environmental practices.

(b) In the carrying out of the Project and operation of the Project facilities, the Borrower shall perform, or cause to be performed, all obligations set forth in Schedule 6 to this Loan Agreement.

Section 4.02. 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.

Section 4.03. The Borrower shall ensure that the activities of its departments and agencies with respect to the carrying out of the Project and operation of the Project facilities are conducted and coordinated in accordance with sound administrative policies and procedures.

Section 4.04. The Borrower shall 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.

## **ARTICLE V**

### **Effectiveness**

Section 5.01. The following is specified as an additional condition to the effectiveness of this Loan Agreement for the purposes of Section 10.01(f) of the Loan Regulations: Receipt by ADB of confirmation of the GEF Grant through the endorsement by the Chief Executive Officer of the GEF Secretariat.

Section 5.02. A date ninety (90) days after the date of this Loan Agreement is specified for the effectiveness of the Loan Agreement for the purposes of Section 10.04 of the Loan Regulations.

## **ARTICLE VI**

### **Miscellaneous**

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

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

#### For the Borrower

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

Telex Number:

22486 MFPR CCN

Facsimile Number:

(86-10) 6855 1125

For ADB

Asian Development Bank  
P.O. Box 789  
0980 Manila, Philippines

Cable Address:

ASIANBANK  
MANILA

Telex Numbers:

29066 ADB PH (RCA)  
42205 ADB PM (ITT)  
63587 ADB PN (ETPI)

Facsimile Numbers:

(632) 636-2444  
(632) 636-2301.



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

PEOPLE'S REPUBLIC OF CHINA

By \_\_\_\_\_  
Authorized Representative

ASIAN DEVELOPMENT BANK

By \_\_\_\_\_

## SCHEDULE 1

### Description of the Project

#### A. Project Objectives

1. The overall goal of the Project is the sustainable management of natural resources to protect globally significant biodiversity and to promote economic development. The immediate objective of the Project is the protection of the natural resources of the Sanjiang Plain wetlands and their watersheds (biodiversity, water, forests) from continued threats, and the promotion of their sustainable use through the integrated conservation and development of selected wetlands and forest areas of the Sanjiang Plain and the improved well-being of local communities.

#### B. Components and Activities

2. The Project has the following four components:

##### Component 1: Watershed Management

(i) Forest Improvement in Watersheds to improve forest management, reduce surface runoff, and increase soil water retention and groundwater recharging;

(ii) Local (Nature Reserve) Water Resource Management to restore natural water balance within wetland NRs; and

(iii) Water Resource Planning in Watersheds to enhance watershed-level water resource management.

Activities under Component 1 will include planting about 11,900 ha of indigenous poplar and larch in plantations on denuded slopes or farmlands, and improving an additional 43,700 ha of existing plantations; establishing interagency working groups among stakeholders at the local level for water resource management in targeted NRs; and developing model watershed-level water allocation plans in and around watersheds incorporating flood control impact and wetland protection aspects, and institutionalizing this process.

##### Component 2: Wetland Nature Reserve Management

(i) Conservation Management, for the development of monitoring and management plans and methodologies;

(ii) Pilot Wetland Restoration, to provide models of well-designed and well-monitored wetland restoration in the six Project NRs;

(iii) Wildlife Species Recovery, to promote repopulation of NR wetlands by globally threatened wildlife species, especially high-profile migratory waterfowl (cranes, storks, and swan geese); and

(iv) Reduction of Resource Exploitation.

Activities under Component 2 include the establishment of reliable information baselines and a GIS; management planning; pilot restoration of about 3,433 ha of wetlands, including testing of a range of restoration techniques (i.e., natural recovery, supported recovery, and engineered recovery) as appropriate at different habitats/sites; capacity building for farmland-to-wetland restoration procedures; development of restoration guidelines; production of a manual on farmland-to-wetland restoration; and development and implementation of species recovery programs. The model wetland restoration approach will be linked to alternative livelihoods (under Component 3), to compensate for lost access to farmland and other resources. Seminars, workshops and conferences will be conducted to share the learning experiences, to extract lessons, and to identify core elements for further replication and scale-up.

### **Component 3: Alternative Livelihoods**

(i) Agroforestry and Non-Timber Forest Product Interventions, wherein state forest farms affected by the forestry program will receive investments in agroforestry (intercropping) and NTFPs to enhance income-earning opportunities of their workers. These operations will compensate forest farm workers who may lose farming opportunities as the land will be reverted to legally required forest use;

(ii) Village Development, under which affected villages will be compensated for loss of farmland to be converted to wetlands in NRs. A portion of the land compensation costs will be applied to support “eco-friendly” livelihood enterprises or village development based on resettlement and village development plans; and

(iii) Sustainable Ecotourism, including master planning for NRs, preparation of tourism guidelines, and implementation of pilot projects (e.g., construction of basic NR infrastructure such as signboards).

### **Component 4: Education and Capacity Building**

(i) Conservation Education targeting teachers and their students in rural schools near NRs;

(ii) Public Awareness, in which rural residents around NRs will learn about the importance of conserving wetland resources; and

(iii) Wetland Management Training, primarily directed at NR staff, in the necessary practical skills and knowledge to improve the management of the wetland NRs. Academic and scientific communities will be involved to assist and to build capacity on benefit monitoring and evaluation.

### **Component 5: Project Management**

(i) Project implementation assistance, including technical support and training for finance and technical personnel; and

(ii) Environmental monitoring of mitigation measures, specifically for forestry improvement components, as part of an integrated watershed management approach; additional environmental assessment for the pilot wetland, agro-forestry and NTFP components and village development subcomponents.

3. The Project includes consulting services, and is expected to be completed by 30 June 2010.

## SCHEDULE 2

### Amortization Schedule

#### (Sanjiang Plain Wetlands Protection Project)

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

<u>Payment Due</u>	<u>Installment Share</u> (Expressed as a %)
15 May 2010	0.83
15 November 2010	0.87
15 May 2011	0.91
15 November 2011	0.96
15 May 2012	1.01
15 November 2012	1.06
15 May 2013	1.11
15 November 2013	1.16
15 May 2014	1.22
15 November 2014	1.28
15 May 2015	1.35
15 November 2015	1.42
15 May 2016	1.49
15 November 2016	1.56
15 May 2017	1.64
15 November 2017	1.72
15 May 2018	1.81
15 November 2018	1.90
15 May 2019	1.99
15 November 2019	2.09
15 May 2020	2.20
15 November 2020	2.31
15 May 2021	2.42
15 November 2021	2.54

Schedule 2

<u>Payment Due</u>		<u>Installment Share</u> (Expressed as a %)
15 May	2022	2.67
15 November	2022	2.80
15 May	2023	2.94
15 November	2023	3.09
15 May	2024	3.25
15 November	2024	3.41
15 May	2025	3.58
15 November	2025	3.76
15 May	2026	3.94
15 November	2026	4.14
15 May	2027	4.35
15 November	2027	4.57
15 May	2028	4.79
15 November	2028	5.03
15 May	2029	5.29
15 November	2029	5.54
		100.00
		100.00

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

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

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

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

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

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

**SCHEDULE 3****Allocation and Withdrawal of Loan and GEF Grant Proceeds**General

1. The tables attached to this Schedule set forth the Categories of goods, services and other items to be financed out of the proceeds of the Loan and the GEF Grant, and the allocation of amounts of the Loan and the GEF Grant to each such Category (hereinafter called the Tables). (Reference to "Category" or "Categories" in this Schedule is to a Category or Categories of the Tables, and reference to "Subcategory" or "Subcategories" in this Schedule is to a Subcategory or Subcategories of a Category.)

Taxes

2. No withdrawals from the Loan Account or the GEF Grant Account shall be made in respect of any local taxes.

Percentages of ADB and GEF Grant Financing

3. Except as ADB may otherwise agree, the items of the Categories and Subcategories listed in the Tables shall be financed out of the proceeds of the Loan and the GEF Grant on the basis of the percentages set forth in the relevant Table.

4. Notwithstanding paragraph 5 of this Schedule, any contract awarded to a local supplier after effective international competitive bidding or international shopping pursuant to the relevant provisions of Schedule 4 to this Loan Agreement shall be financed out of the proceeds of the Loan and the GEF Grant on the following basis:

- (a) where the goods procured from a local supplier are manufactured locally, 100 percent of the ex-factory price of the goods supplied (exclusive of any taxes); and
- (b) where the goods procured from a local supplier have been entirely imported, 100 percent of the foreign-currency component of the contract price.

Local Expenditure

5. (a) Loan proceeds up to the amount equivalent to \$13,440,000 may be withdrawn from the Loan Account in foreign currency for the purposes of financing local expenditure.

(b) GEF Grant proceeds up to the amount equivalent to \$6,470,000 may be withdrawn from the GEF Grant Account in foreign currency for the purposes of financing local expenditure.

(c) Except as provided in this paragraph or as ADB may otherwise agree, no withdrawals from the Loan Account or the GEF Grant Account shall be made in respect of any local expenditure on the Project.



Reallocation

6. Notwithstanding the allocation of Loan and GEF Grant proceeds and the withdrawal percentages set forth in the Tables and subject to paragraph 5 of this Schedule,

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

(b) if the amount of the Loan or the GEF Grant then allocated to any Category appears to exceed all agreed expenditures in that Category, ADB may, by notice to the Borrower, reallocate such excess amount to any other Category.

Imprest Accounts; Statement of Expenditures

7. (a) Except as ADB may otherwise agree, the Borrower shall establish immediately after the Effective Date, two imprest accounts with respect to the Loan and the GEF Grant at a commercial bank acceptable to ADB. Each imprest account shall be established, managed, replenished and liquidated in accordance with ADB's "Loan Disbursement Handbook" dated January 2001, as amended from time to time, and detailed arrangements agreed upon between the Borrower and ADB. The initial amount to be deposited into each imprest account shall not exceed the lesser of (i) the equivalent of \$1,500,000, and (ii) the estimated expenditures for the next six months.

(b) The statement of expenditures (SOE) procedure may be used for reimbursement of eligible expenditures and to liquidate advances provided into the imprest accounts, in accordance with ADB's "Loan Disbursement Handbook" dated January 2001, as amended from time to time, and detailed arrangements agreed upon between the Borrower and ADB. Any individual payment to be reimbursed or liquidated under the SOE procedure shall not exceed the equivalent of \$100,000.

Retroactive Financing

8. Withdrawals from the Loan Account may be made for reimbursement of reasonable expenditures incurred under the Project before the Effective Date, if incurred within one (1) year prior to the Effective Date and not earlier than 15 September 2004, in connection with (i) ground preparation, seedlings and planting; and (ii) the advance payment for mobilization of the Project implementation consulting firm to provide the services described in items (a) through (f) of paragraph 1 of Schedule 5 to this Loan Agreement, subject to a maximum of \$200,000.

TABLE

ALLOCATION AND WITHDRAWAL OF LOAN PROCEEDS (Sanjiang Plain Wetlands Protection Project)					
CATEGORY				PERCENTAGE OF BANK FINANCING	
Number	Item	Amount Allocated [\$]		Percentage	Basis for Withdrawal from the Loan Account
		Category	Subcategory		
1	Civil Works	11,630,000		51	percent of total expenditure
1A	Forest Improvement		10,240,000	53	percent of total expenditure (2% for foreign and 51% for local)
1B	Wetland Restoration		-	-	
1C	Non-Timber Forest Products		1,390,000	50	percent of total expenditure (0% for foreign and 50% for local)
2	Equipment, Materials and Vehicles	1,361,000		41	percent of total expenditure
2A	Forest Equipment, Materials and Vehicles		1,361,000	76	percent of foreign expenditure (50% for foreign and 26% local)
2B	Nature Reserve Equipment, Materials and Vehicles		-		
2C	PMO Equipment, Materials and Vehicles		-		
3	Consulting Services	583,000		9	percent of total expenditure (4% for foreign and 5% for local)
4	Training and Study Tours	-			
4A	Domestic Training		-		
4B	Overseas Training and Study Tours		-		
5	Subcontract	-			
6	Recurrent Costs	662,000		16	percent of total expenditure
6A	Operation and Maintenance		662,000	25	percent of total expenditure (0% for foreign and 25% for local)
6B	Incremental Staff		-		
7	Unallocated	764,000			percent of amounts due
	Total	15,000,000			

TABLE

ALLOCATION AND WITHDRAWAL OF GEF GRANT PROCEEDS (Sanjiang Plain Wetlands Protection Project)					
CATEGORY				PERCENTAGE OF GEF GRANT FINANCING	
Number	Item	Amount Allocated [\$]		Percentage	Basis for Withdrawal from the GEF Grant Account
		Category	Subcategory		
1	Civil Works	889,000		4	percent of total expenditure
1A	Forest Improvement		-		
1B	Wetland Restoration		889,000	92	percent of total expenditure (1% for foreign and 91% for local)
1C	Non-Timber Forest Products		-		
2	Equipment, Materials and Vehicles	981,000		29	percent of total expenditure
2A	Nature Reserve Equipment, Materials and Vehicles		-		100 percent of foreign expenditure 100 percent of local expenditure*
2B	Nature Reserve Equipment, Materials and Vehicles		700,000	77	percent of total expenditure (75% for foreign and 2% for local)
2C	PMO Equipment, Materials and Vehicles		281,000	43	percent of total expenditure (1% for foreign and 42% for local)
3	Consulting Services	5,135,000		84	percent of total expenditure (41% for foreign and 43% for local)
4	Trainings and Study Tours	2,677,000		100	percent of total expenditure*
4A	Domestic Training		1,491,000	100	percent of total expenditure* (40% for foreign and 60% for local)
4B	Overseas Training and Study Tours		1,186,000	100	percent of total expenditure* (100% for foreign and 0% for local)
5	Subcontract	599,000		65	percent of total expenditure (0% for foreign and 100% for local)
6	Recurrent Costs	765,000		19	percent of total expenditure
6A	Operation and Maintenance		-		100 percent of local expenditure*
6B	Incremental Staff		765,000	60	100 percent of local expenditure* (0% for foreign and 60% for local)
7	Unallocated	1,094,000			percent of amounts due
	Total	12,140,000			

\*Exclusive of local taxes

## SCHEDULE 4

### Procurement

1. Except as ADB may otherwise agree, the procedures referred to in the following paragraphs of this Schedule shall apply in the procurement of goods and services to be financed out of the proceeds of the Loan and the GEF Grant. In this Schedule and the Attachment hereto, the term "goods" includes equipment and materials; the term "services" does not include consulting services.

2. Procurement of goods and services shall be subject to the provisions of the "Guidelines for Procurement under Asian Development Bank Loans" dated February 1999 (hereinafter called the Guidelines for Procurement), as amended from time to time, which have been furnished to the Borrower and HPG.

3. Procurement of goods and services shall be made without any restriction against, or preference for, any particular supplier or contractor or any particular class of suppliers or contractors, except as otherwise provided in paragraph below.

4. (a) Each supply contract for equipment or materials estimated to cost the equivalent of more than \$1,000,000 shall be awarded on the basis of international competitive bidding as described in Chapter II of the Guidelines for Procurement.

(b) For contracts to be awarded on the basis of international competitive bidding, there shall be submitted to ADB, as soon as possible, and in any event not later than 90 days before the issuance of the first invitation to bid for the Project, a General Procurement Notice (which ADB will arrange to publish separately) in such form and detail and containing such information as ADB shall reasonably request. ADB shall be provided the necessary information to update such General Procurement Notice annually as long as any goods remain to be procured on the basis of international competitive bidding.

(c) For contracts to be awarded on the basis of international competitive bidding, procurement actions shall be subject to review by ADB in accordance with the procedures set forth in Chapter IV of the Guidelines for Procurement. Each draft invitation to bid, to be submitted to ADB for approval under such procedures, shall reach ADB at least 21 days before it is issued and shall contain such information as ADB shall reasonably request to enable ADB to arrange for the separate publication of such invitation.

5. (a) Each supply contract for equipment or materials estimated to cost the equivalent of \$1,000,000 or less (other than forest improvement equipment and minor items described in paragraph 7 and paragraph 9 of this Schedule) shall be awarded on the basis of international shopping as described in Chapter III of the Guidelines for Procurement.

(b) Notwithstanding paragraph 3.03(b) of the Guidelines for Procurement, any award of contract shall be subject to prior Bank approval.

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6. In comparing bids under international competitive bidding, a margin of preference may be provided, at the option of the Borrower and in accordance with the provisions of the Attachment to this Schedule, for

(a) goods manufactured in the territory of the Borrower, provided that the bidder offering such goods shall have established to the satisfaction of the Borrower and ADB that the domestic value added equals at least 20 percent of the ex-factory bid price of such goods; and

(b) civil works to be carried out by eligible domestic contractors, as defined by ADB.

7. Each supply contract for forest improvement equipment estimated to cost less than the equivalent of \$1,000,000 but more than the equivalent of \$500,000 may be awarded on the basis of local competitive bidding among suppliers in accordance with the standard procurement procedures of HPG and acceptable to ADB. Selection and engagement of contractors shall be subject to the approval of ADB. After award, three copies of each contract for such items shall be furnished to ADB.

8. Certain civil works for forest improvement and wetland restoration, estimated to cost the equivalent of \$1,000,000 or less per location or on an annual basis, may be carried out by the Project Implementing Agencies on a force account basis.

9. Minor equipment and supplies estimated to cost, in the aggregate, the equivalent of \$100,000 or less, may be procured directly from the manufacturers of the original equipment or their agents. Prior to such procurement, a list of individual items to be procured, an estimate of their costs, an indication of potential sources of supply and any related documents shall be submitted to ADB for approval. After award, three copies of each contract for such items shall be furnished to ADB.

10. Training services to be provided under the Project shall be awarded based on procurement procedures acceptable to ADB, including international shopping and direct selection if appropriate.

11. Prior to the date of this Loan Agreement, ADB approved advance action in respect of the ground preparation, seedlings and planting under Category 1 of the Tables attached to Schedule 3 of this Loan Agreement. Notwithstanding approval of such advance action, the Borrower shall ensure that the procurement is carried out in accordance with the provisions of this Loan Agreement.

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

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

Preference for Domestically Manufactured Goods

1. In the procurement of goods through international competitive bidding, goods manufactured in the territory of the Borrower may be granted a margin of preference in accordance with the following provisions, provided that the bidder shall have established to the satisfaction of the Borrower and ADB that the domestic value added equals at least 20 percent of the ex-factory bid price of such goods. The 20 percent domestic value added applies to the total ex-factory bid price of the goods and not only to one item in a list.

- (a) For application of domestic preference, all responsive bids shall first be classified into the following three categories:

Category I -- bids offering goods manufactured in the territory of the Borrower which meet the minimum domestic value added requirement;

Category II -- bids offering other goods manufactured in the territory of the Borrower; and

Category III -- bids offering imported goods.

- (b) The lowest evaluated bid of each category shall then be determined by comparing all evaluated bids in each category among themselves, without taking into account customs duties and other import taxes levied in connection with the importation, and sales and similar taxes levied in connection with the sale or delivery, pursuant to the bids, of the goods.
- (c) Such lowest evaluated bids shall next be compared with each other and if, as a result of this comparison, a bid from Category I or Category II is found to be the lowest, it shall be selected for the award of contract.

- (d) If, however, as a result of the comparison under subparagraph (c) above, the lowest bid is found to be from Category III, it shall be further compared with the lowest evaluated bid from Category I. For the purpose of this further comparison only, an upward adjustment shall be made to the lowest evaluated bid price of Category III by adding either
  - (i) the amount of customs duties and other import taxes which a nonexempt importer would have to pay for the importation of the goods offered in such Category III bid; or
  - (ii) 15 percent of the CIF bid price of such goods if the customs duties and import taxes referred to above exceed 15 percent of the CIF bid price.

If, after such further comparison, the Category I bid is determined to be the lowest, it shall be selected for the award of contract; if not, the lowest evaluated bid from Category III shall be selected for the award.

2. (a) Bidders applying for the preference shall provide evidence necessary to establish the eligibility of a bid for the preference, including the minimum domestic value added.

(b) The bidding documents shall clearly indicate the preference to be granted, the information required to establish the eligibility of a bid for the preference claimed, and the procedures to be followed in the comparison of bids, all as set forth above.



## SCHEDULE 5

### Consultants

1. The services of consultants shall be utilized in the carrying out of the Project, particularly with regard to:

- (a) water resources,
- (b) wetland biodiversity and nature reserve management,
- (c) ecotourism and alternative livelihoods,
- (d) conservation education,
- (e) public awareness,
- (f) Project management support, and
- (g) environmental monitoring & management.

The terms of reference of the consultants shall be as determined by agreement between ADB and HPG.

2. The selection, engagement and services of the consultants shall be subject to the provisions of this Schedule and the provisions of the "Guidelines on the Use of Consultants by Asian Development Bank and Its Borrowers" dated April 2002 (hereinafter called the Guidelines on the Use of Consultants), as amended from time to time, which have been furnished to HPG.

3. The consultants shall be selected and engaged as a firm by HPG using the quality-and-cost-based selection (QCBS) method in accordance with the following procedures.

(a) Invitation for technical and financial proposals. The invitation to submit technical and financial proposals (hereinafter called the Request for Proposals or RFP) and all related documents shall be approved by ADB before they are issued. For this purpose, three copies of the draft RFP, the names of consultants to be short-listed, the proposed criteria for evaluation of both proposals, a draft consultancy contract, and other related documents shall be submitted to ADB. A period of at least 60 days shall be allowed for submission of both proposals. A copy of the final RFP as issued, together with all related documents, shall be furnished to ADB for information promptly after issuance. The validity period for the technical and financial proposals as provided in the RFP shall usually not exceed three months from the date specified for submission of the technical and financial proposals. The approval of ADB shall be obtained for any request to extend such validity period. Except as ADB may otherwise agree, the validity period, including any extensions, shall not exceed a maximum total period of six months. If the contract is not signed within the validity period in accordance with the Guidelines on the Use of Consultants, the selection shall be invalid and the selection and engagement process as provided in this paragraph shall be followed again.

(b) Evaluation and scoring of technical proposals. Immediately after the technical proposals have been evaluated and scored, approval of ADB shall be obtained to the evaluation and scoring of the technical proposals. For this purpose, ADB shall be furnished with three copies of the technical proposals.

Schedule 5

(c) Public opening of financial proposals. The financial proposals of the firms whose technical proposals meet the minimum qualifying technical score shall be opened publicly after adequate notice is given to such firms or their representatives to attend the opening of the financial proposals.

(d) Evaluation and scoring of financial proposals and ranking of technical and financial proposals. After the financial proposals have been evaluated and scored, the ranking of the technical and financial proposals shall be made. Before negotiations are started with the first-ranked consultants, approval of ADB shall be obtained to the evaluation and scoring of the financial proposals and the ranking of the technical and financial proposals. For this purpose, ADB shall be provided with three copies of (i) the evaluation and scoring of the financial proposals and (ii) the ranking of the technical and financial proposals.

(e) Execution of contract. After the conclusion of negotiations but before the signing of the contract, ADB shall be furnished with the contract as negotiated for approval. Promptly after the contract is signed, ADB shall be furnished with three copies of the signed contract. If any substantial amendment of the contract is proposed after its execution, the proposed changes shall be submitted to ADB for prior approval.

4. The Borrower has requested that the internationally-recruited consultants to be selected pursuant to the provisions of paragraph 3 of this Schedule to collaborate with domestic consultants. ADB has agreed to the request and for this purpose, the specific arrangements relating to the collaboration shall be included in the proposals to be submitted to ADB pursuant to the provisions of paragraph 3 of this Schedule.

5. Prior to the date of this Loan Agreement, ADB approved advance action in respect of the recruitment of consultants, including signing of the contract with the consulting firm providing the Project implementation services described in items (a) through (f) of paragraph 1 of this Schedule. Notwithstanding approval of such advance action, the Borrower shall ensure that the selection is carried out in accordance with the provisions of this Loan Agreement.

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

## **SCHEDULE 6**

### **Project Management**

#### Project Management -- Project Executing Agency

1. The Borrower shall ensure that HPG is the Project Executing Agency, and that HPG shall have overall responsibility for coordinating, supervising, and implementing all Project activities, including the forest management activities and the wetland restoration/resettlement activities in the State Farms.

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LOAN NUMBER \_\_\_\_-PRC

PROJECT AGREEMENT  
(Sanjiang Plain Wetlands Protection Project)

between

ASIAN DEVELOPMENT BANK

and

HEILONGJIANG PROVINCE

DATED \_\_\_\_\_

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PAG:PRC 33433

## **PROJECT AGREEMENT**

PROJECT AGREEMENT dated \_\_\_\_\_ between ASIAN DEVELOPMENT BANK (hereinafter called ADB) and HEILONGJIANG PROVINCE (hereinafter called HPG).

### **WHEREAS**

(A) by a Loan Agreement of even date herewith between People's Republic of China (hereinafter called the Borrower) and ADB, ADB has agreed to make to the Borrower a loan of fifteen million dollars (\$15,000,000) to finance a portion of the components of the Project described in the Loan Agreement on the terms and conditions set forth in the Loan Agreement, but only on condition that the proceeds of the Loan be made available to HPG and that HPG agree to undertake certain obligations towards ADB as hereinafter in this Project Agreement set forth;

(B) the Global Environmental Facility (hereinafter called GEF) has approved a grant (hereinafter called the GEF Grant) to the Borrower of twelve million one hundred forty thousand dollars (\$12,140,000), to be administered by ADB pursuant to the terms and conditions set forth in the Loan Agreement, to finance the remaining portion of the components of the Project; and

(C) HPG, in consideration of ADB entering into the Loan Agreement with the Borrower, has agreed to undertake the obligations hereinafter set forth;

NOW THEREFORE the parties hereto agree as follows:

## **ARTICLE I**

### **Definitions**

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

## **ARTICLE II**

### **Particular Covenants**

Section 2.01. (a) HPG shall carry out the Project with due diligence and efficiency, and in conformity with sound administrative, financial, engineering, and environmental practices.

(b) 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.

Section 2.02. 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.

Section 2.03. (a) 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.

(b) 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 accordance with those agreed between the Borrower and ADB or where the terms and conditions of the contract are not satisfactory to ADB.

Section 2.04. 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.

Section 2.05. (a) 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.

(b) 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.

Section 2.06. 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.

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

(b) 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 this Project Agreement, or the accomplishment of the purposes of the Loan or the GEF Grant.

(c) 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.

Section 2.08. (a) 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.

(b) Without limiting the generality of the foregoing, HPG shall furnish to ADB quarterly reports on the execution of the Project and on the operation and management of the Project facilities. Such reports shall be submitted in such form and in such detail and within such a period as ADB shall reasonably request, and shall indicate, among other things, progress made and problems encountered during the three 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 three months.

(c) Promptly after physical completion of the Project, but in any event not later than six (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 .

Section 2.09. (a) HPG shall (i) maintain separate accounts for the Project (including separate accounts for the Loan and for 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 event not later than nine (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 the auditors' 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.

(b) 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.

Section 2.10. 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.

Section 2.11. 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.

Section 2.12. Except as ADB may otherwise agree, HPG shall apply the proceeds of the Loan and the GEF Grant to the financing of expenditures on the Project in accordance with the provisions of the Loan Agreement and this Project Agreement, and shall ensure that all goods and services financed out of such proceeds are used exclusively in the carrying out of the Project.

### **ARTICLE III**

#### **Effective Date; Termination**

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

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

### **ARTICLE IV**

#### **Miscellaneous**

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



For ADB

Asian Development Bank  
P.O. Box 789  
0980 Manila, Philippines

Cable Address:

ASIANBANK  
MANILA

Telex Numbers:

29066 ADB PH (RCA)  
42205 ADB PM (ITT)  
63587 ADB PN (ETPI)

Facsimile Numbers:

(632) 636-2444  
(632) 636-2300.

For HPG

Heilongjiang Provincial Financial Bureau  
No. 146, Jianshe Street  
Harbin 150001, Heilongjiang Province  
People's Republic of China

Facsimile Number:

(86-451) 5363 1663

Section 4.02. (a) Any action required or permitted to be taken, and any documents required or permitted to be executed, under this Project Agreement by or on behalf of HPG may be taken or executed by its Governor, or by such other person or persons as the Governor shall so designate in writing notified to ADB.

(b) HPG shall furnish to ADB sufficient evidence of the authority of each person who will act under paragraph (a) of this Section, together with the authenticated specimen signature of each such person.

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

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

ASIAN DEVELOPMENT BANK

By \_\_\_\_\_

HEILONGJIANG PROVINCE

By \_\_\_\_\_

## SCHEDULE

### **Project Management; Other Matters**

#### I. Project Management

##### Project Executing Agency

1. 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/resettlement activities in the State Farms.

##### Steering Committee

2. 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 six months, or more frequently if necessary.

##### Project Management Office

3. 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 GEF; (ii) planning for, and monitoring and supervision of, the utilization of proceeds of the Loan, 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.

##### HPFB

4. 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 Implementing Agencies and PIUs

5. The thirteen (13) County Forestry Bureaus 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 Financial Bureaus to the beneficiaries. The thirteen (13) PIUs in the County Forestry Bureaus 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 County Forestry Bureaus or the NRs, as appropriate. Each PIU shall prepare and submit to the PMO bi-monthly 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 bi-annual operating plan detailing the physical and financial aspects of its programmed activities.

NR Technical Working Groups

6. A NR Technical Working Group shall be established at each NR and shall include county-level staff of HPFD, HPEPB, Heilongjiang Tourism Bureau and Heilongjiang Water Resources Bureau; 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 resource management during and after the Project implementation period.

Baoqing Field Office

7. A field office in Baoqing County shall also be established to support field activities.

Watershed-level Interagency Coordination Body

8. Prior to the second year of Project implementation, an Interagency 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 planning during and after the Project implementation period.

II. Other Matters

## COMPONENT I

Conversion of Farmland to Forest

9. 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 nature reserve; (b) the proposed site is in the upper watershed, not originally converted from wetlands and not too

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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 to 5 years, intercropping is allowed at a nominal annual contract fee (around RMB 6–RMB 7 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.

Water Resource Allocation Planning at the Watershed-Level

10. HPG shall ensure the inter-agency coordination among HPWRD, HPEPB, HPTB, representatives of the six NRs, and HPFD regarding watershed-level water resource allocation and the establishment of an institutional body/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.

Local (Nature Reserve) Water Resource Planning

11. 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 management plans. HPG shall also ensure that a model coordination mechanism for water resource management in NRs is developed.

## COMPONENT II

Conservation Management

12. 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 resource management, wetland restoration, wildlife recovery, resource use and exploitation, village development and community relations subcomponents. Geographic information systems (GISs) for all six NRs as well as adaptive management plans shall also be developed.

Experimental Zone of Nature Reserves

13. Taking into account the relevant recommendations of the ADB TA for Support for Environmental Legislation in the PRC 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 wet-

Schedule

land nature reserves and promotion of biodiversity. HPG shall also prepare recommendations for strengthening the National Regulation of Nature Reserves regarding the permissible activities in the experimental zone of NRs to protect wetland nature reserves and promote biodiversity.

Pilot Wetland Restoration

14. Heilongjiang shall ensure that manuals are prepared based on pilot testing, and that these manuals incorporate lessons learned, so that they can be used for other wetland restoration projects.

Wildlife Species Recovery

15. 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.

Endangered Species

16. 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.

Reduction of Resource Exploitation

17. HPG shall ensure that programs are designed and implemented to reduce the unsustainable exploitation of natural resources, 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.

## COMPONENT 3

Village Development

18. HPG through HPFB shall establish a Land Compensation and Resettlement Account to finance resettlement costs of the villages/state farms. Funds from such account shall be channeled through the county level financial 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 affected persons (APs), are eco-friendly according to the evaluation criteria in the EMP, and compatible with the master plans for the nature reserves; (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 resettlement plans for the village collectives; and (c) training and technical assistance for alternative livelihoods and environmental protection provided if the investment proposals fit the "green", eco-friendly investment criteria in the EMP.

19. 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 Forest Farm. Resettlement plans, together with the village development plans, shall be submitted to the provincial PMO and to ADB for approval. After each resettlement plan is approved, land compensation and village development costs shall be disbursed by HPFB (through the County Financial 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 resettlement plans, 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 expenses thereof.

#### Resettlement

20. (i) HPG, through HPFD, shall ensure (a) prompt and efficient implementation of the Resettlement Framework (RF) and sub-project Resettlement Plans (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 affected persons (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 affected people 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 Xinkaihu Nature Reserve and Qixinghe Nature Reserve, (ii) RPs are prepared for Dajiahe NR, Zhengbaodao NR, Anbanghe NR, and Naolihe NR 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 development plans are submitted to ADB for approval at least 3 months prior to dispossession and displacement from their houses, land and assets.

Schedule

(ii) 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 affected people through the county financial 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/approved in the village development plans, and is a condition for disbursement of at least 30% of the land compensation and resettlement expenses.

(iii) 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 until resettlement is completed and semi-annual monitoring and reporting to ADB for two years thereafter, (ii) an independent agency acceptable to ADB will be contracted to carry out monitoring and evaluation, 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; (v) ADB is promptly advised of any substantial changes in the resettlement impacts and, if necessary, a new or revised resettlement plan is submitted to ADB for its approval; (vi) civil works contractors' specifications include requirements to comply with the RP and entitlements for permanent and temporary impacts to APs.

(iv) 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 percent 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 contract fee (around 6-7 RMB/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.

Ecotourism

21. In consultation with ADB, HPG shall prepare a comprehensive ecotourism master plan and detailed planning and environmental guidelines for Project nature reserves, and make them publicly available, so that they can be replicated elsewhere.

22. 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.



## COMPONENT 4

Education and Capacity Building

23. 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; and (iii) involvement of academic and scientific communities to assist and to build up capacity on impact monitoring and evaluation. 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.

Pilot Testing and Replicability

24. 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 "eco-friendly" village development mechanism), in particular, in connection with the "scaling up" 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.

Master Plan for Heilongjiang Province Wetland Restoration

25. HPG shall take all 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.

Exit Strategy

26. 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 nature reserve management following Project completion. Such strategy shall be carried out during Project implementation to strengthen the overall sustainability of financing requirements and sources, capacity building, and institutional mechanisms for local and inter-sectoral planning and cooperation. For financial sustainability 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 2 Yuan/ha/year from 0 in year 1 to 8 Yuan/ha in year 5) to meet the financing requirements for NR management.

OTHER MATTERSCounterpart Funds

27. 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.

Environmental Issues

28. (a) HPG shall ensure that the Project complies with applicable environmental laws and regulations of the Borrower and ADB's Environmental Policy (2002).

(b) 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 for 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.

(c) 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 environmental management plans, as recommended in the IEE and EMP, for recoveries in each nature reserve and that all individual subprojects will be subject to the environmental assessment and review procedures for subprojects outlined in the IEE and EMP.

(d) 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 the environmental assessment and review of subprojects.

Participation

29. 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, in particular for the alternative livelihoods development component and conservation management activities.

Monitoring and Evaluation

30. In consultation with ADB, HPG shall establish and implement a project performance monitoring 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 mid-term review in 2008 on issues including implementation of the exit strategy, incentive framework and beneficiary participation.