

Document of
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Report No: ICR00005441

IMPLEMENTATION COMPLETION AND RESULTS REPORT

TRUST FUND NUMBER 0A1988

ON A

GRANT FROM THE GLOBAL ENVIRONMENT FACILITY

IN THE AMOUNT OF US\$3 MILLION

TO THE

PEOPLE'S REPUBLIC OF CHINA

FOR THE

LANDSCAPE APPROACH TO WILDLIFE CONSERVATION IN NORTHEAST CHINA PROJECT

JUNE 25, 2021

Environment, Natural Resources and the Blue Economy Global Practice
East Asia and Pacific Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective December 31, 2020)

Currency Unit = Chinese Yuan (CNY)

CNY 1.00 = US\$0.15

US\$ 1.00 = CNY 6.53

FISCAL YEAR

January 1–December 31

ABBREVIATIONS AND ACRONYMS

| | |
|----------|--|
| COVID-19 | Coronavirus Disease 2019 |
| CPF | Country Partnership Framework |
| CPS | Country Partnership Strategy |
| DRC | Development and Reform Commission |
| ESMP | Environmental and Social Management Plan |
| FRC | Feline Research Center |
| FYP | Five-Year Plan |
| GEF | Global Environment Facility |
| GTI | Global Tiger Initiative |
| HFC | Heilongjiang Forestry Corporation |
| HFD | Heilongjiang Forestry Department |
| ICR | Implementation Completion and Results Report |
| IUCN | International Union for Conservation of Nature |
| JFD | Jilin Forestry Department |
| M&E | Monitoring and Evaluation |
| METT | Management Effectiveness Tracking Tool |
| MTR | Midterm Review |
| NCACTLC | NE China Advisory Committee for Tiger and Landscape Conservation |
| NR | Nature Reserve |
| NFGA | National Forestry and Grassland Administration |
| NPMO | National Project Management Office |
| NPNTL | National Park of Northeast Tiger and Leopard |
| PDO | Project Development Objective |
| PDRC | Provincial Development and Reform Commission |
| PIU | Project Implementation Unit |
| PMO | Project Management Office |
| PMP | Pest Management Plan |
| PMU | Project Management Unit |
| PP | Project Paper |
| PPMU | Provincial Project Management Unit |
| RAI | Relative Abundance Index |
| IRI | Intermediate Results Indicator |

| | |
|-------|---------------------------------------|
| RETF | Recipient Executed Trust Fund |
| SFA | State Forestry Administration |
| SMART | Spatial Monitoring and Reporting Tool |
| WCS | Wildlife Conservation Society |
| WWF | World Wildlife Fund for Nature |

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DATA SHEET

BASIC INFORMATION

Product Information

| | |
|------------------------|--|
| Project ID | Project Name |
| P122383 | Landscape Approach to Wildlife Conservation in Northeast China |
| Country | Financing Instrument |
| China | Investment Project Financing |
| Original EA Category | Revised EA Category |
| Partial Assessment (B) | Partial Assessment (B) |

Organizations

| | |
|----------------------------|--|
| Borrower | Implementing Agency |
| People's Republic of China | National Forestry and Grassland Administration |

Project Development Objective (PDO)

Original PDO

<p>To help create the ecological conditions for recovery of threatened biodiversity in priority ecological landscapes in the far northeast territory of the Recipient (Heilongjiang and Jilin), using the Amur Tiger as a flagship species.</p>



FINANCING

| | Original Amount (US\$) | Revised Amount (US\$) | Actual Disbursed (US\$) |
|---------------------------------|------------------------|-----------------------|-------------------------|
| World Bank Financing | | | |
| TF-A1988 | 3,000,000 | 2,993,681 | 2,993,681 |
| Total | 3,000,000 | 2,993,681 | 2,993,681 |
| Non-World Bank Financing | | | |
| Borrower/Recipient | 17,580,000 | 0 | 17,826,319 |
| Total | 17,580,000 | 0 | 17,826,319 |
| Total Project Cost | 20,580,000 | 2,993,681 | 20,820,000 |

KEY DATES

| Approval | Effectiveness | MTR Review | Original Closing | Actual Closing |
|-------------|---------------|-------------|------------------|----------------|
| 23-Feb-2016 | 23-May-2016 | 13-Nov-2017 | 30-Jun-2019 | 31-Dec-2020 |

RESTRUCTURING AND/OR ADDITIONAL FINANCING

| Date(s) | Amount Disbursed (US\$M) | Key Revisions |
|-------------|--------------------------|--------------------------------|
| 16-Dec-2018 | 1.80 | Change in Loan Closing Date(s) |
| 19-Mar-2020 | 2.66 | Change in Loan Closing Date(s) |

KEY RATINGS

| Outcome | Bank Performance | M&E Quality |
|--------------|------------------|-------------|
| Satisfactory | Satisfactory | High |

RATINGS OF PROJECT PERFORMANCE IN ISRs

| No. | Date ISR Archived | DO Rating | IP Rating | Actual Disbursements (US\$M) |
|-----|-------------------|-------------------------|-------------------------|------------------------------|
| 01 | 12-Jun-2016 | Satisfactory | Satisfactory | 0 |
| 02 | 23-Jun-2017 | Moderately Satisfactory | Moderately Satisfactory | .10 |



| | | | | |
|----|-------------|-------------------------|-------------------------|------|
| 03 | 28-Jun-2018 | Moderately Satisfactory | Moderately Satisfactory | .92 |
| 04 | 20-Jun-2019 | Moderately Satisfactory | Moderately Satisfactory | 2.08 |
| 05 | 25-Jun-2020 | Satisfactory | Satisfactory | 2.78 |

SECTORS AND THEMES

Sectors

Major Sector/Sector (%)

Agriculture, Fishing and Forestry 100

Forestry 100

Themes

Major Theme/ Theme (Level 2)/ Theme (Level 3) (%)

Private Sector Development 100

Jobs 100

Environment and Natural Resource Management 100

Renewable Natural Resources Asset Management 100

Biodiversity 100

ADM STAFF

| Role | At Approval | At ICR |
|---------------------------|----------------------|-----------------------|
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I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

Context

1. At the time of appraisal, China's rapid growth was a driving force in the global economy, resulting in unprecedented rates of poverty reduction. However, ever-increasing economic expansion and diversification also seriously affected its natural resource base, thereby generating major environmental challenges. Human activities had led to increasing fragmentation of natural forests and the wildlife they support. Systematic poaching of wildlife and encroachment and degradation of habitats had led to severe losses in biodiversity, altering food webs and ecosystem functions. At that time, in China, 233 vertebrate species faced extinction and 44 percent wildlife species were declining.
2. Up to the late 1990s, logging and timber production were widespread throughout China. Following the national ban on logging declared in 2000, many of the forest farms were converted into provincial nature reserves. In parallel, the state government established a number of programs designed to restore ecosystem services with a focus on soil and water conservation, of which the Natural Forest Protection Program and the Grain to Green Program were and remain the most significant. These programs also generated additional ecological benefits including the restoration of critical habitats and conservation of biodiversity. Also, China's 12th Five-Year Plan (FYP) proposed the creation of new reserves and strengthening of existing ones to enhance biodiversity conservation. These factors contributed to a favorable enabling environment to improve biodiversity conservation in China.
3. China hosts a vast range of biodiversity, including many species of global importance such as the Amur tiger (*Panthera tigris altaica*), the Amur leopard (*Panthera pardus orientalis*), the Asian elephant (*Elephas maximus*), the panda (*Ailuropoda melanoleuca*), and the Nujiang golden monkey (*Rhinopithecus strykeri*).
4. With a population of over 1.3 billion people at the time, China needed to use a landscape approach for biodiversity conservation through the establishment of ecological corridors that would connect nature reserves to provide habitats for the conservation of viable size populations of key biodiversity while decreasing human-wildlife conflict. At the time of appraisal, China had yet to mainstream this landscape approach into land use planning and biodiversity conservation at provincial and local levels. This was an innovative approach at a time when few efforts were made in landscape planning and management for biodiversity conservation objectives, focused primarily on nonmigratory species with relatively small home ranges such as the panda, instead of species at the top of the food chain, such as tigers, which have far larger home ranges and more potential for human-wildlife conflict.
5. One priority area for biodiversity conservation was the forests of the Changbaishan Landscape found in northeastern China near the Russian border. The landscape includes the Jilin municipality and the Yanbian Korean Autonomous Prefecture in Jilin Province and the southern part of the Mudanjiang Prefecture in Heilongjiang Province. The region is characterized by a low mountain and hilly landscape and is home to the largest remaining tracts of natural temperate forest in China, with a diverse flora and fauna and a significant amount of endemism. It also provides habitat for more than 300 species of wildlife, including 44 species of China's national protected wildlife and is home to few of the remaining iconic Amur



tigers in the wild in China. The Amur tiger population in the wild, in the Russian Federation and China combined, was estimated to be only 400 individuals, of which an estimated population of between 18 and 22 individuals was found in China.

6. The project was fully consistent with the World Bank’s Country Partnership Strategy (CPS FY2013–FY 2016, **Report No. 67566-CN**) at the time of appraisal, in support of Strategic Theme 1: Supporting Greener Growth. Within this theme, the CPS called on the World Bank’s activities to demonstrate sustainable natural resource management approaches that could better manage ecosystems and conserve biodiversity (Outcome 1.5) including supporting forestry approaches that maximize ecosystem health and use concessional funding to promote globally important biodiversity. Finally, the project supported the World Bank’s ‘knowledge through investments’ core principle by assisting China to secure incremental funding through the Global Environment Facility (GEF).

Theory of Change (Results Chain)

7. The Project Paper (PP) did not describe a Theory of Change.¹ For this Implementation Completion and Results Report (ICR), the project’s Theory of Change was constructed ex post and detailed in table 1.

Problem Statement and Critical Assumptions

8. China’s rapid economic development seriously impacted the natural environment. Human activities brought about significant disturbances to ecosystem functions, including the fragmentation of natural forests and wildlife habitat. Severe losses in biodiversity were witnessed for decades because of extensive poaching, encroachment, and landscape degradation. Integrated landscape approaches for biodiversity conservation were lacking. There was a real need to connect nature reserves through ecological corridors and to improve wildlife-carrying capacity. Key challenges included the absence of a coherent policy and legal framework combined with a weak management and monitoring system. The lack of awareness and alternative livelihood further exacerbated human-wildlife conflicts. China needed an innovative approach to mainstreaming biodiversity consideration into its economic development at the provincial and local levels. The critical assumptions were that capacity building would succeed at provincial and local levels, and the biodiversity and wildlife conservation would have the buy-in of the communities in the project area.

¹ According to World Bank Guidelines, the inclusion of a Theory of Change in PADs became mandatory as of May 2018, following the approval date for this project.



Table 1. Theory of Change

| Activities/Inputs | Outputs | Medium-term Outcomes | PDO | Long-term Outcomes |
|---|---|---|--|--|
| <p>Component 1</p> <ul style="list-style-type: none"> • Institutional set up and formulation of Conservation and restoration Plans and regulations. • Hold international regional meetings and joint events on wildlife and habitat conservation • Conduct International and domestic study tours | <ul style="list-style-type: none"> • Conservation and restoration plans and regulations developed • Northeast China Tiger Landscape Conservation Committee established • Cross-provincial cooperation and collaboration with Russian counterparts strengthened | <p>Establishment of a policy, institutional, and planning framework</p> | <p>Ecological conditions for recovery of threatened biodiversity in priority ecological landscapes created</p> | <ul style="list-style-type: none"> • Support greener growth through sustainable natural resource management. • Demonstrate ways to better manage ecosystems and conserve biodiversity. |
| <p>Component 2:</p> <ul style="list-style-type: none"> • Establish new Nature Reserves (NRs) • Strengthen patrolling activities and enforcement • Establish integrated cross-provincial ecological monitoring program | <ul style="list-style-type: none"> • New nature reserves established • Decrease in incidence of snares • Integrated cross-provincial ecological monitoring program developed | <ul style="list-style-type: none"> • Enhancing the effectiveness of protected area/network management • Increasing wildlife-carrying capacity through restoration, expansion, and connectivity of critical habitats | | |
| <p>Component 3:</p> <ul style="list-style-type: none"> • Establish and equip new and existing protection stations. • Support alternative livelihoods activities • Undertake public awareness activities | <ul style="list-style-type: none"> • Wildlife monitoring stations established • Farmers supported through alternative livelihood activities • Public awareness activities conducted | <ul style="list-style-type: none"> • Expansion of biodiversity-friendly landscapes adjacent to protected areas • Reduced human wildlife conflict in priority forest landscapes | | |



Project Development Objectives (PDOs)

9. The PDO is to help create the ecological conditions for recovery of threatened biodiversity in priority ecological landscapes in the far northeast territory of the Recipient (Heilongjiang and Jilin), using the Amur Tiger as a flagship species.

Key Expected Outcomes and Outcome Indicators

10. The key outcome was to create the ecological conditions for recovery of threatened biodiversity in priority ecological landscapes in the far northeast territory. There were two outcome indicators: (a) areas brought under enhanced biodiversity protection in existing and new nature reserves and (b) areas outside of nature reserves managed in a biodiversity-friendly manner. The PDO entails the following midterm outcomes, as described in the PP (paragraph 19): (a) integrating wildlife conservation considerations into economic development planning and sectoral policies and planning frameworks in targeted landscapes; (b) enhancing the effectiveness of protected area/network management; (c) increasing wildlife-carrying capacity through restoration, expansion, and connectivity of critical habitats, including the expansion of biodiversity-friendly landscapes adjacent to protected areas; (d) promoting more effective patrolling and monitoring in both protected areas and the greater landscape to reduce mortality of flagship species; and (e) reducing human/wildlife conflict by increasing benefits to and buy-in from local communities for wildlife conservation.

Components

Component 1: Institutional Coordination to Mainstream Wildlife Conservation Across Sectors (Approval: US\$1.73 million, of which GEF US\$0.72 million; Actual: US\$1.62 million, of which GEF US\$0.68 million)

11. This component supported a series of activities designed to contribute to the establishment of an enabling policy, institutional, and planning framework. It facilitated increased cooperation and collaboration among provincial, national, and international institutions in their respective efforts to conserve wildlife and habitat in northeast China. It consisted of two subcomponents: (a) Policy and Planning and (b) Institutional Arrangements.

Component 2: Conservation of Priority Ecosystems and Increased Effectiveness of Habitat Protection in the Changbaishan Landscape (Approval: US\$9.18 million, of which GEF US\$1.57 million; Actual: US\$9.22 million, of which GEF US\$1.59 million)

12. This component supported the consolidation and strengthening of the Sino-Russian corridor through the strengthening of existing nature reserves and creation of new ones, improvement of wildlife habitat in the project's core zone, and provision of support for an integrated wildlife-monitoring program. This component covered four subcomponents: (a) Increased Management Effectiveness in four existing NRs, (b) Creation of three new Nature Reserves, (c) Habitat Restoration, and (d) Technical Monitoring.

Component 3: Reducing Human Wildlife Conflict in Priority Forest Landscapes (Approval: US\$9.01 million, of which GEF US\$0.56 million; Actual: US\$9.26 million, of which GEF US\$0.57 million)



13. This component supported a series of activities designed to reduce human-tiger conflicts in a buffer zone in proximity to the assemblage of existing and new nature reserves supported under Component 2. It covered three subcomponents: (a) Improved Patrolling and Enforcement, (b) Pilot Mitigation Measures, and (c) Increased Public Awareness.

Component 4: Project Management and Monitoring and Evaluation (Approval: US\$0.66 million, of which GEF US\$0.15 million; Actual: US\$0.67 million, of which GEF US\$0.16 million) This component supported project management activities carried out by the implementing agencies and coordination between provinces and across international boundaries.

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION

Revised PDOs and Outcome Targets

14. The PDO remained unchanged throughout the project implementation period.

Revised PDO Indicators

15. No adjustments were made to the PDO indicators or target values.

Revised Components

16. The components remained unchanged during implementation.

Other Changes

17. **There were two extensions to the project closing date during the first and second restructuring.** A nine-month extension was granted from June 30, 2019, to March 31, 2020, during the first restructuring, and another nine-month extension was granted from March 31, 2021, to December 31, 2021, during the second restructuring. On both occasions, the project underwent a time extension only, without any other changes.

Rationale for Changes and Their Implication on the Original Theory of Change

18. Due to cumulative delays experienced by the project, two extensions of the project closing date were requested by the Government. The World Bank team supported the requests to allow the project to complete the remaining activities that contributed to the achievement of the PDO and full disbursement of the remaining grant. These changes did not affect the Theory of Change.

19. The first extension of closing date was made in response to delays because of the slow start, institutional reform, personnel changes, and the lack of experience of the Project Management Office (PMO) with World Bank procedures. The original project implementation period was three years. The project experienced implementation delays during the first 18 months of implementation, including taking 10 months to establish the Designated Account due to new Government policies. From 2018 to 2019, the project was affected by a lengthy institutional reform process which impeded effectiveness of the provincial and local project management offices. During this time, staffing, accountability, and institutional arrangements were unclear, resulting in delayed decision-making.



20. The second extension of the closing date was granted due to the outbreak of coronavirus disease 2019 (COVID-19) in January 2020, making it difficult to complete the remaining activities planned by March 31, 2020. This included the finalization of field surveys, infrared camera monitoring, alternative livelihood support, community awareness building, and study tours. Moreover, the combined implementation support and ICR mission could not be carried out as originally planned due to COVID-19 related travel restrictions, and the preparation of the client’s ICR had to be postponed.

II. OUTCOME

A. RELEVANCE OF PDOs

Assessment of Relevance of PDOs and Rating

Rating: High

21. **The relevance of the PDO to the World Bank’s country engagement in China is high.** The project remains aligned with the World Bank’s Country Partnership Framework (CPF) (FY2020–2025, Report No. 117875-CN) at the time of completion. The project contributed to the CPF objective of sustainable natural resources management approaches (Objective 2.4). First, it strengthened policies and institutions. Given the ongoing transition of China’s economy from resource-intensive to green and efficient development, the project supported Government reforms and strengthened newly consolidated institutions that had been given a mandate to protect critical environmental assets with regional and global impacts. Second, the project demonstrated improved ecosystem management and biodiversity conservation and helped improve the collaboration in the management and conservation of critical natural resources. In addition, the forest tending and reforestation activities under the project enhanced forest ecosystem resilience.

22. The project has a strong focus on global and regional public goods, such as biodiversity conservation. Scientists call for protecting at least 30 percent of the earth’s land and sea by 2030 to halt the collapse of biodiversity. The United Nations Convention on Biological Diversity has included this goal in its draft 10-year strategy which is to be finalized and approved at the United Nations Biodiversity Conference of the Parties 15 in Kunming, China in September 2021. Moreover, China is one of the 13 Tiger Range Country members of the Global Tiger Initiative (GTI), which is a global alliance of governments, international organizations, civil society, the scientific communities, and the private sector and has pledged its support for saving wild tigers from extinction.

23. The PDO also has a significant relevance for China’s national priority and policy for improvement of the ecology and the environment. The 13th FYP (2016 to 2020, which was the one at project closing) emphasized the importance of restoration of ecosystems, building ecological corridors and biodiversity protection networks, and comprehensively improving the stability and eco-services of various natural ecosystems. The objective continues to be consistent with the 14th FYP that emphasizes the importance of improving the ecological environment and livelihood of rural communities, and promoting integrated land use planning and ecosystem protection. The project is aligned with the Government of China’s ongoing National Park System Development Program. It has adopted an integrated approach and supported consolidation of protected areas for conservation, setting up improved policy framework and institutional structures, establishing integrated monitoring system, and building up the network to connect fragile ecosystem and wildlife habitats for the restoration, protection, and mainstreaming of biodiversity.



B. ACHIEVEMENT OF PDOs (EFFICACY)

24. The project has fully achieved its development objectives as measured by the two key outcome indicators: (a) areas brought under enhanced biodiversity protection in existing and new nature reserves and (b) areas outside of nature reserves managed in a biodiversity-friendly manner. Both PDO indicators were designed to measure the effects of expanding the priority areas and improving habitats to create ecological conditions for biodiversity recovery. They are a composite of the outcomes, with one measuring the effect inside the nature reserves and the other measuring the areas outside the nature reserves. They also reflect the midterm outcomes described in the Theory of Change: (a) integrating wildlife conservation considerations into economic development planning and sectoral policies and planning frameworks in targeted landscapes; (b) enhancing the effectiveness of protected area/network management; (c) increasing wildlife-carrying capacity through restoration, expansion, and connectivity of critical habitats, including the expansion of biodiversity-friendly landscapes adjacent to protected areas; (d) promoting more effective patrolling and monitoring in both protected areas and the greater landscape to reduce mortality of flagship species; and (e) reducing human/wildlife conflict by increasing benefits to and buy-in from local communities for wildlife conservation. In addition to the two PDO indicators, the assessment included the 12 intermediate results indicators (IRIs) in the Results Framework and additional relevant information and evidence that go beyond the Results Framework.

Assessment of Achievement of Each Objective/Outcome

25. The PDO is dissected into two objectives.

PDO 1: Create the ecological conditions for recovery of threatened biodiversity in Nature Reserves

26. **PDO Indicator 1: Areas brought under enhanced biodiversity protection in existing and new nature reserves.** A total of 3,697 km² was brought under enhanced biodiversity protection in existing and new nature reserves under the project, accounting for 100 percent of the target. This includes the seven nature reserves shown in table 2, among which five are existing nature reserves, one is a newly established nature reserve under the project, and one is included as part of the National Park of Northeast Tiger and Leopard (NPNTL).

Table 2. Area of Nature Reserves

| Name of Nature Reserves | Province | Status | Area (km ²) |
|--|--------------|-------------------------|-------------------------|
| Hunchun Amur Tiger National Nature Reserve | Jilin | Existing | 1,087 |
| Wangqing National Nature Reserve | Jilin | Existing | 674 |
| Tianqiaoling Provinal Nature Reserve | Jilin | New (under the project) | 501 |
| Laoyeling Nature Reserve | Heilongjiang | Existing | 713 |
| Muling Nature Reserve | Heilongjiang | Existing | 356 |
| Lanjia Nature Reserve | Jilin | New (rolled into NPNTL) | 186 |
| Niaoqingshan Nature Reserve | Heilongjiang | Existing | 180 |
| Total | | | 3,697 |



27. In these nature reserves and protected areas, the following outcomes were achieved that contributed to PDO 1:

28. **A series of provincial and local policies, plans, and regulations have been developed under the project, which contributed to the establishment of an enabling policy and an institutional and planning framework**, facilitating and sustaining increased cooperation among provincial, national, and international institutions to conserve wildlife and habitat. The following outcomes were fully achieved: Intermediate Results Indicator 1 (IRI 1) (see annex 1): “Updated Jilin conservation & restoration plan presented to Provincial Development and Reform Commission (PDRC), provincial-wide tiger conservation management plan submitted for approval by Heilongjiang DRC”. Jilin Province has updated the ‘Plan for Amur Tiger Habitat Conservation and Restoration in Changbaishan Region’ and has submitted it to the PDRC in charge of mainstreaming of environmental considerations (including biodiversity) in sector plans. It has been endorsed by the provincial government and formed the basis for the provincial and national plans for the establishment of the NPNTL, which has been under implementation since 2017. Biodiversity and tiger conservation have been integrated into the provincial 13th FYP, for the first time in Jilin Province, which was regarded as a breakthrough in mainstreaming wildlife protection and integration into economic development.

29. The ‘Heilongjiang Amur Tiger Habitat Conservation Plan’ has been completed by the Heilongjiang Forestry Corporation (HFC) and Heilongjiang Forestry Department (HFD), as a guiding technical document for the conservation, restoration, and management of Amur tiger population and habitats. The recommendations of the plan have been incorporated by the provincial government mainstreaming biodiversity in other sectors’ development strategies. For example, one of the recommendations was to establish man-made ecological corridors to allow tigers, leopards, and more importantly, their preys such as sika deer to migrate, where habitat fragments were not fully reintegrated (or habitat fragmentation could not be reversed). This has been incorporated into the design of a national highway project (Danzhou-Acheng National Highway), which has built three such corridors to allow wild animals to cross the highway and connect their habitats. The design and location of the corridors are based on the monitoring data collected for several years under the project, analyzing the critical sections of wildlife habitat fragmentation and how to connect the habitats. In addition, according to the request of the National Forestry and Grassland Administration (NFGA), the China Feline Research Center (FRC) has used the project’s monitoring data to prepare a plan for building eight man-made ecological corridors, including four domestic ones and four International Sino-Russia corridors for the ‘China Russia Cross-boundary Cooperation on Protected Areas Initiative’ being prepared by NFGA. Under the project, a ‘Compensation Regulation for Wildlife Associated Conflicts in Heilongjiang’ has been formulated and submitted to the provincial government, which is expected to promote and contribute to the provincial compensation regulations to be developed. The Heilongjiang Nature Reserve Protection Plan developed under the project has supported the identification of and planning for priority habitat areas for tiger protection, including existing forest farms managed by the HFD and HFC, respectively. Furthermore, three local regulations and measures have been developed and implemented to facilitate the management and conservation of wildlife in Dongning County, and Muling and Laoyeling Nature Reserves and their accompanying buffer zones. These documents have also provided substantive inputs to the pilot NPNTL and thus directly contributed to the national-level policy and institutional framework.

30. **The Northeast China Advisory Committee for Tiger and Landscape Conservation (NCACTLC) has been established (IRI2)**. It is composed of nationally recognized experts and representatives from the



Northeast Forestry University, Jilin Academy of Forestry, Wildlife Institute of Heilongjiang Province, and other project partners. It has provided technical advice through committee meetings, reflecting the latest scientific data on tigers and other wildlife and their habitats. Through a series of meetings covering various technical aspects—including field survey methodologies; planning, monitoring, and reporting standards; evaluation and project completion reports—the committee provided strong technical support during implementation. In addition, the committee has provided ad hoc guidance in response to demand from the participating entities to ensure that the relevant technical issues were identified and addressed on time. After the project ended, the committee members continue to provide policy and technical advice to the national and provincial governments because they are core members of the FRC and the national expert pool and think tank for wildlife and biodiversity conservation.

31. **Cross-provincial collaboration with Russian counterparts (IRI 3).** Three international regional meetings were hosted by the Jilin Forestry Department (JFD), HFD, and HFC. The fourth meeting, originally scheduled by the National Project Management Office (NPMO) in 2019, was delayed as more than one large-scale international workshop per year was deemed to be inefficient and attracted fewer participants. This meeting was subsequently cancelled due to the COVID–19 pandemic and associated global travel restrictions. Overall, the international forums and study tours have helped strengthen cross provincial and international collaboration as follows: (a) In 2016, JFD and Wildlife Conservation Society (WCS) jointly organized an International Forum of Amur Tiger and Leopard Protection in Hunchun, Jilin Province, where China and Russia reached an important consensus on cross-border cooperation by way of a guiding memorandum; (b) HFC organized the International Forum of Amur Tiger and Leopard Protection in Heilongjiang, where renowned national and international experts exchanged knowledge and experience on the hotspot issues of Amur Tiger and Leopard National Park Management, improvement of habitat fragmentation, measures addressing human-animal conflicts, wildlife damage compensation mechanisms, and transboundary collaboration; (c) HFD held an international workshop with participation from the Russian National Geopark, WCS, China FRC under the State Forestry Administration (SFA), and World Wildlife Fund for Nature (WWF), where agreements were reached on further strengthening communication and cooperation in the areas of protection of Amur tiger/leopard, stork, waterfowl, cranes, eco-tourism, environmental education, roe deer population tracking, and animals and plant baseline surveys; (d) additional international and domestic study tours to Russia, India, United States, and Cambodia equipped the participating entities with applied knowledge and good practice of ecological corridor establishment and maintenance, and management of protected areas and national parks, data collection, reduction of human wildlife conflicts, field surveys, and online monitoring.

32. Consequently, cooperation has increased between the project’s main stakeholders and their respective Russian counterparts and other countries. The thematic issues discussed in these meetings have translated into concrete actions, including joint anti-poaching activities, staff training (see the training results in annex 1), development of a unified monitoring protocol for both provinces and consistent with the Russian system, and consolidation of data into a unified database housed at the FRC (as described in section II, IRI 7 below). These regional meetings have been complemented by bilateral meetings between the individual partners and their Russian counterparts.

33. **The management effectiveness of the four existing NRs has significantly improved (IRI 4).** The project provided support primarily for training, equipment, updating of existing management plans, and development of nature reserve-specific implementation regulations required to facilitate the legal application of the existing management plans. A total of 319 nature reserve staff (95 women) received



training, 107 percent of the target of 296 (IRI 6). A Management Effectiveness Tracking Tool (METT) was used to measure the management effectiveness of the nature reserves, concluding that project interventions have led to an average score of 77.5, 30 percent above the target of 60, with each nature reserve exceeding the individual target (IRI 4). METT is one of the two most used systems worldwide to monitor and assess protected area management effectiveness, including all six elements of management identified in the International Union for Conservation of Nature World Commission on Protected Areas (IUCN-WCPA): context, planning, inputs, process, outputs, and outcomes. Protected areas receiving funding from the World Bank or from the GEF or under international conventions are requested to complete the METT as part of the assessment of project activities. The World Bank and NCACTLC have facilitated the assessment of METT three times as stipulated in the PP, at the beginning, midterm review (MTR), and end of implementation. Four existing nature reserves have participated in the assessment, answering 68 questions in a questionnaire. The results have demonstrated significant improvements of management effectiveness. The scores for the four reserves are shown in table 3.

Table 3. METT Scores in Four Nature Reserves

| Nature Reserve Name | Baseline Score | Midterm(actual) | End Target | Closing (actual) | % of End Target |
|--------------------------|----------------|-----------------|------------|------------------|-----------------|
| Hunchun Nature Reserve | 60.00 | 60.0 | 71.0 | 83.0 | 116 |
| Wangqing Nature Reserve | 51.00 | 59.0 | 63.0 | 76.0 | 120 |
| Muling Nature Reserve | 48.00 | 61.0 | 57.0 | 74.0 | 130 |
| Laoyeling Nature Reserve | 36.00 | 58.0 | 47.0 | 78.0 | 166 |
| Average score | 48.75 | 59.5 | 59.5 | 77.5 | 130 |

34. **Three new NRs (866 km²) of protected areas for tiger and other wildlife were planned to be established (IRI 5).**To strengthen the nature reserves in a cluster along a north-south corridor paralleling the Sino-Russian border and support an expansion along an east-west corridor extending further into China, the project aimed to create three new reserves, Tianqiaoling and Lanjia ‘Nature Reserve in Jilin Province, and Niaoqingshan Nature Reserve in Heilongjiang Province, respectively. Tianqiaoling has been successfully established covering an area of 500.6 km² with project support for the relevant field studies, consultations, preparation, and application process. On the other hand, during implementation, Lanjia Nature Reserve was included as part of the NPNTL and thus did not need to be established as a provincial-level nature reserve by the project. Niaoqingshan remains a provincial-level nature reserve instead of national level because Chaoyanggou Forest Farm became part of the NPNTL and thus could not apply for national nature reserve together with Niaoqingshan (their combined area would qualify for national level). However, the planned activities have been implemented in Lanjia and Niaoqingshan as well, such as patrol, snare removal, training, awareness raising, camera monitoring, and field survey. Therefore, the areas covered by Lanjia (186 km²) and Niaoqingshan (180 km²) are considered as areas with enhanced biodiversity. Nevertheless, the target is deemed 80 percent achieved with a combined area of 686 km² in Tianqiaoling and Lanjia because Niaoqingshan was not updated to national level as originally envisaged. The enlarged nature reserve areas provided ample space for the spread of tiger and leopard populations, reproduction, and habitats and significantly enhanced the carrying capacity of the populations.

35. **The project helped expand the range of the populations of prey species, improve habitat, and increase carrying capacity of these areas,** through reforestation with a diverse range of local broad leaf and conifer species, reduction of understory, thinning of forest stands, and removal of snares. The forest



tending activities, afforestation, and reforestation covered a total area of 129,566 ha, of which 123,279 ha are in Jilin (Hunchun, Wangqing, and Tianqiaoling) and 6,287 ha in Heilongjiang (Suiyang and Muling forest bureaus). Furthermore, the Provincial Project Management Units (PPMUs), provincial forest bureaus, WWF, and WCS have collaborated to organize training related to snare removal, Spatial Monitoring and Reporting Tool (SMART)² patrolling, workplace safety, nature reserve management skills, management of protected areas, and so on. The tree stock has increased by 4–5 m³ per year per hectare through forest tending and reforestation. The percentage of broad leaf trees has increased, which has improved the environment for wild animals to survive while the shrub and grass cover has provided more food and shelter for both prey and predator species. With an increase in the prey population, the number of tigers and leopards at the top of the food chain has also increased as evidenced by the monitoring data. All of these interventions have contributed to an improved ecological habitat and increased carry capacity of these areas.

36. **Anti-poaching, patrolling, and snare removal activities have been implemented extensively both inside and outside nature reserves.** The project carried out SMART patrols of over 26,800 km, and a total of 70,500 snares were cleared, which significantly improved the protection of wild animals. This has resulted in a dramatic decrease in the incidence of snares—90 percent, 375 percent of the target of 24 percent (IRI 7). This very high success rate can mainly be attributed to the application of SMART patrolling techniques and the enlarged scope of patrolling. The extensive awareness-raising activities have also played an important role in reducing the poaching incidents and snares through the general public's changed mindset to help protect the wildlife. Furthermore, the establishment of the NPNTL has certainly created synergy in terms of publicity and changing people's mindset in the whole area.

37. **Supplemental feeding and introduction of sika deer.** A total of 264 new supplementary feeding sites have been set up by five project implementation entities in Jilin and 11 feeding sites by HFD, providing about 125,000 kg of fodder, grain, and salt. These have greatly supported the wild animals in wintertime, as observed in the video footages of animals feeding increasing significantly. In the Wangqing Nature Reserve in Jilin Province, the project supported the introduction of sika deer breeding populations, which after rewilding will increase the population of ungulates in key habitats of tigers. In June 2016, Wangqing Nature Reserve established a deer breeding center in Jincang Forest Farm, covering an area of 1,350 acres.

38. **A cross-provincial, integrated technical monitoring program under the responsibility of the FRC has been established (IRI 8)** for monitoring tiger and other key wildlife populations and their prey and habitat, both in the nature reserves and adjacent areas supported by the project. This helped improve conservation of habitat and recovery of biodiversity through a better understanding of the habitat and wildlife. It has been used to guide SMART patrols, field surveys, resource allocation, and inform decisions, which have played a critical role in increasing effectiveness of habitat protection. As a highlight of the project, it has created a unified approach and standard for the two provinces and with Russia, greatly facilitating enhanced cooperation with the Russian counterparts and other international partners. It is housed in the FRC under the SFA. The FRC is China's center of excellence in this field and an internationally recognized center for technology and information exchange in feline conservation research. It promotes

² SMART (Spatial Monitoring and Reporting Tool) approach covers software, capacity-building, and site-based protection standards. SMART consists of a software application that enables one to collect, store, communicate, and evaluate ranger-based data on patrol efforts, patrol results, and threat levels.



strategies and projects in support of endangered felines such as Amur tigers and Amur leopards and explores ecosystem-based approaches to conserving big cats. Therefore, the monitoring system has far-reaching national and international impact. It has also made substantial contributions to the broader national-level wildlife monitoring system. The abovementioned SMART system has been applied to collect and consolidate data, and 1,260 infrared digital cameras have been installed. It also included the monitoring of nature-reserve specific species as indicators of biodiversity ‘richness’. This subcomponent supported the purchase of monitoring equipment, training, field studies, data processing, and publication and dissemination, and two field surveys led by the FRC. A series of fixed, automatic camera traps ran for three-month periods twice per year. The monitoring data were collected by the forest bureaus and analyzed by the FRC, resulting in three reports: Species Diversity of Mammals, Field Survey of Ungulate Preys, and Monitoring of Population Dynamics and Spatial Distribution of Amur Tigers and Leopards, based on camera monitoring and field surveys from 2017 to 2019 (three winters).

39. During the camera monitoring surveys, 580 continuous monitoring sites and 951 automatic cameras were deployed, covering a total survey area of 2,677 km². In addition, two field surveys were carried out with 360 samples covering 2,424 km² and an overall sampling intensity of about 37.7 km per 100 km². Based on the camera monitoring data, 30 species of wild animals were recorded, including 11 families and 26 species of mammals, among which 9 species are on the IUCN Red List and 11 species are on China’s Key Protected Animals List. In addition, the activities of a rare ungulate species—the goral—were discovered for the first time in Northeast China. A total of 2,004 Amur tiger image data (427 videos and 1,577 photos) have been collected. Population dynamics analysis found that from 2017 to 2019, the number of Amur tigers in the survey area increased overall, and the minimum number of individual tigers recorded in three consecutive years was 15 (including 2 cubs), 22 (including 4 cubs), and 28 (including 5 cubs). The increasing number of cubs is an even more important indicator than the increasing number of tigers. It shows that the tiger families have settled in the area and indicates a healthy and positive trajectory of stable growth of wild animal population.

40. **The monitoring data in Jilin Province (where close to 90 percent of the Amur tigers in China are located) over 2015 to 2019 enabled a comparison of the changes in tiger population before and after the project, as follows:**

- (a) The Amur tiger population had more than doubled in four years, noting an increase from 7 in 2015 to 16 in 2019, as illustrated in figure 1.
- (b) The activity frequency of the Amur tiger had been captured by camera 45 times during spring 2015, increasing to 110 to 170 times during the spring of 2017 and fall of 2018. In the spring of 2019, the frequency had reached 216, which is almost five times compared to the beginning of the project. Figure 2 shows the activity frequency of the Amur tiger from 2015 to 2019.
- (c) The relative abundance index (RAI) was used to evaluate the richness of ungulates, taking the wild boar, roe deer, and sika deer as samples. Evidence shows that the population of these three ungulates keeps increasing steadily, as observed in figure 3, particularly in 2019 when the RAI was 1.8 times greater as compared to 2015.



Figure 1. Number of Amur Tigers (2015 Spring to 2019 Fall)

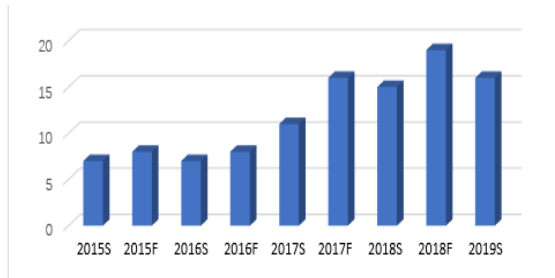
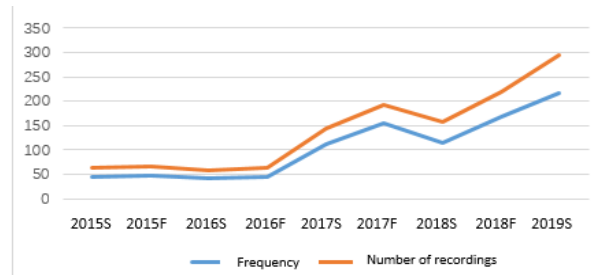
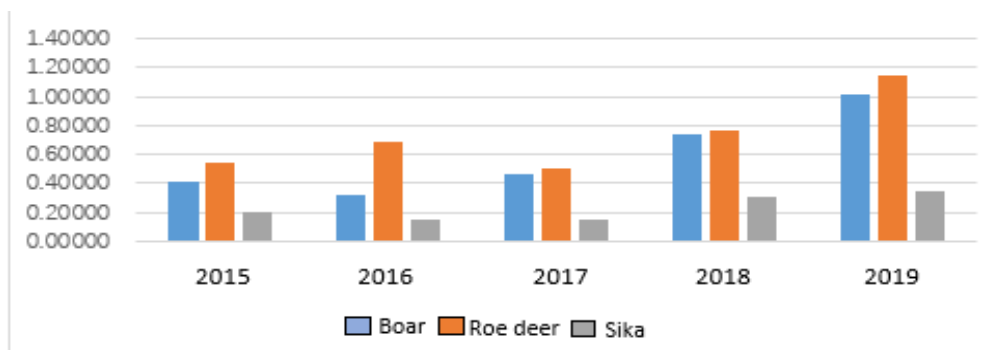


Figure 2. Frequency and Number of Recordings



Note: S = Spring; F = Fall.

Figure 3. RAI for Ungulates (Boar, Roe Deer, and Sika)



41. The abovementioned indicators, including the increase in the number of wild animals, were purposely not set as project indicators to assess the project achievements, and rightly so, because the team wanted to be very careful about their attribution. It is difficult to attribute these results to the project interventions alone. The change in the number of wild animals is a result of a combination of various factors with the project being one contributing element, including other domestic programs and programs of development partners, such as WWF, WCS, and so on. Even though these are not project indicators, the ICR uses them as evidence to help illustrate the positive outcome and trajectory of recovered biodiversity after the ecological conditions were created and improved. The technical monitoring carried out under the project is extremely helpful in providing the evidence.

PDO 2: Create the ecological conditions for recovery of threatened biodiversity outside of Nature Reserves

42. **PDO Indicator 2: Areas outside of nature reserves managed in a biodiversity friendly³ manner.** This indicator referred to the creation of tiger and other wildlife-friendly habitats to promote the

³ As described in the Project Paper, 'Biodiversity friendly' in the context of the project consists of landscapes that meet the following criteria: (a) tree diversity ranging between 50 percent and 60 percent:50 percent to 40 percent broad leaf: conifers, (b) crown cover of 40 percent or greater, (c) understory (that is, shrub cover) not greater than 10–20 percent, and (d) cleared of snares.



expansion of the range of existing populations and increase the carrying capacity of forest lands in proximity to protected nature reserves. The end target has been fully achieved (100 percent of the target of 2,252 km²).

43. In this area, the following outcomes were achieved that contributed to PDO 2.

44. **The project supported the restoration and establishment of 26 existing and 2 new forestry protection stations (24 in Jilin Province and 4 in Heilongjiang Province), thereby fully achieving the target of 28 stations⁴ (IRI 9).** It financed the purchase of equipment (such as vehicles for patrolling, GPS, snow motorcycle, walkie talkies, binoculars, and infrared digital cameras) and training of forestry staff and local farmers with an emphasis on improving capacity in the implementation of SMART patrolling techniques for wildlife conservation, and training on promoting increased adoption of tiger-friendly land use practices among local communities in the adjacent areas of the project-supported nature reserves. A total of 555 forestry staff (166 women) have received training, which is 202 percent of the target of 274 (IRI 10). Farmer training events were combined with initiatives for poverty alleviation, occupational skill development, and invigoration of entrepreneurship, including the use of the e-commerce platforms. Apart from training, peer group learning platforms based on social media (WeChat and Tencent QQ) have also been used effectively. Experts provided technical support to black fungi and hazelnut farmers and beekeepers and cooperatives were formed and value added through processing and a shift to organic or green food production in some places.

45. **Pilot mitigation measures have led to the development and adoption of tiger-friendly land use practices (alternative livelihood) in local communities living in proximity to project-supported nature reserves.** Due to the restricted access to the nature reserves, the communities adjacent to the nature reserves needed support to shift from traditional forest production and hunting of wild animals to biodiversity-friendly activities that can be carried out outside the nature reserves, such as beekeeping, cultivation of black fungi (*Auricularia auricula-judae*), medicinal plants, hazelnuts, ferns, and berries. The project has provided training, extension service, financial support, identification, and implementation of alternative livelihoods and compensation to mitigate human-wildlife conflicts. In addition, it provided employment opportunities to the communities and farmers such as patrolling, anti-poaching/snare removals, field surveys, camera monitoring, and supplementary feeding. A total of 5,014 people (representing 167 percent of the target of 3,000 people, IRI 11) have directly benefited from alternative livelihoods support, including productive activities and employment opportunities to co-manage the nature reserves. When the communities benefited from income-generating activities and improved livelihood, they generally refrained from illegal hunting or farming in the nature reserves. The farmers interviewed during the ICR missions and the third-party social impact monitoring reports indicated that their mentality and behavior had changed, and nature reserve and biodiversity conservation have more buy-in at the community level.

46. The beekeeping households received direct support through provision of materials, bees, and bee boxes and the PMO's progress reports and borrower's Project Completion Report indicate an average increase in household income of about US\$1,200 per year. The black fungi producers received training and extension services (there was no direct financial support from the project to their production),

⁴ There was a typo in the target value for this indicator in the Results Framework of the Project Paper. The end target should be 28 instead of 26, which is consistent with the correct description of the indicator: 26 existing stations and 2 new stations.



contributing to an increase in household income of about 30 percent. Black fungi is one of the most important income sources in the area, used as both food and medicine. After the project ended, the domestic programs continue to replicate the successful models through financing some of these activities through the Native Forest Protection Program, eco-compensation system, compensation fund for commercial natural forest logging ban, and so on. The communities have also gained skills and knowledge through training and improved market access to sustain their livelihood and income.

47. **The awareness-raising activities have been very successful, as demonstrated by the fact that an estimated 267,000 people (104,000 women) participated—that is, 357 percent of the target of 75,000 people (IRI 12).** The participating entities in Jilin and Heilongjiang conducted a series of activities to improve public awareness of wildlife conservation as an important factor in the efforts to reduce human-wildlife conflicts. The participating entities adopted a wide range of means including social media, posters, informative signs, brochures, competitions, radio programs, and films to reach out to the staff members, communities, and students. Large-scale events were held to promote awareness, including International Environment Day, Wildlife Awareness Month, Tiger Protection Day, Bird Protection Week, and so on. Performance and broadcasting vans visited forestry farms and communities where they were well received. Writing and painting competitions related to ‘environmental conservation’ were organized every year in some primary and middle schools. The national and local television stations, newspapers, and magazines have published more than 755 related reports and articles. Also, social media has been very effective in reaching out to an even larger audience. For example, in Hunchun, 215 articles were published on their official account receiving 113,753 hits (this was additional and not even included in the actual result in the Results Framework).

48. The third-party external monitoring reports and interviews during the World Bank missions confirmed that the abovementioned activities have yielded very positive results. Targeted public awareness programs have helped foster growing understanding and appreciation of the value and importance of biodiversity and their local environments. They also helped establish clear links between biodiversity conservation and community health and welfare, and resulted in behavior change, more active public participation, and bottom-up actions. For example, an increasing number of volunteers have participated in patrolling, wildlife rescue, and protection activities. In Jiushaping village, Jingxin township, and Hunchun municipality, the villagers have voluntarily organized a patrol team to protect migratory birds. The increasing populations of migrating birds have also attracted tourists and provided fertilizer for their green food ‘Wild Geese Rice’. A virtuous cycle is being formed because of continuous and effective awareness raising interventions under the project. In addition, the project created significant additional benefits and spillover effects.

49. In August 2017, the central government established the NPNTL, with a total area of 14,600 km². It includes the five forest bureaus’ jurisdictions of 11,401 km², out of which the project area was 2,252 km². It is an integrated wildlife habitat with improved ecological conditions for recovery of biodiversity. The project made substantial contributions to the area of 11,401 km² and NPNTL due to the reasons listed in the following paragraphs.

50. **First, the project was instrumental in the establishment of the NPNTL** with the World Bank leadership and the counterpart core team being key advocates for the NPNTL. In 2011, the World Bank president met with the Party Secretary of Jilin Province in Changchun and discussed the World Bank’s assistance in addressing Jilin’s development challenges, including the cooperation on tiger and



biodiversity conservation and its strategic significance for national and global public goods. The Jilin Amur Tiger and Amur Leopard Key Ecological Protection Plan for 2016–2025 developed under the project was endorsed by the provincial and central government in 2016 and formed the basis for the provincial and national plans for the establishment of the NPNTL. The provincial PMO staff were also members of the core team drafting the master plan for NPNTL.

51. **Second, due to their nature, many of the project activities were implemented in the whole area of 11,401 km²,** such as planning, awareness building, training, policy recommendations, and SMART patrolling, which increased management effectiveness and carrying capacity. These activities played an important role and were fully integrated into the management of the NPNTL. The five forest bureaus took advantage of the project to implement most project activities not only in the original project design area but across their entire jurisdiction. For example, when a major awareness building event was carried out, the communities in the whole area were covered, and when project supported training workshops or patrol contests were organized in a local forest bureau, all the relevant staff participated. Now the whole area has become a much wider migration corridor for wildlife, connecting and expanding the habitats. Of course, other programs such as the pilot NPNTL, WWF, and WCS have also made contributions to this larger area.

52. **Third, the project provided practical hands-on experience to the management of the NPNTL on wildlife protection,** particularly on nature reserve management, measures to address human-animal conflicts, wildlife damage compensation mechanisms, and transboundary collaboration. The project has trained and improved the capacity of all five local forest bureaus in the project area who are the same staff managing the NPNTL. Most importantly, mission interviews confirmed that the mentality of the forestry staff has been transformed from focusing on forestry only to integrating wildlife protection into their daily work and monitoring system. With increased knowledge and capacity, the staff of the nature reserves and forest bureaus in the project areas can now work independently to carry out monitoring and protection work in their respective positions, including at the grassroot level. This has greatly enhanced the institutional capacity and sustainability and is considered best practice compared to other forest farms in China.

Justification of Overall Efficacy Rating

Rating: Substantial

53. The overall efficacy is rated Substantial, as the project has fully achieved its PDO. It has achieved the PDO targets for the areas brought under enhanced biodiversity protection in existing and new nature reserves and areas outside of nature reserves managed in a biodiversity-friendly manner. All but two intermediate outcome indicators have also been met or exceeded. The key interventions of the project created an enabling policy and legal framework, increased management effectiveness of the nature reserves, strengthened patrolling and enforcement, established an integrated monitoring system, and reduced human/wildlife conflicts through alternative livelihood support. All of these interventions resulted in habitat improvement, expansion of the wildlife population, and biodiversity recovery both inside and outside the nature reserves.



C. EFFICIENCY

54. **Cost efficiency: High.** The project's management was efficient, with a small PMO in each of the implementing agencies. In addition to these PMOs, the existing structures of the forestry sector in the project area were utilized to help implement the project, with technical and consultant support where required. This approach not only kept low costs but also helped internalize institutional capacity building. As a result, the total project management cost was only US\$150,000, accounting for 0.5 percent of the total project cost.

55. **Implementation efficiency: Substantial.** The project was implemented in five-and-a-half years, including an 18-month extension of the grant's original closing date. Despite the delays, this implementation period is reasonable given that its original duration of three years was too short anyway, and it has four distinct components, especially in view of the magnitude of the M&E system developed and implemented, the extensive fieldwork as well as its geographic spread among the provinces' project sites, and the consultation and participation of the grassroot-level entities and communities with varying levels of institutional capacity. The implementation challenges at the early stage contributed to some of the project delays, which were later exacerbated by the lengthy institutional reforms and impacts of the COVID-19 pandemic. However, by the revised closing date, all project activities and investments had been completed and 99 percent of the loan funds had been utilized. In addition, the project successfully implemented the US\$17.8 million⁵ of counterpart funds supported activities, which achieved significant leveraging effect for a relatively small GEF grant financing.

56. An economic or financial analysis was not carried out at the time of appraisal as this was a small Recipient-Executed Trust Fund (RETF) (below US\$3 million) and involved purely public goods that promoted biodiversity. Moreover, the GEF grant was used primarily for covering the costs of technical assistance, training, patrolling, and purchase of equipment for the protected areas. Economic and financial analysis is not required under the small RETF guidelines. Therefore, no quantitative data were collected and the ICR did not attempt to undertake an economic and financial analysis.

57. It is however well understood that protected habitats provide significant economic benefits, including groundwater recharge, carbon sequestration, and air filtration. Protecting, restoring, and investing in nature can also reduce the risk of new zoonotic disease outbreaks such as COVID-19, a cost saving that has not been calculated globally. In a recent report 'Protecting 30% of the planet for nature: costs, benefits and economic implications'⁶, there is an urgent call from scientists to protect at least 30 percent of the earth's land and sea by 2030 to halt the collapse of biodiversity. It is estimated that the benefits outweigh the costs by a ratio of at least 5 to 1. The United Nations Convention on Biological Diversity has included this goal in its draft 10-year strategy which is to be finalized and approved at the United Nations Biodiversity Conference COP15 in Kunming, China in October 2021. The report offers new evidence that nature conservation drives economic growth, delivers key non-monetary benefits, and is a net contributor to a resilient global economy.

⁵ Central government counterpart funding: US\$0.8 million, Jilin PMO counterpart funding: US\$8.3 million; HFD: US\$4.4 million; and HFC: US\$4.3 million.

⁶ Anthony Waldron et al. 2020. *Campaign for Nature*.



Assessment of Efficiency and Rating

58. **Efficiency is rated Substantial**, based on high cost efficiency and substantial implementation efficiency (in view of delays in implementation).

D. JUSTIFICATION OF OVERALL OUTCOME RATING

Rating: Satisfactory

59. The overall outcome is rated Satisfactory, based on high relevance, substantial efficacy, and substantial efficiency.

E. OTHER OUTCOMES AND IMPACTS

Gender

60. Traditionally, in the project area, forest workers were mostly men and the women were working at home and involved in subsistence agriculture activities. The shift to higher-value commodities such as beekeeping, black fungus production, hazelnuts, and Chinese medicinal herbs has enabled women to be more engaged in commercial activities and contribute more substantially to household incomes. Technical training and extension services have been provided to women, significantly increasing their social and family status, as confirmed by interviews with women villagers. A total of 267,500 people (including 104,500 women) have participated in public awareness activities, far exceeding the project target of 75,000 (no target was set for women). A total of 555 forestry staff (166 women) and 319 (96 women) nature reserve staff have been trained (the low percentage of female staff trained was partly due to the fact that the percentage of women staff working in the nature reserves and forest bureaus is lower than men). Over 5,000 farmers have benefitted from pilot alternative livelihood support, among which about half are women.

Institutional Strengthening

61. Several elements contributed to institutional strengthening facilitating delivery of the project's objective with far-reaching impacts on long-term ecosystem management:

- (a) Provincial and local plans and regulations were developed to facilitate and sustain the efforts and collaboration of provincial and local stakeholders to conserve wildlife and its habitat and feed the same into the national plans for wildlife conservation and national parks.
- (b) A cross-provincial, integrated technical monitoring program has been established under the responsibility of the FRC, which significantly enhanced the institutional capacity to monitor tiger and other key wildlife populations and their prey and habitat, and allowed the consolidation of statistics into a unified database. This also resulted in a standard monitoring protocol consistent with Russia's system, which is considered an international standard and a first in China.
- (c) The NCACTLC was established and provided guidance and advice to address technical and policy issues facing wildlife conservation, reflecting the latest scientific data.



- (d) Extensive training has strengthened the management skills and technical capacity of the PMOs/Project Implementation Units (PIUs)/participating entities at the national, provincial, and local levels, who are the core staff managing the NPNTL. Thus, the project has greatly contributed to building the institutional capacity of NPNTL.
- (e) International workshops, increased cooperation with Russian counterparts and other countries, and international and domestic study tours have helped the forestry staff learn good practices of wildlife conservation and habitat restoration, all of which have directly strengthened the institutional capacity for sustainable landscape approach to wildlife conservation and restoration of ecosystems.

Mobilizing Private Sector Financing

Not applicable.

Poverty Reduction and Shared Prosperity

62. The project interventions contributed to poverty alleviation and shared prosperity through the provision of employment opportunities to the farmers and communities, including patrolling, anti-poaching/snare removals, field surveys, and camera monitoring. The project also supported alternative livelihoods, including financial support to farmers to purchase materials and equipment, and training and extension service for beekeeping, black fungi cultivation, hazelnuts planting, Chinese medicinal herbs, mouse traps, and so on. Over 5,000 farmers have directly benefited from the abovementioned activities which targeted poorer households through applying selection criteria and disclosure procedures to ensure transparency and inclusiveness.

63. Participating farmers have benefited significantly from the pilot livelihood support. For example, because of the beekeeping activities, in Jilin Hunchun and Tianqiaoling, the annual income for each household increased by US\$3,300 on average according to the progress report provided by the PMOs. The project also supported farmers through training and extension services in black fungi production. In Wangqing County, Jilin Province, the households producing black fungi saw their annual income increased by US\$4,500, on average. The project did not provide financial support to the black fungi production. Therefore, the communities' income increase can only partially be attributed to the project interventions.

Other Unintended Outcomes and Impacts

64. No other unintended outcomes and impacts were identified by this project.

III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

65. **Project preparation, design, and quality at entry.** The project design has taken into consideration international experience and adopted a landscape approach to creating a series of large and connected protected areas. It enabled the coexistence of multiple land uses (from biodiversity conservation to economic activities such as forestry and farming) and focused on the inter-relationship between land use,



integrated monitoring system, reduction of human animal conflicts, and development of alternative livelihoods. It also incorporated the Government's experience and the findings of studies by China's FRC, which identified habitat limiting factors affecting the tiger populations and priorities leading to the restoration of wildlife habitat. These helped consolidate the existing corridor with Russia along a north-south axis through interventions designed to facilitate wildlife migration further 'inland' into China.

66. **Rationale for World Bank Involvement.** The World Bank was well positioned to draw on international knowledge and best practice of biodiversity and ecosystem restoration. It helped design an integrated approach to wildlife conservation with a focus on mainstreaming biodiversity at the landscape level, adopting stakeholder engagement/consultation methodology, and piloting community development balancing development and conservation through supporting alternative livelihoods and co-management. The World Bank also convenes and hosts the GTI, which China is a member of, pledging support for tiger recovery. This adds extensive experience from the global alliance of governments, international organizations, civil society, the scientific communities, and the private sector.

67. **Assessment of project design.** Overall, the project objectives were clearly stated and responsive to China's priorities while meeting the World Bank's goals as set out in the CPF. The design of the components matched the project objectives and the environmental and social factors were adequately incorporated into the design. Risks were assessed appropriately and mitigation measures built into the project design, such as the identified capacity and procurement risks given the project implementing agencies are new to World Bank operations and their potential impact on the livelihood of local population. However, in hindsight, there were some design shortcomings.

68. The small size of the grant affected the project's leverage and influence to some extent and made it more difficult to draw the attention of higher-level authorities. When the project was under preparation, the provincial government proposed US\$15 million financing to focus on one province. However, during the preparation process, resources were split into five operations for the Central Government to support the priorities for various provinces and species, leaving only US\$3 million available to cover the three PMOs located in two provinces. This significant reduction in the grant size was deemed to have affected the motivation of the participating entities to a certain extent. It also naturally made it more challenging to leverage more support from higher levels, which contributed to the occasional implementation delays.

69. **NPMO funding and allocation.** Originally no grant funding was allocated to the NPMO, which would have been helpful to provide more incentives and resources; strengthen coordination between the central, provincial, and local levels; and help provide better links to the policy making and nature reserve management systems. Moreover, an NPMO that is more closely associated with the wildlife conservation department within the SFA, now the NFGA, would have been better positioned to facilitate the communication and policy dialogue with the SFA.

70. The original implementation period of three years was too short. It typically takes four to five years for a World Bank-assisted project to be effectively implemented. The originally envisaged project duration was four years but was cut short due to the delay in GEF approval of the project. In spite of the relatively small size of the grant, the wide range of activities, especially those that involve monitoring, communities, and awareness raising, took time to implement and build up their impact. Coupled with



start-up delays and other factors during implementation, three years proved too short. A five-year implementation time frame would have been more appropriate.

71. **Lengthy project preparation.** Originally, during project preparation, the local government and entities were committed to the project objectives and innovative approach. However, project preparation took a long time (about five years). This was partially because there was a lengthy process among the relevant government agencies to agree on the size of the grant and whether one or two provinces should participate. Also, the significantly reduced size of the grant affected the morale to some extent, and the lengthy process caused fatigue at various levels. Moreover, certain activities could not wait for the project approval and went ahead with other funding sources.

72. **Support for livelihood was not included in the grant financing.** Originally, support to alternative livelihood was only designed to be financed by counterpart funding with no grant allocation. During implementation, some grant financing was allocated for these activities, which enhanced the subcomponent. If grant financing was allocated right from the beginning, it could have increased the number of households supported and allowed longer periods to improve the effectiveness and impact of these activities.

B. KEY FACTORS DURING IMPLEMENTATION

73. **Designated account and initial delays.** Due to a slow start and the time it took to open the Designated Account, the project experienced delays during the first 18 months of implementation. In 2016, a new document was issued by the central government to separate new project accounts from the existing ones. Thus, it took 10 months for the project to establish the project designated account. In addition, the late submission of withdrawal applications, lack of communication, PMO's unfamiliarity with the World Bank's operational procedures and guidelines, and protracted procurement represented bottlenecks that hindered early implementation. However, in recognition of these delays, both provinces used their counterpart funding to carry out some project activities despite the challenges associated with grant financing and disbursement.

74. **Unfamiliarity with World Bank procedures caused delays at the early stages of the project.** The NPMO, Provincial Project Management Offices, and local PMOs were all new to World Bank-assisted projects and thus lacked experience in project management, FM, procurement, and so on. Although a series of training and capacity-building activities were held during project preparation and implementation, more frequent mission visits to the provinces and local levels coupled with hands-on support would have been helpful during the first year of implementation. It took quite some time for the PMOs to gradually learn the relevant World Bank procedures and processes and develop a deeper understanding of the project objectives and approach. It was not until the MTR that some of these issues were clarified and mutual understanding and agreements were reached.

75. **MTR.** The MTR mission, which took place in November 2017, noted that limited grant-funded activities had been carried out and most activities were being financed through counterpart funding. Due to unfamiliarity with the World Bank procedures and insufficient communication, the grant disbursement had only reached 10 percent at that time. Following renewed efforts by the Government and World Bank teams to discuss important clarifications and to reach agreements during the MTR mission, implementation gradually began to pick up and made substantial progress thereafter. The MTR was timely



and the enhanced communication and strengthened implementation support after the MTR helped provide the boost for implementation. Specifically, these include frequent audio meetings with the World Bank team, more visits to the project sites, fast turnaround in email exchanges, and enhanced training for PMO staff.

76. **Institutional reform.** From 2018 to 2019, implementation progress was affected by the impact of a lengthy institutional reform process that impeded effectiveness of the provincial and local PMOs, especially in Heilongjiang Province. This lasted for over a year and the new Project Management Unit (PMU) staff and their roles and responsibilities were only confirmed in July 2019. Staff in the three PMUs were reshuffled, which led to the loss of some institutional memory and business continuity. Even though additional technical and project management staff were eventually put in place, significant delays affected decision-making, timely implementation, and disbursement in the short term. Through concerted efforts made by the national, provincial, and local PMOs with support from the World Bank team (that is, through training and knowledge exchange opportunities with more experienced staff/PMOs), the project eventually caught up and the capacity of the new staff and new PMO improved.

77. **COVID-19 Impact.** The COVID-19 outbreak starting in January 2020 was an unanticipated risk and it compounded these delays, which were already pointing to a relatively tight implementation schedule. The resulting travel restrictions, stay-at-home orders, and quarantine and social distancing requirements negatively affected the field and office work, training, and interactions with the forest farms and communities. It also made it difficult to complete the remaining activities as planned by March 31, 2020, including the finalization of field surveys, infrared camera monitoring, alternative livelihood support, community awareness building, and study tours.

IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

A. QUALITY OF MONITORING AND EVALUATION (M&E)

M&E Design

78. The M&E arrangements for the project were well designed and included implementation performance and results monitoring, specialized technical monitoring, and safeguards compliance monitoring. A set of elaborate technical monitoring systems, including of the tiger population, habitat, and prey, were designed carefully under the responsibility of the FRC and represented an important output of Component 2. This is a rare case for Investment Project Financing projects, especially a small RETF project. The provincial and local entities are commended for their great dedication to this endeavor.

79. Both PDO indicators were designed to measure the effects of expanding the priority areas and improving habitats to create ecological conditions for biodiversity recovery. Performance monitoring of project implementation was undertaken by the provincial PMO, with inputs from the local PIUs and project entities and with the assistance of implementation support consultants. Safeguards compliance monitoring, based on the Environmental Management Plan, Pest Management Plan (PMP), and Resettlement Action Plan, was conducted through an independent external environmental and social safeguards supervision consultancy.



M&E Implementation

80. A cross-provincial, integrated technical monitoring system was established under the responsibility of the FRC to monitor tiger and other key wildlife populations and their prey, associated habitats, and biodiversity richness index. The project provided support primarily for the purchase of monitoring equipment, training, field studies, data processing, and publication and dissemination. The field dimension of the monitoring program comprised two elements: (a) two surveys conducted in Years 1 and 4 of the project and led by the FRC and (b) a series of fixed, automatic camera traps run biannually for three month periods. Both elements collected data on Amur tiger and associated prey species and habitat, both in the nature reserves and adjacent areas where the project supported habitat improvement activities. This was a tremendous effort given the magnitude of work scope and fieldwork covering a vast area across many project sites. The specialized M&E included actual monitoring data and evidence-based analysis and the key results are explained in section I.B and the Results Framework in the data sheet.

M&E Utilization

81. The M&E data and analysis have been and will continue to be used to guide resource allocation and decision-making. It has provided precious data, video footage, and pictures and will serve as firsthand and evidence-based information for scientific research in the future. This kind of focus and financing in support of M&E is highly commendable, especially given the relatively small size of the grant. The M&E system is already being used by the pilot NPNTL Program at various locations and the relevant activities are being financed and sustained under its budget and other domestic and international sources of funding.

Justification of Overall Rating of Quality of M&E

82. **Highly satisfactory.** Overall, monitoring was an important project activity and major efforts have been made on M&E, which is expected to provide invaluable data and analysis for further scientific research. The project M&E system selected appropriate indicators to track outputs and outcomes. Implementation units were established at every PMO level with adequate staffing, training, and supervision and periodic reports were produced and consolidated at the provincial and central levels. Overall, the M&E system was well designed and implemented, and reliable information was generated and put to use. Various arrangements for continued monitoring are in place or are under consideration. M&E of biodiversity and ecosystems will continue under a variety of programs and budgets, including the NPNTL.

B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

83. **Environmental safeguards.** The project is classified as Category B-partial assessment and triggered four environmental safeguard policies: Environment Assessment (OP 4.01), Natural Habitats (OP 4.04), Forests (OP 4.36), and Pest Management (OP 4.09). The project has been designed and implemented to improve the ecological conditions for recovery of threatened biodiversity in priority ecological landscapes in the far northeast of China. During project preparation, an Environmental and Social Management Plan (ESMP) was developed based on the findings of an Environmental and Social Impact Assessment along with an integrated PMP. These safeguards documents were disclosed locally in March 2015 and at the World Bank's InfoShop in April 2015. During implementation, the PMOs regularly



provided monitoring reports and field mission findings, both the ESMP and PMP were well implemented, and the project's environmental performance was deemed satisfactory, as described below.

84. **Environment Assessment (OP 4.01).** Following the ESMP requirements, adequate mitigation measures were adopted in the implementation of project activities to alleviate the limited negative impacts and enhance project benefit on natural habitats. No Occupational Health and Safety incidents in relation to project activities were found and reported throughout project implementation. In addition, the project implementation has brought significant environmental benefits as originally expected, including improvements in the forest quality, expansion of tiger/leopard habitat, and enhancement of biodiversity in the protected areas, and some good project practices have been maintained and even replicated beyond project closing, such as forest tending activities, reforestation, and environment-friendly alternative livelihoods.

85. **Natural Habitat (OP 4.04).** The project includes activities to improve the management of existing and new protected areas, involving both critical and non-critical natural habitats under the policy. As part of project activities, ecological monitoring has been conducted throughout project implementation, which proved that instead of conversion or damage of natural habitats and local biodiversity, the project implementation had brought enhanced biodiversity protection in existing and new nature reserves and facilitated the biodiversity-friendly management of areas outside of nature reserves.

86. **Pest Management (OP 4.09).** The policy was triggered because of pesticide use for vegetation restoration, tending, and nursery management under the project. For nature reserve conservation, an Integrated Pest Management approach was adopted by the project following the guidelines of the PMP. According to the regular monitoring reports on PMP implementation, no noncompliance was found in this regard.

87. **Forests (OP 4.36).** The project included limited reforestation with indigenous species. The implemented project activities involved no conversion of natural forests, commercial harvesting operation, or the introduction of any invasive species. The related livelihood impacts and effectiveness of mitigation measures are presented in the social safeguards section below.

Social

88. During project preparation, the livelihoods of people in 25 villages and 19 forest farms, including ethnic minorities (Xian people), were initially identified to be potentially affected by the project activity of setting up Tianqiaoling and Lanjia Nature Reserves in Jilin Province, as well as Niaoqingshan Nature Reserve in Heilongjiang Province. The main potential impact was estimated to be the loss of income related to strengthening restriction of access, certain areas/resources, wildlife-human conflicts, and so on. There was no physical relocation planned and the possibility of potential land acquisition could not be excluded at that stage. Therefore, the project was considered to trigger both World Bank Policy on Indigenous Peoples OP 4.10 and Involuntary Resettlement OP 4.12. A Resettlement Policy Framework, a Process Framework, and a Social Assessment including a Social Management Plan were prepared during the project preparation. An Ethnic Minority Development Plan and Social Action Plan were also prepared, which included detailed and specific measures to help affected indigenous people restore their incomes and develop alternative livelihoods.



89. A third-party external monitor was arranged and commissioned to provide annual reports assessing, among other things, the social impact on local communities, and ongoing public consultations and implementation of alternative livelihood measures during implementation. By the time of the ICR mission in December 2020, all three PPMUs had submitted the project completion reports on social external monitoring. The reports provide a comprehensive analysis on the social management, livelihoods measures, grievance mechanism, and gender aspects and project benefits to local communities. The reports confirmed that the project did not involve any land acquisition and resettlement nor did it introduce any direct negative social impacts in the local communities and ethnic minority villages. The project activities, such as establishment of the forest stations, were on state-owned land, providing monitoring equipment and training to forest rangers without directly affecting the state-owned forest farms and local communities (including ethnic minority villages). Alternative livelihood activities and non-timber forest products-related activities in the project area were carried out, which greatly benefitted the communities' income and livelihoods.

90. The third-party external monitoring reports concluded that during the project period, the salary of the forest farm staff had increased by about 25 percent. At the same time, the forest farms and local communities (especially vulnerable groups and women) in the project area effectively carried out alternative livelihood activities, such as planting reincarnation grass and beekeeping. In addition, culturally appropriate measures were taken for ethnic minorities in the project area, such as adopting the Xian language for publicity and awareness raising for the elderly Xian people and explaining the content of the project and related policies.

91. The World Bank missions visited forest protection stations and agricultural sites, including farming of black fungus, hazel nuts, and beekeeping, and interviewed the forestry staff and villagers in Jilin and Heilongjiang Provinces. They were highly satisfied with the support they had received. For example, the forest rangers enhanced their skills through the project training and improved their patrolling equipment with the project's investment. The villagers who carried out beekeeping activities also confirmed that they were very happy with the support and training provided by the local participating entities, and their families benefitted from the increased income from these activities. Farmers interviewed were also satisfied with the compensation they received when their crops were damaged by wild boars.

92. In addition, all three PMOs have issued local regulations on compensation for wildlife damage. The external monitoring reports showed that wildlife damage cases have been increasing in recent years because of the increasing presence of wildlife. The external monitor reports and World Bank mission reviewed samplings of compensation records of Hunchun in 2019 and the records showed that the damages caused by the wildlife have been properly verified and compensated following legal processes.

Fiduciary

93. Inadequate fiduciary management affected early implementation of the project in the form of delays. These issues were eventually resolved through improved communication and concerted efforts by all the relevant parties, and the project's FM capacity was strengthened through training and implementation support. Despite these delays, the project's FM system functioned well and provided accurate and timely information that grant proceeds were being used for the intended purposes and for project implementation progress. Financial reports were submitted on time and financial statements had unqualified audit opinions. Procurement reviews consistently found the project to be in compliance with



the World Bank's procurement policies and requirements. The PMO and PIUs routinely prepared and updated annual procurement plans that were submitted to the World Bank. The World Bank provided training and hands-on support to the three PMOs in contracting consultants and goods procurement and worked with them to help shorten the preparation and review time and processes while strengthening quality assurance.

C. BANK PERFORMANCE

Quality at Entry

Rating: Moderately Satisfactory

94. The World Bank's performance for ensuring quality at entry is rated Moderately Satisfactory. Through the preparation and appraisal process, the World Bank ensured that the technical design was sound and that the project could achieve its development objectives. The project was of high strategic relevance, and the World Bank played a vital role in ensuring that it was responsive to issues of national, provincial, and local priority. Preparation and appraisal of technical aspects was well conducted, with the World Bank bringing in international experience, engaging the Government in the integrated landscape approach, and including innovations and social benefits. The World Bank also ensured that fiduciary arrangements were adequate and the environmental and social aspects were diligently considered during social and environmental assessment. Given the initial unfamiliarity with the World Bank operational procedures, the project would have benefited from strengthened communication and more hands-on support during the preparation stage. It would also have been helpful if the project design had allocated some grant financing to support alternative livelihoods, and the institutional set up were optimized. Given the shortcomings during preparation, as described in section III.A, the World Bank performance in ensuring quality at entry is rated Moderately Satisfactory.

Quality of Supervision

Rating: Satisfactory

95. The World Bank maintained a focus on development impact, consistently emphasizing the targeted outcomes and the innovations being tested under the project. From project approval until MTR, there could have been more hands-on support through frequent visits and meetings to the provinces and project sites, and improved communication between the client and the World Bank. The MTR played an important role, which helped improve information flow and ensure clarifications. Following the MTR, the World Bank team undertook more frequent and closer interactions with the client, paid more visits to the project sites, held frequent audio meetings in between physical missions, and provided hands-on support to help solve the problems on time, which built an effective and trusting working relationship. The World Bank team also helped coordinate among the relevant agencies, such as the NPMO, provincial finance bureaus, provincial forestry departments, FRC, and audit office to address challenges facing staffing, counterpart funding, financial management, reimbursement, and monitoring. The MTR became a turning point when the project implementation gained momentum and accelerated implementation and disbursement.

96. The World Bank team also made sure that the M&E work was financed by the grant when there was a gap in the counterpart funding in 2019 after the second extension of the closing date. The financing shortage caused some doubts in the allocation of resources to M&E, but the World Bank team continued



to emphasize this is a critical aspect and must be completed as planned. The emphasis and financial support ensured that M&E was well implemented, which provided invaluable data to inform decisions and future research. Aide Memoires and ISRs systematically recalled the development objectives, monitored safeguards compliance, flagged key bottlenecks with proactive recommended actions, and followed up to ensure issues were being addressed. Learning and ownership building about key lessons and innovations was continuous. The supervision of fiduciary and safeguard aspects was of good quality and specialists in financial management, procurement and social and environmental safeguards participated in the missions consistently. Additional technical guidance on social safeguards monitoring was also provided to the third-party social safeguard monitoring agency.

Justification of Overall Rating of Bank Performance

Rating: Satisfactory

97. The World Bank teams played an important role in ensuring quality at entry and helping identify and solve problems during supervision. The World Bank provided substantial inputs into the success of the project.

D. RISK TO DEVELOPMENT OUTCOME

Rating: Moderate

98. There is a social risk of human-animal conflicts. However, with a high level of awareness raising and continuous support to the development of alternative livelihoods (that is, through training of production skills, marketing skills, and financial subsidies to support the communities), it is likely that they will strike a balance between development and environmental protection. The farmers are expected to maintain or continue to improve their livelihoods in harmony with the conservation objectives of the protected areas. They will also be supported through hiring opportunities to carry out patrol, field surveys, and other activities to co-manage the nature reserves and the national park.

99. There are possible financial risks to the sustainability of the alternative livelihood outcomes. Although prospects for the financial viability of farmer's activities are good, especially as the market for higher-value agricultural produce and non-timber forest products is growing steadily, there is a risk that market competition and potential COVID risks could affect market prospects. However, local authorities and farmers in the project areas have developed strong market awareness and have the skills and flexibility to manage the risk. The NPNTL and other domestic programs (including poverty reduction programs) are also paying increasing attention to community development and alternative livelihoods, which will greatly help the sustainability of their livelihood.

V. LESSONS AND RECOMMENDATIONS

100. **Mutually respectful and constructive partnership is critical.** Sustained Government commitment is key to effective and successful implementation. While it was challenging to attract the attention and maintain commitment of the participating entities and higher-level authorities due to the project's limited grant financing and lengthy preparation process, it was critical that a mutually respectful and constructive partnership was built up over time between the client and the World Bank during implementation. Despite the initial communication challenges and delays, the Government and World Bank teams later established and maintained an effective working relationship and were able to jointly overcome many hurdles. This



played an important role in the project's successful implementation, leading to the eventual achievement of its development objectives.

101. **Capacity building does not stop at the PMO level; instead it should involve all relevant stakeholders.** While the World Bank team primarily interacts with the PMOs, broader implementation support is often needed to overcome barriers, including helping with coordination among domestic agencies regarding staffing, counterpart funding, cross-sectoral collaboration, and so on. While this is sensitive and has to be carefully managed, appropriate and timely interventions are almost always needed to facilitate progress and successful implementation. This helped the project rapidly accelerate and improve performance after the MTR.

102. **It is important to adopt an integrated approach combining both environmental considerations and alternative livelihoods.** Approaches to nature reserve protection are more likely to succeed if they give priority to farmer incentives to change behavior and land use patterns. Proper consultation, compensation, financial support, and capacity building for surrounding communities, both for the short-term and long-term restoration and improvement of livelihoods, are key to reducing human/wildlife conflicts and ensure sustainability of the protected area. When the communities have restored livelihoods and have sustained income, they will more likely refrain from illegal hunting and wildlife trade, as evidenced by the monitoring data and beneficiary interviews, showing that snare incidents drastically reduced, wild animal and prey population significantly increased, and communities' awareness raised.

103. **The establishment of a cross-jurisdictional, and integrated technical monitoring system is of critical importance.** It can generate monitoring data and evidence-based analysis that can be used to monitor tiger and other key wildlife populations and their prey and habitat, inform resource allocation and decision-making, and facilitate international cooperation. This helped improve conservation of habitat protection and recovery of biodiversity through using the monitoring data to guide SMART patrol and field surveys, which have played a critical role in increasing effectiveness of habitat protection. Moreover, it provides important inputs and capacity building for the national monitoring systems and forms the basis for future scientific research. This kind of focus and financing in support of an M&E function is highly recommended for similar operations.

104. **Appropriate institutional arrangements are important for successful coordination.** Cross-provincial projects that require support from several agencies often experience challenges in coordination. It is important to locate the lead units in an agency that has the authority to coordinate with other agencies and facilitate policy dialogue, and a project leading group could have been established to ensure effective coordination. Moreover, a modest portion of grant financing should have been provided to the NPMO to strengthen incentives and coordination.



ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: Create ecological conditions for recovery of threatened biodiversity in priority landscapes.

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|--|-----------------------|-------------|-----------------|-------------------------|-------------------------------|
| Areas brought under enhanced biodiversity protection | Square kilometer(km2) | 0.00 | 3697.00 | | 3,697.00 |
| | | 16-Feb-2016 | 31-Dec-2020 | | 31-Dec-2020 |

Comments (achievements against targets):

Fully achieved (100% of the final target).

A total of 3,697km2 were brought under enhanced biodiversity protection in existing and new NRs under the project. This includes seven nature reserves shown in the main text, among which five are existing NRs, one is a newly established NR under the project, and one is included as part of the NPNTL.

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|-----------------------------|-----------------|----------|-----------------|-------------------------|-------------------------------|
| New areas outside protected | Square | 0.00 | 2252.00 | | 2,252.00 |



| | | | | | |
|--|----------------|-------------|-------------|--|-------------|
| areas managed as biodiversity-friendly | kilometer(km2) | 16-Feb-2016 | 31-Dec-2020 | | 31-Dec-2020 |
| <p>Comments (achievements against targets): End target fully achieved (100% of target). The project supported upgrading and establishment of protection stations, pilot alternative livelihood, training, extension service and awareness raising activities. These interventions have contributed to the increased carrying capacity of forest lands and expansion of the range of existing wildlife populations in proximity to protected nature reserves.</p> | | | | | |

A.2 Intermediate Results Indicators

Component: 1. Institutional Coordination to Mainstream Wildlife Conservation across Sectors

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|--|-----------------|---------------------|-----------------------|-------------------------|-------------------------------|
| Updated Jilin conservation & restoration plan presented to Provincial DRC, Provincial-wide tiger conservation management plan submitted for approval by Heilongjiang DRC | Percentage | 0.00 16-Feb-2016 | 100.00 31-Dec-2021 | | 100.00 31-Dec-2020 |

Comments (achievements against targets):
 Fully achieved (100%). Jilin province has updated the Plan for Amur Tiger Habitat Conservation and Restoration and has submitted it to the Provincial Development and Reform Commission in charge of mainstreaming of environmental considerations (including biodiversity) in sector plans. It has been endorsed by the provincial government and formed the basis for the provincial and national plans for the establishment of the NPNTL, which is under



implementation since 2017. Biodiversity and tiger conservation have been integrated into the 13th FYP, which is the first time in Jilin province and is a breakthrough in mainstreaming wildlife protection and integrating it into economic development, which the project has contributed to.

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|--|-----------------|---------------------|---------------------|-------------------------|-------------------------------|
| NE China Advisory tiger landscape conservation committee established | Number | 0.00 16-Feb-2016 | 1.00 31-Dec-2021 | | 1.00 31-Dec-2020 |

Comments (achievements against targets):

Fully achieved (100%). The committee was established, composed of nationally recognized experts and representatives from the NE Forestry University, Jilin Academy of Forestry, Wildlife Institute of Heilongjiang Province and other project partners. It has provided technical advice through committee meetings, reflecting the latest scientific data on tigers and other wildlife and their habitat. After the project ended, the Committee members continue to provide policy and technical advice to the national and provincial governments because they are the core members of the FRC and the national expert pool and think tank for wildlife and biodiversity conservation.

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|--|-----------------|---------------------|---------------------|-------------------------|-------------------------------|
| Cross-Provincial collaboration with Russian counterparts | Number | 0.00 16-Feb-2016 | 4.00 31-Dec-2020 | | 3.00 31-Dec-2020 |



Comments (achievements against targets):

During project design stage the fourth meeting was originally planned to be held by the NPMO towards the end of the project. But during project implementation, it was considered that organizing large scale international workshops more than once a year would be inefficient and attract fewer participants. And given the project delays and impact of COVID it was eventually cancelled.

Component: 2.Conservation of Priority Ecosystem & Increased Effectiveness of Habitat Protection in Changbaishan

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|--|-----------------|-------------|-----------------|-------------------------|-------------------------------|
| Increased average management effectiveness achieved in four existing NRs | Number | 38.00 | 60.00 | | 78.00 |
| | | 16-Feb-2016 | 31-Dec-2020 | | 31-Dec-2020 |

Comments (achievements against targets):

The end target was over achieved (130%).

The Project supported training, equipment, updating of existing management plans and development of NR-specific implementation regulations have resulted in increased management effectiveness. A Management Effectiveness Tracking Tool (METT) was used to measure the management effectiveness of the NRs, concluding that project interventions have led to an average score of 77.5, or 30% above the target of 60 for the four NRs. METT includes all six elements of management identified in the International Union for Conservation of Nature World Commission on Protected Areas (IUCN-WCPA):context, planning, inputs, process, outputs and outcomes. The World Bank and Advisory Committee have facilitated the assessment of METT at the beginning, MTR and end of implementation.

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|----------------|-----------------|----------|-----------------|-------------------------|-------------------------------|
|----------------|-----------------|----------|-----------------|-------------------------|-------------------------------|



| | | | | | |
|--|-----------------------|-------------|-------------|--|-------------|
| Three new NRs of new protected area for tiger and other wildlife established | Square kilometer(km2) | 0.00 | 866.00 | | 686.00 |
| | | 16-Feb-2016 | 31-Dec-2020 | | 31-Dec-2020 |

Comments (achievements against targets):

The actual target at project completion was partially achieved (80%). Tianqiaoling NR (500 km2) was established as originally planned. Lanjia (186 km2) became part of the NPNTL and thus reached a higher level conservation, which is certainly considered as new protected area and the project activities were carried out in Lanjia. Niaoqingshan (180 km2) remains a provincial NR instead of being upgraded to a national level NR even though the project activities were also implemented in Niaoqingshan.

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|------------------|-----------------|-------------|-----------------|-------------------------|-------------------------------|
| NR staff trained | Number | 0.00 | 296.00 | | 319.00 |
| | | 16-Feb-2016 | 31-Dec-2021 | | 31-Dec-2020 |

Comments (achievements against targets):

Fully achieved (108%). Extensive trainings have been organized and greatly helped increase the management effectiveness as evidenced by the METT scores.

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|--------------------------|-----------------|----------|-----------------|-------------------------|-------------------------------|
| Decrease in incidence of | Percentage | 0.00 | 24.00 | | 90.00 |



| | | | | | |
|---|--|-------------|-------------|--|-------------|
| snare in defined sampling sites in project area | | 16-Feb-2016 | 31-Dec-2020 | | 31-Dec-2020 |
|---|--|-------------|-------------|--|-------------|

Comments (achievements against targets):

The achievement has far exceeded the target (375%). SMART patrol techniques have been applied during project implementation. The PMOs at provincial and local levels have placed great emphasis on enhancing the anti-snare activities and have achieved excellent results. Awareness raising activities under the project have also helped the general public to change their mindset and behavior. Needless to say, the establishment of the NPNTL has certainly created synergy in terms of publicity and changing people's mindset in the whole area.

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|---|-----------------|-------------|-----------------|-------------------------|-------------------------------|
| Integrated cross-provincial ecological monitoring program | Percentage | 0.00 | 1.00 | | 1.00 |
| | | 16-Feb-2016 | 31-Dec-2020 | | 31-Dec-2020 |

Comments (achievements against targets):

The end target was fully achieved (100%). A cross provincial, integrated technical monitoring program under the responsibility of FRC has been established. It has created a unified approach for the two provinces and with Russia for monitoring and surveys of key wildlife populations and their prey, associated habitat and other key environmental indicators including biodiversity richness. It greatly facilitates enhanced cooperation with the Russian counterparts and international cooperation. Moreover, it has made substantial contribution to the national level wildlife monitoring system. Therefore with far-reaching international and national impact it has been used to guide SMART patrol, field surveys, resource allocation, and inform decisions, which has played a critical role in increasing effectiveness of habitat protection.

Component: 3. Reducing Human Wildlife Conflict in Priority Forest Landscapes



| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|---|-----------------|-------------|-----------------|-------------------------|-------------------------------|
| Construction and equipping of 2 new and upgrading and equipping of 26 existing wildlife monitoring stations outside of project supported nature reserves. | Number | 0.00 | 28.00 | | 28.00 |
| | | 16-Feb-2016 | 31-Dec-2020 | | 31-Dec-2020 |
| <p>Comments (achievements against targets): The end target was fully achieved (100%). The Project supported the restoration and establishment of 26 existing and two new forestry protection stations, thereby fully achieving the target. It financed the purchase of equipment, training of forestry staff and local farmers with an emphasis on improving capacity in the implementation of SMART patrolling techniques for wildlife conservation, and training on promoting increased adoption of tiger friendly land use practices among local communities in the adjacent areas of the project-supported NRs (there was a typo in the Project Paper for this indicator. The end target value should be 28 instead of 26).</p> | | | | | |

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|---|-----------------|-------------|-----------------|-------------------------|-------------------------------|
| Forestry staff trained | Number | 0.00 | 274.00 | | 555.00 |
| | | 16-Feb-2016 | 31-Dec-2020 | | 31-Dec-2020 |
| <p>Comments (achievements against targets): The end target is overachieved (200%). A total number of 555 forestry staff (166 women) has received training, doubled the target of 274 due to strengthened efforts for training outside the NRs. The five forest bureaus in the project area are in charge of a larger area. When they organized training</p> | | | | | |



under the project additional staff in the five bureaus also joined due to its close relevance to their work scope and skills needed. The positive spill over effect helped the project train a larger audience, which greatly help improve capacity and sustainability in general.

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|---|-----------------|---------------------|------------------------|-------------------------|-------------------------------|
| Farmers receiving benefits derived from project-supported alternative livelihood activities | Number | 0.00 16-Feb-2016 | 3000.00 31-Dec-2020 | | 5,014.00 31-Dec-2020 |

Comments (achievements against targets):

The end target is overachieved (167%). A total number of 5014 people (representing 16% of the target of 3,000 people) have directly benefited from alternative livelihoods support, including productive activities and employment opportunities to co-manage the NRs.

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|--|-----------------|---------------------|-------------------------|-------------------------|-------------------------------|
| People participate in public awareness activities over LOP | Number | 0.00 16-Feb-2016 | 75000.00 31-Dec-2020 | | 267,500.00 31-Dec-2020 |

Comments (achievements against targets):



The end target was overachieved (356%). The awareness-raising activities have been very successful. The PEs in Jilin and Heilongjiang conducted a series of activities to improve public awareness to reduce human-wildlife conflicts, through a wide range of means including social media, posters, informative signs, brochures, competitions, radio programs and films to reach out to the staff members, law-enforcement officers, communities, and students. Law enforcement inspections were conducted to combat illegal sales and trade of wildlife. Large scale events were utilized, including “International Environment Day”, “Wildlife Awareness Month”, “Tiger Protection Day”, “Bird Protection Week”, etc.



B. KEY OUTPUTS BY COMPONENT

| | |
|---|--|
| Objective/Outcome 1: create the ecological conditions for recovery of threatened biodiversity in Nature Reserves | |
| Outcome Indicators | 1. Area brought under enhanced biodiversity protection in existing and new nature reserves |
| Intermediate Results Indicators | <ul style="list-style-type: none"> 1. Conservation and Restoration Plan updated in Jilin and developed in Heilongjiang, and submitted to Provincial Development and Reform Committee. 2. NE China advisory tiger landscape conservation committee established 3. Strengthened cross-provincial collaboration with Russian counterparts 4. Increased average management effectiveness achieved in 4 existing NRs 5. Three new NRs of new protected area for tiger and other wildlife established. 6. NR staff trained 7. Decrease in incidence of snares in defined sampling sites in project area (both inside and outside of nature reserves 8. Integrated cross-provincial ecological monitoring program established |
| Key Outputs by Component (linked to the achievement of the Objective/Outcome 1) | Same as above. |
| Objective/Outcome 2: create the ecological conditions for recovery of threatened biodiversity outside of Nature Reserves | |
| Outcome Indicators | 2. Area outside of nature reserves managed in a biodiversity friendly ³ manner. |
| Intermediate Results Indicators | <ul style="list-style-type: none"> 9. Establishment of new and upgrading of 26 existing wildlife monitoring stations outside of project supported nature reserves. 10. Forestry staff trained 11. Farmers receiving benefits derived from project-supported alternative livelihood activities 12. People participate in public awareness activities over LOP disaggregated by gender) |
| Key Outputs by Component (linked to the achievement of the Objective/Outcome 2) | Same as above. |



ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS

| Name | Role |
|------------------------|---------------------------------|
| Preparation | |
| Garo J. Batmanian | Task Team Leader(s) |
| Jingrong He | Procurement Specialist(s) |
| Fang Zhang | Financial Management Specialist |
| Songling Yao | Social Specialist |
| Jin Liu | Team Member |
| Yiren Feng | Social Specialist |
| Xieli Bai | Team Member |
| Supervision/ICR | |
| Ms. Anisi | Task Team Leader(s) |
| Hongkun Yang | Procurement Specialist(s) |
| Fang Zhang | Financial Management Specialist |
| Xieli Bai | Team Member |
| Jie Pan | Team Member |
| Shuang Zhou | Social Specialist |
| Xiaodan Huang | Environmental Specialist |

B. STAFF TIME AND COST

| Stage of Project Cycle | Staff Time and Cost | |
|------------------------|---------------------|--|
| | No. of staff weeks | US\$ (including travel and consultant costs) |
| Preparation | | |



| | | |
|------------------------|--------------|-------------------|
| FY11 | .575 | 1,186.76 |
| FY12 | 8.300 | 51,474.90 |
| FY13 | 2.422 | 9,272.69 |
| FY14 | 1.500 | 13,946.69 |
| FY15 | 6.908 | 103,951.74 |
| FY16 | 4.894 | 50,069.15 |
| FY17 | 0 | 0.00 |
| Total | 24.60 | 229,901.93 |
| Supervision/ICR | | |
| FY17 | 4.975 | 41,547.35 |
| FY18 | 9.267 | 88,556.21 |
| FY19 | 6.474 | 55,192.34 |
| FY20 | 15.438 | 127,490.42 |
| Total | 36.15 | 312,786.32 |

**ANNEX 3. PROJECT COST BY COMPONENT**

| Components | Amount at Approval (US\$, millions) | Of which GEF (US\$, millions) | Actual at Project Closing (US\$, millions) | Of which GEF (US\$, millions) | Percentage of Approval, All Sources (%) | GEF Percentage of Approval (%) |
|---|--|--------------------------------------|---|--------------------------------------|--|---------------------------------------|
| Institutional Coordination to Mainstream Wildlife Conservation across Sectors | 1.73 | 0.72 | 1.62 | 0.68 | 94 | 94 |
| Conservation of Priority Ecosystems and Increased Effectiveness of Habitat Protection in the Changbaishan Landscape | 9.18 | 1.57 | 9.22 | 1.59 | 100 | 96 |
| Reducing Human Wildlife Conflict in Priority Forest Landscapes | 9.01 | 0.56 | 9.26 | 0.57 | 103 | 102 |
| Project Management and Monitoring and Evaluation | 0.66 | 0.15 | 0.67 | 0.16 | 100 | 107 |
| Total | 20.58 | 3.00 | 20.82 | 3.00 | 100 | 100 |



ANNEX 4. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS

The National Project Management Office is aware of the relevant statements and content of the World Bank's Implementation Completion and Results Report (ICR) for the World Bank/GEF-financed Landscaping Approach to Wildlife Conservation Project in Northeast China (hereinafter referred to as the project) and has no objection to it.

During the preparation process of the ICR, the World Bank team and the project management offices conducted many discussions and exchanges of information through emails, telephones, and videoconferences and verified the accuracy and appropriateness of the content, figures, and descriptions contained in the ICR and the Results Framework. The relevant parties strove to ensure that the report candidly and objectively reflect the project processes, effectiveness, and results.

Since the start of the project, the dedication, strong sense of responsibility, and the down-to-earth attitude of the World Bank team has gained our respect and is exemplary for us to learn from. The project achievements are inseparable from the great efforts of the World Bank team. We look forward to further cooperation with the World Bank again, including in wildlife protection, and protection and restoration of ecological environment and other relevant fields in the future.

Finally, thanks again to the World Bank team for your contribution to the project.

National Project Management Office