Brief Description of the project

The history of forest management and land use in China has resulted in fragmented landscapes featuring many forms of degradation resulting in sub-optimal delivery of ecosystem services and vulnerability to climate change. National attention is now turning towards increasing the quality of forests and maximizing ecosystem service benefits ranging from water regulation and carbon sequestration to the mitigation of natural disasters arising from climate variability and long-term change. To these ends, a concerted effort is required to develop new capacities to plan, implement, and sustain forest landscape restoration.

This project seeks to strengthen the policy, practice and evidence base of forest landscape restoration in China as an approach to reducing land degradation, conserving biodiversity, and adapting to climate change. Specifically, the project will enable China’s State Forestry Administration to develop and test new standards of planning, implementation, monitoring and ecosystem service valuation, building expertise and awareness to support longer term and broader restoration initiatives far into the future. Centered around the state forest farm system of former production forests covering 8 per cent of the national territory, the project will increase collaboration across sectors and scales to restore forest ecological functions and increase the benefits of forest ecosystem services to society.

New approaches to forest landscape restoration planning, implementation, and complementary sustainable development will be tested in three pilot areas and centered around seven state forest farms, followed by replication and upscaling through capacity building and policy engagement. To support the transition of state forest farms away from timber production to new business models, the project will increase partners’ capacity to engage in outreach to attract to potential donors and investors. The project will promote engagement and broader learning through knowledge capture and sharing from the local level in pilot landscapes to the global level through exchanges and field visits. This project is a child project of The Restoration Initiative, with an intervention approach aligned with the global program.
List of Acronyms and Abbreviations

AB – Advisory Board
ACG – Agency Coordination Group
CAS – Chinese Academy of Sciences
CBD – Convention on Biodiversity
CCCPC – Central Committee of the Communist Party of China
CCFP or SLCP – Conversion of Cropland to Forest Program (equivalent to Sloping Land Conversion Program)
CEA – China Ecosystem Assessment
CPC – Communist Party of China
CPO – County Project Office
CSO – Civil society organization
FAO – Food and Agriculture Organization of the United Nations
FEDRC – China National Forest Economics and Development Research Center
FGD – Focus group discussion
FLR – Forest landscape restoration
FMR – Forest management and restoration
FPIC – Free prior informed consent
FYP – Five Year Plan (of the PRC)
GDP – Gross domestic product
GEF – Global Environment Facility
GHG – Greenhouse gas
GINI – Generalized inequality index
GPFLR – Global Partnership for Forest Landscape Restoration
IA – Implementing Agency
IO – International Organization
IUCN – International Union for the Conservation of Nature
LoA – Letter of Agreement
M&E – Monitoring and evaluation
MFB – City Forestry Bureau
MOU – Memorandum of Understanding
MPO – City Project Office
NDRC – National Reform and Development Commission of the PRC
NEA – National Executing Agency
NFPP – Natural Forest Protection Program
NGO – Non-governmental organization
NTFP – non-timber forest product
PES – Payment for ecosystem services
PFD – Project framework Document
PFD – Provincial Forestry Department
PMG – Project Monitoring Group
PMO – Project Management Office
PPP – Public-private partnership
PRC – People’s Republic of China
ProDoc – Project document
REDD+ - Reduced \([CO^2]\) emissions from deforestation and forest degradation
RMB or CNY – Renminbi or Chinese Yuan (1 RMB = USD 0.15)
ROAM – Restoration opportunities assessment methodology
SC – Steering committee
SD – Sustainable development
SFA – State Forestry Administration
SFF – State forest farm
TNSP – Three-North Shelterbelt Project
TRI – The Restoration Initiative
UNCCD – United Nations Convention to Combat Desertification
UNFCCC – United Nations Framework Convention on Climate Change
WRI – World Resources Institute
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1. Project Profile

<table>
<thead>
<tr>
<th>Project title</th>
<th>Building Climate Resilient Green Infrastructure: enhancing ecosystem services of planted forests in China through forest landscape restoration and governance innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Number (GEF ID/IUCN ID)</td>
<td>9518/P01663</td>
</tr>
<tr>
<td>Project type (FSP or MSP)</td>
<td>FSP</td>
</tr>
<tr>
<td>Trust Fund</td>
<td>GEF Trust Fund</td>
</tr>
</tbody>
</table>
| GEF strategic objectives and focal areas | BD-4: Mainstream Biodiversity Conservation and Sustainable Use into Production Landscapes/Seascapes and Sectors  
Program 9: Managing the Human-Biodiversity Interface  
Outcome 9.1 Increased area of production landscapes and seascapes that integrate conservation and sustainable use of biodiversity into management.  
LD-2: Forest Landscapes: Generate sustainable flows of forest ecosystem services, including sustaining livelihoods of forest dependent people  
Program 3: Landscape Management and Restoration  
Outcome 2.1: Support mechanisms for forest landscape management and restoration established  
Outcome 2.2: Improved forest management and/or restoration  
LD-3: Integrated Landscapes: Reduce pressures on natural resources from competing land uses in the wider landscape  
Program 4: Scaling-up sustainable land management through the Landscape Approach  
Outcome 3.1: Support mechanisms for SLM in wider landscapes established  
SFM-3: Restored Forest Ecosystems: Reverse the loss of ecosystem services within degraded forest landscapes.  
Program 7: Building technical and institutional capacities to identify degraded forest landscapes and monitor forest restoration. |
<table>
<thead>
<tr>
<th><strong>IUCN programme priority</strong></th>
<th><strong>Geographical scope</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Program 8: Integrating SFM in landscape restoration. Outcome 5: Integrated landscape restoration plans to maintain forest ecosystem services are implemented at appropriate scales by government, private sector and local community actors, both women and men.</td>
<td>People’s Republic of China</td>
</tr>
</tbody>
</table>
| Global Result 2. Natural resource governance at all levels enables delivery of effective conservation and equitable social outcomes by integrating good governance principles and rights-based approaches.  
- Sub-Result 2.1. Credible and trusted knowledge for assessing and improving natural resource governance at all levels is available from IUCN.  
- Sub-Result 2.2. Governance at national and subnational levels related to nature and natural resources is strengthened through the application of the rights-based approach, and incorporation of good governance principles.  
Global Result 3: Societies recognise and enhance the ability of healthy and restored ecosystems to make effective contributions to meeting societal challenges of climate change, food security, human health and well-being, and economic and social development.  
- Sub-Result 3.1: Credible and trusted knowledge on how NBS can directly contribute to addressing major societal challenges is available and used by decision makers at all levels.  
- Sub-Result 3.3: Intact, modified and degraded landscapes, seascapes and watersheds that deliver direct benefits for society are equitably protected, managed and/or restored. |
**Project executing agency**  
The International Union for Conservation of Nature (IUCN)

**Duration of project (including expected start and end dates)**  
Commencement: January 2018  
Completion: December 2021

### Project cost (Summary)

<table>
<thead>
<tr>
<th>Item</th>
<th>USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEF financing</td>
<td>7,000,000</td>
</tr>
<tr>
<td>Co-financing</td>
<td></td>
</tr>
<tr>
<td>Executing Agency – State Forestry Administration of the PRC</td>
<td>54,047,570</td>
</tr>
<tr>
<td>Sub-total co-financing</td>
<td>54,047,570</td>
</tr>
<tr>
<td>Total (A+C)</td>
<td>61,047,570</td>
</tr>
</tbody>
</table>
2. Results Framework

<table>
<thead>
<tr>
<th>Component</th>
<th>Outcome</th>
<th>Target</th>
<th>Component 1: Improving ecosystems services in China’s State owned forests farms (SFFs): Implementation of Restoration Programs and Complementary Initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.1</td>
<td>1.1.A</td>
<td>Forests in selected landscapes provide relevant ecosystem services (water, soil and carbon sequestration), maintain and improve biodiversity, increase climate resilience, reduce land degradation, and generate local benefits</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>China’s State Forest Farms (SFFs) implement sustainable forest management and restoration (FMR) plans incorporating FLR and targeting delivery of specific ecosystem services (incl. conservation of biodiversity)</td>
</tr>
<tr>
<td>Output</td>
<td>1.1.A.1</td>
<td></td>
<td>Pilot SFFs have increased capacity to develop FMR plans to achieve short, medium and long term FLR goals</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td># of FMR plans that incorporate FLR and include short, medium and long term goals</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7 FMR plans incorporate FLR with short, medium and long term goals</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Copies of SFF FMR plans, Mid-term review report</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Assumption: SFFs are willing to include FLR into FMR plans</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Risk: FLR is not included in plans in an effective and efficient manner</td>
</tr>
<tr>
<td>Output</td>
<td>1.1.A.2</td>
<td></td>
<td>Pilot SFFs transform landscape and improve ecosystem service delivery by implementing annual FMR plans</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td># of SFFs that have developed Annual Plans for implementation of FMR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7 x 3 years of Annual FMR plans incorporate relevant activities to deliver FLR-oriented SFM plans</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Copies of SFF Annual plans, Mid-term review report</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Assumption: SFFs are willing to include FLR into annual plans</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Risk: FLR is not included in plans in an effective and efficient manner</td>
</tr>
<tr>
<td>Output</td>
<td>1.1.A.3</td>
<td></td>
<td>FMR planning process based on FLR principles is upscaled to the City level</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td># of FMR plans that incorporate FLR and short, medium and long-term goals (in addition to pilot SFFs)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9 additional FMR plans in SFFs in pilot areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Copies of SFF FMR plans, Mid-term review report</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Assumption: SFFs are willing to include FLR into FMR plans, SFFs that are not targeted by the project to co-develop FMR plans will participate in trainings and develop and share their own FMR plans</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Risk: FLR is not included in plans in an effective and efficient manner</td>
</tr>
<tr>
<td>Target</td>
<td>1.1.B</td>
<td></td>
<td>Pilot areas implement FLR incorporating SFFs and the surrounding landscapes</td>
</tr>
<tr>
<td>Output</td>
<td>1.1.B.1</td>
<td></td>
<td>Capacity to plan and implement FLR across relevant sectors (Forestry, Environmental Protection, Water, Land Resources, etc.) is increased</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td># of city &amp; county level FLR plans</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3-4 city and/or county FLR plans (Bijie, Chengde and Ganzhou or 2 counties in Ganzhou) including strategy for appropriate benefit sharing with local communities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Copies of completed City&amp; county FLR plans and evidence of stakeholder consultations and analysis of benefit sharing potential</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Assumption: Cities and counties are willing to include FLR into plans. County/City personnel from relevant sectors (lands, water, development &amp; reform, etc.) agree to participate in ROAM training and FLR planning</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Risk: FLR is not included in plans in an effective and efficient manner</td>
</tr>
<tr>
<td>Outcome</td>
<td>1.2</td>
<td></td>
<td>Ecosystem services valuation and monitoring methodologies in place and measuring the results; Monitoring of planted and restored forests and SFFs in China is adequate</td>
</tr>
<tr>
<td>Target</td>
<td>1.2</td>
<td></td>
<td>Project establishes methods, indicators, facilities and systems of data collection and analysis for monitoring of ecosystem services and biodiversity</td>
</tr>
</tbody>
</table>
Output 1.2.1
Locally feasible protocols exist for monitoring forest conditions and each ecosystem service (type, flow, trend) prioritised by SFF plans

- # of ecosystem service monitoring protocols, and data repositories, developed and in use
- Protocols for monitoring each priority ecosystem service (and associated data repository)
- Copy of the monitoring protocols

Assumptions: A simple yet effective protocol for assessing ecosystem services can be developed. Budget is provided by SFFs and FLR planners
- SFF and county/City officials buy into the concept of participatory ecosystem service monitoring and support development of network and remuneration incentives
- Protocols for valuation of ecosystem services are accepted by stakeholders and can be effectively implemented
- Risk: Agreement of elements of a monitoring protocol cannot be reached

Output 1.2.2
Baseline data is available on forest conditions and each ecosystem service relevant to specific goals of each pilot SFF and landscape

- # of baseline surveys completed
- 7 baseline surveys completed
- Copy of survey results

Assumption: SFFs are willing to support baseline surveys

- # of sets of ecosystem service monitoring data produced
- 7 sets of ecosystem service monitoring data per year for each of 3 years
- Data sets

Risk: Surveys do not yield expected results

Output 1.2.3
Monitoring data on changes in forest condition and ecosystem services (including biodiversity) and local socioeconomic conditions are available to inform ongoing SFM and FLR planning

- # of forest condition and ecosystem services and socioeconomic conditions synthesis reports
- 21 reports on changes in forest condition and ecosystem services, and socioeconomic conditions
- Copy of reports and evidence of use in revising plans

Assumption: Baseline surveys provide adequate data for assessing change in condition, trend and flow

- # of and remuneration to community men and women of diverse backgrounds participating as members of monitoring teams
- Twice yearly reports of pilot area coordinators (8 reports)
- Copy of reports and evidence of engagement and payment of community monitors, disaggregated by gender and ethnic group

Assumption: SFF management collaborates with township forestry station to implement inclusive and equitable engagement of participatory community monitors

Risk: SFF management is resistant to engage or cannot identify sufficient support from local community monitors

Outcome 1.3
Clear and quantified environmental improvements sustained by local institutional, policy and financing mechanisms

Target 1.3 Data generated through monitoring is used to improve valuation methodologies as a basis for eco-compensation (national to local levels)
<table>
<thead>
<tr>
<th>Output 1.3.1</th>
<th>Ecosystem service and biodiversity values are available for use in reporting on national progress and in development of eco-compensation systems (subsidies and PES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring data from 7 x SFFs is loaded into the system for linking monitoring data with valuation methodologies and PES programs</td>
<td>1 x system for linking monitoring data with valuation methodologies and PES programs</td>
</tr>
<tr>
<td># of reports on ecosystem service values</td>
<td>Copy of system and reports on the effectiveness of its links to PES programs</td>
</tr>
<tr>
<td>Average incremental value of targeted ecosystem services and associated compensation flowing to a sample of representative households in vicinity of pilot SFFs</td>
<td>Assumption: A system for linking local surveys of ecosystem services to PES programs can be developed and is accepted by PES programs</td>
</tr>
<tr>
<td># of reports on ecosystem service values</td>
<td>Copies of reports</td>
</tr>
<tr>
<td>Baseline survey and gender disaggregated annual panel data of 20 randomly sampled households in 7 pilot sites (140 HH)</td>
<td>Risk: PES programs do not engage with system</td>
</tr>
<tr>
<td>Dataset and 2 analytical reports in years 3 and 4</td>
<td>Risk: Valuation of targeted ecosystem services is only practicable through modeling in the project time frame</td>
</tr>
<tr>
<td>Component 2</td>
<td>Mainstreaming ecosystem services in China’s forest policies: Policy Development and Integration</td>
</tr>
<tr>
<td>Outcome 2.1</td>
<td>New policies, legal and regulatory frameworks which facilitate and promote, with strong evidence, the implementation and enforcement of forest landscape restoration and sustainable forest management</td>
</tr>
<tr>
<td>Target 2.1</td>
<td>National SFF policies integrate new mechanisms at relevant scales for SFM, FLR, and ecosystem services valuation</td>
</tr>
<tr>
<td>National and subnational forestry policy makers have information and recommendations to develop new policies integrating SFFs as a cornerstone for local FLR implementation</td>
<td># of relevant FLR-related policies/ legislation/ plans that are revised and progress towards adoption (scale 1 to 4).</td>
</tr>
<tr>
<td>National forestry policies including, e.g. SFF reform, national forest inventory, and 14th Forestry FYP incorporate FLR principles</td>
<td>Policy documents, e.g. SFF reform, 14th Forestry FYP, national forest inventory guidelines and other national policy documents relevant to FLR</td>
</tr>
<tr>
<td>Analysis of relevant policies, legislation, and regulations</td>
<td>Assumption: Government is willing to include FLR principles into SFF reform and the 14th Forestry FYP as well as other relevant policies and processes; Recommendations are accepted and adopted by SFA; Project develops policy-relevant lessons</td>
</tr>
<tr>
<td>Risk: Insufficient political will or other constraints to implement reforms necessary for FLR</td>
<td></td>
</tr>
<tr>
<td>Outcome 2.2</td>
<td>The SFFs reform fully considers the roles of SFFs in providing ecosystem services and develops appropriate supporting legal, regulatory and financial instruments and policies</td>
</tr>
<tr>
<td>Target 2.2</td>
<td>National SFF system incorporates FLR planning tools and governance structure</td>
</tr>
<tr>
<td>State Forest Farm system’s governance structure supports goals of SFF reform: FLR and conversion of SFFs to public</td>
<td>7 SFFs have revised governance/ institutional structures</td>
</tr>
<tr>
<td>7 SFFs incorporate governance / institutional structures that support the principles and practice of</td>
<td>Annual project progress reports and copies of SFF reports and institutional arrangements</td>
</tr>
<tr>
<td>Assumption: SFFs are willing to adapt governance and institutional structures to support FLR-oriented management</td>
<td></td>
</tr>
<tr>
<td>Benefit Organizations</td>
<td>FLR</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----</td>
</tr>
<tr>
<td><strong>Output 2.2.2</strong></td>
<td>State Forest Farm system has technical tools to upgrade FMR planning and to implement FLR</td>
</tr>
<tr>
<td><strong>Outcome 2.3</strong></td>
<td>Increased area of landscapes and afforested lands protected by new policies</td>
</tr>
<tr>
<td><strong>Target 2.3</strong></td>
<td>Central Government policies are modified at relevant scales to facilitate the implementation of FLR and SFM</td>
</tr>
<tr>
<td><strong>Output 2.3.1</strong></td>
<td>Central Government policy makers have operable information on the potential contribution of SFFs to national targets including FLR, biodiversity conservation, and ecosystem service provision</td>
</tr>
<tr>
<td><strong>Outcome 3.1</strong></td>
<td>Stakeholders in China (national stakeholders and stakeholders of 3 pilot landscapes) have improved knowledge of new financial mechanisms, accounting system and best practices on sustainable forest management</td>
</tr>
<tr>
<td><strong>Target 3.1</strong></td>
<td>SFFs implement sustainable development (SD) plans incorporating 1-3 strategic targets to support FLR</td>
</tr>
<tr>
<td><strong>Output 3.1.1</strong></td>
<td>SFFs have increased capacities and resources to adapt to new role as public benefit organizations and sustain operations in support of FLR</td>
</tr>
<tr>
<td><strong>Output 3.1.2</strong></td>
<td>SFFs use better market and business knowledge to improve the sustainability of their operations to generate public benefits (from FLR)</td>
</tr>
<tr>
<td><strong>Outcome</strong></td>
<td>Knowledge-sharing and international cooperation mechanisms further promote transfer and scaling up of project results, especially the collaboration with</td>
</tr>
</tbody>
</table>
### Target 3.2
**Policy engagement from China in global processes related to FLR and the role of forests and trees in mitigating/adapting to global environmental challenges is increased**

#### Output 3.2.1
**SFF Administration personnel have increased capacity to contribute to global policies to develop and promote FLR**

| # of events which Chinese delegates provide inputs to global FLR-related processes | 2-4 information briefs and presentations per year | Copies of briefs and presentations. Evidence of use in International forums (e.g. reports from delegates to events) | Assumption: Delegates to international meetings use project briefs and presentations | Risk: Briefs and presentations are not used by delegates |

### Outcome 3.3
**Information and knowledge gaps identified and addressed to better inform the policy and practical endeavors**

#### Target 3.3
**Public and/or private financing mechanisms support FLR initiatives**

#### Output 3.3.1
**SFF and County Forestry Bureaus in 3 pilot areas have marketable investment products to increase sustainability of operations supporting FLR**

| # of bankable initiatives financed | 7-14 Specific packages of “Bankable” initiatives | Copies of contracts signed | Assumption: SFA and relevant county/City officials and SFF directors buy in to idea of developing and seeking financing/funding for bankable approaches and actively participate | Risk: Market for bankable initiatives is variable and does not support uptake. |

### Outcome 3.4
**Improved awareness and understanding among key decision-makers and stakeholders of forest services and SFM**

#### Target 3.4.A
**SFM, FLR and supporting planning processes are upscaled to provincial/national levels**

#### Output 3.4.A.1
**National SFF system incorporates state-of-the-art information and knowledge sharing technology**

| online platform featuring China-adapted planning tools and M&E tools is operating | 1 online platform populated and running | online tool accessible | Assumption: A sufficient number of SFF personnel and FLR planners at county/City levels are willing to adopt social network and use online platform to support FR in their area | Risk: Personnel decline to engage |

#### Output 3.4.A.2
**SFF management has greater internal and external communications capacity**

| # of members of SFF social network | 500 SFF Directors and 500 county, city, province, and national forestry department personnel join SFF social network | List of members and use statistics (if available) | Assumption: as above | Risk: as above |

#### Output 3.4.A.3
**National SFF system has increased awareness of tools developed to facilitate transition to public benefit forests and**

| Guidance document developed and disseminated | Guidance document disseminated to SFF Directors | Adoption rate of Template by Provinces - through SFF reports | Assumption: The project learns sufficient lessons to prepare the guidance document | Risk: the document is not taken up |
### Target 3.4.B

**The practice of FLR & FMR planning is adopted and implemented beyond the pilot areas of the project**

<table>
<thead>
<tr>
<th>Output 3.4.B.1</th>
<th>Provincial forestry departments have a tool to increase the capacity of all sub-national forestry agencies to organize and participate in cross-sector FLR planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROAM/FLR handbook in use</td>
<td>ROAM/FLR handbook adapted for use in China</td>
</tr>
</tbody>
</table>

**Assumption:** ROAM/FLR handbook can be adapted and published in Chinese and is taken up by Chinese practitioners. ROAM exercises are implemented successfully. Project generates relevant lessons for the development of the China ROAM/FLR handbook. The ROAM/FLR Handbook is considered to be a useful resource beyond the current project.

---

### Target 3.4.C

**Policy and decision makers from local to national levels are equipped with knowledge of how to facilitate SFM, FLR, and ecosystem service delivery**

<table>
<thead>
<tr>
<th>Output 3.4.C.1</th>
<th>Relevant communities of practice have awareness of best practices observed and lessons learned through project implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td># of national presentations made</td>
<td>4 national presentations at relevant events per year</td>
</tr>
</tbody>
</table>

**Assumption:** Chinese stakeholders are willing and able to participate actively in international events and processes. Risk: Lack of interest in engaging.

---

<table>
<thead>
<tr>
<th>Assessment of the benefits of the Best Management Practices of FLR through the accounting and valuation of ecosystem services</th>
<th>1 x assessment presented</th>
<th>Copy of assessment</th>
</tr>
</thead>
</table>

**Assumption:** SFA approves inclusion of project webpage in appropriate space on website. Risk: Web page is not approved.

---

<table>
<thead>
<tr>
<th># of male and female participants in relevant national/subnational and international capacity building events</th>
<th>400 project associates participate in 8 national and subnational learning exchanges; 120 project associates participate in international learning exchanges</th>
<th>8 reports on national/subnational exchanges (2 x 4 years); 8 reports on exchanges (2 x 4 years); list of participants disaggregated by gender</th>
</tr>
</thead>
</table>

**Assumption:** project associates have sufficient time available and interest in participating in national, subnational, and international exchanges. Risk: participants do not receive approval to travel.
<table>
<thead>
<tr>
<th>Component 4</th>
<th>M&amp;E and information management and communication: Knowledge, Partnerships, Project Monitoring and Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome 4.1</td>
<td>A Project M&amp;E framework is designed and implemented throughout the project life</td>
</tr>
<tr>
<td><strong>Target 4.1</strong></td>
<td>TRI China project monitoring system provides relevant, accurate and timely information for project implementation and the global TRI project</td>
</tr>
<tr>
<td><strong>Output 4.1.1</strong></td>
<td>Project team, Global TRI M&amp;E team, project evaluators, and GEF have access to timely and informative information about project implementation</td>
</tr>
<tr>
<td></td>
<td>Effective monitoring system is in operation</td>
</tr>
<tr>
<td></td>
<td>Effective project monitoring system established, including a midterm and end of project reviews</td>
</tr>
<tr>
<td></td>
<td>M&amp;E reports, annual reports</td>
</tr>
<tr>
<td></td>
<td>Assumption: Project is able to develop an effective and cost efficient M&amp;E system</td>
</tr>
<tr>
<td></td>
<td>Risk: Data and information is not available</td>
</tr>
<tr>
<td><strong>Output 4.1.2</strong></td>
<td>Knowledge of the impacts of FLR as implemented in China informs future national and international initiatives</td>
</tr>
<tr>
<td></td>
<td>Impact data from forest condition and ecosystem service monitoring synthesized in annual reports</td>
</tr>
<tr>
<td></td>
<td>3 x annual reports on the project's impact on forest condition, ecosystem services, and benefit sharing at local level</td>
</tr>
<tr>
<td></td>
<td>Annual reports</td>
</tr>
<tr>
<td></td>
<td>Assumption: as above</td>
</tr>
<tr>
<td><strong>Output 4.1.2</strong></td>
<td>Knowledge of the impacts of FLR as implemented in China informs future national and international initiatives</td>
</tr>
<tr>
<td></td>
<td>Broader impacts of policy, planning, knowledge sharing, outreach activities are assessed</td>
</tr>
<tr>
<td></td>
<td>3 x annual reports on the project's broader impacts of policy, planning, knowledge sharing, outreach activities</td>
</tr>
<tr>
<td></td>
<td>Annual reports</td>
</tr>
<tr>
<td></td>
<td>Risk: As above</td>
</tr>
<tr>
<td><strong>Outcome 4.2</strong></td>
<td>Project outcomes are communicated in an efficient manner</td>
</tr>
<tr>
<td><strong>Target 4.2.A</strong></td>
<td>Awareness of the relationship between restored forests and ecosystem service benefits is increased among stakeholders of the 3 pilot landscapes</td>
</tr>
<tr>
<td><strong>Output 4.2.A.1</strong></td>
<td>Stakeholders from village to City level receive information and knowledge generated by the project</td>
</tr>
<tr>
<td></td>
<td>Project materials visible in all villages and in County and City government offices</td>
</tr>
<tr>
<td></td>
<td>350 villages and multi-sectoral government offices in 7 counties and 3 Cities receive project materials</td>
</tr>
<tr>
<td></td>
<td>Annual reports of project, site visit observation, reports, MTE report</td>
</tr>
<tr>
<td></td>
<td>Assumption: Awareness of the relationship between forests and ecosystem service benefits leads to implementation of FLR principles</td>
</tr>
<tr>
<td></td>
<td>Risk: People do not take up the tools and knowledge</td>
</tr>
<tr>
<td><strong>Target 4.2.B</strong></td>
<td>International cooperation and knowledge-sharing mechanisms promote upscaling</td>
</tr>
<tr>
<td><strong>Output 4.2.B.1</strong></td>
<td>Agencies and practitioners of FLR from Bonn Challenge countries receive insights and ideas to improve national implementation through knowledge exchange</td>
</tr>
<tr>
<td></td>
<td># of international presentations per year</td>
</tr>
<tr>
<td></td>
<td>2-4 international presentations per year</td>
</tr>
<tr>
<td></td>
<td>Trip reports and copies of presentations; Annual project reports.</td>
</tr>
<tr>
<td></td>
<td>Assumption: Chinese stakeholders are willing and able to participate actively in international events and processes</td>
</tr>
<tr>
<td></td>
<td>Risk: Lack of interest in engaging</td>
</tr>
</tbody>
</table>
3. Background and situation analysis

3.1 Background and context

The project Building Climate Resilient Green Infrastructure: enhancing ecosystem services of planted forests in China through forest landscape restoration and governance innovation, hereafter called the Project, will target several geographic and political scales. At the landscape level, forest landscape restoration (FLR) planning and related activities are centered around the unit of the State Forest Farm (SFF) and surrounding community lands up to the level of the county or prefecture in three pilot prefectural-level cities (dijishi) located in Guizhou Province (Southwest China), Hebei Province (North China), and Jiangxi Province (southern East China) (Figure 1).

![Figure 1. Map of China indicating the locations of Bijie City, Guizhou Province (SW), Chengde City, Hebei Province (NE), and Ganzhou City, Jiangxi Province (SE).](image)
SFFs are a forest management unit in China that have been developed since the 1950s, through the reforestation and afforestation of waste lands and mountains in critical ecological areas. There are currently 4,855 SFFs in China, employing 750,000 people and covering a total area of 77 million ha (of which, 45 million ha is forest), or 8 percent of the total land area of China. The SFFs provide important ecosystem services (see below for a description of ecosystem services).

An estimated 1,100 SFFs have provided lands for nature reserves, the major driving force for conservation of biodiversity in China. SFFs are also important for water conservation (comprising 65 per cent of forest area in the Yellow River Basin, and 30 per cent in the Yangtze River Basin), with more than 1,100 SFFs listed as key ecological areas for water conservation benefits.

SFFs are important for climate mitigation and adaptation as they comprise 25 per cent of China’s total forest area and they sequester an estimated 400 million tons of CO2e and produce 1.3 billion tons of oxygen annually. The SFFs, especially the 1,600 SFFs in northern and western China, are also important for combating wind erosion and desertification.

Certain activities of the Project will involve support from provincial institutions, and upscaling activities will target the network of SFFs nationwide. Policy work will target the national government and its reform policies implemented from provincial to county levels that are relevant to FLR.

The following environmental, social and institutional contextual backgrounds generally reflect these scales, with general background provided for the country followed by overviews at the city level (in the environmental and socioeconomic sections) and by generalized scale (in the institutional, sectoral and policy section).

3.1.1 Environmental context

Over a national territory of ca. 9.6 million km², China features many ecosystems of global significance to biodiversity conservation and climate change, including: temperate and boreal forests in the north and northeast, sub-tropical forests in the south and tropical forests on Hainan Island off the south coast and a small part of southern Yunnan Province; vast grasslands and arid steppes in the north and northwest; two major river basins that flow from west to east and several from south and southwest China towards the South China sea (W. Xu et al. 2017).

In the 1990s, cropland covered around 951,000 km² of China’s land area (Frolking et al. 1999) and has decreased several percent since, both due to urban expansion and afforestation policies (e.g. Deng et al. 2015). China has the second largest area of grassland after Australia, at about 40 per cent of its total land area; wetlands cover ca. 660,000 km², about 10 per cent of the world total (J. Liu and Diamond 2005).
While under pressure from population growth, agricultural expansion and overuse of resources, China remains one of the world’s megadiverse countries of high priority to global conservation efforts (Wu et al. 2014), and was estimated to harbor more than 30,000 species of vascular plants and 6,300 vertebrates (McNeely et al. 1990; Z. Tang et al. 2010). Worldwide, China also has one of the highest rates of endemism, with many species, particularly of plants and trees, only existing in small areas. In part, this is likely due to high altitudinal heterogeneity and the fact that a large part of China was relatively less affected by glaciation during the last ice age (Feng et al. 2016; López-Pujol et al. 2011). Of the 2,500 native trees species that have been registered, 34 are critically endangered, 45 are endangered and 96 are vulnerable.

China’s forest area is ranked 5th among all countries worldwide, and represents 5% of the global forest area (FRA 2016). For these reasons, the area and condition of China’s forest estate have important consequences not only on the delivery of ecosystem services at the national level, but also on regional and global ecosystem services flows and conservation of an important share of the world’s biodiversity. In this decade, China has had the highest rate of forest expansion (1.5 M ha y−1) (Keenan et al. 2015).

The official estimates of China’s forest cover are around 20-22 per cent of the country’s land area (e.g. Su et al. 2016; FAO 2016). From the 1970s to the 2010s, the forest cover of China increased by 9 per cent, or more than 85 million hectares. Between 1990 and 2010 alone, China’s forest cover increased by 49 million ha following the establishment of timber plantations and shelterbelts and natural forest protection (Fu et al. 2004) (Figure 2). In 2015, China made an intended nationally determined commitment (INDC) to increase forest carbon stock volume by around 4.5 billion m³ by 2030, which potentially represents an increase in forest area of 50 million ha or more (Fransen et al. 2015).

Fragmented and often isolated, China’s “forest islands” located in mountainous and hilly regions represent the country’s greatest repository of terrestrial biodiversity (Z. Tang et al. 2010; Fu et al. 2004). To protect these valuable resources, the government has designated 17 key biodiversity protection areas now subject to strict conservation boundaries and policies governing management (Bai et al. 2016).
According to recent data from China’s State Forest Administration (SFA), in 2013:

- The total carbon stored by forest vegetation in China was 8.427 billion tons
- The annual amount of water conserved by forest ecosystems in the country was 580.709 billion m³
  - Annual soil conserved was 8.191 billion tons.
  - Annual soil fertilizer conserved was 430 million tons

China’s forests absorbed 38 million tons of atmospheric pollutants and airborne dust absorbed by forests amounted to 5.845 billion tons.

According to the 8th National Forest Inventory, from 2009 to 2013 the net annual growth in forest growing stock volume was 1.416 billion m³, while timber harvest totaled 334 million m³ per year, 46 per cent of which came from plantations.

Although the area of China’s forests has been increasing over recent decades it is estimated that about 72 percent of China’s forest area is degraded (H. Ren et al. 2007). The pressures that have resulted in this degradation are multiple, complex and interconnected. They include a history of overharvesting, urban and infrastructure expansion, severely polluted or acidified soils, and an increasing area of low biodiversity timber plantations. Climate change is likely to cause shifts in the boundaries of ecoregions affecting the natural ranges of flora and fauna (Baker et al. 2009), which are currently restricted by forest fragmentation limiting natural dispersal and species migration.
Additionally, despite the increase in forest cover China has seen in recent years, ecosystem functionality remains suboptimal, particularly in terms of habitat for biodiversity. Ecosystem functionality is the interaction between organisms [biodiversity] and the physical environment, it includes stocks of natural capital (e.g. water, plants) and ecological processes such as nutrient cycling, soil development, water budgeting, and flammability (Biology Online Dictionary 2017). For the purposes of this Project, ecosystem functionality is defined as the capacity of a system to produce ecosystem services.

In recent years, China has increasingly recognized the need to conserve biodiversity and has created a system of protected areas and implemented large-scale forest protection, afforestation and reforestation programs. By 2014, China had established 2,729 nature reserves, covering 15 per cent of China’s land area. However, national assessments of the impact of these reserves have largely focused on ecological diversity (i.e. conservation of different ecosystem types) rather than biodiversity and ecosystem services (W. Xu et al. 2017).

Ecosystem services are “the benefits that people obtain from ecosystems” (WRI 2005). They include provisioning services – e.g. timber, food, water, fuel – regulating services – e.g. regulation of climate and natural hazards such as floods – and cultural services – e.g. religious and cultural values, tourism opportunities. Table 1 summarizes *The Common International Classification of Ecosystem Services* (European Environment Agency, 2016). Changes to ecosystems brought about by human activity can alter ecosystem functionality and consequently change the flow of ecosystem services and the benefits that society derives.

<table>
<thead>
<tr>
<th>Ecosystem Service</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provisioning services</td>
<td>Tangible goods and services that can be exchanged or traded, as well as consumed or used directly by people.</td>
</tr>
<tr>
<td>Regulating services</td>
<td>Ways in which ecosystems control or modify parameters that define the environment of people; these are ecosystem outputs that are not consumed but affect individuals, communities and populations and their activities.</td>
</tr>
<tr>
<td>Cultural services</td>
<td>Non-material ecosystem outputs that have symbolic, cultural, or intellectual significance.</td>
</tr>
<tr>
<td>Examples</td>
<td>Provision of food, water, and other raw materials.</td>
</tr>
<tr>
<td></td>
<td>Climate regulation; watershed regulation such as purification and flood control; and biological processes such as pest control, pollination, and genetic diversity.</td>
</tr>
<tr>
<td></td>
<td>Recreational services; spiritual and cultural connection; landscape amenity; health services; social cohesion and involvement.</td>
</tr>
</tbody>
</table>

Source: ([EEA] 2017)
In the past, biodiversity was the primary focus of protected areas, but the focus has shifted in recent years in part due to IUCN’s recognition of the importance of conserving ecosystem services in addition to biodiversity (W. Xu et al. 2017; Dudley 2008). China’s key national forestry programs were largely created to provide ecosystem services such as regulation of water delivery and mitigation of floods, soil erosion and sandstorms. Together the largest two of these programs, the Natural Forest Protection Program and the Conversion of Cropland to Forest Program cover upwards of 100 million ha (FEDRC 2013). These programs emerged after 1998 along with significant changes in China’s forest policy, including the way China classifies forests and woodlands. A simplified version of these classifications (after Liu and Yin 2012) is as follows:

- **Forest categories**
  - Timber forest or “ecological forest” (minimum area of 0.067 ha and canopy cover >20 per cent)
  - Economic forest (minimum area of 0.067 ha and canopy cover >20 per cent, producing non-timber forest products, including fruit)
  - Bamboo forest (minimum area of 0.067 ha and diameter >2cm)

- **Other wooded lands**
  - Open forest (canopy cover of 10 per cent - 19 per cent and trees higher than 5 m)
  - Shrub land (minimum area of 0.067 ha and combined cover of shrub, bushes and trees more than 30 per cent)

*NB: While the proposal will refer to these categories of forest, the Project will take a broader view of the definition of forest as the field of forest landscape restoration (explained below) is inclusive of many configurations of trees, shrubs and grasses within landscapes.*

The downside of the extensive re/afforestation projects undertaken in China is that the focus was on increasing the area of forest through the establishment of monoculture plantations (see, e.g. J. Xu 2011), which may be due in part to the adherence to the above mentioned classifications (e.g. timber forest as equal to “ecological forest”). As a result, China now has large areas of single-species, even-age plantations that are often not well managed, and, therefore, not able to provide all the ecosystem services that were expected to be delivered by reforestation.

Part of the solution to this problem is better assessment and accounting for ecosystem services. Using data from 2000 to 2010, the Ministry of Environmental Protection and the Chinese Academy of Sciences in 2012 initiated the “China Ecosystem Assessment” (CEA) to understand change in ecosystem services and inform policies on protection and restoration. The CEA found increases in all ecosystem services evaluated, except habitat provision for biodiversity. Food production had increased 38.5 per cent; carbon sequestration, 23.4 per cent; soil retention, 12.9 per cent; flood mitigation, 12.7 per cent; sandstorm prevention, 6.1 per cent, and water retention,
3.6 per cent. Biodiversity habitat provision had decreased, however, by 3.1 per cent (Ouyang et al. 2016).

To a large degree, China’s implementation of large-scale re/afforestation programs (See “Past and planned national actions and projects” in Section 3.5., below) has been through eco-compensation in the form of subsidies to forest managers (e.g. SFFs, village collectives, household forest holders, etc.) based on the area of land enrolled in the programs. Improved ecosystem services assessments and accounting will permit the development of more targeted eco-compensation systems, including market-based payments for ecosystem services (PES) that remunerate forest managers for specific quantities of ecosystem services provided to buyers (e.g. clean water provided to a city or bottling company; carbon sequestered and paid for by a carbon fund, etc.).

**The environmental context of the three project pilot areas**

The pilot landscapes of the Project are located in three distinct hilly and mountainous ecoregions (Table 2). Bijie City in Guizhou is within the Guangxi-Guizhou karst region, a landscape punctuated by steep rocky karst formations with high endemic biodiversity but subject to soil erosion and desertification. Chengde City in northern Hebei Province, deforested many centuries ago and now vulnerable to drought and soil depletion, is a crucial watershed for Beijing and Tianjin; on the edge of the Inner Mongolian Plateau, part of the Project’s pilot area is subject to overgrazing by migrant herders. Ganzhou City in southern East China, thought to harbor high but relatively unstudied biodiversity (Myers et al. 2000), is a key watershed of the Dongjiang River, a tributary of the Pearl River which provides water to several megacities including Guangzhou, Shenzhen and Hong Kong.

Table 2. Pilot area ecoregions

<table>
<thead>
<tr>
<th>Province/City</th>
<th>Ecoregion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guizhou/Bijie</td>
<td>Guangxi-Guizhou Karst vulnerable eco-district (Ecoregion 14(10))</td>
</tr>
<tr>
<td>Hebei/Chengde</td>
<td>Border area between the deciduous broadleaved forest eco-district of the North China mountain region (13(1)) and the Southeast Inner Mongolia Plateau agriculture grazing ecotone vulnerable eco-district (11(3))</td>
</tr>
<tr>
<td>Jiangxi/Ganzhou</td>
<td>Hunan-Jiangxi Hills agriculture eco-district (14(8))</td>
</tr>
</tbody>
</table>

Source: Fu et al. 2004

The following section provides a description of the environmental context of each of the three landscapes included in the Project.

*Environmental context of Guizhou Province and pilot project area*
Southwest China features a karst landscape of 620,000 km² (most of which located in Guizhou and Guangxi Provinces) containing a range of evergreen broad-leaf forest types (C. Q. Tang, Li, and Zhang 2010). The total forest cover is estimated to be 5,938,550 ha, or 33.75 per cent of the land area of (Li et al. 2014).

A diverse geology and topography punctuated by hills, mountains and steep karsts, together with a wide range of subtropical climate conditions has resulted in a highly diverse and complex flora, some of which evolved from Pleistocene communities protected in climate refugia since the Ice Age (C. Q. Tang et al. 2013). For these reasons, the biota of this region is of great conservation interest.

According to provincial government figures, provincial forest cover in 2015 was 8.8 million ha or 50 per cent of the territory, with a standing volume of 413 million m³, which translates to ca. 2,344 m³/ha (compared to Norway 20 years ago at ca. 2,286 m³/ha (Brunvoll 1998)). In 2015, the province completed a total of 1.44 million ha of afforestation, tended young trees over an area of 1.4 million ha, and improved 400,000 ha of “low quality, inefficient forest”. There are 110 state-owned forest farms in Guizhou Province, with a total area of ca. 349,000 ha, of which 70 per cent of the forest resources have been designated as ecological forest. (Source: Thirteenth Five-Year Forestry Development Plan of Guizhou Province, Department of Forestry of Guizhou Province, Aug. 2016).

With an area of 26,853 km², Bijie City is in the southwest corner of Guizhou Province adjacent to the borders of Sichuan and Yunnan provinces. Bijie comprises seven counties, one district, and 263 townships. Its elevation ranges from 457 m to 2,900.6 m. It is the upper watershed of the Pearl River and Wujiang River, the largest tributary of the Yangtze River, with a combined flow of 12.82 billion m³. It is therefore an important watershed protection area, and has potential to develop 1.61 million kilowatts of hydropower. The City contains 193 sub-watersheds over 10 km² and 80 sub-watersheds over 100 km² (Source: Bijie City Forestry Department, 3-13-2017).

In 2015, the forest area of the city is 1.29 million ha (or 48.04 per cent forest cover) with a standing volume of 26 million cubic meters. (Source: Planning and Design of Forestry Ecological Construction in Bijie City, Guizhou Forestry Investigation and Planning Institute, December 2015).

The City produces many ecosystem services, including 40 per cent of Guizhou’s tobacco, walnuts, tea, rape, bamboo shoots, and many herbal medicines. Bijie is the country’s second largest potato-producing area. Forest products from the area include tianma (Gastrodia spp.), a genus of orchid considered to be a valuable Chinese medicine (Source: Bijie City Forestry Department, 3-13-2017).

In terms of targets and performance of the forestry sector during the 12th FYP, the City reports
the following figures:

<table>
<thead>
<tr>
<th></th>
<th>Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest cover (%)</td>
<td>45</td>
<td>48.04</td>
</tr>
<tr>
<td>Standing volume (m³)</td>
<td>25.65 million</td>
<td>26 million</td>
</tr>
<tr>
<td>Urban greening coverage (%)</td>
<td>35</td>
<td>35.5</td>
</tr>
<tr>
<td>Forestry output value (RMB)</td>
<td>86 billion</td>
<td>150 billion</td>
</tr>
</tbody>
</table>

From 2010-15, Bijie afforested 406,000 ha planting 50.88 million trees, and addressed rocky desertification over an area of 673 square kilometers. (Source: Planning and Design of Forestry Ecological Construction in Bijie City, Guizhou Forestry Investigation and Planning Institute, December 2015)

There are 12 state-owned forest farms in Bijie, which were redesignated in 2015 as “ecological public welfare forests.” Forest resources are divided into ecological protection zones, commercial forest management areas, moderate development zones, and business areas. (Source: Planning and Design of Forestry Ecological Construction in Bijie City, Guizhou Forestry Investigation and Planning Institute, December 2015)

**Environmental context of Hebei Province and pilot project area**

The mountains and forests of Hebei Province in North China are a crucial watershed for Beijing and Tianjin, as well as an ecological barrier to sand-carrying winds from the northwest. Forest cover is estimated at ca. 1.76 million ha, or 9.44 per cent of the land area (Li et al. 2014).

The area was settled by migrants from the Yellow River valley ca. 5000 years BP, and research based on pollen data indicates early disturbance of natural forests. (G. Ren 2000).

As of 2015, according to provincial figures, Hebei had 5.8 million ha of land allocated to forest land, on which forest cover is 31 per cent; standing volume, 144 million cubic meters. The total output of the forestry industry was RMB 147.5 billion per year. From 2010-15, the province afforested 1.6 million ha, tended 1.8 million ha of young forest, and improved low quality and low efficiency forest transformation 37,900 ha of low quality/low efficiency forest.

The provincial government promulgated new "Regulations on Wetland Protection in Hebei Province" and a "Wetland Protection Plan of Hebei Province (2015-2030)“, and designated reserves of 7.32 million ha of forest land containing 942,000 ha of wetlands. These will form the basis of a new "ecological red line". The province now protects 41.02 per cent of its
wetlands, with 50 wetland parks covering 75,000 ha and 11 wetland nature reserves covering 200,000 ha. 2 new national nature reserves and 8 provincial nature reserves bring the total to 34, covering 613,700 ha, or 3.3 per cent of the land area.

To increase accountability and buy-in to forestry priorities identified during the 12th FYP, forestry indicators (e.g. forest cover and other measures of “green responsibility”) were included in the comprehensive evaluation system for leading party and government cadres (Source: Thirteenth Five-Year Forestry Development Plan of Hebei Province, Department of Forestry of Hebei Province, July 2016).

The pilot study area, within the jurisdiction of Chengde City, extends from the Bashang grassland at the north central border of Inner Mongolia to the northwest corner with Inner Mongolia and Liaoning Province. This area lies within the transition zone between the sub-humid monsoon climate and the semi-arid steppe climate (Zhao et al. 2005). Chengde City covers an area of 39,702 km².

The mountains in this area, ranging from 800 m to 2,300 m, were once dominated by oak forests, but were deforested for agriculture and degraded by over grazing. Major reforestation programs in the area over the past 50 years have largely employed Chinese red pine (*Pinus tabuliformis*) and Prince Rupprecht's larch (*Larix principis-rupprechtii*). (Zou et al. 2015).

State Forest Farms (SFFs) under the jurisdiction of Chengde City are distributed over 410,900 ha, with a forest area of ca. 296,500 hectares (representing 72 per cent of the farm land area and containing a standing volume of timber of ca. 11 million m³). The remaining SFF lands are non-forest (6.4 per cent), “sparse” forest, shrublands, etc.

Forest land includes key protection forest (182,669.6 ha) timber forest (9,3610.9 ha), economic forest (10,182.5 ha). The SFFs harbor an estimated 135 families, 454 genera and 988 species of higher plants, and 7 vegetation types including pine forest, larch forest, birch forest, 2 types of oak forest, walnut forest, and poplar forest. Elms and jujube (*Ziziphus jujube*) occur naturally across the grasslands. There are numerous species of wild edible and medicinal plants and valuable mushroom species (*Boletus* spp., *Ganoderma lucidum*, etc.). Wild fauna includes 225 species in 67 families, and birds, 171 species in 46 families (Source: Background information, State-owned Forest Administration of Chengde City, Hebei Province, July 2014).

*Environmental context of Jiangxi Province pilot project area*

Jiangxi Province, located inland and adjacent to coastal Fujian and Guangdong Provinces, features relatively high forest cover of 47.75 per cent or 7.98 million ha (Li et al. 2014).

The area is hilly and features red soil and a forest types similar to that of Taihe County just to
the north, which according to Dai et al. (2016) is dominated by 18 species: Masson’s pine 
(Pinus massoniana), slash pine (Pinus elliottii), Chinese fir (Cunninghamia lanceolata), 
Chinese weeping cypress (Cupressus funebris), camphor tree (Cinnamomum camphora), 
zhennan (Phoebe zhennan), guger tree (Schima superba), sweet gum (Liquidambar 
formosana), Chinese sassafras (Sassafras tzumu), chinkapin (Castanopsis eyrei and C. 
fargesii), myrsina leaf oak (Cyclobalanopsis gracilis), fortune chinabells (Alniphyllum fortunei), 
aldor (Alnus cremastogyne), faber oak (Quercus fabri), shinybark birch (Betula luminifera), 
chinaberry (Melia azedarach) and poplar (Populus deltoids).

The natural forest in this area is typically composed of evergreen broad-leaf species, of which 
there are over 100 native/endemic species (Source: Jiangxi Province Informational 
Document, 2017), but the area has been heavily reforested with conifers (Dai et al. 2016). 
Prior to SFF reform, the total area of the state-owned forest farms was 1.74 million ha, 
accounting for 1/6 of the forest area of the province, with a standing volume of 92.64 million 
m³. The quality of forest resources is relatively good, with 773,000 ha of ecological forest, 
accounting for 23 per cent of the total area of public welfare forest. There were 425 SFFs 
averaging 3900 ha in area, which were consolidated into 216 SFFs averaging 8,000 ha.

The three counties in the Dongjiang watershed area cover ca. 6,000 km². Anyuan County and 
Xunwu County, two of the counties in Ganzhou City are located in the upstream region of the 
Dongjiang River watershed, which is one of four major tributaries of the Pearl River, and 
constitutes 13.3 per cent of the water volume of the Dongjiang River, one of the key sources 
of drinking water for Guangzhou and Hong Kong.

The climate of the Dongjiang source area is a monsoon subtropical climate with ca. 1,600mm 
of rainfall annually, and four seasons with a short frost period, an average annual temperature 
of 18.9°C and a maximum of 38.6°C.

There are 260 vertebrate species in 87 genera, including protected species such as clouded 
leopard, pangolins, small civet, Tibetan monkey and 28 others. (Source: Jiangxi Province 

Soils above 800m altitude are classified as “mountainous yellow soil” and “mountain meadow 
soil”; from 500-800m “multi-organic red soil”; 300-500, “less organic content high hilly red soil” 
and below 300m “low organic content red hilly soil.” These distinctions have major 

The forest area of these two counties is estimated to be ca. 500,000 ha, of which 165,000 ha 
is classified as “public welfare” forest.

The Dongjiang source area has 16 SFFs, with a total area of 78,000 ha (of which 50,000 ha is 
ecological forest) and a standing volume of 310.54 million m³. Key natural resources include
rare earths and oranges produced in large areas of orchards (see, however, section 3.3.1 outlining “threats” mentioning a pathogen-related disaster affecting orange production).

There is a succession pattern of wasteland to shrub/dwarf forest, coniferous and broad-leaved mixed forest, and evergreen broad-leaved forest.

3.1.2 Socio-economic context

Overall, socio-economic factors, as well as institutional factors, generate the drivers that either create or relieve the pressures on forests. China's high and increasing population places demands on forests to provide a range of ecosystem services, including food, water, energy, shelter and space to live. Both total population and demographic factors including where people live, migration patterns and age distribution, can generate pressures that result in changes to the ecological functionality of forests and consequently on the flow of ecosystem services. On the other hand, demographic and economic change, including migration to urban areas and increased income can reduce demand for land in rural areas and create opportunities for forest expansion and longer-term management. Additionally, the impact of an increasing population and changing demographics can be mitigated by technology and how energy, food, materials, and transport are produced.

The Project will have a focus on mitigating pressures (e.g. promoting better management of forests, improved harvesting regimes, or restoring degraded lands), and where possible contribute to a better understanding of the drivers that affect forests, for example the impact of economic activity, policies, institutional arrangements and demographic shifts. Unless otherwise indicated, the following socioeconomic and demographic figures refer to World Bank data summarized in Appendix XIV.

China's population is between 1.371 and 1.381 billion and is projected to increase to ca. 1.388 by 2020. This translates to 146.1 people per km², which is high given that much of China’s land area is arid or mountainous. However, the growth rate has slowed to less than 0.5 per cent, ranking 159th in the world (Wikipedia 2017). Approximately 9 per cent of China’s population is comprised of ethnic minority peoples (Björn Gustafsson and Shi 2003). Overall, indicators of social well-being show a rapid increase in income, with per-capita gross national income increasing from only USD 990 in 1990 to USD 14,320 in 2015 and the proportion of people living below the poverty threshold of USD1.90/day has decreased from 69 per cent to only 1.9 per cent. At the same time, income inequality as measured by the GINI index is relatively high at 42.2 (in comparison, the Gini index of countries in the Euro area are in the range of 25-35 per cent; in the United States, 41.1 per cent).

Overall, people are living longer, with an average life span of 76 years a decreasing rate of child mortality. 92.2 per cent of people have a mobile cellular phone subscription, and 50 per cent have internet. While the number of children completing primary school may have decreased
somewhat, it is reported that a perfectly proportionate number of girls and boys are enrolled in primary and secondary school.

Several factors that have major implications for land use and forest management are changes in the age structure of China’s population, the number people moving from rural to urban areas, and an increase in off-farm labor.

With the slowing population growth, the age distribution is skewed with a decreasing proportion of young people (Appendix XV.) In recent years, China’s population has shifted rapidly from being largely rural-based to a nearly equal distribution between rural and urban. The rural population has declined from 73.59 per cent in 1990 to 50.05 per cent in 2010. Conversely, over the same period, the percentage of China’s population living in urban areas increased from 26.41 per cent to 49.95 per cent. According to China's National New urbanization plan, China's urban population will reach 60 per cent by 2020, indicating that there will be more than 13.6 million people migrating from rural areas to urban areas every year (Wang et al. 2016). At the same time, those who remain in rural areas are increasingly engaged in off-farm employment (see, e.g. Gutiérrez Rodríguez et al. 2016; Yin, Yin, and Li 2010).

These shifts have major potential implications for forests in terms of 1) demand of urban residents for forest ecosystem goods and services; 2) demand for rural land (which relieves pressure on forests); 3) increased demand for urban land (which increases the urban footprint and puts pressure on agricultural and forest lands); 4) decreased availability of rural labor (which leaves fewer people able to work on the land, including in forest restoration and management activities); and 5) an aging rural workforce (which raises concerns about the well-being of older people who are left to perform manual labor).

A recent survey of rural residents (i.e. people holding rural resident permits) engaged in non-agricultural labor showed a major gap in the 20-59-year-old age bracket with around 8.5 per cent fewer workers with rural resident permits living in rural compared to urban areas. In the over 60 age bracket, rural residence permit-holders in rural areas outnumber those in urban areas by 3.3 per cent, and they take care of children in the 0-14 age bracket of which there are 5.09 per cent more residents in rural than urban areas (Long et al. 2016).

The survey shows that people with higher education had left rural areas before workers, constituting a phenomenon of “brain drain” that has seriously affected human resources in rural sectors, including government jobs, leaving older cadres who are, according to Long et al. 2016, “more familiar with rural work... but they tend to be closed-minded, blinkered and lack management and innovation ability.” The same study finds that the salary of such cadres is generally less than RMB 5,000 per year.

One result of China’s rapid industrialization, and the effect of globalization, and a government strategy to contribute to these factors, has been massive urbanization, which on one hand
concentrates the human population and spares rural space, but at the same time produces a number of social effects that affect rural well-being and labor (Yansui Liu et al. 2016). The exodus of rural people to urban areas, especially young people, is resulting in an aging rural population and a growing human resources crisis.

Although the Project is not concerned with population and demographic issues directly, it does need to consider how these factors drive pressures that affect forests and agriculture when it is formulating policy recommendations and management approaches.

**Economic activity**

Since the 1980s, China has been the world’s most rapidly-developing economy, and has become the largest market for resources (D’Amato et al. 2016). The rate of GDP growth has decreased from a high of 10.6 per cent in 2010, but remained high at 6.9 per cent in 2015 (Table 3). Approximately 1.8 million migrate out of the country each year, and the rate of remittances from abroad has reached USD44 billion per year. The economy requires energy and materials for the production and distribution of goods and services. This includes water, metals, minerals, food, and fibre. Many of these ecosystem services come from forests, or land that was once forest.

Economic activity impacts China’s forests, through resource extraction, production, transport, use and waste generation. Economic activities such as agriculture, energy and transport infrastructure, mining, and forestry generate pressures on forests and economic changes can alter the demand for particular ecosystem services and affect the market potential of particular goods and services.

**Poverty**

Across China, the number of people classified as living in poverty has steadily decreased, from 70 million to 26 million between 1994 and 2010. In addition to the strategies already mentioned, and the mobility of migrant workers who take up employment in cities and wealthier coastal provinces, the government has implemented targeted programs to eliminate poverty in identified “poverty counties,” as well as through subsidies and rural development programs.

In 2001, the government identified 592 counties to focus relief and development efforts (Zhang 2016). In 2012, the central government designated 14 larger areas of concentrated poverty, comprising clusters of counties, many of them located in more remote mountainous regions and on the borders between provinces (Yanhua Liu and Xu 2016). In these regions, especially in western and southwestern China, a higher proportion of people belong to ethnic minorities. Overall, minority people in China are disadvantaged, in which geographic isolation in hilly and mountainous regions is an important factor, though there are likely others (Björn Gustafsson and Shi 2003).
The SFFs included in this Project are located in three (or four) of the above-mentioned areas of concentrated poverty (Table 3).

Table 3. Occurrence of poverty within the pilot project areas

<table>
<thead>
<tr>
<th>Province/City</th>
<th>Associated area of concentrated poverty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guizhou/Bijie</td>
<td>Located within either/both the rocky desertification area of Guizhou or/and the western mountainous area bordering Yunnan concentrated poverty areas.</td>
</tr>
<tr>
<td>Hebei/Chengde</td>
<td>Located Yanshan-Taihang mountain area, in the northern border region of Hebei and Inner Mongolia</td>
</tr>
<tr>
<td>Jiangxi/Ganzhou</td>
<td>Located in the Luoxiao mountain area, in southern Jiangxi Province</td>
</tr>
</tbody>
</table>

Source: Yanhua Liu and Xu 2016

Subsidies

One effect of rapid change in China is an increasing reliance of the Chinese rural population on government subsidies. Between 2004 and 2006, China eliminated agricultural taxes and began to subsidize rural livelihoods to ensure adequate food production (Zhu and Chen 2016). According to (Long et al. 2016) the elimination of agricultural taxes has weakened the capacity of rural grassroots organizations, resulting in a deterioration of communications channels (e.g. across sectors and scales) that support organization and collective action. This and the above-mentioned brain drain point to an urgent need for capacity building to increase technical skills as well as entrepreneurship in rural areas.

At the same time, China has implemented massive forest restoration programs, including the Natural Forest Protection Program, which have severely curtailed logging and associated revenues. Moreover, the Conversion of Cropland to Forest Program resulted in 32 million farm households retiring (up until now) nearly 30 million ha of agricultural and unused degraded land being afforested. Both programs, explained in more detail in the following section, involved widespread subsidies to rural households as well as to SFFs. The latter are supporting many retired forestry workers, and several years ago SFF initiated a program to remove a certain percentage of existing SFF employees from their work unit payrolls.

Concurrently, since the last decade, the central government has increased spending for rural development, which rose from RMB 123 billion in 2000 to 1.38 trillion in 2013. Private and relatively autonomous state-owned companies have also been increasing their investment in rural businesses (Long et al. 2016). To some degree, these developments are bound to create new rural employment and mitigate some of the above-mentioned effects (rural exodus, aging rural work force, dependence on subsidies).

It is also important to mention the ongoing reforms in land tenure, which interact with each of the above dynamics. Although land ownership remains vested in the state, several processes of de-
collectivization and reallocation of lands to households and private landholders have occurred, including through long leases, up to 70 years in the case of household land, including allocated forest plots (Ho 2013).

While government subsidies have contributed to reducing the income gap between poor counties and the national average, and reduced the population of poor in the country, there is uncertainty as to what the effects of eventual elimination or reduction of these subsidies will be (Zhang 2016). This is also the case for subsidies targeting the agriculture and forestry sectors.

**Socioeconomic context of the three project pilot areas**

The following section provides a description of the socioeconomic context of each of the three landscapes included in the Project.

**Socioeconomic context of Guizhou pilot project area**

Bijie City has a population of 9.04 million and administers seven counties (Dafang, Qianxi, Jinsha, Zhijin, Nayong, Weining, Hezhang), one district (Qixingguan) and 263 towns.

Over the past 30 years, Bijie’s economic situation has improved. From 1988 to 2016, the city's Gross Domestic Product (GDP) increased from ca. RMB 2.3 billion to RMB 162.8 billion and the per capita net income of farmers increased from RMB 316 to RMB 7702. The increase in forest cover in the area, from 15 per cent to 50 per cent of the land area, provides increased benefits in the form of ecosystem services to residents. (Source: Bijie City Forestry Department, 3-13-2017).

In 2015, 261,000 ha of forest land was transferred to households under collective forest tenure reform and 2601 forestry cooperatives were formed.

Bijie features an ethnically diverse population, with Yi, Miao, and Hui people along with representatives of 46 other ethnic groups, as well as the majority Han. Over time, the proportions of people claiming to belong to Han vs. minority ethnic groups has changed: in the past, it was more advantageous to be Han as there was some discrimination against minority peoples. Since the Cultural Revolution (1966-1976) however, education policies promoted the use of minority languages in schools and minority students were given special conditions for admission to colleges and universities, after which the proportions rebounded (from about 25 per cent to 35 per cent at the provincial level) (Blakely 1991).

**Socioeconomic context of Hebei pilot project area**

Chengde City, with a population of ca. 3.6 million, includes three districts and eight counties, including Weichang, Longhua, Fengning, Luanping, Chengde, and Pingquan, Shuangqiao, Shuangluan and Yingshouyingzi. North Hebei constitutes a “poverty belt” in which rural
residents are caught in a cycle of poverty exacerbated by harsh natural conditions, high population, and farming on steep slopes.

In 2013, the city's GDP reached RMB 127.29 billion. Annual tourism revenue exceeded RMB 20 billion, reaching RMB 20.4 billion, an increase of 26 per cent (Source: SFF Forest Administration of Chengde City, Hebei Province, July 2014)

Chengde is located in an ethnic Manchu region, and several of its counties, including Fengning, where the Project will work, are “Manchu Autonomous Counties”. Manchu people are largely assimilated with the majority Han, and unlike the case of many minorities of southwestern China, the economic status of Manchu villages is higher than that of Han majority villages (Bjorn Gustafsson 2006). Of note, however, is the fact that the area also is inhabited by Mongolian ethnic groups, who also cross the border from neighboring Inner Mongolia to graze their livestock, and there is some degree of friction with local residents and, notably, the managers of State Forest Farms, which will be an area of focus of the Project.

**Socioeconomic context of Jiangxi pilot project area**

The population of Ganzhou City is ca. 8.4 million. The three counties in the Dongjiang watershed area have a total population of ca. 905,000 in 40 townships and 443 Administrative villages. Anyuan County is included in the national poverty alleviation and development work of key counties.

The counties have rare earth mining and orange production, but according to informants, a lot of mining has happened illegally (after which companies disappeared, leaving significant damage), and the orange crop has been largely destroyed by a pathogen. There has been pressure on revenues to support development in the short term; longer term planning and development are urgently needed. (Adapted from: Jiangxi Province Informational Document, 2017).

According to local informants interviewed during the preparation period for the Project, the majority of people in the Project area in Jiangxi are Hakka people, who belong to the Han ethnic group. The Hakka people have a special place in Chinese revolutionary history and there are likely more advantages than disadvantages associated with being a member of this group, which is technically not a minority (Erbaugh 1992). There is also a small population belonging to the She ethnic group, particularly in Xinfeng County.
3.1.3 Institutional, sectoral and policy context

Institutional and sectoral context

China is often described as a top-down state, and it is true that important initiatives most often follow a directive from the central government, where formal authority is located. It is the central government, embodied in the State Council and National People’s congress that is responsible for formulating national policies and plans to implement the necessary changes to achieve environmental goals (Young et al. 2015). At the same time, those policies and plans are at times formulated based on innovations tested at a lower level. Such was the case of the de-collectivization of land tenure, which was first tested at the county level in Anhui province and subsequently spread from county to county and to other provinces; it was only after the central government observed increases in productivity associated with the new model of land tenure that an order was formulated and issued from the highest authority to begin across-the-board reallocation of collective agricultural land holdings to individual households through the *household responsibility system* (Lin 1987). This demonstrates the potential importance of pilot projects in providing the evidence the government needs to risk implementing change that holds promise to generate public goods.

The process of instituting policy and implementing it though sectoral ministries from the central government to the local level is complex, and somewhat variable (Young et al. 2015), but it helps to think of the Chinese system as a network in which there are some default patterns and to understand some of the fundamental processes that affect change.

The Chinese administrative system is centralized, with major decisions affecting the national territory, the national economy, and the livelihoods of the general population made at the level of the State Council. The State Council includes all sectoral ministries and several other bodies.

The structure of the membership of the State Council is more-or-less replicated at all scales of Chinese government. Above the village level, there are three official levels of government and several intermediary levels; the functional authority among the levels varies from region to region and from sector to sector, and even within sectors among divisions. Table 4 presents a simplified version of this nested hierarchy (there are additional levels and geographic exceptions).

The primary national sectoral ministries that are involved in environment-related functions include the Ministries of:

- Forestry (i.e. the State Forestry Administration)
- Agriculture
- Environmental Protection
- Land Resources
• Water Resources

Two cross-cutting ministry-level administrations are essential, including: the Ministry of Finance, responsible for all disbursements to government entities and transfer of subsidy payments from the national government; the National Development and Reform Commission (NDRC) which, in addition developing cross-sectoral policies to submit to the State Council, is tasked with coordinating among sectors to plan and implement high-priority national priority programs.

The roles and responsibilities of the lower level offices of all these Ministries vary somewhat, but generally they maintain two reporting lines, one to the chief officer at the relevant administrative level (Provincial Governor, City/County Mayor) and one to the higher level in the relevant administration. The County-level Finance Bureau delivers funds to all administrations at and below the County level to implement projects and cover operating costs as well as relevant subsidies, as well as directly to household bank accounts in the case of subsidy payments.

Table 4. Simplified structure of Chinese Government administration from national to local scales, showing which levels are at which generally relevant to two different administrations within the State Forestry Administration operate (After Kennedy 2013).

<table>
<thead>
<tr>
<th>Administrative level</th>
<th>Official levels</th>
<th>State Forest Farm Administration</th>
<th>Conversion of Cropland to Forest Program Management Office</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Government</td>
<td>✓</td>
<td>State Forestry Administration</td>
<td>State Forestry Administration</td>
</tr>
<tr>
<td>Province</td>
<td>✓</td>
<td>Provincial Forestry Department</td>
<td>Provincial Forestry Department</td>
</tr>
<tr>
<td>Prefectural City</td>
<td>✓</td>
<td>City Forestry Chamber and/or County Forestry Bureau - State Forest Farms</td>
<td>Generally not applicable</td>
</tr>
<tr>
<td>County</td>
<td>✓</td>
<td></td>
<td>County Forestry Bureau</td>
</tr>
<tr>
<td>Township</td>
<td></td>
<td>(Township Forest Station – Partially applicable*)</td>
<td>Township Forest Station</td>
</tr>
<tr>
<td>Village</td>
<td>✓</td>
<td>Not applicable</td>
<td>Village Head &amp; Committee</td>
</tr>
<tr>
<td>Household</td>
<td></td>
<td>Not applicable</td>
<td>Head of Household</td>
</tr>
</tbody>
</table>

* NB: State Forest Farms engage with Township Forest Stations mainly for the purpose of coordinating fire prevention activities on boundaries between SFF and collective/household forest lands, and to fight fires when they occur.

In addition to understanding the structure of the Chinese administrative system, for a large reform project to be successful, which is the goal of the Project, it is key to understand how the system works and where its influencing points are. Identifying those points is an ongoing process. At the most basic level, the project needs to know what motivates the forms of collaboration and joint effort that will result in the desired changes. One way to approach this is
to understand what the incentives for collaboration might be, and how to build them. On piece of that puzzle is the national system for reviewing and rewarding the performance of civil servants.

There is a certain amount of literature that addresses this topic. Some of these potential influencing points, may include competition around economic performance, the “revenue imperative” (Smith 2015) and competition among cadres and local officials for promotion through the formal assessment system (Smith 2015; Gong 2015; Chen, Li, and Zhou 2005).

Most the Project’s work will be accomplished through the participation and effort of civil servants, from SFF personnel up to the top level, who are unlikely to be able to receive any form of incentive or remuneration for the additional time they commit to achieving the projects goals. There are, however, mechanisms that favor rewards for performance over time in the form of promotions and other recognition, and ultimately a more comfortable retirement; the annual performance review is one such mechanism, and that is regularly revised to include indicators aligned with the goals the government has deemed as priorities.

It is likely that progress towards SFF reform, or via SFF reform to an even higher target such as “green growth” or the “ecological civilization” will increasingly appear as boxes to be ticked representing indicators of such progress. If increasing forest quality and connectivity were to appear as such an indicator, participation in the project would be of great help to any official required to undergo such a review.

Another, somewhat less specific form of incentive to build collaboration is to ensure the project is well aligned to national programs that we already know will be adopted into performance metrics at all levels. There may be many such programs for the Project to discover, but one very concrete and current one is the highest level plan of all, China’s 13th Five-Year Plan (FYP) for Social and Economic Development.

Policy context

The following sub-section summarizes the relevant goals of the 13th FYP, among other relevant policy initiatives.

Jiang and Ouyang (2016), in outlining the current high level of commitment the Chinese government has shown towards achieving a new standard of ecological development enumerate the following new policy concepts:

- ecological function zones (ecosystem areas that must be protected to sustain vital ecosystem services);
- ecological redlines (regulatory mechanism to enforce protection, the zoning of environmental limits);
- ecological compensation schemes (fiscal mechanism to incentivize protection);
• eco-cities (development mechanism to design cities that respect environmental limits);
• gross ecosystem product accounting (evaluation mechanism to track progress on the ecological civilization, defined as the total economic value of ecosystem goods and services).

The 13th Five Year Plan

The 13th Five Year Plan (FYP) establishes a vision for the implementation of each of the above-mentioned concepts.

The FYP, compiled by the NRDC based on broad consultations across sectors, is a legally binding act of government based on criteria established by the Central Committee of the Communist Party of China (CCCPC) and approved by the State Council before being ratified by the National People’s Congress (China’s highest legislative body) (Young et al. 2015). Over the past ten years, China’s FYPs have increasingly focused on integrated environmental management and decision making: The 11th FYP established “Major Function Oriented Zoning” designed to optimize spatial patterns of development and conservation (and is thus highly relevant to FLR) (Lü et al. 2013); the 12th FYP enshrined the concept of ecological civilization. The 13th FYP (CCCPC 2016) contains a wide range of targets and approaches that support planning for and implementation of FLR (Box 1).

Box 1: Priorities of the 13th Five-Year Plan (FYP) priorities aligned with TRI China Project Goals and Intended Outcomes

<table>
<thead>
<tr>
<th>Increased forest cover target</th>
<th>Intensify Ecological Conservation and Restoration (Chapter 45)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the 13th FYP, target for forest coverage by 2020 is 23.04% as compared to 21.66% under the 12th FYP, translating to “forest growing stock” of 16.5 billion m$^3$ by 2020 over 15.1 billion m$^3$ in 2015.</td>
<td>…ensure the protection and restoration of ecosystems, build ecosystem service corridors and biodiversity protection networks, and work to make natural ecosystems more stable and better able to provide services…</td>
</tr>
</tbody>
</table>

Improving Ecosystem Functions

… make major afforestation efforts, strengthen key forestry projects, improve the virgin forest protection system, and put an end to commercial logging in all virgin forests, so as to protect and foster forest ecosystems.

… ensure that state forests and forestry farms lead the country’s afforestation efforts, and will create new property rights models to encourage nongovernmental investment in afforestation…

… turn more marginal farmland into forest or grassland, protect and improve grassland ecosystems, prohibit grazing in some areas while putting in place grazing suspension periods or rotational grazing systems in others…

… contain the expansion of desertification…

… protect and restore wetland, lake, and river ecosystems, and establish a wetland protection system…

… strengthen the development and management of nature reserves and step up the protection of typical ecosystems, species, genes, and landscape diversity… conduct biodiversity background surveys and...
evaluations and improve biodiversity observation systems…

The Provision of Ecological Goods

…provide more diversified ecological goods, improve the spatial distribution of ecological services, and become better able to provide public ecological services. We will strengthen protection of scenic areas, forest parks, wetland parks, and desert parks, improve roads and other infrastructure in forest areas, and promote the appropriately scaled development of goods and services for leisure activities, tourism, and health activities.

Mountain, Water, Forest, and Farmland Ecological Projects

Promote ecological restoration and environmental governance in key regions crucial to national ecological security, such as … the Yunnan-Guizhou Plateau…the Beijing-Tianjin-Hebei water source conservation area… the karst areas in Yunnan, Guangxi, and Guizhou.

Improve Mechanisms for Ensuring Ecological Security (Chapter 47)

…develop economic forests and under-forest economies that take advantage of local strengths.

…research the establishment of an ecological value evaluation system, explore the creation of balance sheets for natural resources, and establish accounts for natural resource accounting

…audit outgoing officials’ management of natural resource assets

…ensure joint efforts are made to develop the Bashang Plateau Ecological Protection Zone and the Yanshan-Taishan Ecological Conservation Zone

…improve policy support for revitalizing and developing old revolutionary areas… which are now in poverty such as the former Soviet areas of the CPC Central Committee in Jiangxi… [i]mplement eco-projects such as natural forest protection, overall management of rocky desertification…

Forest Sector Reform/SFF Reform

In 2015, China launched a plan for the reform of SFFs. The reform is the result of work by a task force led by the National Development and Reform Commission and the State Forestry Administration (SFA). The governance reform of SFFs was based on the following four (4) general principles:

- Making conservation the top priority;
- Empowering local stakeholders;
- Achieving socioeconomic benefits;
- Tailor-making management strategies.

The overall objectives of the reform are to by 2020:

- Increase the forest area of SFFs by 6.6 million ha and the forest stock by 600 million $m^3$, and significantly increase the quality and ecosystem services of the SFFs, including carbon sequestration and water ecosystem services.
- Improve the financing of the SFFs, management effectiveness and sustainable development of the SFFs.
• Introduce market-based mechanisms into the management and development of SFFs, including solicitation of private investment.

The detailed measures, arrangements, strategies and modalities in support of the SFF governance reform are still under development, and being piloted in 9 cities, including the three landscapes of this Project.

*The Mountain-Water-Forest-Field-Lake Integrated Restoration Program*

In 2016, a collaborative project involving the Ministry of Environmental Protection and the Ministry of Land Resources, together with the Ministry of Finance, launched the Mountain-Water-Forest-Field-Lake Integrated Restoration Program at the national level. The project is a restoration project and targets reclamation and rehabilitation of mining landscapes, remediation of soil contamination, biodiversity conservation including through the construction of ecological corridors, protection of water bodies and prevention of point source pollution, among other measures.

A landscape restoration program involving multiple ministries, the Mountain-Water-Forest-Field-Lake program will collaborate with forestry (including the Conversion of Cropland to Forest Program) in Hebei Province, where there is an afforestation target of 67,000 ha.

In landscapes where the Project is being implemented, there is the potential for SFFs to seek collaboration with the program, especially when and if restoration efforts are implemented in proximity to SFF boundaries. The program has impetus in Jiangxi, where it was mentioned by an official from the Xunwu County Environmental Protection Bureau, as well as in Hebei.

**3.2 The global environment problem**

The following section has been adapted from The Restoration Initiative (TRI) – Fostering innovation and integration in support of the Bonn Challenge Project Identification Form (PIF) Document and the IUCN TRI Myanmar project.

In 2005, the Millennium Ecosystem Assessment estimated that approximately 60 of the ecosystem services examined were degraded or being used unsustainably (Millennium Ecosystem Assesment, 2005). This situation has not likely improved in the intervening 12 years. Given that forests cover almost one-third of the world’s land area they undoubtedly include a considerable proportion of degraded ecosystems and in many places forests are being used unsustainably. Between 1990 and 2015, the net rate of loss of global forest area has decreased by 50 per cent. The area of planted forest increased in absolute terms and as a proportion of total forest area. On the other hand, over the same period, the areas of natural forest worldwide declined by 6%, from 3,961 million ha to 3,721 million ha (Keenan et al. 2015; FAO 2016). The implications are that an increasing area of forest is under plantations rather than natural forest.
Deforestation and degradation of forests are major causes of biodiversity loss and associated decline in the flow of ecosystem services, upon which the well-being of humanity relies. A recent estimation by the Global Partnership of Forest Landscape Restoration (GPFLR) suggests that there are two billion hectares of deforested and degraded land worldwide.

Globally, the human-caused drivers of change to the environment are demographic, economic, socio-political, scientific, technological, cultural, and religious (Millennium Ecosystem Assessment, 2005). These drivers are relevant to changes that are occurring to forests around the world.

Economic activity generates a wide range of immediate pressures on forests. For example:

- Agriculture is a key driver of forest change, causing around 80 per cent of deforestation worldwide.
- Mining, infrastructure, and urban expansion can generate pressures that result in forest and degradation.
- The use of forests for fibre and timber extraction account for more than 70 per cent of total forest degradation in Latin America and (sub)tropical Asia.

Economic activity drives demand for fuel wood, charcoal, and agricultural and grazing land, all of which generate pressures on forests, particularly in developing countries.

The extent to which specific drivers result in adverse impacts on forests depends on a range of factors. These include total population pressure, demographic factors (e.g. rural vs urban population and demographic change), the type and volume of goods and services produced (for both domestic and export markets) and consumed, and the technologies used to produce energy, food, materials, transport and manage waste products. Keeping the environmental impacts of drivers on forests within limits is a key to a sustainable future. Conversely, continued forest and land degradation pose serious obstacles to eliminating poverty, hunger, and biodiversity loss in many parts of the world today and affect the ability of women and men, farmers, and local communities to adapt to the impacts of climate change.

Forest degradation can increase competition for scarce resources leading to conflicts between users and increased inequalities for certain groups, such as women, in relation to the use and control over resources. Deforestation and forest degradation can threaten the livelihoods, well-being, food, water and energy security and the resilience capacity of millions of people (FAO, 2015). Furthermore, forest and land degradation generates GHGs and reduces capacity to sequester carbon.

Together, emissions from agriculture, forestry and other land use accounted for 20-24 per cent of global annual GHG emissions, or net emissions of 12 Gt CO2e in 2010 (International Panel on Climate Change, 2014). Moreover, degraded lands contribute to loss of soil and water
retention, and biodiversity, create barriers to migration of species, reduce replenishment of underground aquifers, and overall, generate fewer ecosystem services.

Given the right tools and incentives, much of the deforested and degraded estate can be restored – that is, ecological integrity and resiliency enhanced and human well-being improved in deforested and degraded lands – through the restoration and better management of forests, woodlands, trees, and other woody plants at the landscape level.

Most restoration opportunities fall into one of two categories:

- wide-scale restoration of closed forest or open woodland
- mosaic restoration in a mix of agriculture, forests, and other land uses

Wide-scale restoration is generally suitable for less populated areas with less intensive land-use demands. Mosaic restoration, which accounts for nearly three quarters of global restoration opportunities, is appropriate for more populated areas.

Restoration is much more than planting trees. FLR is a landscape- and systems-level approach to managing the dynamic and often complex interactions between people, natural resources, and the different land uses that comprise a landscape. It uses a collaborative approach to harmonize the many land-use decisions of stakeholders, with the aim of restoring ecosystem functionality as well as enhancing the socio-economic development of local communities.

As such, it employs a wide range of restorative approaches and tools, from satellite-aided biological and economic assessments of restoration opportunities, to payments for ecosystem services, to establishment of protective regimes for forests (e.g. protection from fires or grazing or erosion control), to natural and assisted tree planting activities, including the use of agroforestry systems on agricultural land (see Box 2 for key principles and examples of FLR in practice).

Restoration, if it is to be sustainable and effective in arresting global land degradation trends, necessarily involves a number of complementary strategies that address drivers of deforestation and land degradation, including strategies to increase the productivity and resilience of agriculture (i.e., Climate Smart Agriculture), programs and incentive mechanisms to slow, halt and reverse forest and forest carbon loss (e.g., REDD+), and other sustainable livelihood programs that reduce pressures on natural resources. Together, these strategies are mutually reinforcing, with restoration serving to increase the amount of productive land available for agriculture, agroforestry, and forest uses, and complementary strategies acting to reduce pressure to convert natural ecosystems and primary forest.

There are many local, national, and global benefits from restoration. Healthy, fertile landscapes provide homes for wildlife and human life, providing food, clean water, and materials for shelter.
Sustainably cultivated and farmed woodlands yield biofuel and raw products that can be worked or processed for trade, stimulating local industry, and creating jobs.

**Box 2. Forest and Landscape Restoration (FLR) – key principles and practice**

Given the great diversity of ecosystems and landscapes to be restored, and the different communities with a stake in restoration, FLR necessarily makes use of a broad array of tools and techniques. At the same time, the following FLR principles underpin successful and lasting approaches to restoration:

- **Planning is done at the landscape level, which allows trade-offs to be made between conflicting interests.**
- **Local stakeholders are actively engaged in the decision-making, collaboration, and implementation of the solution.**
- **Restoration strategies are forward-looking, tailored to local conditions, and adaptively managed over time.**
- **Landscape functionality is restored and managed to provide a suite of ecosystem goods and services.**
- **A wide range of restoration strategies are considered, ranging from natural regeneration to tree planting.**

FLR has been proven to work worldwide, improving livelihoods, stimulating local economies, contributing to carbon sequestration and storage, and safeguarding biodiversity. Examples include:

- **Agroforestry to enhance soils, meet energy needs and improve food security, as in Rwanda, Ethiopia, and China.**
- **Ecological restoration of degraded lands in Brazil’s Mata Atlantica for improved connectivity and to sequester 200 million tons CO₂e per year, equal to more than 2 billion tons of CO₂e by 2050.**
- **Directing oil palm development to improved productivity of degraded lands as an alternative to further land clearance in Indonesia.**
- **Managing natural regeneration to secure urban water supply, as in the watersheds of Beijing and Rio de Janeiro.**
- **Nationwide reforestation of highly degraded landscapes, as in the Republic of Korea.**
- **Active restoration of coastal mangroves to improve livelihoods from fisheries and create opportunities for ecotourism, as in Costa Rica or Vietnam.**

Trees in agricultural landscapes can improve soil moisture and fertility, sequester and store carbon, and boost food production. Responsible tourism and other services can be developed as part of the rehabilitation mix. These forms of sustainable enterprise can inject new income and new life into threatened communities, relieving poverty, enhancing gender equality and women’s empowerment and funding improvements in education.
3.3 Threats, root causes and barriers analysis

For the purposes of the project the following definitions are used:

- **Threats** – when a pressure (or a combination of pressures) on the environment is likely to cause damage to forest functionality and consequently to the ecosystem services provided by forest landscapes that people depend on.
- **Root causes** – the underlying human-caused drivers that generate pressures on the environment that change the state of the environment, resulting in impacts on society.
- **Barriers** – societal and natural factors that impede the mitigation of threats and root causes.

3.3.1 Environmental threats and root causes

The condition of forests in the Project area is affected by contemporary (present day) pressures and a range of historical factors. Many of the historical changes to forests in China have impacts that persist today (for example the long-lasting impacts of plantation establishment). Contemporary pressures on forests in China include land-use change, habitat fragmentation, over-harvesting of species, alteration of surface and groundwater condition, pollution, introduction of invasive species, and climate change.

These pressures generate threats to China’s ecosystems and human communities including:

- soil degradation, deforestation, and water scarcity (Young et al. 2015).
- catastrophic flooding (W. Xu et al. 2017)
- desertification and loss of wetlands (Fu et al. 2004)
- severe land degradation and pollution due to industry and mining.

A large area (~72 per cent) of China’s forest area can be considered degraded (H. Ren et al. 2007). Moreover, much of China’s forest area is young secondary forest (plantation), with thin canopy cover, or recovering shrub land, both of which are widely considered to be of “poor quality” (Fu et al. 2004). Forest degradation arises from a wide range of pressures such as habitat fragmentation due to agricultural expansion, simplification of ecosystem structure due to many years of planting only a few species, and low productivity.

Desertification and loss of wetlands are persistent problems, affecting both natural and human systems. In the 1990s, prior to the implementation of large scale restoration programs, the area of desertification was over 160 million hectares or nearly 17 per cent of the land area, while degraded grasslands covered over 84 million hectares; these were mostly concentrated in drier regions, and are one of the causes of sand storms affecting North China (Fu et al. 2004).

The root causes of these factors, and how they affect landscape functions, are complex and often inter-related; there are many ways to approach these questions, and the literature as a
whole is relatively comprehensive. What is required is an understanding of how threats might be addressed in practice by stakeholders with the ability to affect landscape decisions.

The root cause of deforestation and forest degradation in China is arguably the high demand for land and resources arising from centuries of economic and demographic expansion. These have caused expansion of agriculture and human settlements causing reduction and fragmentation of the forest estate, as well as over-extraction of timber and wildlife and destructive mining within forests. The eventual effects of these outcomes include widespread desertification, water shortages and floods, decreased soil fertility, dwindling carbon stocks and sequestration potential, pollution of water and soils, all of which entail economic losses and pressure on rural livelihoods. At the highest national level, China is addressing the problem of excessive demand for land and resources through broad strategies of economic development, urbanization and industrialization, agricultural intensification, population control and urbanization, development of alternative resources and external sourcing, massive investments in afforestation and reforestation, and strict policies governing conservation and land use. To a large degree, China has addressed the problem of deforestation through conservation measures and expansion of the forest estate; however, the problem of degradation remains severe and widespread, severely limiting ecosystem functions and threatening biodiversity.

Due to the size of China’s economy and political system, the scale of the root cause (demand for land and resources) and the level at which it is being addressed is largely beyond the scope of a single project, which in this case is conceived and executed from a mid-level governmental institution. However, the project has great potential to address barriers limiting the reach and effectiveness of national interventions affecting forests and land use, particularly to address the problem of degradation within and around China’s expanding forest estate.

Barriers to addressing deforestation and forest degradation that are within reach of effective intervention by the Project, and upon which the Project can reasonably be expected to act to achieve national and global public goods through replication and upscaling, include: insufficient institutional knowledge and capacity in forest management/restoration, lack of integrated planning across sectors and among diverse stakeholders affecting land use and management, insufficient appreciation of the values of forest ecosystem services/biodiversity, lack of alignment between goals of environmental sustainability and economic interests, and incomplete or ineffective policies and instruments of legislation and enforcement.

To this end, during the preparation phase of the Project, the project design team conducted focus group discussions with stakeholders in each pilot area and representative SFF management teams, and conducted site visits to observe firsthand the ecological conditions, including threats and mitigation measures, facing the SFFs and broader landscapes.

Table 5 provides a summary of threats identified by city- and county-level participants from relevant sectors participating in focus group discussions. The FGDs were conducted through a
series of open-ended questions and the facilitators did not try to steer the results. Whilst climate change did not appear in the list of threats developed by participants, the project design team has included climate change in the discussion below given it is likely to be an increasingly important threat and will be an aggravating factor for other threats.

Table 5. Summary of threats identified by participants in pilot project areas (those marked with an asterisk are those that are likely targets for FLR activities; the others may not be operational with the resources available).

<table>
<thead>
<tr>
<th>Threat category and specific threat</th>
<th>Guizhou</th>
<th>Hebei</th>
<th>Jiangxi</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bijie</td>
<td>Qixingguan</td>
<td>Zhijin</td>
</tr>
<tr>
<td>Land &amp; soil degradation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stony desertification*</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Geological disasters</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desertification of grassland</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soil erosion/Cropland degradation*</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Mining-related land degradation*</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Soil contamination</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Soil contamination due to mining</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Water shortages</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Reduced surface run-off</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water pollution</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Water pollution due to mining</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biodiversity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Species loss</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of monitoring</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Lack of protection</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Habitat loss due to construction/mining</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Habitat loss due to urban expansion</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Invasive species</td>
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<td></td>
<td></td>
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<tr>
<td>Other Forest-related</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Insufficient forest area/cover</td>
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<td></td>
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<tr>
<td>Poor forest quality/simple structure</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Poor site-species matching in plantations</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deforestation</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Forest disturbance by humans</td>
<td></td>
<td></td>
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<tr>
<td>Plant pathogen destroying monoculture (orange orchards)</td>
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<td></td>
<td></td>
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<tr>
<td>Pollution</td>
<td></td>
<td></td>
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<tr>
<td>Point-source pollution</td>
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<td></td>
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<tr>
<td>Non-point source pollution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threats not mentioned in FGDs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Climate effects and feedbacks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Fire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Floods</td>
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</tbody>
</table>

Based on this preliminary identification of threats by city and county-level participants, observations by the project design team and a review if the scientific literature, the following section outlines key threats and root causes.

*Climate change*
The observed climate variability and change in China includes an above average increase in temperatures of ca. +0.3°C each decade (Baker et al. 2009), with differential changes in precipitation patterns between north and south. It is likely that in the north, rainfall will decrease overall but may be more severe in summer, which would likely to lead to increased erosion, sandification and flooding (Piao et al. 2010). In northwest China, a study of farmers perceptions suggested that temperatures had substantially risen; summers were drier, the water table lower; and biodiversity may have already been impacted (Sjögersten 2013).

Forests are vulnerable to climate change, as forest tree species with long lifecycles have little ability for migration of species distribution or replacement with lines tolerant to new growing conditions (Raitzer, Samson, & Nam, 2015). This creates a threat to existing forests and plantations and a potential threat to planned restoration activities (but also a reason to modify current practices and implement restoration that is resilient to climate change). As forest cover declines, the effects of more intense rainfall will be exacerbated, as watershed runoff is increased and flooding risk rises (Raitzer, Samson, & Nam, 2015). Increased flooding risks creates a threat to agriculture, human settlements, and infrastructure.

Some likely climate change scenarios for China are presented in Table 6. There is a high probability of major changes in the ranges of climate zones, with decreased boreal forest in the north, and decreased sub-tropical forest in the southeast. This would reduce the species ranges and either reduce forest extent or change the forest composition of remaining forests. The north and southwest may experience extreme rains in summer and in both summer and winter, respectively, exacerbating flooding and soil erosion. The potential impacts of these changes on people are wide-ranging and include water shortages, flood damage to croplands affecting food supplies and damaging settlement areas, displacing people.

Table 6. Potential differential effects of climate change with reference to regional effects.

<table>
<thead>
<tr>
<th>Degree of climate change effect</th>
<th>Potential effects and patterns</th>
<th>Reference (only the latest author is cited; please refer to original article to review primary sources):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current warming trend of +0.3°C/10 years over China is greater than the global average of 0.19°C/10 years. Some projections indicate that this trend will continue, resulting in warming of 1.8–3.5°C by 2050 and 2–7°C by 2100.</td>
<td>Changes in species persistence and distribution (e.g. northwards and from lower to higher altitudes).</td>
<td>Baker et al. 2009</td>
</tr>
</tbody>
</table>
The rate of warming in North China is higher than in South China, especially in summer. Increased evapotranspiration in North China and resulting water shortages

Rainfall in North China decreases, especially in summer and autumn OR rainfall may be extreme in summer. Drought or flooding; sandification and erosion

Increased rainfall in South China in both summer and winter. Increased flooding, soil erosion and siltation of water

Decreased winter rainfall in East China. Shrinkage of sub-tropical climate zone

Piao et al. 2010

<table>
<thead>
<tr>
<th>The rate of warming in North China is higher than in South China, especially in summer.</th>
<th>Increased evapotranspiration in North China and resulting water shortages</th>
<th>Piao et al. 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rainfall in North China decreases, especially in summer and autumn OR rainfall may be extreme in summer.</td>
<td>Drought or flooding; sandification and erosion</td>
<td></td>
</tr>
<tr>
<td>Increased rainfall in South China in both summer and winter</td>
<td>Increased flooding, soil erosion and siltation of water</td>
<td></td>
</tr>
<tr>
<td>Decreased winter rainfall in East China</td>
<td>Shrinkage of sub-tropical climate zone</td>
<td>Chan et al. 2016</td>
</tr>
</tbody>
</table>

Land & soil degradation

All three pilot areas suffer from some form of land and/or soil degradation that has occurred either because of deforestation, land management practices, resource extraction, or a combination of factors. The characteristics of degradation are linked to underlying geological and biotic conditions that vary among the regions.

Stony desertification and desertification of grassland are distinct processes that in some cases share some common aggravating factors. While stony desertification can occur in many rocky mountainous landscapes, it is a form of degradation common to the Guangxi-Guizhou Karst vulnerable eco-district (Fu et al. 2004), where, following the loss of vegetative cover that had over millennia generated and protected deposits of soil on rocky slopes, the soil is eroded away by rainfall. Stony desertification results in a loss of habitat for native biota as well as soil for cropping, where that is practiced in steeply sloping areas. Cropping on such slopes is aggravated by subsequent disturbances such as livestock grazing.

Desertification of grassland (including sandification) is a particular problem in the dry Southeast Inner Mongolia Plateau agriculture grazing ecotone vulnerable eco-district (Fu et al. 2004). It is caused by deforestation (or grassland degradation), agriculture on slopes and overgrazing of livestock. Patterns of drought and heat followed by occasional heavy rains exacerbate erosion and sandstorms.

Both forms of desertification are affected by the following pressures: 1.) agricultural practices which are destructive, do not protect and/or do not add sufficient organic matter to support vegetative recovery; 2.) poor management of grazing. These pressures are influenced in some cases by open access conditions and/or poor or non-existent neighborly relations that would otherwise lead to collective agreement as to the frequency, duration and intensity of grazing activities.
Soil erosion and cropland degradation are prevalent in the pilot area of Jiangxi province because of destructive terracing of hillsides prior to planting of agricultural and tree crops. By using heavy machinery or hand tools, the soil substrate is disturbed or removed and the sites made vulnerable to erosion during heavy rainfall. Root causes of such practices include: 1.) lack of awareness of alternative approaches to soil management in sloping landscapes; 2.) extreme scarcity of arable land requiring extensive land modifications 3.) poverty or greed, resulting in the short-term pursuit of returns on investment.

All three of the above syndromes cause loss of soil fertility and siltation of downstream waterways. They also cause a secondary feedback outcome, i.e. the release of soil carbon and the subsequent reduction in the capacity of the soil to sequester carbon, thereby reducing the climate mitigation potential of soil carbon services.

Soil contamination has several potential causes, including overuse of agricultural inputs and toxic runoff from mining operations (e.g. in both Jiangxi, where environmentally damaging surface mining for rare earth is prevalent, and in Guizhou during mining for coal and other minerals. Root causes include lack of education as to the proper use of agricultural inputs or alternatives; insufficient regulation and enforcement of mining approvals and practices, criminal behaviors of resource extractors. While FLR has potential to mitigate soil contamination over time, the focus in China is currently on prevention of point source and non-point source pollution; the area and extent of contamination is potentially beyond the scope of the Project, other than as a co-benefit of restoration of degraded lands such as abandoned mining sites.

Water-related threats

There are many potential causes of water shortages, including drought, decreased capacity of the ecosystem to recharge ground water, decreased surface run-off, and increased human water demand resulting in diversion.

Drought is a regular occurrence in large areas of China, particularly in the north and northwest, but it also periodically occurs in the south. In Guizhou, the FDG discussion raised the threat of drought and deforestation of uplands as a cause. This is likely as sparse vegetation and organic matter on karst formations and in uplands reduces the capacity of the landscape to retain moisture and regulate water flows.

Decreased ecosystem capacity to recharge ground water is a frequent result of deforestation or grassland degradation, as vegetative cover and root systems increase filtration rates into substrata. Conversely, decreased surface run-off can result from vegetation growth and associated increases in evapotranspiration resulting in higher water use by plants/trees. This latter effect can be the result of afforestation, e.g. when water demanding species are planted in drought-prone regions or during times of drought. This effect is likely not a unidirectional effect; the trend can reverse once vegetative growth stabilizes or increases the water retention and recharge capacity of the landscape to a sufficient degree.
Floods are more likely to occur when landscapes are deforested or degraded, reducing the capacity of the landscape to retain water, recharge ground water, and regulate surface flows.

Depending on baseline conditions and patterns, droughts and floods can both increase in severity due to climate change, and can also contribute to climate change if they are frequent, widespread and severe enough to reduce the productivity of vegetation thereby reducing landscape carbon sequestration. Of course, droughts also influence forest fires, one of the largest worldwide sources of atmospheric carbon emissions.

**Water pollution** and **water pollution due to mining** can be analogues to soil contamination due to agricultural inputs and toxic runoff from mining operations; these causes and implications do not need to be repeated. There are, of course, other causes of water pollution that are not related to land use practices or climate change, including improper waste and sewage management. It is unlikely that FLR will be the most effective and direct approach to addressing water pollution.

**Biodiversity loss**

Key threats to biodiversity include habitat destruction, overuse of species (harvesting, hunting, gathering) leading to simplified habitats and fewer species, land use change due to agriculture, tree monocultures, expansion of urban areas and infrastructure, invasive species, and climate-related pressures including warming, cooling, drought, extreme weather events, and changes in rainfall. The root causes of biodiversity loss are complex, although they often relate to economic activity or lack of awareness of the values of biodiversity. It is likely that climate change and shifting climate zones (mentioned above) will represent a major threat to China’s great biodiversity, which was protected through the last ice age due to higher climate stability (Feng et al. 2016) (seemingly, in the case of advancing colder climate zones from the north rather than warmer climate zones from the south).

**Forest-related threats**

The most common response in the FGDs in all pilot areas, although not technically a “threat” per se as much as a resultant condition, was **poor forest quality**, although respondents and other stakeholders did not have a strong understanding that the term forest quality included a broad range of ecosystem services that forests provide, not just the production potential of forests (e.g. for timber or other products) or the aesthetic values of forests. A high-quality forest was seen by many as a forest with “big trees” (and straight trees) regardless of the species and the effects of those trees on other services such as soil pH, water ecosystem services, biodiversity conservation, climate change mitigation etc.

Low awareness of the various ecosystem service values of forests may be a root cause of “poor forest quality”. As the SFF reform achieves a shift from production forestry to forestry for ecosystem service benefits, the meaning and values associated with forests will need to shift.
A key threat identified in Xunwu County, Jiangxi and beyond was the spread of Candidatus Liberibacter asiaticus or “huanglongbing”, a **plant pathogen** that has decimated nearly all the orange orchards. The orchards were famously productive and were likely to have been considered as a form of “high quality forest,” until they were decimated within a period of one or two years. This case illustrates the vulnerability of monocultures to pathogens. Such vulnerabilities may potentially be exacerbated by climate change that creates stress on species and habitats. This highlight the importance of having more diverse ecosystems that feature greater resilience in the face of change.

The root causes of disturbance of forest by humans include economic need/greed, lack of agreement on boundaries and use rights, poverty, weak regulation and enforcement, and lack of good neighbor relations that preclude beneficial collective action.

### 3.3.2 Barrier analysis

An analysis of barriers to project implementation analysis was completed based on the results of a workshop in Beijing with primary project stakeholders, i.e. the project executing agency and provincial, city, county and SFF-level forestry officials (see detailed barrier analysis and discussion produced from this workshop in Appendix XII). In order to target the identification of barriers, an overview of the project, the proposed management structure and draft project workplan were presented to stakeholders.

A series of barriers was identified, which can be categorized as follows:

- Capacity and capability barriers
- Governance and institutional barriers
- Infrastructural barriers

Stakeholders did not identify any barriers related to social license (pre-existing land rights, access to resource, etc.). However, the Project design team did perceive some such barriers and they are presented below.

Given the nature of the workshop exchange and possibly because a budget was not presented, a number of barriers related to concerns of insufficient financing and feasibility of project design were raised (Table 9). These were taken into account in the subsequent review of the budget.

**Capacity and capability barriers**

There is a substantial lack of technical capacity for restoration planning and implementation, and this certainly represents a significant barrier that could affect the Project’s outcomes and progress towards addressing the threats listed above in section 3.2.1. The Project design team has allocated significant GEF resources to both add capacity and increase capabilities, and to ensure that these resources are sustainable by engaging, training, and deploying provincial expert teams using a phased approach in which they grow more independent as the project
progresses. It is expected that these teams will remain available beyond the project period to replicate successful efforts in restoration planning.

The incorporation of socioeconomic monitoring of ecosystem service benefit flows at the household level in Component 1, Outcome 1.1 represents a risk to implementation, as the generation of ecosystem service benefits can become measurable at small scales only after years of implementation and monitoring. The project team and expert consultants should explore the feasibility of establishing meaningful measurement protocols and may fall back on collecting household level perception data during the project period in order to assess incremental generation and distribution of benefits.

Capacity for implementation will, to a large degree, depend on the continued national commitment to finance FLR, which is high on the agenda as per China’s 13th FYP; it is also hoped that private sector investment will increase. The project will seek to align policies within the mandate of technical partners and inform policies beyond that mandate to ensure that implementation of landscape activities incorporates FLR. Therefore, as long as financial resources are secured, capacity for implementation is likely to be strong.

**Governance and institutional barriers**

In terms of governance and institutional barriers, the compartmentalization of authority between sectors and scales is a common barrier to implementation in China. Approaches to overcoming this barrier include increased horizontal communication and the engagement of higher-level authorities at relevant scales to mandate collaboration across sectors. This occurs regularly in China, but the bureaucracy is large and the ability of a single project to influence decision-makers dissipates at higher scales. In Jiangxi Province, the project design team expect that cross-sector collaboration can be coordinated from county level governments; in Guizhou, from city level. In Chengde City (Hebei), there is already in place an “Integrated Ecological Management Plan (IEMP)”; there, the Project can engage the provincial SFF system (53 SFFs) in implementing the IEMP, which will facilitate cross-sector collaboration.

Another institutional barrier is the likelihood of personnel changes during the course of the project. This will be mitigated through a robust project management structure (see section 5) and dedicated funds for orientation of new key project stakeholders. In addition to these issues, the Project will need to overcome barriers of low public awareness through public relations activities.

**Infrastructural barriers**

Finally, a number of stakeholders mentioned insufficient infrastructure, including roads within SFFs and other facilities (e.g. offices, buildings, etc.). Major investments in such infrastructure and facilities are beyond the scope of the project, and in fact a few SFFs appear to be over-endowed in some ways, such as meeting facilities and electronics equipment. The design team
encourages the SFFs to seek creative solutions to the internal transport problems and has therefore abandoned a plan to purchase one pickup truck per farm. The project has budgeted funds to equip coordination offices at the national level and the city level in the three pilot cities.

In addition to barriers that the Project must overcome due to capacity shortcomings, governance/institutions and SFF infrastructures, there were aspects of the project design and budget itself that were seen as barriers by some participants. The project design team has taken these barriers into account, adjusting some activities and cost allocations. To some degree, several of these barriers are likely to represent a deficit in buy-in or a reluctance to assume responsibility from certain participants rather than a barrier per se; following adjustment and final feedback from stakeholders and project inception, the Project’s management team will need to closely monitor the project and take measures if any of these barriers remain insufficiently addressed.

Finally, through field visits and prior stakeholder consultations, the project design team identified several barriers that were not raised by stakeholders. These are all to be considered as subjective, but worthy of attention.

- The nature of China’s employment system and to some degree GEF’s own rules on remuneration of government personnel leave very little (or no) economic incentive to SFF and forestry as well as cross-sector collaborators to contribute to the project. The project management should continuously address this shortcoming through the linking of merit-based performance of project stakeholders to opportunities for professional development and advancement, including national and international exchanges, that the project can provide.

- Although SFF and local forestry personnel have limited capacity to implement the incremental activities of the project, there may be some level of resistance in some cases to engage capacity that requires sharing of project resources beyond a certain institutional scope with which stakeholders are already collaborating. If the project does not engage the necessary capacity, it will fail, so the project management team needs to ensure timely contracting and engagement of necessary consultants, partners, and participants. A barrier to achieving FLR planning is a potential lack of sharing of relevant data among sectoral agencies. This barrier needs to be overcome by clear directives from higher-level cross-sectoral authorities at relevant scales (county/city).

- There is likely to be some resistance among certain project stakeholders to adopt approaches that are inclusive of local community stakeholders (i.e. stakeholders below county-level authorities, including township, village, and household level stakeholders). The project envisions only two main vehicles through which to overcome this barrier, one being the inclusion of local community members in participatory monitoring; the other being the inclusion of local community monitoring team members on local level advisory boards. The inclusion of local community members in these practical activities is strategic: it is non-political and practical, and adds a dimension of interaction between
SFFs and township level stakeholders (the current interaction being limited to fire prevention and fire fighting).

- In China, there is a prevalent attitude in forestry that gender is either irrelevant or already addressed through equitable social norms instituted in the post-liberation era. To some degree, there is grounding for these perceptions, but there remain opportunities to improve equity among social groups differentiated by, e.g., sex, age, and ethnicity. For example, in two project areas, the design team were told that men were paid more per day than women for forest management activities (based on a presumed higher daily output). There are laws in China that prevent affirmative action based on the potential to introduce discriminatory practices in employment and allocation of opportunities and rights. To address this barrier, the project design team proposes 1.) ensuring that gender inclusion is one of the main topics of the first meeting of each advisory board, cross-sector agency coordination group and steering committee and that the relevant minutes of these discussions are minuted and synthesized; 2.) designing and implementing a gender-inclusive process of selection of all Project teams, bodies, and community monitoring groups; and 3.) ensuring that all individuals who receive payment from the project are remunerated equitably based on a time calculation.

- The composition of local advisory boards (see section 5), including higher level administrative personnel and local community members, may be problematic due to the perception of communication problems between social groups. Training in facilitation is an option that could enable better communication between scales to ensure a mechanism for inclusive stakeholder feedback is built into the project.

3.4 Stakeholder analysis

Prior to the project preparation phase, the following stakeholder groups were identified and characterized as follows:

- **State Forest Farms (SFFs):** in the project pilot, are responsible for forest development and management in their forests. They will be the major beneficiary, as well as implementation vehicle of the project and will be most impacted by the governance reform of SFFs. The project planning and formulation will consult with them through well designed consultation and participation approaches. Gender considerations will be particularly considered in the process to collect the thoughts and viewpoints of the female employees of the SFFs.

- **Local Communities:** the most affected and most impacted on by current issues of forest landscape and climate change, resulting from the lack of awareness and capacity for sustainable land and natural resource management, lack of access to technical support, and limited opportunities for participating in government projects. The views, traditional knowledge, livelihood needs and priorities of local communities, including men, women, youth, and marginalized and minority groups, will be actively sought during the
planning and subsequent pilot activities, through the use of community consultations and participatory approaches, etc. The community ultimately may benefit significantly from forest landscape restoration.

- **City Forest Bureaus (CFB):** in the project pilot landscapes, are responsible for effective forest development and management in their landscapes and for executing national and provincial policies within their city. They will be the hosts of project preparation, consultations, planning and will be the major implementer for the project activities.

- **Provincial Forest Departments (PFD):** in the project pilot provinces, are responsible for effective forest development and management in their province and for executing national policy within their province. They will be project counterparts under this project.

- **State Forestry Administration (SFA):** is responsible for setting forest management policies and for overseeing forest restoration and management across China. SFA will be the primary executing partner of IUCN for this project.

- **Civil Society Organizations (CSOs):** although still nascent in China, are becoming increasingly active and will have a growing role to play in developing, promoting, supporting and implementing nature conservation and community development. They will be particularly important in assisting the project in the development of understanding for the issues affecting the landscapes and to deliver activities benefiting particular geographical areas and communities.

- **Business Enterprises:** Businesses, both in forest landscapes and downstream urban areas, depend on and benefit from ecosystem services such as water and natural resource exploitation for their operations. Beverage companies, for example, often rely purely on sustainable water supply provided by vital watersheds and could potentially be a source of income through Payments for Ecosystem Services. At the same time, however, commercial activities within the forest landscapes have often been insufficiently sustainable and have led to serious ecosystem degradation. These considerations make businesses the key stakeholders in the process of landscape restoration.

During the project planning phase, the Project’s design team conducted stakeholder key informant interviews and focus group discussions (FGDs) in the three project pilot areas, at the city level and State Forest Farms (SFF), and separate consultations with village leaders from the vicinity.

At the city level, two FGDs were held per city, one with forestry officials from the city, county, SFF and provincial level; the other with city officials from relevant environmental, social and service sectors.
At the district/county level we held FGDs in Guizhou (Qixingguan District and Zhijin County) and in Jiangxi (Fengning County, Anyuan County, and Xunwu County). In addition to city and county administrative officials, the sectors represented in these FGDs included the following bureaus:

- Forestry
- Land and Resources
- Agriculture and Husbandry
- Development and Reform
- Finance
- Environmental Protection
- Civil Affairs
- Women’s Union
- Investment Promotion
- Water Protection
- Water Services
- Culture
- Tourism

In all, 168 officials participated in these FGDs, of which ca. 21 per cent were women (see breakdown by city and gender in Table 7, and the complete results in Appendix VI).

Table 7. Locations, dates, and gender breakdown of forestry and cross-sector FGDs held during the project preparation period.

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Participants (Total, Male, Female)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bijie City, Guizhou</td>
<td>March 17, 2017</td>
<td>22, 19, 3</td>
</tr>
<tr>
<td>Qixingguan District, Bijie City, Guizhou</td>
<td>March 15, 2017</td>
<td>14, 10, 4</td>
</tr>
<tr>
<td>Ganzhou City, Jiangxi</td>
<td>March 27, 2017</td>
<td>25, 20, 5</td>
</tr>
<tr>
<td>Xin Feng County, Ganzhou City, Jiangxi</td>
<td>March 29, 2017</td>
<td>23, 16, 7</td>
</tr>
<tr>
<td>Anyuan County, Ganzhou City, Jiangxi Province</td>
<td>March 29, 2017</td>
<td>30, 25, 5</td>
</tr>
<tr>
<td>Xunwu County, Ganzhou City, Jiangxi Province</td>
<td>April 1, 2017</td>
<td>18, 13, 5</td>
</tr>
<tr>
<td>Chengde City, Hebei Province</td>
<td>February 24, 2017</td>
<td>14, 10, 4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>168, 132, 36</strong></td>
</tr>
</tbody>
</table>

In addition to these FGDs, the Project design team held interviews and group discussions with staff of 7 SFFs in all pilot areas. Finally, the Project team held three formal discussions with senior key informants of the SFF administration based at the State Forestry Administration in Beijing.
Through these interactions, a breakdown of stakeholders at all relevant scales, specifying their relationships to the project and connected institutions, and their interests in FLR and/or the Project was prepared, with verifying evidence presented in Table 8.

Table 8. Stakeholders from local to global scales, their role in relationship to the scale, their interests in relation to the Project and/or FLR, and supporting evidence of these relationships.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Organization or Role</th>
<th>Interest</th>
<th>Verifying evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>State forest farm</td>
<td>Management personnel, Technical personnel, All staff</td>
<td>Knowledge and resources to accomplish FLR and SFF reform, Enhanced professional capacity, Job security, Promotion opportunities, Ability to recruit human resources with skills required to accomplish revised mission of SFFs, Financial opportunities</td>
<td>Focus group discussions and interviews with SFF personnel at seven SFFs. (Appendix VI). Review of SFF reports on progress towards reform reveal these HR &amp; capacity related interests</td>
</tr>
<tr>
<td>Local village, town, township</td>
<td>Local residents</td>
<td>Employment opportunities, Local economic development (e.g. production of resources, ecotourism market), Recreational opportunities, Access to forest resources, Healthy living environment and agricultural system due to forest ecosystem services and enhanced nutrition</td>
<td>Consultations with village residents near SFFs in 6 locations in 3 pilot areas. Focus group discussions with SFF, forestry and cross-sector departments at City and county level (Appendix VI). Regarding nutrition, see Powell et al. (2013); Foli et al. (2014)</td>
</tr>
<tr>
<td>Visitors</td>
<td>Tourists, Students, Scientific researchers</td>
<td>Aesthetic experience, Learning experience, Access to data and fieldwork</td>
<td>These interests are assumed based on general experience of all project personnel.</td>
</tr>
<tr>
<td>County, City, Provincial</td>
<td>Leadership and Personnel from sectoral agencies: Forestry, Land and Resources Agriculture and Husbandry Development</td>
<td>Recognition for contribution; Promotion opportunities, Useful reporting material/data, Work synergies to accomplish 13th FYP and other initiatives, Integration of social priorities in environmental programming (including gender-positive efforts), Capacity building (e.g. ROAM)</td>
<td>Regarding promotion opportunities, see section 3.1.3. (Institutions) Focus group discussions with SFF, forestry and cross-sector departments at City and county level (Appendix VI).</td>
</tr>
</tbody>
</table>
| Downstream Beneficiaries | Urban residents | Clean water  
Reduced flood risk  
Forest foods | There is a substantial body of literature to support this. |
|--------------------------|----------------|---------------------------------|
| Private sector           | National, Provincial and local companies and entrepreneurs | Business opportunities (e.g. products, eco-tourism attractions)  
Documented contribution towards company CSR goals | See section on Economic Sustainability, below. |
| National Policy Makers   | SFA, National Development and Reform Commission, Ministries governing land use, natural resources, and social welfare | Cross-sector collaboration  
Useful reporting on targets  
Progress towards implementation of 13th FYP | See section 3.1.3 (Policy) |
| Global IOs, NGOs, national governments | Bonn Challenge partners; GPFLR; UNFCCC, etc. International development partners | Documentation of China’s contribution towards international conservation and climate goals  
Contribution from Chinese experts on FLR policy and practice | See, e.g. http://www.bonnchallenge.org/flr-desk/china |

In summary, stakeholders in the Project include, from small to large scale: all SFF staff in the pilot areas and (through upscaling) to the national level, including management and technical personnel; local residents of villages, townships and towns surrounding the SFFs; visitors to the
SFFs including tourists, students and scientific researchers; county and city officials who will benefit from capacity building and/or play a role in the project; downstream beneficiaries of the ecosystem services provided by restored landscapes; private sector actors who find opportunities to collaborate with SFFs; national policy makers who receive useful information and opportunities to enhance their functions; and global-level beneficiaries of increased interactions with project staff.

3.5 Baseline analysis and gaps

3.5.1 Past and planned national actions and projects

Programs Relevant to FLR

China has well-advanced programs in forest protection, afforestation and reforestation, as well as other ecological programs that target the improvement of ecological conditions. The best-known programs are the Natural Forest Protection Program (NFPP), the Sloping Land Conversion Program (also known as the Conversion of Cropland to Forest Program (CCFP), and the Three-North Shelterbelt Program (Figure 3). Together, these programs have already protected over 60 million ha of forest and planted trees on at least 30 million ha since the early 2000s. In the current period of the 13th FYP which comes to an end in 2020, these programs will continue to add area and adjust their practices.
Table 9 provides an overview of the programs in the coming period.

Table 9. FLR relevant programs in China. Programs marked with an asterisk (*) are sources of co-financing for the proposed China TRI Project.

<table>
<thead>
<tr>
<th>National Program</th>
<th>Current targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accurate forest quality improvement programs</td>
<td>Implement forest management on 40 million ha, restoration of degradation forest restoration of 9 million ha of degraded forest by 2020.</td>
</tr>
<tr>
<td>Afforestation and greening program (Ministry of Lands and Resources Program)</td>
<td>Plant trees on 2.108 million ha by 2020, including Three-north, Yangtze and Zhu river shelterbelt development.</td>
</tr>
<tr>
<td>Afforestation project for sandstorm control around Beijing and Tianjin area*</td>
<td>Control sandstorm sources, prevent desertification. 2.63 million ha farmland converted; 4.94 million ha afforestation; 10.63 million ha grassland restored. 180,000 people resettled for ecological improvement; Forest cover to reach 19.44% (8.27% improvement)</td>
</tr>
<tr>
<td>Desertification and stony desertification restoration programs</td>
<td>Restoration of 3.13 million ha of land affected by desertification in North China; restoration of Stone desertification restoration 1.95 million ha of land affected by stony desertification; desertification restoration in North China 3.13 million ha. See Figure 5 for specific provinces</td>
</tr>
<tr>
<td>Forest industry development programs</td>
<td>By 2020, develop 14 million ha of national reserved forest reserves 14 million ha; develop 9000 various forest parks; create 18 million ha of under-forest economy demonstration areas 18 million ha.</td>
</tr>
<tr>
<td>Jing-Ji water conservation afforestation program*</td>
<td>Water PES program initiated in 2008 around the Miyun Reservoir, the Beijing’s only surface water source for domestic water supply, and they convert land use systems by afforestation to protect Beijing’s source water.</td>
</tr>
</tbody>
</table>

1 Stony desertification is a form of degradation particularly prevalent in rocky karst landscapes in Southwest China.
<table>
<thead>
<tr>
<th>Program Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low yielding and poor quality forest improvement project*</td>
<td>Low yielding and poor quality forest improvement project is funded by central government. The project is to optimize forest structure and improve forest quality by scientific management measures, such as replantation, tendering and transformation etc. Investment level of RMB 7,500 per hectare.</td>
</tr>
<tr>
<td>National reserved forest reserve program</td>
<td>210 million mu placed under reserve by 2020 with a target of eventually providing 95 million m³ timber per year.</td>
</tr>
<tr>
<td>Natural Forest Protection Program*</td>
<td>Protect 130 million ha natural forest (including 70.53 and 59.07 million ha state-owned and private natural forest, respectively).</td>
</tr>
<tr>
<td>Public benefit forest management and protection project*</td>
<td>Public benefit forest management and protection project is funded by central and provincial government. It pays a certain amount of money to forest owners or users whose forest was classified as public benefit forest while restricting their management activities, namely, any other logging activities were banned in addition to tendering and regeneration logging activities. For the national public benefit forest, the state- and collective-owned or personal investment criteria reaches RMB 120 and 225 per hectare, respectively. Meanwhile, for the provincial public benefit forest, the payment amounts to RMB 120 per hectare paid by local governments.</td>
</tr>
<tr>
<td>Sloping Land Conversion Program</td>
<td>Convert 5.34 million ha of sloping cropland and barren land to forest by 2020 (in addition to ca. 29 million ha already implemented).</td>
</tr>
<tr>
<td>Stoney desertification control project*</td>
<td>Stoney desertification control project is led by NDRC in cooperation with forestry, agriculture, water and land resource department. It controls stony desertification lands by using forest and grass restoration, livestock management and small water conservancy works. Subsidies are based on RMB 500,000 per km².</td>
</tr>
<tr>
<td>Wetland protection program</td>
<td>Restore 140 thousand ha of wetland by 2020</td>
</tr>
<tr>
<td>Wildlife protection program</td>
<td>Construct a total of 2,240 natural nature reserves nationally by 2020</td>
</tr>
<tr>
<td>Young and middle-aged forest tending project*</td>
<td>Produce multiple benefits and promote forest quality and volume per unit area using thinning, shrub cutting and replanting. Investment levels are RMB 1,500 – 1,800 per hectare.</td>
</tr>
</tbody>
</table>

### 4. Intervention strategy (alternative)

The Project will align national reform initiatives with international best practices of forest landscape restoration (FLR) (see section 3.1.3) to shift the focus of state-owned production forests (SFFs) from production of timber to generation of public goods in the form of ecosystem services and non-timber derived economic benefits. The primary intervention approaches to achieve this shift include 1.) building new capacity for forest management and restoration planning and ecosystem services monitoring, 2.) conducting analysis and outreach to inform the development policies and legislation that are supportive of large scale FLR serving multiple
environmental and social goals, 3.) assessing the economic potential of SFFs and building capacity to design sustainable business strategies to support the transition from forestry for timber production to forestry for restoration of ecosystem functions and services, and 4.) knowledge aggregation and dissemination through monitoring, communications and partnerships. This intervention strategy is supported by recent scientific advances and conceptual frameworks.

Forest ecologists and international foresters working to redefine restoration goals to meet environmental goals of conservation and ecosystem service provision beneficial to society have developed a range of concepts, approaches and tools useful in planning and implementing FLR. To assist in thinking about the relationship between the costs and environmental outcomes of different restoration options, Chazdon (2008) proposed a “restoration staircase” in which the initial state and degree of degradation of a particular area of land, the expected end goal of restoration (ranging from, e.g. timber production to biodiversity conservation), and financial costs point to alternative approaches (Figure 4).

Chazdon’s simplified model illustrates the relationship between costs\(^2\) in terms of time spent (i.e. labor) and financial inputs and benefits of restoration in terms of ecosystem services and conservation value. Depending on the initial state of degradation, a particular restoration project may incur high costs to, e.g. reclaim land and plant trees on land that has been severely graded by mining; medium costs to, e.g. plant trees in a landscape; or low costs to, e.g. enclose an area of land and allow natural regeneration with little or no land/soil remediation or planting. Depending on the desired outcomes, a restoration endeavor may involve accomplishing one step, or it could involve moving up a step or two on this staircase over time. For example, a clear-cut area might first be reforested with a fast-growing exotic timber, and in a subsequent stage, enriched with native species following selective logging.

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\(^2\)NB: This model does not take into account the opportunity costs of the different approaches, which might prevent a particular group of stakeholders from adopting the form of restoration requiring the least direct labor and delivering the highest biodiversity benefits
Figure 4. Chazdon (2008)'s “restoration staircase.” The initial state of degradation and alternative management practices favor different outcomes in terms of ecosystem quality, ranging from 1) restored land and soils, to 2) productive values, to 3) high biodiversity forest. Through natural regeneration, the latter can be achieved at low (direct) costs.

In part based on the staircase model, the TRI China team identified ecological starting points, interventions, and potential end goals for a range of restoration landscapes based on site visits and data obtained through meetings with and documents provided by SFFs in the three project target areas.

In addition to ecology-based decision making based on optimal environmental outcomes and cost-benefit ratios, FLR seeks to identify the specific outcomes – in terms of ecosystem services, biodiversity, and socioeconomic values - that are desirable to stakeholders and the most feasible means to achieve them. From an ecological perspective, the initial form and severity of degradation indicates a range of approaches with different outcomes in terms of the eventual characteristics of the resulting species composition and associated ecosystem values and services. As opposed to considering “forest” as a bounded system, FLR is planned and implemented on a broader spatial scale in which forests and trees are considered as part of a multi-use system that includes the range of economic, industrial and leisure activities in which humans engage. For this reason, FLR planning requires a process of matching the ecological potential of forests and trees in a given area with socioeconomic interests of stakeholders in the ecological services of the future restored landscape.

Recognizing the importance of stakeholder interests in FLR decision making, a number of international forestry researchers have proposed that FLR by definition needs to be a participatory process. Lamb et al. (2005) propose that FLR is a process of restoring sites within a landscape mosaic (which in this case, may include patches of closed forest, agroforestry land, agricultural fields, etc.) involving tradeoffs between conservation and human well-being negotiated through participation of relevant stakeholders in the planning and implementation of
restoration activities. Along this line of thinking, Sayer et al. (2013) reviewed the forestry literature and identified ten principles to consider in designing landscape approaches. These ten principles and their grounding are summarized in **six TRI China project design guidelines** and explained with their relevance to FLR (Box 3).


<table>
<thead>
<tr>
<th>Principle</th>
<th>Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Multifunctionality:</strong> Landscapes are used for multiple purposes, and there are tradeoffs among those purposes. For example, the shift from timber production to generation of ecosystem services incurs a loss of revenue and an investment in restoration and conservation; selective logging may temporarily reduce the aesthetic value of a forest but could make room for species diversification and better ecosystem services in the future; reforestation may sequester and store a higher volume of atmospheric carbon, but the water demand of trees may put pressure on local water resources.</td>
<td></td>
</tr>
<tr>
<td><strong>2. Multiple stakeholders, transparency, common concern entry point:</strong> To succeed in implementation and fulfil social responsibilities, FLR projects should: 1.) establish trust with diverse stakeholders based on transparency, 2.) seek consensus on shared goals and what steps to achieve them, 3.) establish clear rights and responsibilities, and 4.) equitably share restoration benefits.</td>
<td></td>
</tr>
<tr>
<td><strong>3. Multiple scales:</strong> Outcomes are affected by interactions among scales, which may be spatial scales (such as between a forest area and the broader environment) or sociopolitical scales (such as local, national, or global political scales). Different processes may occur on different time scales, which is a challenge in forestry which is a long term (even multi-generational) endeavor.</td>
<td></td>
</tr>
<tr>
<td><strong>4. Continual learning, adaptive management and resilience:</strong> Because landscapes evolve over time in response to unpredicted ecological and exogenous sociopolitical interactions, FLR needs to monitor change over time and periodically adapt ongoing planning and implementation based on what is learned. Projects need to build capacity to increase adaptability for resilience.</td>
<td></td>
</tr>
<tr>
<td><strong>5. Participatory and user-friendly monitoring:</strong> Depending on the number of indicators being monitored (e.g. pertaining to different ecosystem services), monitoring can require large numbers of people regularly collecting data over large areas. Participatory monitoring can increase shared interest in FLR outcomes.</td>
<td></td>
</tr>
<tr>
<td><strong>6. Strengthened stakeholder capacity:</strong> FLR requires building stakeholders’ skills and abilities to participate in adaptive planning, implementation, monitoring, knowledge generation and sharing, and policy engagement.</td>
<td></td>
</tr>
</tbody>
</table>
To operationalize the above principles, the publication *A guide to the Restoration Opportunities Assessment Methodology (ROAM): Assessing forest landscape restoration opportunities at the national or sub-national level* (IUCN and WRI, 2014) offers approaches summarized in Appendix X.

The above principles require developing an understanding of the complex interactions between ecological functions and human socio-economic systems, which need to be observed independently to avoid one-size-fits-all solutions that do not work and may have negative consequences. A simplified representation of those interactions is presented in Figure 5.

**Figure 5. Interactions between ecosystem functionality and the socio-economic system.**

Based on multi-sector and forestry sector stakeholder focus group discussions at the city level (Chengde City, Hebei; Ganzhou City, Jiangxi; and Bijie City, Guizhou), and multisector stakeholder FGDs at the county level in 2 counties and Guizhou and 3 counties in Jiangxi, the TRI China project design team conducted an initial identification of the ecological problems facing stakeholders in the three areas, and conducted a preliminary inventory of sectoral and cross-sectoral projects that are being implemented to address these problems. A detailed overview of these discussions is appended in Appendix VI, and summarized below in Table 14. In addition, the design team designed a survey instrument to solicit data from potential SFFs to form the core of each project restoration landscape, and conducted FGDS and site visits at 2-3 SFFs in each project area.
Together, these preliminary investigations were used to inform the development of project strategies and will also be useful during the first phase of project implementation, which involves adapting the Restoration Opportunities Assessment Methodology (ROAM) (IUCN, 2014) and developing a handbook analogous to the Forest Landscape Restoration Handbook (FLR Handbook) (ITTO and IUCN, 2009) for application in China and testing it in the selected project cities/counties.
4.1 Project rationale and expected global environmental benefits

4.1.1 Project rationale

Over the past 20 years, China has made great strides in increasing forest cover from less than 15 per cent to over 21 per cent and has reconceived forests as a source of ecosystem services, moving away from timber production especially in ecologically vulnerable and high biodiversity areas. Significant progress has been made in reducing erosion and improving water services and addressing land degradation. The system of State Forest Farms, covering 77 million ha or 8 per cent of the national territory, has integrated 2,570 forest parks, 1,300 nature reserves, and 240 wetland parks. The current State Forest Farm reform process involves reorganizing the farm’s management systems to enable the system to accomplish its goal of delivering public benefits as opposed to producing timber.

Despite this progress, Chinese forestry, and in particular the SFF system, suffers from a lack of technical capacity in forest management and restoration planning. In addition, SFF’s are relatively isolated from the local communities that surround them as they report to higher administrative levels, and rarely interact across sectoral boundaries (e.g. with the water, land, and human services authorities, etc.). This prevents them from maximizing their role as potential core areas for forest landscape restoration. They also face challenges in hiring staff and building the capacities required to establish income generating activities that will sustain the vision of SFFs as forest landscapes generating a wide range of benefits to local, downstream and urban stakeholders. Indeed, the area and geographic diversity of the SFFs is significant enough to make them of global interest as carbon sinks and repositories of irreplaceable endemic biodiversity. Moreover, through FLR connecting SFFs to the broader landscape, there is a potential role for SFF’s in developing strategies to facilitate species migration over time, as global climate zones shift as a result of global warming. Greater resilience of China’s own forests is in itself of major global benefit. Finally, while many of the basic policies recognize the important role of forests and even call for various forms of FLR, the details of those policies still need to be worked out and translated through effective legislation and regulation.

In China, a common pattern of successful change is to pilot new policies, methods and approaches to environmental management and social development in relatively small areas and subsequently to upscale those that are successful. The Project will bring incremental resources to allow for experimentation with a number of approaches to FLR, allowing China’s SFF system to find solutions to the above-mentioned problems which can then be replicated at broader scales and upscaled to the entire system.

4.1.2 Expected Global Environmental Benefits

- Improved ecosystem services (especially drinking water provision and soil conservation) and climate resilience of 45,089,608 ha forest landscapes across China through direct and indirect impact;
• Reduced land degradation, desertification and stony desertification of 208,919 ha as direct impact;
• Maintained globally and nationally significant biodiversity of 953,260 ha through direct and indirect impact;
• Mitigation of climate change through carbon sequestration;
• Sustainable forest management;
• Enhanced sustainable livelihoods for local communities and forest-dependent peoples.

Indirectly, the restoration of those forests and the dissemination and replication of lessons learnt to other regions will have an impact on water consumers in the megacities such as Beijing, Guangzhou, Shenzhen and Hongkong.

Biodiversity benefits

The TRI China project contributes to conservation of globally significant biodiversity, namely by improving the habitat through forest and grassland management approaches that increase and maintain tree cover, increase the diversity of forest trees planted through enrichment planting and protection of natural regeneration, and reduce disturbance to the forest understory and soil layer. During the Project’s four-year implementation period, interventions will directly target 54,347 ha of pilot State Forest Farms. Through replication and upscaling, the biodiversity-favorable practices implemented in pilot SFFs are expected to be adopted within 8 years in an additional 898,913 ha of SFF in pilot provinces, for a total area of 953,260 ha.

The presence of endangered plants (IUCN Red List vulnerable) in pilot SFFs will be assessed in baseline studies at the beginning of the Project. According to a preliminary search of IUCN’s Red List database, in Guizhou, there are up to 80 such species; in Hebei, 3; and in Jiangxi, 7. In one project site in Hebei, the Caoyuan State Forest Farm, the project will address degradation of a wetland that attracts migratory birds, but they have not been studied; baseline data collection will attempt to identify species with a threat level classification of “vulnerable” to “endangered”. During the establishment of biodiversity monitoring protocols, the Project will evaluate opportunities to monitor other taxa, or potentially seek collaboration with relevant partners with interest in conducting ancillary studies.

Land degradation

The Project will contribute to improved provision of agro-ecosystem and forest ecosystem goods and services with the degraded area of all pilot SFFs with a combined area of 101,375 ha, and through collaboration with municipal government sectors to reach an additional 107,544 ha, or 7.5% of the total degraded land of the cities in which the project will conduct trainings and produce plans to build capacity for forest landscape restoration planning.

The project contributes also to mitigation of greenhouse gas emissions and increased carbon sequestration in production landscapes, with an incremental sequestration of 11,275,916 tons
CO² e/ ha, of which 3,647,617 tons CO² e/ ha within lands directly targeted by the project, and 7,628,299 tons CO² e/ ha on lands indirectly targeted through upscaling and replication. An estimated 78% of total carbon is sequestered in biomass and the remainder in soil.

In addition, the Project contributes to the **conservation and sustainable use of biodiversity in productive landscapes**, as mentioned above under biodiversity benefits. Currently, the Project is aware of the conservation and use by SFFs in Guizhou and Jiangxi of endangered Chinese yew (*Taxus chinensis*) and the vulnerable tall gastrodia (*Gastrodia elata*). At the outset of the project, baseline assessments and situation analyses will assess the opportunities for sustainable management of other valuable species.

**Sustainable forest management/REDD+**

The Project contributes to **reduction in forest loss and forest degradation**, specifically to SFM-3 (Restored Forest Ecosystems: Reverse the loss of ecosystem services within degraded forest landscapes), Outcome 5 (Integrated landscape restoration plans to maintain forest ecosystem services are implemented at appropriate scales by government, private sector and local community actors, both women and men). Under Indicator 5 (Area of forest resources restored in the landscape), 101,375 ha of forest will be restored directly by project partners during the project period, and additional 107,544 ha will be restored through replication and upscaling, and 39,062 ha will be restored by communities in collaboration with Project city governments. Ultimately, through upscaling of Project approaches and policy support, the total area targeted by this project in the long term is 45 million ha, or the total forest area of SFFs in China.

The project will further contribute to the **maintenance of the range of environmental services and products derived from forests**, including carbon sequestration, soil and nutrient conservation, water regulation and wetland conservation, and economically valuable forest products. These services and products will be maintained directly through management of the area of all pilot SFFs (158,373 ha), with eventual upscaling to the total forest area of all national SFFs. By contributing to the development of national ecosystem services valuation methodologies, which support the design and implementation of eco-compensation and payment for environmental services programs, the project has the potential to this goal over an even broader area of China’s forest estate beyond those under the jurisdiction of SFFs.

**Enhanced sustainable livelihoods for local communities and forest-dependent peoples**

Finally, the Project will support economic development of the areas in which SFFs are located, through the maintenance of forest ecosystem services that support downstream agriculture, the engagement of local community members in participatory monitoring within SFFs, the employment of local community members in restoration activities, and by contributing to the development of ecotourism supporting local business. In activities that involve the direct employment of community members under the Project, methods of equitable recruitment and
remuneration of men and women will be developed in collaboration together with the leadership of local villages, townships, and with the advice of the local Women’s Union.

Finally, as China becomes increasingly active in global natural resource management and activities targeting climate change mitigation, the Project will help to connect China’s forestry institutions, in particular the SFF system, to a broader global community of practice. Knowledge sharing among institutions that have committed large land areas to the Bonn Challenge will be an important contribution of the project, benefiting both the Chinese participants and international counterparts.

4.2 Project goal and expected impact

The overall goal of the Project is: to strengthen the policy, practice and evidence base of forest landscape restoration in China as an approach to reducing land degradation, conserving biodiversity, and adapting to climate change.

The highest level expected impact of the project is improved productivity of forest landscapes that will enhance livelihoods, build climate resilience and conserve biodiversity. This impact will be achieved through 1) improved biodiversity and ecosystem functionality across restored forest landscapes; 2) increased flow and sustainability of desired ecosystem services; 3) increased climate resilience of forests; and 4) improved livelihoods from the appropriate sharing of social and economic benefits from forest landscapes (Figure 6).
4.3 Project components, their expected outcomes and outputs and planned activities

In September, 2016, the IUCN China team and IUCN Global Forest and Climate Change Programme reviewed the preliminary structure of the Project as discussed by partners and worked to align the components, outcomes and outputs with the Global TRI PFD. The review resulted in some reorganization of the Project work plan’s framework and activities, presented in Appendix II. Following consultations with stakeholders at the provincial, city, county and SFF/landscape levels from February to April 2017, the framework of components, outcomes, outputs and activities was further revised.

The Project is organized in four main components, as follows:

<table>
<thead>
<tr>
<th>Impact</th>
<th>Improved productivity of forest landscapes enhances livelihoods, builds climate resilience and conserves biodiversity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-impacts</td>
<td></td>
</tr>
<tr>
<td>Improved biodiversity and ecosystem functionality across restored forest landscapes</td>
<td></td>
</tr>
<tr>
<td>Increased flow and sustainability of desired ecosystem services</td>
<td></td>
</tr>
<tr>
<td>Increased climate resilience of forests</td>
<td></td>
</tr>
<tr>
<td>Improved livelihoods from the appropriate sharing of social and economic benefits from forest landscapes</td>
<td></td>
</tr>
<tr>
<td>Outcomes</td>
<td></td>
</tr>
<tr>
<td>Policies, laws and governance structures across sectors and scales facilitate the implementation of FLR</td>
<td></td>
</tr>
<tr>
<td>FLR is upscaled throughout China and public and private sector financing of FLR is enhanced</td>
<td></td>
</tr>
<tr>
<td>Awareness of the relationship between restored forests and ecosystem service benefits is increased</td>
<td></td>
</tr>
<tr>
<td>Outputs</td>
<td></td>
</tr>
<tr>
<td>Degraded forest landscapes restored and rehabilitated</td>
<td></td>
</tr>
<tr>
<td>Enhanced capacity to sustainably manage forests</td>
<td></td>
</tr>
<tr>
<td>Improved appropriate sharing of benefits</td>
<td></td>
</tr>
<tr>
<td>Appropriate, comprehensive policy, institutional arrangements and rule of law</td>
<td></td>
</tr>
<tr>
<td>Stakeholders and partners</td>
<td></td>
</tr>
<tr>
<td>SFA, SFF workers and management personnel, local residents, provincial and national academics, county/city/province sector officials, downstream beneficiaries, private sector, national government experts and policy makers, Global IOs/NGOs</td>
<td></td>
</tr>
<tr>
<td>Activities</td>
<td></td>
</tr>
<tr>
<td>Capacity building, knowledge sharing, planning, methods development, forest restoration, generating financing opportunities, revising policies and institutional/governance arrangements</td>
<td></td>
</tr>
<tr>
<td>Inputs</td>
<td></td>
</tr>
<tr>
<td>Funding, skills, methods, tools, knowledge, materials</td>
<td></td>
</tr>
</tbody>
</table>

Figure 6. Overview of the Project's theory of change from inputs and activities conducted by and with partners and stakeholders to produce outputs, main outcomes, and ultimate impacts.
Component 1: Improving ecosystems services in China's State owned forests farms (SFFs): Implementation of restoration programs and complementary initiatives;

Component 2: Mainstreaming ecosystem services in China's forest policies: Policy development and integration;

Component 3: Capacity building and knowledge dissemination: Institutions, finance and upscaling; and

Component 4: M&E and information management and communication: Knowledge, partnerships, project monitoring and assessment.

The main content of the four components is summarized as follows; see the workplan in Appendix II for additional details of the specific outputs and activities. Additionally, activities presented in the logic of provincial and sub-provincial level project partners was prepared to facilitate discussion of the activities in a form that was more intelligible to a broader range of national stakeholders involved in Components 1 and 3 than the typical results framework/logframe (Appendix VII), which tends to be lost in translation when presented to national stakeholders in China.

Component 1 has three main expected outcomes around which targets, outputs and activities are planned. The first outcome (1.1) is to increase the potential of forests in selected landscapes provide relevant ecosystem services (water, soil and carbon sequestration), maintain and improve biodiversity, increase climate resilience, reduce land degradation, and generate local benefits. To achieve this outcome, the project intervention will build the capacity of China's State Forest Farms (SFFs) to implement sustainable forest management and restoration (FMR) plans incorporating FLR.

First, the Project will work with national experts to develop technical capacity at the provincial level, working with teams of forestry experts from provincial research institutions and universities to provide the capacity required to implement forest landscape restoration. The work will start by improving the way SFFs develop and implement their own sustainable forest management and restoration (FMR) plans, strengthening the targeting of ecological goals by grounding management planning in forest ecology and diversified production beyond timber, starting with seven pilot SFFs in the three project areas. The subsequent output of this work is that the SFF system will implement sustainable FMR plans incorporating FLR and targeting delivery of specific ecosystem services (including conservation of biodiversity) contributing to the national goal of SFF reform (See Appendix VIII for a detailed overview of the preliminary analysis and planning for each pilot SFF). In years 2 and 3, that process will be replicated in 3 additional SFFs at the level of each of the three prefecture-level cities, using the new capacity of the provincial technical teams.
A separate target and activity set is the upscaling of FLR planning capacity at the municipal level by engaging planners from forestry and non-forestry sectors (water, lands, environmental protection, social development, etc.) in Restoration Opportunity Assessment Methodology (ROAM) training by a group of national and international experts. Through this, the Project and city-level stakeholders will produce FLR plans. This will assist city (in Bijie, Guizhou and Chengde, Hebei) and county (in Ganzhou, Jiangxi) forestry departments together with SFFs to engage across sectors to produce FLR plans with SFFs as core areas for transformation of the surrounding landscape. One of the members of the ROAM training team will be a dedicated expert in environmental and social safeguards. This expert will provide training, guidance and management tools to all core project team personnel and advisory boards in each pilot area and at the national level. To assess uptake of municipal FLR plans beyond the SFFs and the forestry sector, the project will conduct assessments of adoption in years 3 and 4 and provide follow up recommendations to municipal governments.

The second outcome (1.2) will be the establishment and implementation of ecosystem services valuation and monitoring methodologies. The corresponding intervention will involve the development of methods, indicators, facilities and systems of data collection and analysis for monitoring of ecosystem services and biodiversity. Outputs of this intervention will include the methods and protocols themselves as well as baseline and annual data on forest ecosystem services.

Towards this end, the project will engage a team with advanced skills in developing ecological and biodiversity monitoring systems will to develop indicators and protocols for data collection and analysis, establish and train community monitoring teams, collect baseline data and leave in place a system to monitor change in forest conditions and the ecosystem services identified as priorities for the given area, and associated local socioeconomic effects. The methods and systems put in place will generate data towards the third outcome (1.3): National agencies involved in ecosystem assessment and valuation (and Gross Ecosystem Product accounting) will access project data to inform implementation of China’s many successful eco-compensation payment schemes (such as the Natural Forest Protection Program and Conversion of Cropland to Forest Program, among others described in section 3.5.1) and the potential development of market-based private or non-governmental payment for ecosystem services (PES) schemes. The upscaling of the monitoring methodologies will therefore be achieved as the system generates data to inform eco-compensation models and payment systems, of which there are many in China.

The monitoring and evaluation of each ecosystem service/biodiversity target identified as priorities by each SFF and pilot county/city requires a separate protocol. These protocols will likely include measurement and valuation methodologies for: forest extent, forest composition and biomass, wildlife, water quality and flow, soil erosion and soil quality, aesthetic value of landscape. The scales of ecosystem service monitoring include the SFFs and county/city landscapes. In addition, a protocol for monitoring of incremental benefit flows from ecosystem
services and related compensation and socioeconomic development to local households will be developed and applied to a sample of twenty households per pilot area annually, beginning with baseline data collection in Year 1. The protocols will be developed by the ROAM consultant team based on their work in each pilot landscape. Ecological and socioeconomic monitoring will be implemented by community monitoring teams. Participation in monitoring activities is the main vehicle for sharing of economic benefits with local community members, and therefore the recruitment process must aim to be transparent and equitable. The Project will engage a balanced number of men and women representing all local ethnic groups and age groups [age 16+] as both monitors and team leaders, with the expectation that this target will encourage gender balance and against which project evaluations will measure results.

The detailed curriculum for capacity building in ROAM/FLR, which will result in the preparation of municipal level FLR plans, will be prepared by experts engaged by the Project following the approach detailed in the TRI China ROAM/FLR draft terms of reference presented in Appendix X. The ROAM/FLR planning approach will be upscaled by adapting the approach to the particular circumstances of China and promoted nationally through the publication of a handbook under Component 3.

A notable benefit of Component 1, in addition to producing the plans to shift forest and landscape management towards the delivery of environmental benefits, is the development of several layers of capacity that will serve not only the Project but also the city and provincial forestry and land use institutions for a longer term and over a broader area than the Project pilot area. First, capacity in forest ecology and management will be deployed from the National level to build the capacity of a cadre of provincial experts in each pilot province, who in turn will build the capacity of SFF personnel and who will remain a permanent planning resource for the three provinces. Second, the project will install capacity in monitoring of ecosystem service delivery at the county and SFF levels, and community monitoring teams will be engaged and learn how to collect and deliver ecological and socioeconomic data, which represents both an outreach activity and the development of new skills and knowledge, linked to economic opportunity, of local stakeholders. Finally, the FLR planning activities at the city level will deploy international expertise in ROAM methodology and FLR planning to build the capacity of city and county planners from forestry and non-forest sectors to collect and analyze biophysical and social data, engage stakeholders in planning, and develop coherent landscape level plans.

In all components, The Project will install monitoring capacity at the level in which the project has the highest direct influence (i.e. in the management of SFF forests, and implementation of Project activities), and where the project reaches towards higher impacts (e.g. FLR planning at the city level and upscaling to the Provincial and National levels) the project will promote uptake and track progress through targeted surveys and assessments of both implementation and impact.
Component 2 involves the development and integration of policies from the scale of the SFF system to the scale of national forestry policy, central government policies that span sectors, and finally links the partners to global policy development. This will institutionalize the new role of SFFs as public benefit institutions through the design of new policies, laws and regulations that need to be established at relevant scales to facilitate the implementation of forest landscape restoration and sustainable forest management. Second, the tools and approaches that are developed in Components 1 and 3 will be tested and refined and integrated into the national SFF system via internal policy revision. This may involve merging of SFF management as well as adjustments of the internal governance of SFFs and the higher-level hierarchies in which they are nested.

The first outcome (2.1) will be new policies, legal and regulatory frameworks which facilitate and promote the implementation and enforcement of forest landscape restoration and sustainable forest management. Towards this, the Project will engage national policy experts to equip national and subnational forestry policy makers with information and recommendations to develop new policies integrating SFFs as a cornerstone for local FLR implementation, based on an 1.) an analysis of national forestry policies, legal and regulatory frameworks presented in a policy brief vetted in a national stakeholder meeting at the end of Year 1 and 2.) a review of corresponding subnational regulatory frameworks in three pilot provinces vetted and promoted in meetings at the provincial level in Year 3.

The second outcome (2.2), starting in Year 2, targets the incorporation of the project’s FLR planning tools and a supportive governance structure by the national SFF system of 4855 SFFs. This will be promoted through guidelines based on Project learning acquired through sustainable development planning (see Component 3) and pilot testing of FMR planning. As a higher level impact target, the Project will assess national uptake through a targeted survey towards the end of the 4th year.

In Year 4, the Project will seek to achieve maximum impact at the national level, increasing the area of landscapes and afforested lands protected by new policies, by analyzing Central Government policies that govern broader inter-sectoral planning and strategies. Following a national consultation workshop, recommendations will be ready by 2020, when the Central Government will be calling on all sectors to report on their progress under the 13th FYP and develop plans for the 14th FYP. These activities will rely on Project personnel and pre-existing professional and academic policy and legal capacity, but will also empower the partners to proactively engage with policy makers by predicting their need for information and guidance and therefore having the ability to provide strongly supported recommendations timed to match cycles of national decision making.

Component 3 is conceived to build capacity and share knowledge to build institutions for FLR, enable partners to identify and develop sustainable financing opportunities, and to upscale project impact through communication and dissemination.
The first outcome (3.1) targets increased business viability of the SFF system by building the capacity of SFFs and local experts in Year 1 to analyze the key attributes of each SFF, identify sustainable business development pathways to develop, and build partnerships across land and natural resource sectors and with commercial enterprises. The tools developed in this component will help to analyze and reorganize the governance structures and human resources of the SFF system at the national level (contributing to Outcome 2.2).

As in Component 1, Component 3 builds multiple layers of capacity to enable not only implementation of the Project but to contribute to long term development of Provincial capacity to address the new needs the forestry sector as it undergoes reforms. The Project will engage and develop a National and three provincial expert teams to build the capacity and resources of SFFs to adapt to their new role as public benefit organizations and sustain operations in support of FLR, and to acquire market and business knowledge to improve the sustainability of their operations to generate public benefits from FLR. These teams will work with SFFs to develop Sustainable Development (SD) plans based on the specific attributes of each SFF in terms of its facilities, the capacities of its personnel, the needs of stakeholders and/or the demand from the market for specific goods, ecosystem services, or experiences. The SD teams will work with SFFs to increase outreach capacity, by translating SD plans into promotional materials for use in meetings with government support agencies (e.g. county investment promotion, tourism bureau, etc.) and potential business partners, community collaborators, donors, buyers, etc. to secure support for identified sustainable initiatives. This activity is the means through which the capacity of SFFs to seek PES and other financing partners, grants, and collaborations will be achieved. It will guide them in addressing key problems they are facing, such as lack of qualified staff to take on new roles – such as outreach, community engagement, facilitation, business management – that will be necessary to achieve the vision of SFF reform.

Meanwhile, throughout the project period, at the global level, the SFF administration will seek to occupy a seat at the table with global partners to contribute to ongoing FLR and climate change-related processes (Outcome 3.2). The Project will draw on China’s experience to play a greater role in advancing the approaches, theories and mechanisms through which partners engage globally to promote and build capacity for forest landscape restoration at the global level. The types of events foreseen include Global TRI knowledge sharing events and initiatives organized to advance priorities of the Bonn Challenge, GPFLR, UNCCD, CBD, and UNFCCC. The output of these activities (3.2.1) is increased capacity of the SFF Administration personnel to contribute to global policies to develop and promote FLR.

By the end of Year 2, building on the work of Outcome 3.1, the Project will enable the SFF pilots and the National SFF system to overcome information and knowledge gaps to reconcile policy and practice (Outcome 3.3). Specifically, this work will entail identifying and cultivating public and/or private financing mechanisms to support FLR initiatives. Using the results of SD planning, SFF and County Forestry Bureaus in 3 pilot areas will develop marketable investment products (i.e. “bankable initiatives” to bridge the communications gap with potential supportive partners.
and increase sustainability of operations supporting FLR. With the assistance of SD planning teams, SFF and county partners will develop lists of potential private sector PPP partners and donors at City, provincial and national levels, conduct surveys to determine preferences of Investors/donors for ecosystem service and economic forest sub-projects, design bankable sub-projects and associated investment promotion collateral materials and contracting instruments. With improved outreach capacities, forestry personnel will engage in face-to-face meetings with potential investors and donors to obtain financing for FLR-related activities with business potential (e.g. carbon forestry or forest product development). In Year 4, the Project will review this experience and publish outcomes for the benefit of the national forestry system.

To upscale the increased planning capacity for FMR and FLR, and SD planning and outreach for sustainability, the Project will create systems for knowledge development and increase the flow of information throughout the national SFF system and at the provincial, national and local level in pilot project areas. The associated outcome 3.4 is improved awareness and understanding among key decision-makers and stakeholders of forest services and SFM. The main activities will include the translation of project learning into accessible media and the development of a state-of-the-art online communications platform and social network through which to channel the outputs (knowledge, capacity building tools, methods and approaches and policies) developed by the other three components. In addition, this component will engage a relatively large number of SFF personnel in provincial, national and international knowledge exchange. The Project will develop an online platform to support replication and upscaling of FMR planning and SFF system reform, a social network to support internal communications and knowledge sharing, and disseminate and upscale of all project tools through a guidance document in Year 3 on the use of FMR, SD planning, FLR/ROAM, and investment promotion tools. In Year 4, the Project will publish and disseminate a China-adapted ROAM handbook based on knowledge generated through the project and assessments of results.

In support of the Project’s capacity building and knowledge sharing activities and to ensure that Policy and decision makers from local to national levels are equipped with knowledge of how to facilitate SFM, FLR, and ecosystem service delivery, the project will share best practices observed and lessons learned through the project website and online platform, presentations in forestry events at the national level and in 3 pilot provinces, in Eco-Civilization and GEF-related events, and through national and subnational learning exchanges (32 people, 2 times per year).

**Component 4** involves project monitoring and impact assessment and broad communication to reach stakeholders from the local to global level. Outcome 4.1 aims to ensure that the Project monitoring system provides relevant, accurate and timely information for project implementation and the global TRI project through monitoring of project implementation and assessment of project impact. The Project monitoring team will ensure continuous tracking of Project progress and internal communication to allow for any corrective measures or improvements that need to be made. This includes monitoring of the implementation of ESMS mitigation measures, where relevant, and screening for new environmental and social risks that might have emerged. At the
same time, both internal project monitoring and external assessments, combined with data obtained from the ecosystem services and forest condition monitoring conducted as part of Component 1, will be used to develop knowledge projects for sharing with broader groups of stakeholders and communities of practice.

Outcome 4.2 will ensure that project outcomes are communicated in an efficient manner beyond direct partners and participants to broader stakeholder groups, such that awareness of the relationship between restored forests and ecosystem service benefits is increased among stakeholders of the 3 pilot landscapes and that international cooperation and knowledge-sharing mechanisms promote upscaling.

As described earlier, a lack of awareness of the relationship between forest (and in particular forest functionality) and ecosystem services is a potential threat to the success of FLR. Whilst many stakeholders in the project areas have an understanding of linkages between the environment and human wellbeing, such understanding is highly variable between and within groups. Whilst increasing awareness does not automatically result in changed behavior or lead to inspiring people to support FLR, a lack of awareness is a definite barrier to change.

This outcome focuses on using knowledge gained from the project and elsewhere (including through the Global TRI Project and academic and research partners) to build awareness of stakeholders in the three pilot landscapes. The approach to awareness raising will draw on the project’s stakeholder analysis to ensure that the tools, language (e.g. technical versus general) and methods used are the most appropriate for each stakeholder group.

A communication and knowledge management strategy will be developed that ensures the project staff and partners are learning effectively and that knowledge is used to develop policy-relevant lessons for national policy development and lessons are shared through the global TRI project. The starting point for the development of this strategy includes plans to: develop introductory and mid-project posters and brochures introducing the Project and explaining the role of forests and SFFs, and FLR, in generating public benefits; produce video on ecosystem services and biodiversity of SFFs and local area and explaining FLR project for each pilot landscape; and disseminate to the public online.

The communication and knowledge management strategy will differentiate between the following groups:

- The project stakeholders including partners (SFA, SFF residents, local government, civil society, and private sector)
- Policy and practice at national and international levels
- Broader society, particularly, but not only, in China

To ensure that agencies and practitioners of FLR from Bonn Challenge countries receive insights and ideas to improve national implementation, the Project will prepare up-to-date
presentation materials, organize pre-event project briefings and rehearsals, send project partners to participate and present project best practices and lessons learned in at least two international exchange per year in Bonn Challenge countries, invite FLR practitioners from overseas to China for international learning exchanges, send project partners to visit FLR field sites in international locations and prepare site visit reports to share through SFF Online Platform (8 people, 2 times per year), and create and update English version of project website and link to IUCN, GEF.

4.4 Risk analysis and risk management measures

During a workshop with the project’s core stakeholders (see Barrier Analysis, section 3.2.3), participants were asked to identify two forms of potential risk – risks to the Project itself, and risks that Project implementation could entail negative environmental or social outcomes.

The risk analysis uses a likelihood (Almost Certain, Likely, Moderately likely, Unlikely, Rare) and consequence approach (see Table 10) through a risk matrix approach to identify risks and potential mitigation measures (Table 11). Thus, participants were requested to first identify risks and then to rate them in terms of their likelihood and the consequence of their outcomes.

Table 10. Risk consequence

<table>
<thead>
<tr>
<th>Rating</th>
<th>Livelihood loss</th>
<th>Forest use rights</th>
<th>Ecosystem functionality</th>
<th>Ecosystem services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insignificant</td>
<td>Zero</td>
<td>Minor temporary</td>
<td>Virtually no disruption</td>
<td>No change (other than improvement) in flow of ES</td>
</tr>
<tr>
<td>Minor</td>
<td>Some minor short term loss</td>
<td>Some minor short term loss</td>
<td>Minor, short term disruption</td>
<td>No change</td>
</tr>
<tr>
<td>Moderate</td>
<td>Minor medium term loss</td>
<td>Minor medium term loss</td>
<td>Moderate, short term disruption</td>
<td>Moderate, short term disruption of ES flow</td>
</tr>
<tr>
<td>Major</td>
<td>Moderate or long term loss</td>
<td>Moderate or long term loss</td>
<td>Moderate long term disruption</td>
<td>Moderate long term disruption of ES flow</td>
</tr>
<tr>
<td>Catastrophic</td>
<td>Major or permanent loss of livelihood</td>
<td>Major or permanent loss of rights</td>
<td>Major or permanent loss</td>
<td>Major or permanent loss of ES flow</td>
</tr>
</tbody>
</table>

The following table provides an indication of the risks and the mitigation measures and controls that may be required to manage the risk.
Table 11. Risks and risk mitigation measures

<table>
<thead>
<tr>
<th>Risk</th>
<th>Likelihood</th>
<th>Consequence</th>
<th>Rating</th>
<th>Mitigation measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Risks to project</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Unpredictable natural disaster (e.g. fire) | Likely | Major | High | Check existence of relevant emergency preparedness and response plans of partner institutions and SFFs  
Clarify management responsibilities  
Apply advanced site selection and site preparation (i.e. ecosystem-based disaster risk reduction) to minimize disaster risk  
Increase biodiversity and select species that mitigate disaster risk  
Identify high-risk zones and locate project activities away from places where natural disasters happen frequently  
Increasing fire suppression efforts (fire equipment and tools, and fire suppression funds) |
| Insect/pathogen outbreaks | Likely | Moderate | High | Improve monitoring skills  
Increase scientific research and available applications  
Increase mitigation efforts (equipment and funds)  
Increase biodiversity |
| Illegal logging and lumbering (in Jiangxi) | Almost certain | Insignificant | High | Review and propose improvements to relevant regulations and their enforcement |
| Expropriation and/or occupation of forestland (in Jiangxi) | Almost certain | Insignificant | High | Review and propose improvements to relevant regulations and their enforcement  
Clear understanding that the project won’t fund activities that may lead to expropriation |
| Damage to monitoring system equipment | Unlikely | Minor | Low | Take risk into account when setting up the system  
Set up more monitoring points to reduce risks |
| Policy risks (from country level: e.g. number of projects/investment decreases; harvesting quotas interfere with project) | Likely to almost certain | Major to catastrophic | High to Extreme | Build support from Central Government through SFA  
Support from provincial and city level  
Develop and reinforce SFF Management Regulations to buffer against external policy change  
Negotiate policy exemptions for SFF pilot projects (e.g. harvesting quotas)  
Negotiate to increase eco-compensation standards from national, provincial and county levels  
Centralize SFF management |
<table>
<thead>
<tr>
<th>Risk Description</th>
<th>Likelihood</th>
<th>Impact</th>
<th>Management Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>High turnover of SFF &amp; county/city project staff &amp; participants</td>
<td>Moderately likely</td>
<td>Moderate</td>
<td>Ensure that SFF and county project staff are stable. Train more people in order to reduce effects of turnover. Plan handover work and orientation of new project staff &amp; participants.</td>
</tr>
<tr>
<td>2. Social and environmental risks of project</td>
<td></td>
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<tr>
<td>Livestock damage to SFF area (depends on area)</td>
<td>Rare to likely</td>
<td>Minor to major</td>
<td>Thorough analysis of needs and interests of different stakeholders. Develop voluntary co-management agreements with livestock owners on access (including measures such as rotation of grazing areas, exclosures etc.). Consider alternative livelihood options in the context of SFF sustainable development (SD) plans. For each project site where livestock damage is a risk a more comprehensive risk management strategy will be developed following the guidance provided by the ESMF in order to avoid livestock damage but also social risks for livestock owners.</td>
</tr>
<tr>
<td>SFFs MFR plans or county/city FLR plans centered around SFFs and other important forest zones have negative social impacts on surrounding households’ livelihoods</td>
<td>Moderately likely</td>
<td>Minor</td>
<td>Involve relevant stakeholders and surrounding HHs in ROAM process. Thoroughly research and consider the needs and interests of different stakeholders as part of ROAM situation analysis. The risk will need to be assessed for each SFF FMR plan and for each county/city FLR plan – guidance for risk assessment and management is provided in the ESMF.</td>
</tr>
<tr>
<td>Disturbance of restored forest area by residents from surrounding areas</td>
<td>Rare</td>
<td>Minor</td>
<td>Strengthen communications with local residents.</td>
</tr>
<tr>
<td>Social risks related to ethnic minorities in Guizhou pilot area</td>
<td>Moderately likely</td>
<td>Moderate</td>
<td>Analyze socio-cultural context of ethnic minority groups as part of the ROAM situation analysis and ensure inclusive and balanced engagement of ethnic minority groups – detailed guidance provided in the ESMF.</td>
</tr>
<tr>
<td>Changes in access to rangeland impact livelihood of migrant herders from Inner Mongolia</td>
<td>Moderately likely</td>
<td>Moderate</td>
<td>Thorough analysis of the socio-economic situation of herders. Involvement of neutral observer and adherence of FPIC when developing co-management agreement with migrant herders. See more detailed guidance and provisions in the ESMF.</td>
</tr>
</tbody>
</table>
4.5 Consistency with national priorities and plans

In the past several years, China has become increasingly committed to global environmental goals, including climate mitigation, green finance, and pollution control, in addition to the substantive national priorities, ranging from forestry and cross-sector policies to the construction of an “ecological civilization” mentioned in Section 3.5.1 and elsewhere. China ratified the Convention on Biological Diversity in 1993 and has signed on to supportive mechanisms including the Cartagena Protocol and Nagoya Protocol, and in 2014 reported substantial progress towards many of the 2020 Aichi Biodiversity Targets. In recent years, China has positioned itself to become a leader in tackling climate change and establishing green finance mechanisms and markets. All of these initiatives have specific references to forests and forestry, and link to activities specific to the sector and relevant to the China TRI project. Table 12 gives a summary of some of the most important steps China has taken to date.

The Project contributes towards China’s national priorities in several key ways. The project:

- Increases the capacity of national and sub-national forest departments to plan and implement activities that expand forest cover over the long term, both within State Forest Farms and in collaboration with partner agencies responsible for other sectors, including projects such as the Mountain-Water-Forest-Field-Lake program;

- Addresses cross-sector problems such as livestock management and wetlands conservation within State Forest Farms;

- Promotes the diversification of tree species with an emphasis on the re-introduction and expansion of native and endemic species, which increases biodiversity both directly and indirectly (by enriching habitats for other species);

- Increases local institutional capacity and knowledge to monitor change in ecosystem services, including carbon, erosion prevention, water conservation, etc.;

- Through improved monitoring capacity, enables China’s State Forest Farm system to report on contributions to China’s carbon goals and to provide data required to develop Green Finance Systems;

- Ensures mechanisms of communication and feedback with local stakeholders to ensure livelihood priorities and concerns are heard and addressed.

<table>
<thead>
<tr>
<th>Year</th>
<th>Action/Target</th>
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<tbody>
<tr>
<td><strong>Biodiversity engagements</strong></td>
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</tr>
<tr>
<td>2010</td>
<td>China’s National Biodiversity Strategy and Action Plan (2011-2030), aligned to the Aichi Targets, sets a number of targets for forestry, including (but not limited to) restoration of landscapes in North China, conservation of habitats in subtropical evergreen broad-leaved forests and forests in Karst areas, and generally improving conservation of biodiversity outside nature reserves (MEP, 2011).</td>
</tr>
<tr>
<td>2014</td>
<td>China’s Fifth National Report on the Implementation of the Convention on Biological Diversity reports progress towards many Aichi Targets, including “restoring important ecosystem services” and “increasing ecosystem resilience and carbon sequestration”, citing as evidence 1) increased forest growing stock, 2) reductions in areas affected by soil erosion and desertification, and 3) increases in net income of rural households and poverty reduction (MEP, 2014). The report revises a number of targets relevant to the Project, including the following 2020 goals: A. Establishment of mechanisms for ecological compensation and increasing fiscal transfers to key ecological function zones will be accelerated; and studies will be undertaken on the establishment of national specialized funds for ecological compensation and the system of reserves for sustainable development of resource-efficient enterprises will be promoted. B. Increase of national forest holdings to exceed 2.33 million km², or 223,000 km² over that of 2010; and increase of national forest reserves to 15 billion m³, or 1.2 billion m³ over that of 2010. C. By 2020, husbandry production pattern will be changed and grassland sustainability will be effectively enhanced. The Fifth National Report explicitly identifies the use of single-species plantations as one of the main threats to biodiversity in China.</td>
</tr>
<tr>
<td><strong>Climate Change Measures</strong></td>
<td></td>
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<tr>
<td>2005</td>
<td>11th Five-Year Plan commits to decreasing energy intensity</td>
</tr>
<tr>
<td>2006</td>
<td>Renewable Energy Law passed, leading to 12% non-fossil fuel in China’s energy mix and 20% reduction of carbon emissions per unit of GDP by 2015.</td>
</tr>
<tr>
<td>2007</td>
<td>China begins to shut down thousands of inefficient power and industrial facilities and decreases energy consumption ~18-19 per cent per unit of GDP by 2015.</td>
</tr>
<tr>
<td>2014</td>
<td>Seven city/provincial-level pilot carbon markets with a goal of national cap-and-trade system in operation by 2020.</td>
</tr>
<tr>
<td>2015</td>
<td>Intended Nationally-Determined Contribution (INDC) to UNFCCC includes goals of: Peaking CO² emissions by around 2030 or before; lowering CO2 emissions per unit of GDP by 60% to 65% from the 2005 level; increasing share of non-fossil fuels in primary energy consumption to ca. 20%; and increasing forest stocks by ca. 4.5 billion m³ meters over 2005 levels.</td>
</tr>
<tr>
<td>2015</td>
<td>China &amp; US Joint Presidential Statement on Climate Change</td>
</tr>
<tr>
<td>2016</td>
<td>13th Five Year Plan commits to decrease energy consumption by 15% per unit of GDP</td>
</tr>
<tr>
<td>2016</td>
<td>Ratification of Paris Agreement</td>
</tr>
<tr>
<td><strong>Green Finance initiatives</strong></td>
<td></td>
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<tr>
<td>2014</td>
<td>People’s Bank of China and UNEP initiate a Green Finance Task Force with &gt; 40 Chinese and foreign experts from regulatory institutions, think tanks, academia and the private sector;</td>
</tr>
<tr>
<td>2015</td>
<td>Green China Task Force proposes fourteen recommendations for building China’s green finance system; People’s Bank issues Green Bond Guidelines with the Green Bond Endorsed Project Catalogue.</td>
</tr>
<tr>
<td>2016</td>
<td>13th FYP includes goals to build a green financial system, develop green credits, green bonds, and establish green development funds; Government approves Guidelines on Establishing the Green Financial System.</td>
</tr>
<tr>
<td>2016</td>
<td>Two commercial banks issue &gt; USD 4.5 billion bonds; Bank of China launches issue of green bonds on international markets, worth US$3 billion.</td>
</tr>
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</table>
4.6 Project alignment with IUCN Programme

The IUCN Programme 2017–2020 was approved by the IUCN World Conservation Congress in September 2016.

IUCN works under the principle that nature conservation and human progress are not mutually exclusive. Facing tremendous forces of transformation such as climate change and dramatic socioeconomic inequality across the world, there are credible and accessible political, economic, cultural, and technological choices that can promote general welfare in ways that support and even enhance our planet’s natural assets.

The Project has strong alignment with IUCN’s Global Results, Sub Results and 2020 Targets as described below.

**Global Result 2** Natural resource governance at all levels enables delivery of effective conservation and equitable social outcomes by integrating good governance principles and rights-based approaches.

Sub-results (SR) 2.1 – Credible and trusted knowledge for assessing and improving natural resource governance at all levels is available from IUCN.

2020 target - 15. Community-led, cultural, grassroots or protected area governance systems that achieve the effective and equitable governance of natural resources are recognized (as best practices/pilot testing), supported and promoted, while respecting the rights of nature.

SR 2.2 – Governance at national and subnational levels related to nature and natural resources is strengthened through the application of the rights-based approach, and incorporation of good governance principles.

2020 Targets –

16. Intervention points in which rights regimes related to natural resources are clear, stable, implementable, enforceable, and equitable have increased and are effectively integrated with other rights regimes – particularly for women, indigenous people, youth and the poor.

17. The capacity of institutions (including protected area and customary institutions) to undertake decision making in a participatory, inclusive, effective and equitable manner is enhanced, especially for facilitating the active participation of women, youth and indigenous peoples as key stakeholders.
18. Intervention points in which natural resource governance has the capacity to halt illegal natural resource use, through the promotion of rule of law and access to justice, have increased.

**Global Result 3** Societies recognize and enhance the ability of healthy and restored ecosystems to make effective contributions to meeting societal challenges of climate change, food security, human health and well-being, and economic and social development.

SR 3.1 – Credible and trusted knowledge on how nature-based solutions can directly contribute to addressing major societal challenges is available and used by decision makers at all levels.

**2020 Targets** -

24. Key nature-based solutions interventions promoted by IUCN, (e.g. Forest Landscape Restoration, Disaster Risk Reduction, and Mangroves for the Future, river basin management and protected areas) are equipped to systematically assess and monitor the requisite in-country enabling frameworks, including legal, customary, institutional, and resourcing mechanisms for implementation.

SR 3.3 – Intact, modified and degraded landscapes, seascapes and watersheds that deliver direct benefits for society are equitably protected, managed, and/or restored.

**2020 Targets** –

28. New national, sub-national or corporate planning and investment frameworks are effectively implemented in productive ecosystems to contribute to biodiversity conservation, sustainably deliver ecosystem goods and services and promote ‘land degradation neutrality’.

29. Restoration processes and methodologies make demonstrable contributions to the restitution of key ecosystem services in degraded landscapes, watersheds, and seascapes.

30. Legal, customary, and institutional mechanisms and resourcing are effectively implemented to maintain intact, natural and semi-natural ecosystems that deliver benefits to society, including existing and new protected areas.

**4.7 Incremental cost reasoning (for GEF projects)**

Without the GEF project, China will continue to develop opportunities to restore forests and achieve sustainable forest management. However, the opportunity to benefit from a landscape approach and to focus forest restoration and sustainable forest management on maintaining or improving forest functionality and enhancing the flow of needed ecosystem services to support
livelihoods will not be optimized. The GEF project provides an opportunity for China to adapt forest landscape restoration to suit national and local contexts and to scale up these approaches across the country. Without the GEF project, it is likely that the approach to forest restoration will continue to focus heavily on the conventional technical methods which have resulted in an expansion of tree monocultures with low ecosystem functionality and sub-optimal provision of ecosystem services, while the area of natural forest continues to decrease.

4.7.1 Baseline or business-as-usual scenario (without the GEF project)

The SFFs in China are facing a number of challenges and barriers for them to supply appropriate ecosystem services they are expected to provide:

1. The structure of forest ecosystem is fragile, with an overall decreasing biodiversity and increased number of invasive species. Most of the SFFs are plantations established after clear cutting of forests or on converted lands. Monoculture is practiced in 80 per cent of the Country's SFF, as a result of lack of technical capacity and knowledge of restoration of ecosystem services at landscape level.

2. Though expected to bear conservation missions, the SFFs currently are somewhat isolated in the environment governance systems. There is no clear legal status of SFFs, which are often sitting in the middle of non-for-profit and for-profit organization nexus, and thus often not able to receive conservation financing, for ecosystem service values, from government that is normally channeled to protected areas, or to generate funding through market oriented forest management, for those less ecological critical SFFs. This greatly constrains the financing and sustainable management of the SFFs.

3. Lack of management capacity and technology: The professionals and technical knowledge of the managers of SFFs are lacking and unable to cope with new challenges, especially the restoration of ecosystem services, and climate change adaptation, rather than mitigation.

China is developing and rolling out a plan for the reform of SFFs. This reform is the result of the work formulated by a task force led by the National Development and Reform Commission and the State Forestry Administration.

The detailed measures, arrangements, strategies and modalities in support of the SFF governance reform are still to be developed, and therefore the reform is currently being piloted in 9 cities, including the three landscapes of this proposed project. The reform plan and its supportive public financing, estimated to be at least USD 54 million to the three landscapes of this project, represent the baseline of this project.

Without the GEF project, the condition of forests in many of China’s State Forest Farms (SFFs) will remain degraded and, as such, will forego the opportunity to generate an improved flow of ecosystem services for the benefit of local communities, downstream residents and the nation.
overall. It is anticipated that the GEF project will lead to considerable improvement in forest condition in the targeted sites, leading to an enhanced flow of ecosystem services that can support sustainable livelihoods. The GEF project will also result in improved forest governance at the local level and create opportunities for sustainable small-scale businesses to develop based on the improved flow of ecosystem services.

China’s SFFs represent a significant portion (8%) of China’s total forest area, and are distributed throughout the national territory. Originally established to provide timber to supply industrial sectors, the purpose of the SFF system has been reoriented to produce environmental services. A reform has been launched that redefines the targets of the system and mandates a reorganization of the management of the SFFs. However, existing technical, planning and monitoring capacities, forestry practices, internal governance structures and external policy support, external cross-sector and local coordination networks and communications tools and income generation processes have not yet adapted to the reform. The business-as-usual (BAU) scenario features no clear pathways to an SFF system capable of optimizing delivery of ecosystem services, maintaining biodiversity, or generating sufficient economic benefits to sustain operations. In addition, the BAU scenario does not address the problem of climate change resiliency as species ranges shift and encounter barriers in the landscape associated with forest fragmentation.

4.7.2 Incremental reasoning

As mentioned earlier, the project is a child project of the global GEF programme The Restoration Initiative (TRI). The purpose of TRI is to contribute to the restoration and maintenance of critical landscapes that provide global environmental benefits and enhanced resilient economic development and livelihoods, as a contribution to the Bonn Challenge. The Program will deliver global environmental benefits above and beyond the baseline of national and international action on restoration.

Overall, TRI will contribute the achievement of the CBD Aichi 2020 Biodiversity targets, including target 15, which aims to restore at least 15 per cent of world degraded ecosystems by 2020. The Project will contribute to the global targets through a top-down and bottom-up approach to removing barriers to forest and landscape restoration in China. The project is supported by a Global Learning, Finance, and Partnerships project to capture and disseminate best practices, provide financing tools and bankable models for attracting investment, and leverage key partnerships to yield cost savings and realize greater impact than possible under a fragmented, project-by-project approach.

Incremental GEF resources will support the development of a landscape restoration approach that delivers critical ecosystem services, including avoided emissions and carbon sequestration, that would not likely be fully realized under current approaches (Table 13). The project will build on and complement existing and emerging forest and land use policies in China by providing:
- An improved approach to restoration and forest management through multi stakeholder engagement at landscape scale.
- Policy relevant lessons that address both drivers and pressures of forest loss and degradation.
- Increased capacity for the SFFs, SFA, provincial forestry departments, city forestry chambers and county forestry bureaus as well as local communities in the project areas to restore and sustainably manage forests.
- Improved benefits to local communities and national needs including through an increased flow of ecosystem services, enhanced food security and climate change resilience.

Table 13. Baseline and alternative approach

<table>
<thead>
<tr>
<th>Baseline</th>
<th>Project Alternative</th>
<th>Global Benefits</th>
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<tbody>
<tr>
<td>Forest degradation continues apace. Forest management does not address the unsustainable use of natural forests and expansion of tree monocultures. The flow of ecosystem services from forests continues to decline in line with forest degradation.</td>
<td>An FLR approach will enable greater value from forest restoration and forest management by restoring ecosystem functionality and improving the flow of ecosystem services. Planning of forest restoration will change to more inclusive, participatory approaches that inspire SFF communities to manage forests sustainably and halt and reverse negative pressures. Capacity of the SFA, other agencies, and local communities will be built. Improved Sustainable Forest Management approaches will be applied in project areas. Capacity to manage forests sustainably for improved flows of ecosystem services will be increased in the target areas. Relevant plans and policies will be adjusted to include FLR principles.</td>
<td>Improved forest condition and ecological processes. The project will result in the improvement of forest conditions and ecological processes on over 100,000 ha of State Forest Farm land through expansion and enrichment of forest land, replacement of low diversity plantations with mixed forest, protection of natural regeneration, and reduced disturbance of understory litter and soil. These activities will be replicated to 100,000 ha non-pilot SFFs in the three pilot provinces, and to an eventual target of some 45 million ha equivalent to the total forested area of China’s State Forest Farm system. Biodiversity conserved Practices favoring biodiversity will be established on over 50,000 ha within pilot SFFs, with an interim target of additional some 900,000 ha within the SFF systems across China. Expected practices include creating areas for protection of natural regeneration and enrichment planting of native and endemic tree species. Carbon stored and emissions avoided The project will directly sequester an incremental 3.8 million tonnes CO2 equivalent and indirectly sequester an additional 7.6 million tonnes CO2 equivalent. Improved flow of ecosystem services The project will conserve soil and regulate water flows, and increase production of valuable non-timber forest products. Baselines and projections quantifying these will be established early in the project.</td>
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</table>

The TRI China project will pilot new approaches in three ecoregions that build pathways in all areas required to advance SFF reform in the direction of environmentally and economically sustainable production of ecosystem services and conservation. Component 1 of the Project brings technical training in forest management and restoration (FMR) to 7 pilot SFFs, builds
capacity to engage the SFFs in cross-sector planning for forest landscape restoration at the local level, and provides scientific expertise in monitoring delivery of ecosystem services and forest conditions. Results of this monitoring will, within the project period, be used to improve techniques for valuation of ecosystem services, which will provide important data on progress supporting the project’s engagement with national policies (Component 3) as well as the design of national eco-compensation systems. The latter supports upscaling of restoration programs throughout China’s forestry sector, beyond the SFF system. At the level of the pilot SFFs, increased technical capacity will be deployed (through co-financed projects) to test a range of alternative restoration practices designed to increase biodiversity, improve soils, restore water ecosystem services, increase carbon sequestration; to test the feasibility of assisted species migration to increase climate resiliency; and to sustain the economic viability through production of marketable products and services (linked to Component 3, below). Cross-sector coordination is expected to support a small incremental increase in forest area beyond the SFFs at the local level, as well as greater connectivity of forest in the landscape and reduced fragmentation. To ensure sustainability and replicability of the increased technical capacities built by the Project to the broader municipal and provincial networks in the pilot areas, the Project develops a cadre of experts upon which the SFF system can rely to develop plans, build capacity and monitor results of SFFs that are not directly targeted by the project and will fund the first round of replication an additional 10 SFFs during the project period. To further upscale this work, the Project develops and disseminates tools based on pilot activities with which to upscale successful approaches to the national SFF system.

Component 2 of the Project advances the revision of governance tools required to support the envisioned transformation of the SFF system. The project will support the engagement of policy experts to specific guidelines to inform the design and integration of policies, legislation and enforcement mechanisms from national to local levels. Based on changes to the functioning (human resources, policies and procedures, etc.) of pilot SFFs implemented to accomplish Components 1 and 3 of the project, guidelines for internal governance reforms will be developed and up-scaled to the national SFF system. Targeting higher levels of policy making, the Project will synthesize operable information on the potential contribution of SFFs to national targets including FLR, biodiversity conservation, and ecosystem service provision for incorporation in national multi-sector planning.

Component 3 is specialized in capacity building and knowledge dissemination on several levels. First, this component addresses the economic sustainability of the SFF system to facilitate the transition from timber production as a primary source of income to alternative public and private sector investment in supportive industries (e.g. marketable environmental services, non-timber forest product markets, ecotourism, and research). To accomplish this, the Project will support the capacity of SFFs in sustainable development planning based on the analysis of the comparative advantages and economic/market opportunities of the 7 pilot SFFs. These analyses will be used to generate outreach strategies and supportive promotional materials/products, and to promote business opportunities using additional outreach capacity
generated by the project. As with the technical capacity building performed Component 1, Component 3 will engage and build capacity of an external cadre of experts that will be available at the provincial level to replicate sustainable development planning and investment promotion to the provincial level. Second, through Component 3 this project will build the capacity of the SFF personnel to share knowledge globally, for the purpose of informing FLR policy beyond China. Third, to facilitate knowledge sharing across the SFF system and with the outside world, the project will contribute to the design of an online platform and social network and use it to disseminate information and guidelines generated by the Project. Fourth, the project will draw on the experience of FLR planning processes performed in Component 1 to produce a methodological handbook adapting the Restoration Opportunities Assessment Methodology (ROAM) to environmental, social, economic, technical and governance conditions specifically applicable to China. Finally, the Project will support upscaling of knowledge derived from the Project to the national level through a range of media and a program of face-to-face exchanges involving a significant number of SFF management personnel.

Component 4 provides higher-level monitoring and communications support from local to global levels. Monitoring of project implementation and the delivery of intended outputs will support overall project management. In addition, Component 4 will synthesize impact data collected from field monitoring of ecosystem services and forest conditions in Component 1 for use in the project’s reporting and dissemination materials to inform future national and international initiatives. This component will oversee the Project’s public communications activities to ensure awareness of the project’s initial goals and initial results at the local level in pilot areas, among the general public in neighboring villages and among county and city government offices. In addition, this component supports international knowledge exchange between Chinese FLR practitioners and those of other Bonn Challenge countries, to advance the theories and practice of FLR worldwide.

Baseline and co-financing support of the above Project components is conceived and arranged as follows. First, the institutions collaborating with and engaged by the project (the SFF system, national research institutions providing capacity building and participating in planning, the provincial and sub-provincial sectoral departments participating in planning activities, and the township and village forest stations and committees involved in selecting monitoring personnel and participants in stakeholder consultations and advisory boards) provide a fundamental architecture upon which the entire project is designed, and which the project could not replicate. The existing capacities and expected engagements of these institutions have not been evaluated, but their contributions are indispensable. Second, the project builds on the ongoing reform efforts in which the State Forestry Administration has been expending significant capacity and time for a number of years. The existing national projects that contribute subsidies and investments to the SFF system are considered as co-financing. The majority of these funds (ca. USD 54 million) during the project period will fund the actual restoration activities performed in Component 1, and (USD 3.3 million) of GEFTC funds will be used to develop the incremental capacities and training materials, approaches, plans, equipment, and human resources required.
to shift the implementation of forestry work from the production of timber to the production of measured ecosystem goods and services, and to push that transformation through one or two levels of replication and upscaling. In addition, the central administration of the State Forestry Administration will provide RMB 500,000 per year (or a total of ca. USD 300K) to support Components 2 and 3, and an additional USD 44K for the development of the online platform mentioned in Component 3 and USD 40K to support the development and maintenance of the project website.

4.8 Sustainability

The outcomes of the project have been designed to optimize the chance of sustainability. The FLR approach has been tested successfully in many countries and the project is backed up by the Global Project and their knowledge will be used by the project to support sustainable outcomes. At the State Forest Farm (SFF) level, the project will support the integration of landscape principles and approaches into planning and delivery mechanisms that already exist in government, civil society, and the private sector. This will help avoid the need to develop new sub-national institutional and planning arrangements that are unlikely to be sustained.

The project also includes considerable capacity building that will provide stakeholders with enhanced awareness, knowledge and capabilities that are appropriate to conditions at various levels (national, regional, district, township, and village).

4.8.1 Financial and economic sustainability

This Project advances approaches such as Payment for Ecosystem Services and Public and Private Partnership by building the capacity of China’s SFFs and a supportive cadre of experts in three pilot provinces to better analyze the current status and future potential of SFFs to engage in productive activities of interest to both private and public sector investors. The project will showcase the cost effectiveness of forest landscape restoration and ecosystem based adaptation, so that they will be met and financed by stakeholders following the completion of the project. The sustainability approaches such as PES and PPP will help ensure the financial sustainability of new field-based interventions. These activities will generate ecosystem services and goods with value to the public (e.g. quantified carbon sequestration, prevention of destructive flooding and regulation of water delivery, conservation of biodiversity) and to private interests (e.g. non-timber forest products, clean water for bottling enterprises, carbon offsets, etc.). The Project provides capacity building in outreach to the public and private sectors, to enable SFFs to locate and attract new investment.

The experiences of the Project are expected to directly provide valuable inputs into the development of the final reform plan for the SFFs in China, including guidelines on internal governance that ensure management and implementation capacities are installed to pursue sustainable activities. Building on pilot experiences in three cities and 7 SFFs, these guidelines will enable the national SFF administration to upscale more management models that are more
sustainable from a financial/economic perspective to the entire SFF system of 4855 SFFs and 8% of China’s forest estate.

4.8.2 Institutional sustainability
The Project increases the sustainability of the State Forest Farm (SFF) system by introducing improved models of system governance and improved practices. The Project integrates technical approaches into the SFF governance reform process, so that many of the good practices can be institutionalized. It explicitly embeds ecosystem-based adaptation into the forest landscape restoration processes, which leads to a more integrated approach that is able to address multiple challenges such as development, environment and climate change.

The Project also increases the sustainability of the SFF system within its external institutional network. Based on analysis of existing policies, legislation and regulations, recommendations to policy makers will better establish the standing of SFFs as public benefit institutions. Through work on the ground, the Project will reduce the isolation of the SFFs by increasing interactions among local stakeholders and non-forest sector agencies at multiple scales. The project aims to pilot new concepts such as valuation of ecosystem services, and developing accounts and balance sheets based on ecosystem service monitoring systems. These enable the SFF system to connect to growing national ecosystem valuation and compensation systems.

The project will only utilize technologies that are appropriate for the conditions in the Project area. Such technologies will be backed up by capacity building and support for appropriate organizations that can maintain the technologies after the Project.

It is anticipated that the approaches promoted by the Project will be recognized by national and city authorities, and “owned” by the major stakeholders. The stakeholders’ capacity of pilot cities and landscapes will be enhanced through carefully designed capacity building activities and the “learning by doing” approach.

4.8.3 Social Sustainability
The project will help rural communities to benefit from improved flows of needed ecosystem services that result from landscape restoration. Efforts will be focused on vulnerable sectors of society, such as women and the rural poor, to ensure they benefit directly from project activities and that such benefits continue and improve in the future.

FLR will also help rural communities adapt to the impacts of climate change and thereby increase community resilience and decrease risk.

4.9 Replication
The Project has a high potential for replication and scaling up, and has designed activities such that, by the end of the project, the initial investments in capacity and tools for forest
management and restoration, FLR, ROAM, sustainable development plans, and governance reforms will already be well advanced in processes of replication (to additional SFFs within the pilot municipalities of the project) and scaling up (to the SFF system at the national level, and to national forestry institutions beyond the SFF system).

The project is designed to create landscape level models that are appropriate for replication, including through the continued development and roll out of the government’s current policies and approaches. This includes through alignment with the concept of ecological civilization and the targets and approaches that support planning for and implementation of FLR that are included in the 13th FYP (CCCPC 2016).

State-owned Forest Farms will be a major beneficiary of the outputs of the project and are most likely to be the best advocates for FLR to other SFFs that are not within the project remit.

The project includes delivery mechanisms that will both help build national and sub-national capacity and enable the replication and adaptation of approaches developed by the project to other areas and sectors. In addition, by engaging a range of delivery partners, project stakeholders will benefit from experience and lessons outside of the Project area (e.g. through exchange visits).

By creating a direct link with the TRI Global project, a two-way exchange and dialogue will be created enabling the sharing of data, information, and knowledge. The project pursues the same logical framework approach as the global Project to facilitate exchange and includes resources for sharing at sub-national, national, and international levels.

The Project will focus on key issues relevant to FLR and the context of this approach in China as well as the translation of these learnings into relevant and useable training packages. Funds have been assigned to ensure project lessons and lessons from the other projects and partners can be communicated effectively. The Project also includes outcomes that are focused on providing policy relevant advice to national and sub national policy forums. This will help ensure that lessons are taken into consideration by policy decision makers.

4.10 Communication and knowledge management

As mentioned earlier, a communication and knowledge management strategy will ensure the project learning effectively contributes to project implementation and influences national policy development and global TRI learning.

Towards this aim the strategy will involve interactive process-oriented engagement with three key groups:

- **The project stakeholders** and the network of SFF residents, partners and others that will be closely involved with the project.
• **Policy makers and practitioners** at national and international level who will benefit from sharing knowledge on FLR related issues

• **Wider society including the private sector** with a focus on raising awareness and support for FLR and SFM.

The strategy will work to strengthen linkages within and between these groups and within and between levels, through developing platforms for knowledge sharing, dialogue and influencing.

Participatory community monitoring teams will help ensure that relevant lessons are learned and shared for each target ecosystem service. This will also enable local ownership or knowledge and help ensure actions are targeted and relevant. The project will develop and provide training in monitoring and seek to support the replication of training approaches in other SFF areas that are not included in the project. To help ensure the sustainability of knowledge sharing the SFFs and FLR planners will be encouraged to budget for monitoring of ecosystem services and associated benefits and for the remuneration of community monitoring teams and leaders.

The Project will develop and support the dissemination of informational tools so they are accessible to rural stakeholders.

The communication and knowledge management strategy will pay particular attention to sharing the steps that are needed to implement SFM, FLR and ecosystem service projects and plans at relevant scales, specifically identifying the relevant roles and responsibilities of all actors. It will also emphasize the sharing of knowledge on the accounting and valuation of ecosystem services.

A range of communication tools will be employed to present project experiences including through web sites, e-tools, forestry exchanges in each province and the national level, participation in national and international events.

The communication and knowledge management strategy will adopt a differentiated approach that is most relevant to the three target groups, for example:

• **The project stakeholders** and the network of partners – will focus on:
  o the presentation of learnings in workshops
  o publications on specific issues
  o learning groups coordinated by the project
  o a web site and e-bulletins summarizing latest developments and activities.

• The project will also include a **grievance mechanism** for the project stakeholders and the network of partners. This will include an anonymous channel for individuals to send letters expressing concern or complaint. The mechanism will be publicized. Any grievances received will be assessed by an independent multi-stakeholder panel meeting, convened on a regular basis. To minimize grievances, it will be essential that the project implementing
partners are highly attuned to community concerns with a track record of successful engagement in the area.

- **Policy makers and practitioners** – those who make, influence, and implement policy, as well as other relevant development practitioners and their professional networks. Policy influencing is highly contingent on and subject to the nature of the policy process; and policy makers and influencers have their own priorities and timetables. Therefore, the communications and knowledge management strategy for this group will be to build a close collaborative relationship with SFA, developing on existing relationships and access to policy circles. Activities will aim to develop shared learnings and promote recognition of potentials for improvements. The approach will necessarily be adaptive to conditions and opportunities, and will advocate for developing the ‘enabling environment’. Workshops will be held for dialogue with the wider policy / stakeholder community, where appropriate through policy briefing formats. Overall the main outputs will be in the form of: i) presentations, ii) policy briefing papers.

- **Wider society including the private sector** - a broad public platform for communication and influencing will be developed using a range of media and methods. Methods will include: i) public meetings and seminars, ii) press news releases and newspaper / print media articles, iii) radio interviews, discussions, and programming (public, commercial and community), and iv) documentary film making and broadcast through public and commercial channels.

4.11 Environmental and social safeguards

In compliance with IUCN’s Environmental and Social Management System (ESMS) the project has been screened on the potential of triggering adverse environmental and social risks. The IUCN ESMS Screening Report is included in Appendix V. Despite overall impacts being considered to be largely positive as improved ecosystem services are expected to lead to improved livelihoods, the project has been classified as a moderate risk project. This is largely due to the fact that concrete restoration activities are not known at project approval stage as they will only be decided during project implementation when developing the SFFs FMR plans and as part of the FLR/ROAM planning process for city and county level interventions. Projects that lack information about project activities and pertinent context information at approval stage require the development of an Environmental and Social Management Framework (ESMF). An ESMF describes the process for screening, assessing, addressing and managing safeguard issues for project activities once they have been identified during project implementation. As such it ensures that the implementation of FMR and FLR plans as well as the policies and legal and regulatory frameworks supported by the project to enhance forest landscape restoration and sustainable forest management are ESMS compliant.

The ESMF has been drafted as a single standing document and is attached in Appendix XI. The ESMF contains two main components,
(i) a description of provisions for an ESMS-enhanced ROAM process applied for the FLR planning in the pilot cities and counties and

(ii) a simplified ESMS review and management procedures for identifying and managing risks of SFF FMR plans, city/county FLR plans and of the policies and legal frameworks supported by the project.

Because environmental and social risks of the future FLR intervention and of the proposed policies and sustainable development plans are overall anticipated to be limited in nature and/or expected to be readily addressed by the proposed ROAM process guidance and adoption of good practices, it has been decided to refrain from exercising extensive stakeholder consultation during the development of this ESMF.

5. Institutional framework and implementation arrangements

This section provides details on how the Project is set up, its decision-making structure and management systems for planning and operations that will ensure effective implementation, oversight and accountability. A simplified visualization of the institutional framework is provided in Figure 7. TRI China Project institutional framework. Roles and responsibilities of all relevant bodies created by the Project are described and terms of references included as appropriate.

The primary components of the project institutional framework are:

- The Implementing Agency;
- The National Executing Agency;
- The Steering Committee;
- The Project Management Team;
- Sector Coordination Groups;
- Pilot Area Advisory Boards.

The descriptions of national decision making and planning (section 5.1) and Project coordination and management (section 5.2) are combined in the following section, which is organized according to the institutional framework.
5.1 National decision making and planning, Project coordination and management

5.1.1 The Implementation Agency

The Project will be implemented by IUCN as the GEF Implementing Agency, in close collaboration with the National Executing Agency and in accordance with IUCN’s agreed internal procedures for managing projects implemented by IUCN (“Guidelines for managing GEF projects implemented by IUCN,” issued 27 May 2015.).

Funds received from GEF will be used to execute the project activities in conformity with IUCN’s policies, rules and procedures (see ‘Procurement’) and with advice from the Global TRI Program Steering Committee (See Appendix IX). Co-funding provided for the project by the Government shall be used by the National Executing Agency in conformity with Government rules and regulations.

Primary responsibilities of the Implementation Agency are shown in Table 14.

Table 14. Role of the Implementing Agency

<table>
<thead>
<tr>
<th>Decision making and Planning</th>
<th>Project coordination and management</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Review TORs for Project Manager and for Steering Committee</td>
<td>• Recruit the TRI China Project Manager, and advise on the recruitment of knowledge</td>
</tr>
</tbody>
</table>
• Attend Project inception workshop and review inception report
• Liaise with Global TRI Program Steering Committee (See Appendix IX);
• Provide stakeholder feedback to the China TRI Project Steering Committee;
• Bring recommendations to TRI China team to optimize delivery of outcomes;
• Prepare and revise project work plan annually;
• Review project work plan quarterly;
• Convene a project inception meeting, annual China TRI Steering Committee meetings, and monthly Implementation Meetings with the Executing Agency management specialist, technical consultants and capacity building trainers;
• Review Project technical and financial reports and procurement plans;
• Supervise preparation of annual project implementation reports by Executing Agency.
• Participate in national level conferences and planning processes related to forest restoration and inter-sectoral landscape planning and management, organized by or relevant to the project;
• Review knowledge products and uptake strategies for national and international dissemination, developed by the project;
• Provide support in organizing events and Project team travel outside China, relevant to project activities;
• Oversee implementation of ESMS review and risk management procedure;
• Oversee project monitoring and evaluation with support from IUCN HQ;
• Oversee development and implementation of impact monitoring, organize mid-term and final project reviews;
• Work with the National Executing Agency to ensure upscaling of project approaches and methodologies to national level SFF system, city level landscapes, and provincial level support network;
• Consolidate project expenditure reports;
• Report on project progress and expenditures to IUCN (including Global TRI Program Steering Committee), GEF, and SFA;
• Oversee Project completion and ensure adequate final reporting and other project closure activities.

5.1.2 The National Executing Agency (NEA)

The National Executing Agency (NEA) of the project is the State Forest Farm and Nursery Work Station (including the Forest Park Protection and Development Center and Forest Eco-Tourism Management Office), or “SFF Office.” The key responsibilities of the SFF Office are shown in Table 15.

Table 15. Role of the National Executing Agency

<table>
<thead>
<tr>
<th>Decision making and Planning</th>
<th>Project coordination and management</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Chair the China TRI Project Steering</td>
<td>• Collaborate with the implementing agency in the</td>
</tr>
</tbody>
</table>
Committee
- Receive and review regular short reports from all Foresty Focal Points on project implementation, co-financed activities, and challenges encountered;
- Participate in quarterly reviews of work plans;
- Collaborate with the Implementation Agency to identify opportunities and challenges and recommend adjustments to project management and implementation as needed.

- Manage and support the operations and functioning of the Project Management Office;
- Identify and maintain an updated list of Provincial, City, County/District, and SFF contacts, including all members of Sector Coordination Groups and Advisory Boards;
- Develop a contact list of functional multisectoral contacts to facilitate co-planning and coordination with other relevant government ministries at the national level;
- Organize all TRI China Project team travel within China, meetings, dissemination, and capacity building events with national-level stakeholders;
- Verify that funding flows are working from the start of the project and that they remain functional throughout the project.

<table>
<thead>
<tr>
<th>Decision making and planning</th>
<th>Project coordination and management</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Monitor Project progress, based on reporting by the Implementing Agency;</td>
<td>• Facilitate cross-department coordination within SFA;</td>
</tr>
<tr>
<td>• Review annual reports and recommendations of the Pilot Area Advisory Boards;</td>
<td>• Facilitate high-level coordination and joint-planning with national ministries and planning agencies;</td>
</tr>
</tbody>
</table>

5.1.3 The Steering Committee (SC)
A Project Steering Committee (SC) will be established and chaired by the SFA. The SC will meet at least twice per year and its specific responsibilities will be:

- Overall oversight of project progress and achievement of planned results.
- Review and approve Project Progress and Financial Reports and review, recommend adjustments as required and approve the Annual Work Plan (AWP) and Budget.
- Oversee the organization, coordination, and implementation of the project.
- Facilitate cooperation between the Project and the SFF and project participating partners.
- Advise the Project on other on-going and planned activities facilitating collaboration between the Project and other programmes, projects, and initiatives in China.
- Facilitate that co-financing support is provided in a timely and effective manner.

Table 16 provides a list of specific tasks of the SC by function.

Table 16. Role of the Steering Committee

<table>
<thead>
<tr>
<th>Decision making and planning</th>
<th>Project coordination and management</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Monitor Project progress, based on reporting by the Implementing Agency;</td>
<td>• Facilitate cross-department coordination within SFA;</td>
</tr>
<tr>
<td>• Review annual reports and recommendations of the Pilot Area Advisory Boards;</td>
<td>• Facilitate high-level coordination and joint-planning with national ministries and planning agencies;</td>
</tr>
</tbody>
</table>
SC members (Table 17) will include representatives from SFA’s key departments including Afforestation and Greening, Law and Policy, and International Cooperation; the Country Representative of IUCN-China and a delegate from IUCN Forests; a representative of the National Development and Reform Commission responsible for liaising with Forestry, a senior representative of the Chinese Academy of Sciences Research Center for Eco-Environmental Sciences (RCEES), at least one multidisciplinary scientist engaged in forestry from a leading Chinese academic institution, and one high-level provincial forestry department official from each pilot area. The IUCN China TRI Project Leader will act as secretary of the SC.

The list of Steering Committee members will be completed within the first month of project inception, and the first meeting will take place immediately following the Project Inception Meeting. Meetings will be open to observers from the project and any other relevant stakeholder groups.

Table 17. Steering Committee composition

<table>
<thead>
<tr>
<th>Member</th>
<th>Organizational representative</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Forestry Administration of China</td>
<td></td>
</tr>
<tr>
<td>SFA SFF Office</td>
<td>1 representative</td>
</tr>
<tr>
<td>SFA Afforestation and Greening</td>
<td>1 representative</td>
</tr>
<tr>
<td>SFA Forest Resources Management</td>
<td>1 representative</td>
</tr>
<tr>
<td>SFA Law and Policy Department</td>
<td>1 representative</td>
</tr>
<tr>
<td>SFA International Cooperation</td>
<td>1 representative</td>
</tr>
<tr>
<td>IUCN China</td>
<td>Country Representative</td>
</tr>
<tr>
<td>IUCN Headquarters</td>
<td>Global Forest Programme</td>
</tr>
<tr>
<td>Ministry of Finance</td>
<td>1 representative</td>
</tr>
<tr>
<td>National Development and Reform Commission</td>
<td>1 representative</td>
</tr>
<tr>
<td>Rural Policy Research Institute</td>
<td>1 representative</td>
</tr>
<tr>
<td>Chinese Academy of Forestry</td>
<td>1 representative</td>
</tr>
<tr>
<td>Chinese Academy of Sciences</td>
<td>1 representative</td>
</tr>
<tr>
<td>Provincial Forestry Departments</td>
<td>1 representative from each pilot site</td>
</tr>
<tr>
<td>The TRI China Project Manager (secretary)</td>
<td>1 representative</td>
</tr>
</tbody>
</table>
5.1.4 Agency Coordination Group (ACG)

An Agency Coordination Group (ACG) will be established to provide technical advice and inputs relating to project implementation and will be chaired by the Vice-Mayor or Vice-magistrate in charge of urban greening, agriculture and water resources (Table 18).

The members of the ACG, shown below (Table 19), include relevant government agencies, technical experts, and other relevant stakeholders to be agreed by the SC. Technical experts may be invited in to discuss specific issues. Members of the ACG are expected to participate in project-led FLR-ROAM capacity building and planning.

The ACG will assist in providing a means for updating stakeholders at the national and provincial level about landscape restoration and for the project to obtain relevant technical advice and information about relevant issues. Additionally, the ACG will identify synergies between Project FLR plans and activities and other relevant initiatives led by departments other than forestry.

Table 18. Role of the Agency Coordination Group

<table>
<thead>
<tr>
<th>Decision making and Planning</th>
<th>Project coordination and management</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provide technical advice and inputs relating to project implementation;</td>
<td>• Contribute information for monitoring and evaluation of the Project;</td>
</tr>
<tr>
<td>• Provide recommendations to the Project on optimizing the delivery of outcomes;</td>
<td>• Identify synergies opportunities for collaboration between the Project and FLR-relevant initiatives led by non-forestry sectors.</td>
</tr>
<tr>
<td>• Participate in Project-led FLR-ROAM capacity building and planning.</td>
<td></td>
</tr>
</tbody>
</table>

Table 19. Agency Coordination Group composition

<table>
<thead>
<tr>
<th>Member</th>
<th>Organizational representative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair</td>
<td>Vice-Mayor or Vice-magistrate in charge of urban greening, agriculture and water resources</td>
</tr>
<tr>
<td>Project</td>
<td>Pilot Area Coordinator</td>
</tr>
<tr>
<td>Financial Department/Bureau</td>
<td>Representative</td>
</tr>
<tr>
<td>Agriculture Department/Bureau</td>
<td>Representative</td>
</tr>
<tr>
<td>Land Resources Department/Bureau</td>
<td>Representative</td>
</tr>
<tr>
<td>Parks and Forestry Department/Bureau</td>
<td>Representative</td>
</tr>
<tr>
<td>Water Authority Bureau</td>
<td>Representative</td>
</tr>
<tr>
<td>Environmental Protection Agency</td>
<td>Representative</td>
</tr>
<tr>
<td>Development and Reform Commission</td>
<td>Representative</td>
</tr>
<tr>
<td>Tourism Bureau</td>
<td>Representative</td>
</tr>
<tr>
<td>Women's Union</td>
<td>Representative</td>
</tr>
<tr>
<td>Public Welfare Bureau</td>
<td>2-3 Representatives</td>
</tr>
<tr>
<td>Professional associations</td>
<td></td>
</tr>
</tbody>
</table>
5.1.5 Pilot Area Advisory Boards (ABs)

Each of the Project’s pilot areas will have a gender-balanced, independent advisory board. The Advisory Board will meet twice per year. Its specific responsibilities will be to:

- Provide stakeholder feedback to the project via the Project’s city coordinators;
- Provide recommendations to the Project on optimizing the delivery of outcomes;
- Contribute information for monitoring and evaluation of the Project;
- Help raise public awareness;
- Provide advice on the effective coordination of resources.

Table 20 provides a list of specific tasks of the AB by function.

Table 20. Role of the Advisory Board

<table>
<thead>
<tr>
<th>Decision making and Planning</th>
<th>Project coordination and management</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provide stakeholder feedback to the Project;</td>
<td>• Contribute information for monitoring and evaluation of the Project</td>
</tr>
<tr>
<td>• Provide recommendations to the Project on optimizing the delivery of outcomes;</td>
<td>• Help raise public awareness;</td>
</tr>
<tr>
<td>• Review city ROAM/FLR Plans;</td>
<td>• Provide advice on the effective coordination of resources.</td>
</tr>
<tr>
<td>• Participate in ESMS training delivered by dedicated ESMS consultant accompanying</td>
<td></td>
</tr>
<tr>
<td>ROAM training team;</td>
<td></td>
</tr>
<tr>
<td>• Review and approve ESMS screening reports and monitor ESMP implementation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AB members (Table 21) will include two respected provincial forester/ecologists; two respected provincial social scientists; two SFF managers from the demonstration sites; four village administrative/party leaders from villages within or adjacent to the demonstration sites; four community monitoring team leaders; three representatives of county level sectors (Women’s Federation + two sectors of relevance to the area).

The AB members from each pilot area will attend at least one cross-sector meetings each year organized by the Project.

Prior to forming the ABs, the Implementation Agency will propose a selection process to ensure independence and quality. Representatives of private sector companies that contract with SFFs or county/city governments to realize project-generated bankable initiatives may be invited to participate in AB activities.

Table 21. Advisory Board Membership

<table>
<thead>
<tr>
<th>Member</th>
<th>Organizational representative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project city coordinator</td>
<td>1 representative per city</td>
</tr>
<tr>
<td>Provincial forester/ecologist</td>
<td>1 representative per city</td>
</tr>
<tr>
<td>Social worker</td>
<td>1 representatives per city</td>
</tr>
<tr>
<td>SFF managers</td>
<td>2 representatives from each pilot</td>
</tr>
</tbody>
</table>
Village leaders
Community monitoring team leaders
County/city level sectors

SFF
2 representatives per SFF
2 representatives per SFF
3 representatives (Women’s Federation and 2 sectors of relevance)

5.1.6 Project Management Office (PMO)

The project will be delivered through a Project Management Office (PMO) led by the national Project Manager.

The PMO will be responsible for day-to-day project operations.

The PMO will operate under the guidance of the SC, taking advice from the ACG and ABs, to ensure the effective and efficient coordination and delivery of the Project.

The PMO will:

- Lead recruitment of TRI China team.
- Manage field operations in close collaboration with the SFF.
- Implement the ESMS review and risk management steps outlined in the ESMF.
- Manage project information and documentation and distribution of project reports, newsletters, and training materials to relevant stakeholders.
- Manage project M&E and assist the Project Manager to prepare biannual Project Progress Reports.
- Liaise with IUCN when preparing financial reports.
- Act as secretariat to the SC.
- Handle day-to-day project issues and requirements, coordinate project interventions with other on-going activities and ensure a high degree of inter-institutional collaboration, and ensure the timely delivery of inputs and outputs.
- Organize workshops and annual meetings for the Project.
- Develop work plans with detailed budgets for the next year to be approved by the SC.
- Implement the work plans approved by the SC and deliver the expected results.
- Develop bi-annual Project Progress and Financial reports and assist in the preparation of the annual Project Implementation Review (PIR) and midterm and final evaluations.
- Prepare and submit to the SC and IUCN project Progress Reports on outputs and outcomes achieved, financial statements, Annual Work Plans, and detailed Budgets.

The Finance Officer and Administration Officer will:
• Prepare detailed budgets.
• Maintain accounts and financial records.
• Prepare personnel and services contracting and procurement documents and participate in contracting and procurement processes including of submission of documentation to IUCN
• Prepare relevant documents for internal and external financial audits.

Administrative, accounting, financial and auditing arrangements will be finalized with IUCN prior to any disbursement:

• Assessment of the financial management system with timetable for any improvements required;
• Agreement on financial and accounting standards;
• Audit arrangements, to ensure independent audits will be undertaken on an annual basis according to standard Implementing Agency requirements;
• Procurement Plan based on agreed disbursement procedures and best practice.
• All administrative reporting, monitoring and evaluation requirements and procedures as required by IUCN.

The project will have a technical advisor to oversee and coordinate activities conducted by consultants and sub-contracted teams providing training and producing plans for FMR, FLR, and sustainable business.

In addition, the project will have staff that provide communications and media support.

The Project will employ a consultant to develop a robust monitoring and evaluation (M&E) system supported by a comprehensive data base that utilizes a GIS-based system to integrate spatial data with monitoring information collected by the Project. A regular M&E consultant will be employed for 2 days per week during the course of the project to oversee data collection, aggregation and reporting.

The M&E consultant appointed by the Project shall guarantee high professionalism, excellent quality and independence and will be responsible for carrying out activity-related acceptance checks after the implementation of the planned measures.

Terms of reference for Project staff positions are attached in Appendix III.

The project will achieve some of its key outputs through consultancies, and Letters of Agreement (LoA) with key partners. These LoA are listed in the procurement section and the budget. Further detail on results-based LoA work plans and budgets will be developed during inception phase of the project.

IUCN’s role and responsibilities, as the GEF Agency, include delineation of responsibilities internally within IUCN.
5.2 Procurement procedures and plan

The NEA will ensure that all procurement is in line with IUCN’s procurement policy. See procurement plan attached to budget (Section 8 and accompanying MS Excel workbook).

All procurement of goods and services will be made with complete impartiality based solely on the merits of supplier proposals, including such considerations as cost, quality, environmental impact, delivery, and payment terms.

All purchase decisions shall take into consideration the environmental policy of the supplier and the environmental impact of the goods or services to be procured, with a view to minimizing the environmental impact of the procurement. Environmental considerations include an assessment of the need for the procurement and the environmental impact of the eventual disposal of any goods procured.

Procurement will conform to the Policy and Procedure on Procurement of Goods and Services of IUCN (2015). The objective of IUCN’s purchasing policy is:

To buy the right Goods or Services of the right quality in the proper quantity at the right time from the proper source at the right price.

The policy is guided by the following principles:

- Only necessary procurement shall be undertaken;
- Goods and Services shall be procured in an economically rational manner;
- IUCN shall obtain best value for money, taking into consideration quality, quantity, timing and source;
- IUCN purchasing practices shall consider the effective conservation of natural resources and protection of the environment;
- Suppliers world-wide shall be eligible to participate in procurement transactions in an open, fair and transparent process;
- Procurement activities shall be undertaken in a manner that ensures all potential suppliers have been fairly treated and given an equal opportunity to make a bid.
- Procurement activities shall be conducted with integrity and transparency and protect IUCN and its staff from claims of maladministration, and reduce the risk of fraud, corruption, waste or other irregularities.

The Project procurement activities will adhere to the environmental accountability requirements and conflict of interest provisions and procurement methods of IUCN’s procurement policy. All hiring of staff and consultants will follow the IUCN guidelines.

The flow of GEF funds to Chinese governmental partners will be disbursed by IUCN to designated account set up at the State Forestry Administration. From there, all project payments
will be delivered to final recipients via bank transfer. At the start of the project, a simple manual of financial management and reporting will be prepared, and finance staff at SFF, county and city levels will receive basic guidelines on how to report for project financial flows and expenditures.

In order to ensure compliance at all project sites that receive project funds the following procedure will be followed:

- The NEA will open a bank account that will receive all funds provide through IUCN as the Implementing Agency.
- An annual procurement plans for each pilot area will be provided and authorized in advance by the IUCN China Country Representative, subject to the limits on permissible levels of disbursement and authorization.
- After the approval of the annual work plan, IUCN will transfer about 60 per cent to 70 per cent of the annual budget to the NEA's account.
- The NEA will disburse funds to the Project SFFs in two to three tranches depending on agreed rate of project implementation.
- After project implementation, in accordance with the PMG Acceptance Reports (field check after implementation) on treated areas, each CPO will provide lists of contracted SFFs' names, account numbers and the amount of project payment.
- Each CPO will submit lists and other application materials to the City Project Office (MPO).
- The MPO will check proposed application material and submit this to the NEA for approval.
- After approval, the NEA will disburse about 20 per cent of funds to the CPO.
- Simultaneously, the NEA will send the approved material to the IUCN China office for approval. GEF eventually agrees and disburses the remaining funds to the NEA’s Account. Finally, CPOs are informed about the arrival of funds, and transfer the rest of funds to the SFFs.

**Consultancies and Contracts**

Procurement of consultancies and contract services will require careful processes to ensure that the most appropriate are sourced. Procurement of consultant and contract services will commence in year one and continue annually.

**Consultancies**

The project includes a series of consultancies to build capacity of planning, monitoring, and implementation teams and produce planning templates, monitoring protocols; to analyze policies and laws and draft recommendations; to build capacity of SFFs to develop sustainable development plans and to assist pilot farms in completing their sustainable development plans.
and materials to promote bankable initiatives; to develop knowledge materials and support the design of the project’s M&E system.

**Letters of Agreement with partners**

The project includes a series of contracts or Letters of Agreement (LoA) with partners designed to both implement activities required to deliver project outputs, and build the capacity of civil society in China and thereby improve replication and sustainability. The LoAs may be with multiple partners or combined for delivery by one or more partners.

The LoA activities are designed to be undertaken throughout the life of the project, they include:

**Mid-term review and end-of-project review** – The project includes funding for the engagement of independent reviewers to evaluate and report on progress at mid-term and end of project. These services will be undertaken in year two and four respectively. The evaluations will follow IUCN evaluation procedures, as adapted to meet GEF requirements. IUCN shall oversee the procurement of evaluation services and manage the reviews to ensure impartiality.

**Training Programs, Conferences, Workshops**

All training and workshops will be carried out on the basis of the Project’s annual work plans and budgets approved by the IUCN, and which will among other things, identify: (i) the envisaged training and workshops; (ii) the personnel to be trained; (iii) the institutions which will conduct the training; and (iv) duration and location of the proposed training.

**Operating Costs**

Operating Costs include office supplies, maintenance of equipment, communication, rental, utilities, consumables, transport and accommodation, travel costs and per diem, etc. Operating costs procedures will follow the IUCN Procurement Guidelines.

**6. Stakeholder engagement and participation**

The Project will include effective mechanisms for engaging stakeholders (see also: Stakeholder Analysis, section 3.4 and the ESMF in Appendix XI).

The Project design team identified the following categories of stakeholders:

- State forest farm workers and management personnel
- Local village, town, township residents
- Provincial and national academics
- County/City/Provincial Sector Officials
- Downstream Beneficiaries (general population)
• Private sector representatives
• National government experts & policy makers
• Global IOs, NGOs

These stakeholder groups are still quite generic and do not yet reflect the specific conditions of the selected project sites. A more detailed stakeholder analysis will be prepared in each pilot area at the outset of the ROAM process to prepare the ground for the specific engagement strategy in each site.

The Project design team noted that whilst there are some projects (such as the Mountain-Water-Forest-Field-Lake Project) that should coordinate across sectors and engage with communities, there are no clear mechanisms for such engagement, even at the most basic unit level of the project (the SFF). At levels above the SFF, coordination is unlikely to happen unless it is decreed by a higher-level authority and implemented by an agency that generally plays such a role (e.g. Development and Reform or Finance).

There are a wide range of opportunities for stakeholder to be involved in the Project, these are described Table 22. Principles and guidance for engagement and participation of stakeholders, in particular during the process of developing FLR plans, are provided in the Environmental and Social Management Framework (ESMF) which is attached in Appendix XI:

Adherence to IUCN’s principle on stakeholder participation (see section on Safeguards)

• Achieve a stakeholder engagement target gender ratio of 50:50 by sex, and a target ratio reflecting the ethnic composition of the relevant stakeholder community. Note that there are no age targets planned given the skewed age distribution in rural China. It is expected that youth and elderly participants will be involved as stakeholders.
• Equitably distribute the benefits of the Project amongst stakeholder groups with a focus on assisting the poor and disadvantaged groups
• Engage local level stakeholders in planning, implementation and monitoring activities
• Build capacity of stakeholders to promote up-scaling and sustainability of FLR

Table 22. Expected stakeholder engagement in the Project

<table>
<thead>
<tr>
<th>Stakeholder community</th>
<th>Description of project role</th>
<th>Opportunities for participation (and no. of participants)</th>
<th>Benefits of participation (beyond enjoying restoration outcomes)</th>
</tr>
</thead>
</table>
| State forest farm workers and management personnel | 1. SFFs are the fundamental implementation unit. SFF staff will pilot FLR activities, host planning and capacity building activities, and engage in project | • Employment in restoration activities (min. 210 pers.)  
• Training of SFF technical staff in SFM Planning (min. 70 pers.)  
• Training of SFF management/admin staff in Strategic/market | • Increased professional opportunities  
• Enhanced skills and knowledge  
• Useful data for reporting on progress towards various initiatives & plans  
• Transferable business |
| Local village, town, township residents | Local residents will find increased employment in landscape restoration activities, training and employment in community monitoring, leadership experience, and development policy experience. | Employment in SFF landscape restoration activities (min. 700 pers.)  
- Training in ecosystem service/biodiversity monitoring (min. 350 pers.)  
- Participation in ecosystem service/biodiversity monitoring (min. 350 pers.)  
- Team leaders in community monitoring (ca. 35 pers.)  
- Monitoring team leaders participate on Pilot Area Advisory Board (min. 14)  
- Village admin/party leaders participate on Pilot Area Advisory Board (min. 14) | Casual employment  
- New skills and knowledge; Participant fees  
- Casual employment, ca.  
- Casual employment, ca.; leadership experience  
- Participant and travel fees; development policy experience |
| --- | --- | --- | --- |
| Provincial and national academics | 1. As partners in FMR and SD planning, the project aims to support at least 6 provincial university research departments/centers and 6 provincial university master's/PhD students. As a partner in ecosystem services monitoring and valuation, the project aims to support 2 national university research departments/centers and 2 national | Training in ROAM, SFM planning (min. 3)  
- Training in strategic/market planning (min. 3)  
- Joint research towards development of project methodologies and knowledge products (planning, monitoring, institutional approaches) (min. 18 direct beneficiaries)  
- Participation in national knowledge sharing events (min. 16 direct beneficiaries)  
- Participation in international knowledge | Access to data and data collection resources  
- National travel and equipment budgets  
- International travel and equipment budgets  
- Mentoring by IUCN China and IUCN Forests senior personnel  
- Publication support and financing  
- National exposure and experience  
- International exposure and experience  
- Contribution to realizing vision of Ecological |
<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Activities</th>
<th>Benefits</th>
</tr>
</thead>
</table>
| University PhD students; and 1 international university PhD student. All academic stakeholders contribute to development of project methodologies and knowledge products. | sharing events (min. 2 direct beneficiaries)  
- Participation in 2 cross-sector meetings at county level/year; communication with national level steering committee (min. 12 participants) | Civilization  
- International project knowledge and connections  
- Local travel budget |
| County/City/Provincial Sector Officials          | County/City technical staff from cross-sector bureaus will host and participate in ROAM training and FLR planning at City level.  
3 representatives of county/city level sectors (Women’s Federation + two sectors of particular relevance to each of 6 demonstration areas) participate on Pilot Area Advisory Boards. | • Training in ROAM, FLR planning (min. 60)  
- Participation in 2 cross-sector meetings at county level/year  
- Professional skills improved; Increased chance of promotion  
- Participation fees  
- Travel budget  
- Useful data for reporting on progress towards various initiatives & plans  
- Environmental planning knowledge and cross-sector experience; Development policy experience  
- Participant and travel fees |
| Downstream Beneficiaries (general population)    | Urban residents and tourists otherwise not directly involved/connected to project | • Participation in surveys for SFF strategic planning & ROAM (ca. 700 participants)  
- Contribution to ecological civilization and healthy environment; social connection |
| Private sector representatives                  | National, Provincial and local companies and entrepreneurs that contract with SFFs or pilot areas to realize bankable initiatives | • Invitation to participate in 2 cross-sector meetings at county level/year; communication with national level steering committee (target: 6)  
- Contribution to ecological civilization and healthy environment; social connection  
- Market/business opportunity |
| National government experts & policy makers      | Senior personnel of SFA and related agencies participate | • Ca. 10 participants in Steering Committee  
- 6 SFA team members  
- Useful data for reporting on reform/planning targets |
in steering committee; SFA staff oversee management functions of National Executing agency.

form core of National Executing Agency which includes national roles and participation in global events, exchanges, and site visits.

- Promotion opportunities
- International knowledge & experience
- Global travel budget for NEA members

Global IOs, NGOs

TRI China team members will participate in all project activities at national level and global events of Bonn Challenge partners; GPFLR; UNFCCC, etc.

- 2 participants in Steering committee
- 6 IUCN staff members
- 6 regular consultants

- Useful data for reporting on Global project and related initiatives
- Professional opportunities
- Involvement in publications
- National travel budget
- Global travel budget

A number of national and provincial universities and research institutions are expected to become project collaborators. These will either be engaged through consultancies or contracts as indicated in the project budget and procurement plan. Table 23 is an indicative list of institutions of the type the project is likely to engage for specific assignments. (NB: the inclusion of an institution on this list does not indicate any prior contact, commitment or agreement on indicated collaboration or assignment.)

Table 23. Potential academic partners to the Project

<table>
<thead>
<tr>
<th>National level</th>
<th>University/Academy</th>
<th>Department/Institute</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chinese Academy of Forestry</td>
<td>Research Institute of Forestry Policy and Information; Research Institute of Ecology;</td>
<td>Socio-economic monitoring Forest ecology SFM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Forestry Research Institute</td>
<td></td>
</tr>
<tr>
<td>Beijing Forestry University</td>
<td>School of Forestry</td>
<td>Sustainable forest management and restoration/FLR planning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>School of Water and Soil Conservation</td>
<td>FLR planning; Monitoring of forest conditions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>School of Economics and Management</td>
<td>Socio-economic monitoring</td>
<td></td>
</tr>
<tr>
<td>Chinese Academy of Science</td>
<td>Research Center for Environmental Sciences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>China National Forest Economics and Development Research Center</td>
<td>Division of Forestry Policy and Economics</td>
<td>Forestry policy and economic of FLR Social and economic evaluation</td>
<td></td>
</tr>
<tr>
<td>Chinese Renmin University</td>
<td>School of Agricultural Economics and Rural Development</td>
<td>SFF governance system</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Provincial level</th>
<th>University/Academy</th>
<th>Department/Institute</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guizhou University</td>
<td>College of Forestry</td>
<td></td>
<td>FLR planning; Training</td>
</tr>
<tr>
<td>Guizhou Academy of Forestry</td>
<td>Forest Ecology &amp; SFM</td>
<td></td>
<td>FMR Planning and monitoring</td>
</tr>
</tbody>
</table>
7. Monitoring and evaluation plan

NB: An initial review of this project document yielded requests to explain the connection between this project’s monitoring and evaluation (M&E) plan and the ongoing work by WRI and FAO to establish approaches to monitoring for FLR (Buckingham et al., undated), and to develop an illustrative timeline of the generation of ecosystem services, which has implications as to the reliability of ecological monitoring data generated within a 4-year project. The requested documentation is attached as Appendix XIII.

The TRI China project includes 1) a dedicated monitoring and evaluation component (4.1) to:

- track the progress of project events with stakeholder participation and the completion and dissemination of project deliverables; and
- organize two external evaluations of project implementation and one external evaluation of project impact.

In addition, the project includes the development of a participatory monitoring system as an integral part of the implementation of restoration activities; this system has its own intrinsic value as a scientific tool to accomplish and sustain forest landscape restoration, and is separate from the M&E component. The Project will also undertake several surveys to assess adoption of FLR planning and uptake of up-scaled project activities, approaches and tools (as impact monitoring of up-scaling is obviously not practicable within the 4-year implementation period of the project).

The dedicated monitoring and evaluation component will draw from the results of the monitoring activities implemented within other components to report on impact of practices implemented and progress in upscaling.

The monitoring and evaluation component (4.1) provides for costs of ca. USD 400,000 (Table 24) for “General M&E Support” including a dedicated M&E and knowledge sharing consultant, staff time of Project personnel, external evaluators, reporting of meeting minutes by pilot site-level agency coordination groups and advisory boards, data aggregation and general operating costs. These resources are used for the purpose of setting up the M&E systems, monitoring project progress as indicated by the completion of deliverables and events, organizing external evaluations, and aggregating and reporting on impacts from data generated by “Component monitoring activities”.

Component monitoring activities include an additional USD 600,000 to establish indicators, protocols, and methods for monitoring of ecosystem services, biodiversity and local socioeconomic conditions; to build the participatory monitoring system; and to collect baseline and ongoing ecosystem service, biodiversity and socioeconomic data through the project.

<table>
<thead>
<tr>
<th>Hebei Agricultural University</th>
<th>School of Forestry</th>
<th>FLR planning; Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hebei Academy of Forestry</td>
<td>Forest Ecology &amp; SFM</td>
<td>FMR Planning and monitoring</td>
</tr>
<tr>
<td>Jiangxi Agricultural University</td>
<td>School of Forestry</td>
<td>FLR planning; Training</td>
</tr>
<tr>
<td>Jiangxi Academy of Forestry</td>
<td>Forest Ecology &amp; SFM</td>
<td>FMR Planning and monitoring</td>
</tr>
</tbody>
</table>
surveys will assess adoption of FLR planning by pilot cities (beyond the borders of pilot SFFs), uptake of governance reforms informed by the project guidelines throughout the nationwide SFF system, uptake of FMR plans following project templates and guidelines throughout the nationwide SFF system, and a dedicated stand-alone study of changes in ecosystem services benefit distribution, disaggregated by gender and other social differentiators.

The Project will define a set of M&E procedures within the first quarter of Year 1 as part of an overall, integrated Project M&E system that measures the progress of activity implementation based on annual work plans. The systems will document the use of financial contributions (both GEF grant and Chinese co-funding), and describe the socio-economic and ecological impacts of the Project. The monitoring system will incorporate both qualitative and quantitative indicators.

Monitoring & Research Plots will be established in each SFF to support learning about the results of SFM implementation. These plots shall serve as field experimental stations within which the Project Monitoring staff and stakeholders can learn about the effects of the silvicultural measures and the adequacy of the applied unit costs. Plots will also serve for training and demonstration purposes.

With regard to hydrology and biodiversity monitoring (flora and fauna) of forest ecosystems, either the local Environmental Bureau or the Soil and Water Conservation Bureau will provide the M&E consultant with necessary assistance.

Table 24. M&E-related budget (drawn from overall project budget).

<table>
<thead>
<tr>
<th>1) GENERAL M&amp;E SUPPORT</th>
<th>GEF</th>
<th>NEA</th>
<th>Budget Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>National M&amp;E/Knowledge Management Consultant</td>
<td>65,000</td>
<td></td>
<td>Outcome 4.1</td>
</tr>
<tr>
<td>Project Staff Salaries</td>
<td>130,000</td>
<td></td>
<td>Outcome 4.1</td>
</tr>
<tr>
<td>Global Consultants (M&amp;E system design, external evaluations)</td>
<td>130,000</td>
<td></td>
<td>Outcome 4.1</td>
</tr>
<tr>
<td>Agency Coordination and Advisory Board Meetings (Meeting reports)</td>
<td>13,500</td>
<td></td>
<td>Outcome 4.1</td>
</tr>
<tr>
<td>Data aggregation/Online platform</td>
<td></td>
<td>10,000</td>
<td>Outcome 4.1</td>
</tr>
<tr>
<td>Operating costs (7.5% of shared procurement budget)</td>
<td>44,490</td>
<td></td>
<td>Outcome 4.1</td>
</tr>
<tr>
<td><strong>SUBTOTAL GENERAL M&amp;E SUPPORT</strong> 382,990 10,000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 2) COMPONENT MONITORING ACTIVITIES         |       |       |             |
| Establishment of ecosystem services monitoring methods and facilities | 111,304 |       | Activity 1.2.1.1 |
| Establishment of monitoring data collection capacity | 168,804 |       | Activity 1.2.2.1 |
| Collection of baseline data on each prioritised ecosystem service | 106,804 |       | Activity 1.2.2.2 |
| Ongoing collection and reporting of monitoring data | 171,488 |       | Activity 1.2.3.1 |
Assessment of adoption/uptake of FLR plan at pilot area level and recommendations for improvement; distributed to City and provincial governments

<table>
<thead>
<tr>
<th>Activity</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.B.1.2c</td>
<td>15,000</td>
</tr>
</tbody>
</table>

Conduct a national SFF survey of 4855 SFFs and analyze randomly sampled SFF annual reports produced by project end to assess uptake of governance reform

<table>
<thead>
<tr>
<th>Activity</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2.1.1e</td>
<td>15,000</td>
</tr>
</tbody>
</table>

Conduct a national SFF survey of 4855 SFFs and analyze randomly sampled FMR plans produced by project end to assess uptake

<table>
<thead>
<tr>
<th>Activity</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2.2.1e</td>
<td>15,000</td>
</tr>
</tbody>
</table>

Gender disaggregated study of changes in ecosystem benefit distribution

<table>
<thead>
<tr>
<th>Activity</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1.2.1b</td>
<td>20,000</td>
</tr>
</tbody>
</table>

SUBTOTAL COMPONENT MONITORING ACTIVITIES | 623,399 |

TOTAL M&E BUDGET | 1,006,389 |

The Project includes provision for an M&E – Knowledge management consultant who will design the M&E strategy within the first quarter of the project implementation and oversee all M&E activities in accordance with IUCN Evaluation policy and procedures, as adapted for GEF projects. The M&E – Knowledge management consultant will be tasked to liaise with the Global Project to share knowledge and, as far as practicable, provide guidance to assist the TRI China project to harmonize approaches and timing with other GEF TRI child projects.

The deliverables and events to be tracked and reported on by Project M&E under “General M&E support” are listed in a worksheet entitled “M&E Tracking List” within the MS Excel Workbook entitled “TRI China Work Plan”. The Project M&E consultants and staff will use this tracking list along with the project results framework as a guide in designing and calendaring the detailed M&E system.

General M&E Support should include the development of socio-economic indicators at village and household level to monitor whether environmental benefits provided or improved as a consequence of the implementation of the FLR plans can be accessed by local communities. It should further provide for implementing the ESMS monitoring activities delineated in the ESMF (see Appendix XI).

An independent Mid-Term Evaluation will be undertaken between years 2 and 3 of the project and an End-of-Project Evaluation will be undertaken in year 4. The Mid-Term Evaluation will review progress and effectiveness of implementation in terms of the following:

- Relevance - The extent to which the project is contributing to the goal of the project and the forest policy imperatives of China.
- Effectiveness - The extent to which the planned outputs are being achieved.
- Efficiency - The extent to which project and co-funding resources are being used effectively.
- Impact – Recognising that assessing impact is often complicated and it is difficult to attribute cause and affect relationships, the evaluation will attempt to assess the changes in conditions of people and ecosystems that result from the project.
- Sustainability - The extent to which conditions in China support replication (scaling up) and continuity of FLR in the country.

The PSC will consider the findings and recommendations of the evaluation and propose any adjustments to the project design and implementation strategy for the remaining duration of the project.

The End-of-Project Evaluation will follow a similar approach to that outlined above, with a broader remit to recommend lessons for the GEF, IUCN and other key stakeholders. The PMO will prepare the first draft of the Terms of Reference for the mid-term and end-of-project evaluations in consultation with the Forest Department.
8. Project financing and budget

8.1 GEF budget

Summary GEF budget presented in Table 25. See attached MS Excel Spreadsheet, “TRI China Budget” for full budget including co-financing, budgeted workplan and procurement plan.

Table 25. Project Budget by Component and Outcome and major cost categories.

<table>
<thead>
<tr>
<th>Currency: USD</th>
<th>Staff Salaries</th>
<th>Consultancies &amp; Sub-Contracts</th>
<th>Travel Costs</th>
<th>Trainings, Workshops, &amp; Meetings</th>
<th>Program Activities</th>
<th>Procurement</th>
<th>Project Management Costs</th>
<th>GEF Total</th>
<th>Co-Financing NEA</th>
<th>Project Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Component 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Outcome 1.1</strong></td>
<td>Improving ecosystems services in China's State owned forests farms (SFFs): Implementation of Restoration Programs and Complementary Initiatives</td>
<td>450,717</td>
<td>1,230,000</td>
<td>70,000</td>
<td>397,400</td>
<td>695,684</td>
<td>476,147</td>
<td>-</td>
<td>3,319,948</td>
<td>53,775,570</td>
</tr>
<tr>
<td><strong>Outcome 1.2</strong></td>
<td>Forests in selected landscapes provide relevant ecosystem services (water, soil and carbon sequestration), maintain and improve biodiversity, increase climate resilience, reduce land degradation, and generate local benefits</td>
<td>270,430</td>
<td>885,000</td>
<td>35,000</td>
<td>245,800</td>
<td>575,000</td>
<td>138,382</td>
<td>-</td>
<td>2,149,612</td>
<td>-</td>
</tr>
<tr>
<td><strong>Outcome 1.3</strong></td>
<td>Clear and quantified environmental improvements sustained by local institutional, policy and financing mechanisms</td>
<td>135,215</td>
<td>285,000</td>
<td>17,500</td>
<td>140,800</td>
<td>120,684</td>
<td>238,882</td>
<td>-</td>
<td>938,081</td>
<td>-</td>
</tr>
<tr>
<td><strong>Component 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Outcome 2.1</strong></td>
<td>Mainstreaming ecosystem services in China's forest policies: Policy Development and Integration</td>
<td>45,072</td>
<td>60,000</td>
<td>17,500</td>
<td>10,800</td>
<td>-</td>
<td>98,882</td>
<td>-</td>
<td>232,254</td>
<td>-</td>
</tr>
<tr>
<td><strong>Outcome 2.2</strong></td>
<td>New polices, legal and regulatory frameworks which facilitate and promote, with</td>
<td>272,806</td>
<td>30,000</td>
<td>12,000</td>
<td>77,000</td>
<td>30,000</td>
<td>29,685</td>
<td>-</td>
<td>451,471.0</td>
<td>60,000</td>
</tr>
<tr>
<td><strong>Outcome 2.3</strong></td>
<td>New policies, legal and regulatory frameworks which facilitate and promote, with</td>
<td>90,935</td>
<td>10,000</td>
<td>12,000</td>
<td>59,000</td>
<td>-</td>
<td>9,888</td>
<td>-</td>
<td>181,824</td>
<td>-</td>
</tr>
</tbody>
</table>
strong evidence, the implementation and enforcement of forest landscape restoration and sustainable forest management.

**Outcome 2.2**
The SFFs reform fully considers the roles of SFFs in providing ecosystem services and develops appropriate supporting legal, regulatory and financial instruments and policies.

<table>
<thead>
<tr>
<th>Component</th>
<th>Capacity building and knowledge dissemination: Institutions, Finance and Upscaling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>269,941 143,000 285,200 196,000 - 249,888 - 119,824 - 119,822</td>
</tr>
</tbody>
</table>

**Outcome 2.3**
Increased area of landscapes and afforested lands protected by new policies.

<table>
<thead>
<tr>
<th>Component</th>
<th>Capacity building and knowledge dissemination: Institutions, Finance and Upscaling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>90,935 10,000 - 9,000 30,000 9,888 - 149,824 - 149,822</td>
</tr>
</tbody>
</table>

**Outcome 2.3**
Stakeholders in China (national stakeholders and stakeholders of 3 pilot landscapes) have improved knowledge of new financial mechanisms, accounting system and best practices on sustainable forest management.

<table>
<thead>
<tr>
<th>Component</th>
<th>Capacity building and knowledge dissemination: Institutions, Finance and Upscaling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>67,485 56,500 30,000 159,750 - 56,497 - 370,232 44,000 414,225</td>
</tr>
</tbody>
</table>

**Outcome 2.3**
Knowledge-sharing and international cooperation mechanisms further promote transfer and scaling up of project results, especially the collaboration with international initiatives such as Bonn Challenge/GPFLR, CBD, UNCCD, and the South-South cooperation between China, Brazil and African countries.

<table>
<thead>
<tr>
<th>Component</th>
<th>Capacity building and knowledge dissemination: Institutions, Finance and Upscaling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>67,485 - - 6,750 - 56,497 - 130,732 - 130,725</td>
</tr>
</tbody>
</table>

**Outcome 3.3**
Information and knowledge gaps identified and addressed to better inform the policy and practical endeavors.

<table>
<thead>
<tr>
<th>Component</th>
<th>Capacity building and knowledge dissemination: Institutions, Finance and Upscaling</th>
</tr>
</thead>
</table>

**Outcome 3.4**
Improved awareness and understanding among key decision-makers and stakeholders of forest services and SFM.

<table>
<thead>
<tr>
<th>Component</th>
<th>Capacity building and knowledge dissemination: Institutions, Finance and Upscaling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>67,485 30,000 255,200 22,750 - 80,497 - 455,932 82,000 537,925</td>
</tr>
</tbody>
</table>

**Component M&E and information**

<table>
<thead>
<tr>
<th>Component</th>
<th>Capacity building and knowledge dissemination: Institutions, Finance and Upscaling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>260,796 242,652 393,368 27,000 20,000 256,994 - 1,200,811 10,000 1,235,308</td>
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<tr>
<td>Outcome 4.1</td>
<td>A Project M&amp;E framework is designed and implemented throughout the project life.</td>
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<td>Subtotal:</td>
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<td>Components</td>
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<td>Outcome 4.2</td>
<td>Project outcomes are communicated in an efficient manner</td>
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<td>Subtotal:</td>
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<td>Components</td>
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| Finance Officer Salary (~25%) | 58,000 | 58,000 | - | 58,000 |
| Annual Project Management Meetings | - | - | - | - | - | - | - | 60,000 | 60,000 |
| Annual Steering Committee Meetings | - | - | - | - | - | - | - | - | 16,000 | 16,000 |
| Audit Fees | 30,000 | 30,000 |
| TRI Global Team Travel | - | - | 60,160 | - | - | - | - | 60,160 | 60,160 |
| Orientation Trainings | - | - | - | 37,500 | - | - | - | - | 37,500 |
| Provincial/County management costs | - | - | - | - | - | 120,000 | 120,000 | - | 120,000 |
| Subtotal: Project Cost | 1,254,261 | 1,645,652 | 760,568 | 697,400 | 745,684 | 1,012,793 | - | 5,116,358 | 53,971,570 | 60,112,347 |
| Agency Fee | - | - | - | - | - | 0 | 577,982 | - | 577,982 |
| Grand Total | 1,254,261 | 1,645,652 | 820,728 | 734,900 | 745,684 | 1,012,793 | 208,000 | 6,422,018 | 54,047,570 | 60,469,588 |

| Percentage | 18% | 24% | 12% | 19% | 11% | 14% | 3% | 100% |
Appendix I. References cited


Dudley, Nigel. 2008. Guidelines for Applying Protected Area Management Categories. IUCN.


Appendix II. Project workplan

Attached as Microsoft Excel File “TRI China Work Plan”.

Appendix III. Project Staff and Terms of Reference

TRI China staff

The following section a) lists the capabilities that all project staff will be expected to demonstrate, to a varying extent depending on the position they hold, and b) includes draft terms of reference for key project staff positions. These terms of reference will require validation and adjustment by the Project Management Office (PMO) at the commencement of the project.

Key capabilities for all projects staff:

- Adaptability
- Communicating
- Decision making
- Initiative
- Integrity
- Motivation
- Planning and organizing
- Problem solving
- Reliability
- Stress tolerance
- Team work
- Work standards

Terms of reference for project staff

In addition to management duties, the Project Manager will play a key role in implementation of Component 2 of the project (policy development). His/her management duties will include:

- Lead and oversee the work of the PMO.
- Act as secretary to the SC.
- Regularly communicate with project stakeholders.
- Develop work plans with detailed budgets to be approved by the SC.
- Coordinate the implementation of project activities with the national and provincial teams, and ensure the timely delivery of inputs and outputs, in close collaboration with the Project Manager.
- Manage the performance of all project staff and consultants.
- Supervise work of assistant Project Manager and Finance Officer in managing project budgets and finances according to IUCN policies and procedures.
• Manage project information and documentation and distribution of project reports, newsletters, and training materials to relevant stakeholders.

• Organize workshops and annual meetings for the Project.

• Implement the ESMS review steps outlined in the ESMF: drafting of screening reports, ensuring implementation of mitigation measures and provide annual reports demonstrating compliance with the ESMS procedures.

• Develop bi-annual Project Progress and Financial reports and assist in the preparation of the annual Project Implementation Review (PIR) and midterm and final evaluations.

• Submit to the SC and IUCN project Progress Reports on outputs and outcomes achieved, financial statements, Annual Work Plans, and detailed Budgets.

• Manage project M&E and support the mid-term and final evaluations.

• Monitor, and regularly report on the progress of the project against annual work plans, and budgets, and identify issues that need urgent attention by the SC.

• Ensure a high degree of inter-institutional collaboration with TRI Global and other related global, regional and national projects and identify opportunities for partnership and collaboration with other agencies, organizations and donors.

His/her project implementation duties will include:

• Contribute to writing of policy-related documents/syntheses/briefs.
• Represent the Project in policy-related meetings at provincial, national, and international meetings and knowledge sharing events.

The Assistant Project Manager will:

• Support the Project Manager in the execution of his/her duties.
• Act as Project Manager as and when required.
• Provide support to the PMO.
• Regularly communicate with project stakeholders.
• Assist with the development of work plans with detailed budgets to be approved by the SC.
• Coordinate the implementation of delegated project activities with the national and provincial teams, and ensure the timely delivery of inputs and outputs, in close collaboration with the Project Manager.

• Manage the performance of all delegated project staff and consultants.

• Oversee procurement in accordance with agreed procurement procedures.

• Manage delegated elements of project budgets and finances according to IUCN policies and procedures.

• Assist with project information and documentation and distribution of project reports, newsletters, and training materials to relevant stakeholders.

• Organize workshops and annual meetings for the Project.

• Assist with the development of bi-annual Project Progress and Financial reports and support the annual Project Implementation Review (PIR) and midterm and final evaluations.

• Assist with project M&E and support the mid-term and final evaluations.

• Monitor, and regularly report on the progress of delegated project activities against annual work plans, and budgets, and identify issues that need urgent attention by the Project Manager.

• Assist with maintaining linkages with TRI Global and other related global, regional and national projects and identify opportunities for partnership and collaboration with other agencies, organizations and donors.

**Administration Officer**

In addition to his/her administrative duties, the administration officer will play a key role in implementation of the Project’s monitoring and evaluation plan. His/her administrative duties include:

• Oversee the planning, coordination and implementation of administrative policies, procedures and systems, and ensure these are efficient and effective.

• Prepare personnel and services contracts, and procurement documents including submission of documentation to IUCN under the direction of the Project Manager.

• Support recruitment processes and oversee the induction and training of personnel.

• Assess staff performance and provide coaching and guidance to ensure maximum efficiency.

• Manage office facilities and including office space, equipment and supplies.

• Oversee project IT, data bases and communications systems.
• Manage the project’s assets (e.g. vehicles, computers, filed equipment) and asset register

• Provide regular reports and supporting the PMO to prepare and submit six monthly and annual reports.

His/her M&E duties include:

• Following delivery of project deliverables, reports and data as per the M&E plan developed by the M&E Knowledge Management Specialist (see below).

• Organize and share all M&E documents and data with the Project Manager and M&E Knowledge Management Specialist on a timely basis.

• Alert Project Manager promptly should any scheduled M&E document or activity be delayed.

Finance Officer

• Oversee the planning, coordination and implementation of financial policies, procedures and systems, (including ant-fraud policies) and ensure these are efficient and effective.

• Prepare detailed budgets.

• Ensure finance systems are accurate and kept updated with financial data including:
  
  o daily transactions, invoices, bank deposits and payments.
  
  o bank statement reconciliation.
  
  o accounts payable and accounts receivable.
  
  o cash statements.
  
  o asset register.
  
  o balance sheets.

• Prepare monthly, quarterly and annual financial reports.

• Prepare relevant documents for internal and external financial audits.

• Participate in financial audits.

• Maintain the project’s risk register.
Technical Adviser

- Coordinate the implementation of Component 1 project activities with the PMO and the three participating sites.
- Manage performance of all Component 1 project staff and forestry, ecosystem services, monitoring and valuation consultants.
- Manage delegated project finances according to budgets allocated to technical issues.
- Monitor, and regularly report on the progress of the technical support aspects of the project against annual work plans, and identify issues that need urgent attention by the PMO.
- Support the project manager with the ESMS review and risk management procedures.
- Oversee the activities of the City-level Coordinators.
- Support the Project Manager to engage effectively with the Agency Coordination Groups (ACG) and Pilot Area Advisory Boards.
- Provide six-monthly and annual written reports on the technical aspects of project delivery, covering issues such as project activities, outputs and outcome delivery, and the performance of staff/consultants.
- Keep up to date with developments in FLR in China and internationally.
- Maintain relevant linkages with other technical aspects of the Global TRI project and with relevant experts at global, regional, national and sub-national levels and identify opportunities for technical cooperation and knowledge sharing.

Communications and media officer

In addition to managing the Project’s various communications activities, the Communications and media officer will have a key role in implementation of Component 3. In addition, he/she will collaborate closely with the staff involved in Component 4. His/her primary duties include:

- Lead the project knowledge management, communication and media activities (including the production of videos).
- Oversee the planning, coordination and implementation of communication and media policies, procedures and systems (including compliance with national laws), and ensure these are efficient and effective.
- Prepare and manage communication and media budgets and support the PMO with budgets for knowledge management.
• Manage the performance of relevant consultants.

• Oversee the project’s web presence.

• Prepare knowledge management, communication and media activities reports including on use of knowledge products, web site statistics, and effectiveness of media campaigns.

• Manage capacity building in communications, media and knowledge management.

His/her Component 3 and Component 4 duties include:

1. Providing input to development of outreach materials to support partnership building in support of State Forest Farm sustainable development plans and promotion of bankable initiatives.
2. Collect project information and results from M&E Knowledge Management Specialist
3. Produce digital content for dissemination in a variety of media, including presentations by project personnel, websites, etc.
4. Manage process of publication of project outputs (e.g. guidelines, handbooks)

Coordinators – Guizhou, Hebei and Jiangxi Cities

• Support the implementation of the project’s field activities in close collaboration with the PMO and SFF staff.

• Coordinate project activities with stakeholders within and outside the relevant government agency and with communities at the municipal and local level.

• Coordinate the implementation of municipal level project activities with the PMO.

• Manage delegated project finances according to budgets allocated.

• Monitor, and regularly report on the progress of the technical support aspects of the project against annual work plans, and identify issues that need urgent attention by the PMO.

• Support the PMO in working with the Pilot Area Advisory Boards and Sector Coordination Groups.

• Support the project manager with the ESMS review and risk management procedures.

• Provide six-monthly and annual written reports on project delivery, covering issues such as project activities, outputs and outcome delivery, performance of staff/consultants, and community engagement (including engagement and remuneration of men and women of diverse backgrounds as participatory community monitoring team members).
• Maintain linkages with other pilot areas and identify opportunities for technical cooperation and knowledge sharing.

Consultancies

The project includes a series of consultancies to build capacity of planning, monitoring, and implementation teams and produce planning templates, monitoring protocols to analyze policies and laws and draft recommendations, to build capacity of SFFs to develop sustainable development (SD) plans and to assist pilot farms in completing their sustainable development plans and materials to promote bankable initiatives, to develop knowledge materials, and to support the design of the project’s M&E system.

Procurement of consulting services will require careful processes to ensure that the most appropriate contractors are secured. Procurement of consultant and contract services will commence in year one and continue annually. Several of the consultancies are designed to be undertaken early in the life of the project to optimize the use of the results in project activities including on-the-ground restoration and providing policy-relevant advice. The consultancies are described briefly below.

M&E – Knowledge management specialist

The project intends to create systems for knowledge development and increase the flow of information throughout the national SFF system and at the local level in pilot project areas. This will require the translation of project learning into accessible media and the development of a state-of-the-art online communications platform and social networks.

Knowledge gained from the project and elsewhere will be used to build awareness of stakeholders in the three pilot landscapes. A communication and knowledge management strategy will be developed that ensures the project staff and partners are learning effectively and that knowledge is used to develop policy-relevant lessons for national policy development and lessons are shared through the global TRI project.

The M&E – Knowledge management specialist will liaise with the Global Project to share knowledge and, as far as practicable, provide guidance to assist the TRI China project to harmonize approaches and timing with other GEF TRI child projects.

Objective - The consultant will support the project to develop knowledge management strategy and an M&E system for the project.

Outputs - The consultant will help deliver the following outputs:

• Stakeholders from village to City level receive information and knowledge generated by the project.
• Relevant communities of practice have awareness of best practices observed and lessons learned through project implementation.
• A cadre of Chinese experts and practitioners is developed to support the design and implementation of FLR programs and policies.
• Agencies and practitioners of FLR from Bonn Challenge countries receive insights and ideas to improve national implementation through knowledge exchange.
• PMO, Global TRI M&E team, project evaluators, and GEF have access to timely and informative information about project implementation.
• Knowledge of the impacts of FLR as implemented in China informs future national and international initiatives.

The consultant will assist the PMO to deliver the following tasks:

• Assist the M&E systems consultant to assess existing M&E and knowledge systems for their applicability to the project.
• Assist the M&E systems consultant to design, test and adapt project M&E systems including indicators and protocols.
• Develop a communication and knowledge management strategy.
• Identify the most cost effective and appropriate state-of-the-art online communications platform and social networks.
• Develop training modules for project M&E, communications, and knowledge management.
• Plan and deliver training for target audiences.

The consultant will need to have demonstrated experience in: design of M&E systems and communication and knowledge management strategies; online communications platform and social networks, the development and provision of adult training. Chinese language skills are necessary.

**Monitoring and evaluation – systems**

**Objective** - The consultant will support the project to develop M&E systems.

**Outputs** - The consultant will help deliver the following outputs:

• Stakeholders from village to City level receive information and knowledge generated by the project.
• Relevant communities of practice have awareness of best practices observed and lessons learned through project implementation.
• A cadre of Chinese experts and practitioners is developed to support the design and implementation of FLR programs and policies.
• Agencies and practitioners of FLR from Bonn Challenge countries receive insights and ideas to improve national implementation through knowledge exchange.
• PMO, Global TRI M&E team, project evaluators, and GEF have access to timely and informative information about project implementation.
• Knowledge of the impacts of FLR as implemented in China informs future national and international initiatives.

The consultant will assist the PMO to deliver the following tasks:

• Assess existing M&E and knowledge systems for their applicability to the project.
• Design, test and adapt project M&E systems including indicators and protocols.

The consultant will need to have demonstrated experience in the design of M&E systems. Chinese language skills are necessary.

National Expert Ecosystem Services Monitoring

The project intends to develop ecological and biodiversity monitoring systems that include indicators and protocols for data collection and analysis. This will require training community monitoring teams. It is anticipated that the monitoring and evaluation of each ecosystem service/biodiversity/socioeconomic target identified as a priority by each SFF and pilot county/city will require a separate protocol. These protocols will likely include measurement and valuation methodologies for: forest extent, forest composition and biomass, wildlife, water quality and flow, soil erosion and soil quality, aesthetic value of landscape, and a protocol for assessment of socioeconomic conditions in the pilot areas.

Objective - The consultant will support the project to develop ecological and biodiversity monitoring systems that include indicators and protocols for data collection and analysis.

Outputs - The consultant will help deliver the following outputs:

• Locally feasible protocols exist for monitoring forest conditions and each ecosystem service (type, flow, trend) prioritised by SFF plans.

The consultant will assist the PMO to deliver the following tasks:

• Assess existing ecological and biodiversity monitoring systems, indicators and protocols.
• Design, test and adapt ecological and biodiversity monitoring systems, indicators and protocols.
• Identify actions for mainstreaming ecological and biodiversity monitoring into SFFs.
• Develop training modules for ecological and biodiversity monitoring.
• Plan and deliver training for target audiences.

The consultant will need to have demonstrated experience in: design of M&E systems, biodiversity assessments, ecosystem services assessments, development and provision of adult training, ecosystem management in China. Chinese language skills are necessary.

Ecosystem services valuation

The project aims to pilot the valuation of ecosystem services, and support the development of accounts and balance sheets based on ecosystem service monitoring systems.

It is anticipated that ecosystem service monitoring systems will generate data of use to national agencies involved in ecosystem assessment and valuation (and to Gross Ecosystem Product accounting). It will also provide key data for the implementation of national eco-compensation payment
schemes and be of relevance to the potential development of market-based private or non-governmental payment for ecosystem services (PES) schemes.

**Objective** - The consultant will support the project to collect and analyse data generated through develop ecological and biodiversity monitoring systems that include indicators and protocols for data collection and analysis.

**Outputs** - The consultant will help deliver the following output:

- Ecosystem service and biodiversity values are available for use in reporting on national progress and in development of eco-compensation systems (subsidies and PES).

The consultant will assist the PMO to deliver the following tasks:

- Collect and analyse data collected from the project’s ecosystem service monitoring systems
- Provide analytical reports that are relevant to national agencies involved in ecosystem assessment and valuation (including Gross Ecosystem Product accounting), national eco-compensation payment schemes, and potential market-based private or non-governmental payment for ecosystem services (PES) schemes.
- Recommend changes to the project’s ecosystem service monitoring systems.

The consultant will need to have demonstrated experience in data systems, management and analysis, ecosystem valuation methodologies, Chinese systems of ecosystem assessment and valuation, and the SEEA system of environmental economic accounts. Good analytical and report writing skills are essential.

**External project implementation evaluators**

The project includes funding for the engagement of independent reviewers to evaluate and report on progress at mid-term and end of project. These services will be undertaken in year two and four respectively. The evaluations will follow IUCN evaluation procedures, as adapted to meet GEF requirements. IUCN shall oversee the procurement of evaluation services and manage the reviews to ensure impartiality.

An independent Mid-Term Evaluation will be undertaken between years 2 and 3 of the project and an End-of-Project Evaluation will be undertaken in year 4.

**Objective** – a) The consultant (team) will undertake a Mid-Term Evaluation to assess progress with project outcomes and outputs, and their relevance to target beneficiaries, national and local needs and priorities. The consultant(s) will document important lessons and recommend any changes for the remainder of the project’s implementation time.
b) The consultant (team) will undertake an End-of-Project Evaluation to assess progress with project outcomes and outputs, and their relevance to target beneficiaries, national and local needs and priorities. The consultant(s) will document important lessons and note opportunities for potential scaling, replication or follow-on projects or activities.

**Outputs** - The consultant(s) will help deliver the following outputs:

- PMO, Global TRI M&E team, project evaluators, and GEF have access to timely and informative information about project implementation.
- Knowledge of the impacts of FLR as implemented in China informs future national and international initiatives.

The consultant will assist IUCN to deliver the following **tasks**:

- Review the progress and effectiveness of implementation of the project in terms of the following:
  - Relevance - The extent to which the project is contributing to the goal of the project and the forest policy imperatives of China.
  - Effectiveness - The extent to which the planned outputs are being achieved.
  - Efficiency - The extent to which project and co-funding resources are being used effectively.
  - Impact – Recognising that assessing impact is often complicated and it is difficult to attribute cause and affect relationships, the evaluation will attempt to assess the changes in conditions of people and ecosystems that result from the project.
  - Sustainability - The extent to which conditions in China support replication (scaling up) and continuity of FLR in the country.
- Identify progress with co-funding.
- Propose any adjustments to the project design and implementation strategy for the remaining duration of the project (Mid-Term Evaluation).
- Propose any recommendations for upscaling FLR and lessons for future projects, SFA, IUCN and GEF.

The consultant will need to have demonstrated experience in evaluations of large projects. Experience with evaluation of GEF projects would be an advantage.

**External impact assessment**

In preparation for the end of project evaluation, a consultant will be employed to evaluate the impact of the project.

**Objective** – To provide relevant and timely information on the impact of the project for use by the End of Project Evaluation.

**Outputs** - The consultant(s) will help deliver the following output:
• Knowledge of the impacts of FLR as implemented in China informs future national and international initiatives.

The consultant will assist IUCN to deliver the following **tasks**:

• Assess the changes in conditions of people and ecosystems that result from the project. Recognising that assessing impact is often complicated and it is difficult to attribute cause and affect relationships.
• Assess the extent to which conditions in China support replication (scaling up) and continuity of FLR in the country.
• Propose any recommendations for upscaling FLR and lessons for future projects, SFA, IUCN and GEF.

The consultant will need to have demonstrated experience in impact evaluation of large projects. Experience with evaluation of GEF projects would be an advantage.

**Policy adviser**

The project includes a focus on the development and integration of (FLR relevant) in the following areas: the SFF system, national forestry policy, relevant central government policies that span sectors, global forest policy.

This will require the integration of FLR-related policy lessons into the national SFF system and the promotion of policy and legal reform within the canon of forestry laws over which the State Forestry Administration has influence. Through this process, it is anticipated that a new role of SFFs as public benefit institutions will be integrated into policies, laws and regulations.

In addition, changes to Central Government policies that govern broader inter-sectoral planning and strategies will likely be necessary to realise the values of FLR in the management of SFFs.

China has important lessons on FLR to share at the regional and global levels. The Project will draw on China’s experience to support key actors to play a greater role in forest landscape restoration at the global level.

**Objective** – To provide relevant and timely analyses and advice on policy-relevant matters that will promote the integration of FLR into policies, laws and institutions.

**Outputs** - The consultant will help deliver the following output:

• National and subnational forestry policy makers have information and recommendations to develop new policies integrating SFFs as a cornerstone for local FLR implementation.
• Central Government policy makers have useful information on the potential contribution of SFFs to national targets including FLR, biodiversity conservation, and ecosystem service provision.
• SFA and SFF Administration have increased capacity to contribute to global policies to develop and promote FLR.

The consultant will assist the PMO to deliver the following tasks:

• Assess existing laws, regulations, policies and institutional arrangements that are relevant to FLR.
• Identify opportunities for improving laws, regulations, policies and institutional arrangements that are relevant to FLR.
• Design, test and adapt policy interventions for various levels.
• Develop policy briefs for use by the project with various levels and sectors.
• Support the design and implementation of policy workshops and meetings.
• Ensure a high degree of inter-institutional collaboration with TRI Global and other related global, regional and national projects and identify opportunities for partnership and collaboration with other agencies, organizations and donors.
• Assist with the planning and delivery of policy influencing training for target audiences.

The consultant will need to have demonstrated experience in policy development and environmental law.

**Forest economics consultant**

The project aims to increase the business viability of the SFF system by building the capacity of SFFs and local experts to identify and develop sustainable business development pathways. This will require the development of SFF-level sustainable development plans. Improved business and marketing skills will enable SFFs to seek PES and other financing partners, and grants, as well as market non-timber forest products, and market bankable initiatives through grant seeking and public-private partnerships.

**Objective** – To build capacity of Project teams that will support SFFs to develop sustainable development plans, market ecosystem services, and develop bankable projects.

**Outputs** - The consultant will help deliver the following outputs:

1. SFFs have increased capacities and resources to adapt to new role of public benefit forest and sustain their operations in support of FLR.
2. SFFs use better market and business knowledge to improve the sustainability of their operations to generate public benefits (from FLR).
3. SFF and County Forestry Bureaus in 3 pilot areas have marketable investment products to increase sustainability of operations supporting FLR.

The consultant will assist the PMO to deliver the following tasks:

• Assess existing and potential FLR-related business opportunities for target SFFs.
• Identify actions for inclusion in SFF sustainable development plans.
• Identify, adapt, and or develop training modules for SFF sustainable development planning, including the integration of SFM and FLR principles.
• Plan and deliver training to project team members involved in supporting SFFs to develop sustainable development plans, markets and bankable projects.

The consultant will need to have demonstrated experience in the development of viable forest or agriculture related businesses, cost-benefit analyses, delivery of sustainable development planning training, and provision of adult training.

**National Expert Forest Management and Restoration Planning in 7 pilot SFFs**

**Objective** – To build capacity of provincial planning teams to enable them to independently develop relevant, effective and efficient Forest Management and Restoration Plans.

**Outputs** - The consultant will help deliver the following outputs:

4. Pilot SFFs have increased capacity to develop FMR plans to achieve short, medium and long term FLR goals SFFs have increased capacities and resources to adapt to new role of public benefit forest and sustain their operations in support of FLR.
5. Pilot SFFs transform landscape and improve ecosystem service delivery by implementing annual FMR plans.
6. FMR planning process based on FLR principles is upscaled to the City level.

The consultant will assist the PMO to deliver the following **tasks**:

• Assess existing and potential FMR planning systems.
• Identify, adapt, and or develop training modules for FMR and FLR, based on ROAM and long-term FLR targets.
• Plan and deliver FMR capacity building training.

The consultant will need to have demonstrated experience in the development of FLR/FMR plans, and the provision of adult training. Chinese language skills are essential.

**FLR-ROAM Planning in 3 pilot municipalities (national/International)**

The project anticipates that the SFF system will implement sustainable forest management and restoration (FMR) plans incorporating FLR.

**Objective** - The consultant team will support the project and its partners, especially SFFs, and, as necessary other consultants to develop capacity of targeted project beneficiaries to implement FLR. The Consultant team will include a dedicated consultant with a social science background and expertise in environmental and social safeguard systems to provide training, guidance and management tools at each pilot area to core project personnel and each pilot area advisory board, as
well as to (in Beijing or in one of the pilot areas) the PMO, technical adviser and monitoring and evaluation consultant (see detailed TORs below).

**Outputs** - The consultant team will help deliver the following outputs:

- Pilot SFFs have increased capacity to develop FMR plans to achieve short, medium- and long-term FLR goals.
- Pilot SFFs transform landscape and improve ecosystem service delivery by implementing annual FMR plans.
- FMR planning process based on FLR principles is upcaled to the City level.

The consultant team will assist the PMO to deliver the following **tasks**:

- Assess existing forest planning processes and identify the opportunities for integrating M&E.
- Identify actions for mainstreaming FLR into planning processes.
- Adapt the ROAM methodology to suit conditions in the project sites.
- Thoroughly integrate actions and safeguards defined in the Environmental and Social Management Framework (ESMF) (TRI China project document, Appendix XI) in FLR/ROAM capacity building and planning
- Adapt and further develop training modules for FLR, including the modified ROAM process
- Plan and deliver training for target audiences.
- Develop FLR plans for 3 pilot municipalities with local teams.

The consultant team members will need to have demonstrated experience in: FLR and/or delivery of ROAM training, ESMS, development and provision of adult training, forest management in Asia (preferably China) and experience with the sociocultural context of China. Chinese language skills would be an advantage.

The detailed TORs of the consultant responsible for supporting project ESMS are as follows:

**Community involvement, social safeguards and gender**

**Objective** - The consultant will support the implementation of safeguard requirements outlined in the ESMF

**Outputs** - The consultant will deliver the following outputs:

- Social baseline for one pilot site collected and methodology provided
- ESMS review steps piloted and detailed guidance provided to enable project manager and other staff to implement safeguard requirements delineated in the ESMF
- ESMS relevant sections of the ROAM/FLR handbook adapted to China context drafted

The consultant will deliver the following tasks:
• Train project manager and advisory board members on safeguard requirements enabling them to fulfill their respective roles as delineated in the ESMF;
• Conduct ESMS relevant review steps (screening, risk assessment, community consultations, development of mitigation measures and design of monitoring requirements) for one FMR plan, one FLR/ROAM plan and one policy document supported by the project, provide detailed guidance;
• Support the FLR-ROAM Planning consultant in one pilot sites with the implementation of the ESMS provisions outlined in the ESMF, in particular with the development of the stakeholder engagement strategy, clarification of use and tenure rights and with the integrated situation analysis;
• Provide targeted safeguard training to project staff, consultants and the social team at the SFF Office and relevant governmental and non-governmental project partners covering impact issues identified in the ESMS screening;
• Collect social baseline data (including on gender) in one pilot site and provide methodology and technical support to project staff / consultants to replicate this process in other villages adjacent to pilot SFFs

Requirements:

• Degree in social science,
• Knowledge about ethnic minorities, related policies and their implementation in China, experience working with at least some of the ethnic groups relevant in the project sites;
• Demonstrated ability to engage community stakeholders and facilitate community consultations, preferably in the context of conservation projects and concrete experience with community co-management arrangements;
• Knowledge and experience with the implementation of safeguard instruments;
• Experience with gender sensitive project design;
• Chinese language skills
Appendix IV. TRI Harmonized Tracking Tool and EX-ACT Carbon calculations

Attached as Microsoft Excel File “TRI China Harmonized Tracking Tool”. Note that the estimations of incremental carbon sequestration using the FAO EX-ACT tool are included as a worksheet within this file.
Appendix V. ESMS Questionnaire and Screening Report

Attached as File entitled “TRI China ESMS Screening Report”.
Appendix VI. Stakeholder Focus Group Discussions

Focus Group Discussions, Consultations, and site visits in Bijie (Guizhou Province), Chengde (Hebei Province), and Ganzhou (Jiangxi Province)

During field visits to the three project areas, the IUCN GEF project design team held focus group discussions (FGDs) with stakeholders at the City level and State Forest Farms (SFF), and separate consultations with village leaders from the vicinity. The purpose of these FGDs was to collect perspectives on ecological challenges, actual and potential approaches to these challenges relevant to forestry, and degrees and opportunities for cross-sector collaboration and collaboration between SFFs and communities at the landscape level. In addition to these discussions, the team conducted site visits to 7 SFFs; observations from these site visits are presented together with results of SFF-level FGDs and village consultations by City and farm.

At the City level, two FGDs were held per City, one with forestry officials from the City, county, SFF and provincial level; the other with City officials from relevant environmental, social and service sectors.

In addition, we held FGDs at the district/county level in Guizhou (Qixingguan District and Zhijin County) and in Jiangxi (Fengning County, Anyuan County, and Xunwu County).

In addition to City and county administrative officials, the sectors represented in these FGDs included the following bureaus:

- Forestry
- Land and Resources
- Agriculture and Husbandry
- Development and Reform
- Finance
- Environmental Protection
- Civil Affairs
- Women’s Union
- Investment Promotion
- Water Protection
- Water Services
- Culture
- Tourism

Focus Group Discussions in Bijie City, Guizhou Province
1. Problems faced by SFFs

- A dominant proportion of mature and over-mature forest; biodiversity losses; lower benefits
- Underdeveloped infrastructure
- Disproportion between ecological protection and economic development
- Insufficient funding; unsustainable financial mechanism
- Outdated technologies; Be short of forest management plan
- Insufficient qualified staffs; inadequate capacity especially for youngsters; unsuitable technical ideas or concepts
- Underdeveloped monitoring system
- No effective multi-stakeholder participation mechanism so far
- Problems with neighboring villages

2. SWOT matrix – Forestry Sector Strengths, Weaknesses, Opportunities and Threats

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Relatively rich forest resources; uniqueness</td>
<td>o Lower competitiveness and attractiveness</td>
</tr>
<tr>
<td>o Permanent staff contract means stable teams</td>
<td>o Insufficient qualified technical staffs</td>
</tr>
<tr>
<td>o Nice weather; beautiful scenery</td>
<td>o Inaccessibility to specific sites</td>
</tr>
<tr>
<td>o Key geographical location closing to the three provinces boundary (Guizhou, Yunnan and Sichuan)</td>
<td>o Larger difficulty to implement ecological restoration</td>
</tr>
<tr>
<td></td>
<td>o Outdated development ideas</td>
</tr>
<tr>
<td></td>
<td>o Lack of a clear, long-term and stable development goal and plan</td>
</tr>
</tbody>
</table>
### Opportunities
- SFF reform
- More attention to eco-civilization development
- Guizhou is one of the three national eco-civilization demo sites
- Higher international attentions
- Demands for eco-products

### Threats
- Losses of qualified technical staffs
- Inadequate funding and external supports
- Imperfect multi-stakeholder participation channel
- Underdeveloped relevant mechanism
- Low-efficient public dissemination
- Various types of problems with neighboring villages
- Lack of effective M&E system
- Lack of capacity building

### 3. Strategies to achieve better results

- Utilize various opportunities to develop long-term SFF forest management plan
- Employ various capable persons (clarify their promotion mechanism; improve staff’s comprehensive ability; provide kinds of capacity building opportunities for them)
- Strengthen market studies (energize economic development; attract enterprise investment; establish innovative funding mechanism and system)
- Clarify the ecosystem services provided by SFF; establish M&E system; monetize these services based on the valuation
- Promote the platform of data and information sharing (big data platform); cross-sector participation and cooperation mechanism
- Improve public dissemination and education; promote national and international exchanges; establish the idea of public benefit institution

**Multi-sector FGD – Bijie City – March 17, 2017**

### 1. Bijie City ecological and associated social problems

#### Ecological problems
- Stony desertification
- Environment pollution (rural non-point pollution, air, soil)
- Deforestation
- Geological disaster
- Biodiversity losses
- Trees mismatch with specific sites
- Forest invasion

#### Social Problems
- Degradation of living environment
- Poverty
- Rural population aging
- Social conflicts due to rarer natural resources
- Public health problem (frequently-occurring diseases)
- Inadequate relevant management
4. List of sectoral and multi-sectoral projects/strategies addressing socioecological problems

<table>
<thead>
<tr>
<th>Sectoral projects/strategies</th>
<th>Implementing agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water &amp; soil conservation projects; Watershed protection projects</td>
<td>Water Bureau</td>
</tr>
<tr>
<td>Introduce social capital to implement the projects of environment improvement and sewage treatment</td>
<td>Investment Promotion Bureau</td>
</tr>
<tr>
<td>Control of geological disaster; re-greening of mining area</td>
<td>Land and Resources Bureau</td>
</tr>
<tr>
<td>Natural forest protection program (NFPP)</td>
<td>Forestry Bureau</td>
</tr>
<tr>
<td>Cropland improvement project; Soil testing and formulated fertilization project; Cash crop and fruit tree development project; Crop green development project</td>
<td>Agricultural Bureau</td>
</tr>
<tr>
<td>Modernized agricultural development project; Tea industry development project; Competitive orchard development project</td>
<td>Finance Bureau</td>
</tr>
<tr>
<td>Heavy metal pollution control project</td>
<td>Environmental Protection Bureau</td>
</tr>
<tr>
<td>Ecological resettlement and poverty alleviation project; social assistance</td>
<td>Civil Affairs bureau</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Multi-sector projects/strategies</th>
<th>Implementing agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Ba “三八” fruit afforestation project</td>
<td>Bijie City Women Federation + Bijie Forestry Bureau</td>
</tr>
<tr>
<td>Tourism + development strategies:</td>
<td>Tourism Bureau</td>
</tr>
<tr>
<td>Tourism + Forestry (eco-tourism)</td>
<td></td>
</tr>
<tr>
<td>Tourism + Agriculture (agro-tourism)</td>
<td></td>
</tr>
<tr>
<td>Landscape improvement project</td>
<td>Land + Water + Forestry + Agriculture</td>
</tr>
<tr>
<td>Sloping Land Conversion Program</td>
<td>Forestry Agriculture + Husbandry</td>
</tr>
<tr>
<td>Stony desertification control project</td>
<td>Forestry Agriculture + Husbandry</td>
</tr>
<tr>
<td>Infrastructure development for environment protection in water source area</td>
<td>Water + Environmental Protection</td>
</tr>
<tr>
<td>Improvement of rural living environment within watersheds</td>
<td>Water + Environment Protection + Housing + Urban management</td>
</tr>
</tbody>
</table>

5. What new work is required?
   - Introduce social capital
• Establish PES scheme and relevant mechanism
• Push the 1st, 2nd and 3rd industry in rural area to merge each other
• Develop 100 demonstration scenic area in Guizhou province
• Promote the level of tourism services
• Poverty alleviation by tourism development
• Combine the multiple plans by different sectors into a comprehensive one
• M&E of program effects
• Capacity building of participants
• Cross-sector cooperation mechanism
• Development of high efficient agriculture gardens
• The project for the three changes (resources to assets, capital to equity, farmers to shareholders) in rural area
• Agricultural products safety

6. What kind of conditions would they need to achieve?
   • Capital
   • Human resources
   • Technologies
   • Professional services
   • Policy

7. How can we maximize the benefits of the project to poor people, women, youth and minority people?
   • Establish competence center for these populations
   • Pushing forward by enterprises
   • Develop a set of complete industrial chain
   • Promote cross-sector cooperation
   • Facilitation by a comprehensive plan
   • New programs introduced + innovative agricultural business entity + rural households + community governance
   • Take steps according to specific conditions
   • Solicit advice from local people
   • Establish interest connection mechanism
   • Ask for financial supports from provincial or central government and society
   • Introduce new programs to facilitate the development of rural households
   • Training local talented staffs by program implementation
   • Women in program area should be involved in the program governance
   • Program mortgage (leverage more financial resources or social capital into relevant construction)
   • These programs facilitated by Women Federation (e.g. Cancer Prevention, Mother’s Water Cellar) have realized outstanding effects.
1. **Ecological problems to be addressed through forestry in Qi Xing Guan district (the rank of importance in bracket)**

<table>
<thead>
<tr>
<th>Ecological problems</th>
<th>Forest functions to address problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Stony desertification &amp; soil erosion (1)</td>
<td>o Forest tourism and recreation</td>
</tr>
<tr>
<td>o Environmental pollution (mining activities, trash, water, air) (2)</td>
<td>o Improve living environment</td>
</tr>
<tr>
<td>o Lower forest cover rate; lower forest using rate; lower forest quality (2)</td>
<td>o Increase income for local residents by forest industries</td>
</tr>
<tr>
<td>o Inadequate public dissemination and education (5)</td>
<td>o Provide drinking water</td>
</tr>
<tr>
<td>o Imperfect ecosystem services (3)</td>
<td>o Biodiversity protection</td>
</tr>
<tr>
<td>o Underdeveloped infrastructure in most of SFFs (4)</td>
<td>o Improve environment awareness</td>
</tr>
<tr>
<td>o Larger difficulty to fund for forest recreation</td>
<td></td>
</tr>
<tr>
<td>o No biodiversity monitoring so far</td>
<td></td>
</tr>
</tbody>
</table>

2. **Challenges faced by SFF and potential solutions**

<table>
<thead>
<tr>
<th>Problems faced by SFFs</th>
<th>Potential solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Be unable to monitor and assess the benefits achieved</td>
<td>o Afforestation and SLCP</td>
</tr>
<tr>
<td>o Lack of qualified technicians</td>
<td>o Legal supervision and monitoring</td>
</tr>
<tr>
<td>o Insufficient supports of local neighboring communities</td>
<td>o Land consolidation and reclamation; soil erosion and stony desertification control</td>
</tr>
<tr>
<td>o Lack of cross-sector cooperation, for example, different land classification criterions formulated by forestry and land department, respectively</td>
<td>o Forest recreation and eco-tourism</td>
</tr>
<tr>
<td>o Lack of funding needed for construction</td>
<td>o Control for environment pollution (mining, trash, sewage)</td>
</tr>
<tr>
<td></td>
<td>o Promote the infrastructure construction for SFF (road, electricity, house)</td>
</tr>
<tr>
<td></td>
<td>o SFM projects (tendering, transformation)</td>
</tr>
<tr>
<td></td>
<td>o Join the national initiative of public dissemination and education</td>
</tr>
<tr>
<td></td>
<td>o Supervise the discharge of sewage</td>
</tr>
<tr>
<td></td>
<td>o Water quality and soil erosion</td>
</tr>
</tbody>
</table>
Multi-sector FGD – Zhijin County, Bijie City, Guizhou – March 15, 2017

1. Ecological problems and potential approaches to address them through forestry in Zhijin County

<table>
<thead>
<tr>
<th>Ecological problems</th>
<th>Ecosystem services provided by forests</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Fragile ecological environment (stony desertification, land degradation)</td>
<td>o Tourism and recreation</td>
</tr>
<tr>
<td>o Lowering in water table, lack of water resource</td>
<td>o Water resource storage</td>
</tr>
<tr>
<td>o Smaller forest quantity, poorer forest quality</td>
<td>o Urban Green Lung (air cleaning)</td>
</tr>
<tr>
<td>o Severe water pollution</td>
<td>o Water and soil conservation</td>
</tr>
<tr>
<td>o Underdeveloped infrastructure in SFFs</td>
<td>o Regulate climate (temperature, humidity)</td>
</tr>
<tr>
<td></td>
<td>o Relevant industry development (e.g. tourism); poverty alleviation</td>
</tr>
<tr>
<td></td>
<td>o Improve environment quality</td>
</tr>
</tbody>
</table>

2. Problems faced by SFFs

- Insufficient funding for SFF construction
- Various problems complexity (lower forest quality, land degradation, the higher risks of geological disaster)
- Underdeveloped infrastructure
- Lack of qualified technicians
- Single funding channel (mainly from government)
- Fewer cross-sector cooperation
- Lack of benefits monitoring and qualification system

3. Projects being implemented by various departments

- Ecological restoration (SLCP, stony desertification, natural forest protection) (Forestry + NDRC)
- Cropland development and mining area restoration (Land)
Focus Group Discussions in Chengde City, Hebei Province – February 24, 2017

Forestry FGD – Chengde City – February 24, 2017

1. **SWOT matrix – Forestry Sector Strengths, Weaknesses, Opportunities and Threats**

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Abundant forest resources; beautiful forest scenery; relatively rich biodiversity</td>
<td>o The quality of forestry practitioners is relative low;</td>
</tr>
<tr>
<td>o Outstanding geographical location</td>
<td>o Backward regional economy compared to Beijing and Tianjin;</td>
</tr>
<tr>
<td>o Stable forestry practitioners</td>
<td>o Fewer forestry financing opportunities in addition to government funding;</td>
</tr>
<tr>
<td>o Water source area (Chao, Tang and Liao Rivers)</td>
<td>o Fragile ecosystem (lower precipitation; poorer site conditions);</td>
</tr>
<tr>
<td></td>
<td>o Poorer forest quality; Simple structure of tree species;</td>
</tr>
<tr>
<td></td>
<td>o Infrastructure imperfection (road, irrigation and electricity).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Eco-civilization construction is receiving more and more attentions;</td>
<td>o Be lack of qualified technical staff;</td>
</tr>
<tr>
<td>o State forest farm reform;</td>
<td>o Insufficient funding; Social financing channel doesn’t work efficiently;</td>
</tr>
<tr>
<td>o Beijing-Tianjin-Hebei Collaborative Development;</td>
<td>o Insufficient supports of forest protection and management;</td>
</tr>
<tr>
<td>o Growing public needs for ecosystem services;</td>
<td>o Land tenure conflicts result in the increase in difficulty of forest management;</td>
</tr>
<tr>
<td>o Program opportunities due to international cooperation.</td>
<td>o Inefficient technical certification mechanism for forestry practitioner.</td>
</tr>
</tbody>
</table>
2. Strategies to achieve better results

- Formulate rationale water-protection focused forest management plans and demonstrate them
- Capacity building (invite experienced lecturer to teach locally; organize trainees to receive training abroad or in other province)
- Build a City cross-department administration mechanism of state forest farm
- Develop a sustainable multi-source funding mechanism (e.g. PES)
- Develop a set of monitoring and evaluation system for forest resources;
- Dissemination and public communication
- Implement a number of specific programs focused on water source protection
Key questions:

1. What are the ecological/environmental issues of Chengde?
2. What various bureaus are doing to address the issues?
3. What are the current coordination and future improvement?
4. Vision for Chengde in 10 years?

Summary of results:

1. Ecological/environmental issues of Chengde

<table>
<thead>
<tr>
<th>Facilitator Summary</th>
<th>Stakeholder original opinions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. land degradation</td>
<td>desertification of grassland</td>
</tr>
<tr>
<td></td>
<td>desertification of grassland</td>
</tr>
<tr>
<td></td>
<td>desertification</td>
</tr>
<tr>
<td></td>
<td>soil erosion</td>
</tr>
<tr>
<td></td>
<td>serious desertification</td>
</tr>
<tr>
<td>2. Habitat destruction</td>
<td>construction and infrastructure</td>
</tr>
<tr>
<td></td>
<td>mining</td>
</tr>
<tr>
<td>3. Pollution</td>
<td>lack of pollution management</td>
</tr>
<tr>
<td></td>
<td>point and non-point source pollution</td>
</tr>
<tr>
<td></td>
<td>non-point source pollution</td>
</tr>
<tr>
<td>4. Lack of forest management</td>
<td>low forest quality</td>
</tr>
<tr>
<td></td>
<td>lack of proper management of forests</td>
</tr>
<tr>
<td>5. Water shortage</td>
<td>reduced surface run-off</td>
</tr>
<tr>
<td>6. Awareness</td>
<td>lack of public awareness</td>
</tr>
<tr>
<td>7. Funding</td>
<td>lack of funding</td>
</tr>
<tr>
<td></td>
<td>lack of good use of funding</td>
</tr>
<tr>
<td>8. Coordination</td>
<td>lack of internal and cross-sectoral coordination</td>
</tr>
<tr>
<td></td>
<td>conflict between forestry and grazing/agriculture</td>
</tr>
</tbody>
</table>

2. Ongoing projects
<table>
<thead>
<tr>
<th>1. land degradation</th>
<th>Grass planting to conserve water</th>
<th>Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sand storm control</td>
<td>Multiple sector (DRC coordinates, Forestry, Water and Agriculture participate)</td>
</tr>
<tr>
<td></td>
<td>Degraded grassland management</td>
<td>Agriculture</td>
</tr>
<tr>
<td></td>
<td>Slope to Terrace restoration</td>
<td>Water</td>
</tr>
<tr>
<td>2. Habitat destruction</td>
<td>Rehabilitation of mining sites</td>
<td>Land</td>
</tr>
<tr>
<td>3. Pollution</td>
<td>Pollution management</td>
<td>Agriculture</td>
</tr>
<tr>
<td></td>
<td>Chemical reduction in Agriculture</td>
<td>Agriculture</td>
</tr>
<tr>
<td></td>
<td>Biomass energy</td>
<td>Agriculture</td>
</tr>
<tr>
<td></td>
<td>Emission reduction</td>
<td>Environment leads</td>
</tr>
<tr>
<td></td>
<td>Air pollution management</td>
<td>Environment</td>
</tr>
<tr>
<td>4. Lack of forest management</td>
<td>Afforestation</td>
<td>Forestry</td>
</tr>
<tr>
<td></td>
<td>Forest management</td>
<td>Forestry</td>
</tr>
<tr>
<td></td>
<td>Forest tourism and NTFP</td>
<td>Forestry</td>
</tr>
<tr>
<td></td>
<td>Forest protection</td>
<td>Forestry</td>
</tr>
<tr>
<td></td>
<td>Improve forest quality</td>
<td>Forestry</td>
</tr>
<tr>
<td></td>
<td>Improve forest ecosystem services</td>
<td>Forestry</td>
</tr>
<tr>
<td></td>
<td>Improve forest stock</td>
<td>Forestry</td>
</tr>
<tr>
<td>5. Water shortage</td>
<td>Water saving agriculture</td>
<td>Agriculture</td>
</tr>
<tr>
<td></td>
<td>Water pollution management</td>
<td>Environment</td>
</tr>
<tr>
<td></td>
<td>Small basin management</td>
<td>Water</td>
</tr>
<tr>
<td>6. Awareness</td>
<td>Increase public revenue</td>
<td>Finance</td>
</tr>
<tr>
<td>7. Funding</td>
<td>Securing funding support</td>
<td>Finance</td>
</tr>
<tr>
<td></td>
<td>New funding mechanisms (PPP)</td>
<td>Finance</td>
</tr>
<tr>
<td>8. Coordination</td>
<td>Integrated coordination for water</td>
<td>Environment</td>
</tr>
<tr>
<td></td>
<td>Coordinating needed sectors</td>
<td>DRC</td>
</tr>
<tr>
<td></td>
<td>Support international cooperation</td>
<td>Forestry</td>
</tr>
</tbody>
</table>

3. Coordination

3.1 Current projects with multiple sectoral involvement
- Sand storm control: Development and Reform Commission leads the Agriculture, Forestry and Water
- Pollution management: Environmental Protection leads the Agriculture, Forestry, Land, Water and Construction
- Small Basin Management: Forestry, Water, Environmental Protection and Agriculture etc.

3.2 Current funding mechanisms
1. Public funding mainly from central and provincial budgets
2. Most funding is channeled through the Finance Bureau
3. Project development/establishment either through Development and Reform Commission, or through sector departments (such as forestry for implementing nation-wide forestry programmes)

3.3 Priorities for future coordination

<table>
<thead>
<tr>
<th>Facilitator Summary</th>
<th>Stakeholder original opinions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated planning</td>
<td>Integrated Planning and funding first, then divided responsibilities and implementation</td>
</tr>
<tr>
<td></td>
<td>Integrate all funding from various sectors into a central plan, and focus investments and efforts</td>
</tr>
<tr>
<td></td>
<td>Integrated planning and funding</td>
</tr>
<tr>
<td></td>
<td>One integrated planning led by the city government (better mayor)</td>
</tr>
<tr>
<td></td>
<td>One common goal, achieved by different sectors according to its responsibilities, aligning the funding and projects of difference sectors</td>
</tr>
<tr>
<td>Coordination</td>
<td>Achieve internal coordination within sectors</td>
</tr>
<tr>
<td></td>
<td>Establish cross-sector management and coordination mechanisms</td>
</tr>
<tr>
<td></td>
<td>City government (mayor) to lead and coordinate</td>
</tr>
</tbody>
</table>

4. Vision for future

The stakeholders have common vision for Chengde in the future, who all highlighted Good Nature as key words.
Focus Group Discussions in Ganzhou City, Jiangxi Province

Forestry FGD – Ganzhou City – March 27, 2017

1. Main challenges that Forest Farms/ Forestry in general (in Ganzhou) are facing now:

- Low technical level, including less advanced techniques and lack of young talent; little inter-sector communication, almost closed system (linked with low technical supports and few talents)
- Inadequate funds, including fundamental facilities (SFF) and project funds; Lack of diversity in economic activities (linked to lack of funds)
- Lack of robust/comprehensive mechanism, policies always shift from one goal to another; sometimes there is no clear guidelines about how to address land dispute/ how to prevent forest land development (from different construction- uses) / how to renew contract with collective owned/ household owned forest lands;
- Shallow understanding of ecosystem benefits of forestry: Forestry people don’t really understand “ecosystem benefits”; publics doesn’t understand benefits delivered by forests (partially due to lack of communication); forestry hasn’t been valued as important by other departments, so there is less power in forestry system in government.
- Lack of biodiversity protection capacity and techniques
- Land degradation
- Low forest quality

2. Past and future status of SFFs

Ten years ago: government administrative institution managed in the form of production company, with self-controlled revenue and expenditure.

Five years from now (ideally speaking): public welfare institution covered by state finance, focused on delivering ecosystem benefits.

3. SWOT matrix – Forestry Sector Strengths, Weaknesses, Opportunities and Threats

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>o A stable and experienced forest team</td>
<td>o Lots of retired people, which is huge</td>
</tr>
<tr>
<td>Challenges</td>
<td>Opportunities</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>o Very good forest resources, very good ecological environment</td>
<td>o Ecological civilization has been valued in whole China</td>
</tr>
<tr>
<td></td>
<td>o SFF reform, staffs have been included in state finance</td>
</tr>
<tr>
<td></td>
<td>o Lots of attention to carbon sequestration forest</td>
</tr>
<tr>
<td></td>
<td>o Ecosystem services and their importance is more and more recognized by society/ publics (e.g. forest leisure)</td>
</tr>
<tr>
<td></td>
<td>burden to SFF</td>
</tr>
<tr>
<td>o Few young talents, also very hard to keep talented people, unable to implement some high-quality projects; (which also partially due to unsatisfied career path); SFFs are usually far from cities, young people don’t want to work here;</td>
<td></td>
</tr>
<tr>
<td>o Lack of funds: Poor fundamental facilitates, hard to attract project supports (linked with no talents)</td>
<td></td>
</tr>
<tr>
<td>o Fragmentation of land, very hard to manage</td>
<td></td>
</tr>
<tr>
<td>o Lots of land disputes</td>
<td></td>
</tr>
</tbody>
</table>

4. Based on SWOT matrix – most urgent actions to implement going forward

- Establish comprehensive monitoring/ evaluating mechanism, so that solid evidence (or monetary value) can be showed, which is benefit for communication/ developing PES
- Develop diverse bankable approaches, so that SFF can be motivated to sustainable development, if possible there should be a well-developed market for products/benefits etc. that delivered by SFF/Forests;
- Attract more talents, which means that there should be more opportunities in self-development, in clear career path, or in diverse initiatives (talents in forestry/ tourism/ management etc.)
1. Environmental problems and associated social problems to be addressed in Gan Zhou City

<table>
<thead>
<tr>
<th>Ecological problems</th>
<th>Social Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Environment pollution</td>
<td>• Social welfare</td>
</tr>
<tr>
<td>o Water pollution</td>
<td>o Drinkable water safety</td>
</tr>
<tr>
<td>o Air pollution</td>
<td>o Related disease panic due to environment pollution</td>
</tr>
<tr>
<td>• Forest ecosystem degradation</td>
<td>• Awareness</td>
</tr>
<tr>
<td>o Human intervention to forest</td>
<td>o Poorer awareness for environment and Eco-civilization significance</td>
</tr>
<tr>
<td>o Lack of biodiversity protection</td>
<td>o Lack of participation in the Eco-civilization for local people</td>
</tr>
<tr>
<td>o Lower forest quality</td>
<td>o Increasing requirements for environment by public</td>
</tr>
<tr>
<td>• Soil erosion</td>
<td>• Poverty</td>
</tr>
<tr>
<td>o Poorer site conditions; Severe land degradation due to mining production</td>
<td>o Poverty still exists to some extent</td>
</tr>
<tr>
<td>o Soil erosion and pollution are more severe in parts of area</td>
<td>o Lots of poverty population</td>
</tr>
<tr>
<td>o Soil erosion resulting from indiscriminately building houses by local people</td>
<td>o More gaps to be filled between poverty and well-off society</td>
</tr>
<tr>
<td>• Over-development resulting in environment degradation</td>
<td></td>
</tr>
<tr>
<td>• Build unplanned tomb locally</td>
<td></td>
</tr>
<tr>
<td>• Construction of economic development zone</td>
<td></td>
</tr>
</tbody>
</table>

2. Projects being implemented to address these problems

- Forest improvement
  - Transformation of low quality forest
- Ecological protection and restoration
  - Zoning of environment protection
  - Soil erosion control
- Green Industry development
  - Eco-tourism development
  - Oil tea industry development
- Agricultural resources protection
  - Cropland protection
- Ecological security governance
  - Drinkable water safety program for rural area
  - Comprehensive improvement for rural living environment
- Environmental awareness education
- Relevant environmental awareness cultivation
- Women greening project
- Rural civilization initiative

- Poverty alleviation
  - Develop the rural electronic business to promote the circulation of agricultural product and to improve farmer's income
  - Old and unsafe apartment transformation project for SFF

4. **Funding sources**
The majority of funding is from central government; the remaining includes provincial, City and county funding, social capital as well as bond.

5. **Projects to be implemented**
- Eco-tourism development projects (facilitated by tourism department and assisted by NDRC, finance, land, forestry and agriculture department)
- Under-forest industry development
- Comprehensive ecological protection and restoration for hill, river, forest, cropland and lake
- Control for degradation land by mining production
- Create more public employment opportunities for rural population (e.g. ranger position)
- Heavy metal pollution control project (facilitated by environment protection department and assisted by land, mining and agriculture department)
- Environmental awareness education (women federation and environmental protection department)

5. **How can we maximize the benefits of the project to poor people, women, youth and minority people?**
- **Women**
  - Provide small loan for women entrepreneur
  - Improve women employment via the women’s greening project

- **Minority**
  - Provincial and central government provide special funding for poor minority township or village

- **Poor people**
  - Green industry development (e.g. oil tea industry, under-forest industry)
  - Job opportunities provided by ranger position and low quality transformation project
  - Joint-plant and manage timber forest by SFF and rural household
1. Ecological problems and associated social problems to be addressed in Xin Feng county

<table>
<thead>
<tr>
<th>Ecological problems</th>
<th>Social Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest</td>
<td>Awareness</td>
</tr>
<tr>
<td>- Very simple forest structure</td>
<td>- Inadequate awareness of forest and water protection</td>
</tr>
<tr>
<td>- Destruction of forest plant</td>
<td>- Women's role and awareness in environment protection is still unclear</td>
</tr>
<tr>
<td>- Lower forest quality</td>
<td></td>
</tr>
<tr>
<td>Restoration of mining area</td>
<td></td>
</tr>
<tr>
<td>- Ecological restoration of abandoned mining area</td>
<td></td>
</tr>
<tr>
<td>Water &amp; soil</td>
<td></td>
</tr>
<tr>
<td>- Water and soil erosion</td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td></td>
</tr>
<tr>
<td>Cropland degradation</td>
<td></td>
</tr>
<tr>
<td>Invasion of alien species endangering crop production</td>
<td></td>
</tr>
<tr>
<td>Pollution problem</td>
<td></td>
</tr>
<tr>
<td>Bad water quality</td>
<td></td>
</tr>
<tr>
<td>Sewage treatment in rural area</td>
<td></td>
</tr>
<tr>
<td>Trash pollution</td>
<td></td>
</tr>
</tbody>
</table>

2. Projects being implemented to address these problems

- Forest
  - Transformation of low quality forest
  - National afforestation projects
- Restoration of mining area
  - Ecological restoration project for abandoned rare - earth metals mining area
  - Re-greening project for mountainous area
- Water & soil
  - Pollution control for small and middle rivers
  - National water and soil erosion control project
- Pollution
  - Comprehensive improvement for rural living environment
  - Power generation projects via bio-gas and trash processing
- Orange orchard
  - Land re-cultivation for abandoned orange orchard
- Awareness
  - Organize the thematic environmental dissemination and education activities for
women and families
  o Awareness education for forest fire prevention
  o Forest museum or experience center
  o Dissemination and education of fishery resources protection

- Capital & poverty alleviation
  o Develop the demo sites of rural community
  o Rural tourism development and demo sites construction
  o Develop electronic business

3. **Potential Projects to be implemented**
   o Forest
     o Enlarge the scope of afforestation
   o Control for environment pollution
     o Severe punishment by government for the illegal pollutant discharge
     o Comprehensive improvement for rural living environment
     o Non-point pollution control for the rural poultry farming activities
   o Awareness
     o Elect the most beautiful local village to enhance the public environmental awareness
     o Organize family afforestation
     o "Green Mother Forest" project
   o Capital & poverty alleviation
     o Compete for project funding
     o Diversify funding source
1. Environmental problems and associated social problems to be addressed in Anyuan county

<table>
<thead>
<tr>
<th>Ecological problems</th>
<th>Social Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Forest</td>
<td>• Funding</td>
</tr>
<tr>
<td>o Lower forest quality</td>
<td>o Land of funding needed for ecological restoration</td>
</tr>
<tr>
<td>o Natural forest protection</td>
<td>o Assurance of funding and policy</td>
</tr>
<tr>
<td>o Retarget development plan of forest land</td>
<td>o Sound eco-compensation policy</td>
</tr>
<tr>
<td>• Restoration of mining area</td>
<td>• Awareness</td>
</tr>
<tr>
<td>o Ecological restoration of abandoned mining area</td>
<td>o Poor environmental awareness of rural households and officers</td>
</tr>
<tr>
<td>• Water &amp; soil</td>
<td>o Selection of Green Life style household</td>
</tr>
<tr>
<td>o Water and soil erosion</td>
<td>• Capacity building</td>
</tr>
<tr>
<td>o Lack of water source (no water in river channel)</td>
<td>o Lack of qualified technician</td>
</tr>
<tr>
<td>• Water pollution</td>
<td>o Lack of relevant of capacity building and knowledge education</td>
</tr>
<tr>
<td>• Sewage treatment in rural area</td>
<td>• Poverty alleviation</td>
</tr>
<tr>
<td>• Bad water quality</td>
<td>o Heavier pressure of poverty alleviation resulting from denser poor population</td>
</tr>
<tr>
<td>• Control for river pollution</td>
<td>• Cross-sector coordination</td>
</tr>
<tr>
<td>• Orange orchard</td>
<td>o No integrated ecological restoration plan so far, in contrast, each sector work separately</td>
</tr>
<tr>
<td>o Resume or switch production of orange orchard destroyed by plant disease</td>
<td>o Decentralize the approval authority of local forest park to province or city</td>
</tr>
</tbody>
</table>

2. Projects being implemented to address these problems

- Forest
  - Transformation of low quality forest
• Restoration of mining area
  o Ecological restoration project for abandoned mining area
  o Re-greening project for mountainous area
• Water pollution
  o Comprehensive improvement for rural living environment
• Orange orchard
  o Land re-cultivation for abandoned orange orchard
• Awareness
  o Organize the thematic dissemination and education activities for environmental protection
• Capacity building
  o Development of elderly care institution for local communities

3. Projects to be implemented
• Comprehensive restoration for ecological environment
• Close the Jiu Long Shan quarry to rehabilitate plant
• Improve livelihoods for the local rural households
  o Jiu Long Shan ecological tea farm
  o the projects for tourism, recreation as well as health care
• Water pollution
  o Integrated watershed management
  o Comprehensive control for water environment
  o Non-point pollution control for agricultural production (e.g. livestock farming)
  o Re-use of mulch used on cropland
  o Restoration of soil polluted by heavy metal
• Awareness
  o Build a team to conduct the eco-civilization dissemination and education for public
• Planning
  o The master planning for mountain, river, forest, cropland and lake

4. How can we maximize the benefits of the project to poor people, women, youth and minority people?
• Women
  o Provide more employment opportunities created by projects to women
• Minority
  o Provide more ranger or other temporary positions to She ethnics village around Gao Yun Shan forest farm
• Poor people
  o Create more job opportunities in tourism development for poor people
  o Provide more ranger positions for poor people
  o Alleviate poverty depending on developing oil tea industry
Discussion notes of multi-stakeholder workshop

Xun Wu County, April 1, 2017

1. Ecological and associated social problems to be addressed in Xun Wu county

<table>
<thead>
<tr>
<th>Ecological problems</th>
<th>Social Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Planning</td>
<td>• Poverty</td>
</tr>
<tr>
<td>o No environmental master plan</td>
<td>o Severe conflicts between protection and development</td>
</tr>
<tr>
<td>• Water &amp; soil</td>
<td>o Farmers’ lower economic income and livelihood level</td>
</tr>
<tr>
<td>o Severe water and soil erosion</td>
<td>o Backward economic development</td>
</tr>
<tr>
<td>o Low soil fertility</td>
<td>• Funding</td>
</tr>
<tr>
<td>• Drinkable water safety</td>
<td>o Lack of funding needed for ecological restoration</td>
</tr>
<tr>
<td>o Heavier non-point water pollution</td>
<td>o Weak infrastructure</td>
</tr>
<tr>
<td>• Citrus orchard</td>
<td>o Fewer development opportunities associated with</td>
</tr>
<tr>
<td>o Lots of abandoned citrus orchards due to Huanglongbing</td>
<td>the citrus orchards abandoned</td>
</tr>
<tr>
<td>• Forest</td>
<td>• Awareness</td>
</tr>
<tr>
<td>o Lower forest quality</td>
<td>o Inadequate environmental awareness of rural</td>
</tr>
<tr>
<td>o Degradation of forest ecological functions</td>
<td>households</td>
</tr>
</tbody>
</table>

2. Projects being implemented to address these problems

- Planning
  o Apply and implement comprehensive ecological protection and restoration projects for hill, river, forest, cropland and lake
  o Implement eco-compensation scheme for Dong Jiang source water (RMB 1 billion in 3 years)
- Water & soil
  o Land and river protection program for Dong Jiang source water area
  o Soil conservation and improvement program
  o Comprehensive land conservation program for citrus orchard, cropland and mining hill
- Drinkable water safety
  o Comprehensive improvement for rural living environment
• Citrus orchard
  o Pilot project for abandoned citrus orchard transformation

• Forest
  o Transformation of low quality forest
  o Mountain re-greening program
  o Citrus orchard conversion program
  o Firebreak forest belt construction program

• Poverty
  o Establish resident committee for local SFF staffs to provide necessary services
  o Qinglongyan tourism and recreation development program

• Awareness
  o Dissemination and guidance by women communication teams

• Capital
  o Tai Hu reservoir construction program via bank loan

3. Projects to be implemented

• Drinkable water safety
  o Wetland park construction for Dong Jiang source water area
  o Beautiful countryside construction (including comprehensive improvement for rural living environment)
  o Establish water warden system
  o Control and improvement for poultry farming pollution

• Forest & Citrus orchard
  o Formulate feasible ecological protection programs

• Poverty
  o Develop eco-tourism

• Awareness
  o Improve public environmental awareness via various trainings
  o Develop the booklet of environment protection for women
  o Yū Lu initiative (a dissemination program of environment protection for women)

• Capital
  o Integrate multi-programs funding facilitated by financial and NDRC department
  o Establish a multi-lateral investment mechanism
  o Develop environment-friendly industries
**Appendix VII. Project Activities from perspective of Provincial and Sub-Provincial project partners**

<table>
<thead>
<tr>
<th>Pilot Activities I</th>
<th>Planning, testing and implementation of forest landscape restoration (FLR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-A</td>
<td>State Forest Farm (SFF)-level forest management and restoration (FMR)</td>
</tr>
</tbody>
</table>

**YEAR 1**

**I-A-1**  
*Preparatory activities*  
Identify and engage national forest management capacity building expert(s)  
Identify and engage provincial forest management expert teams (Guizhou, Hebei, Jiangxi)

**I-A-2**  
*FMR Capacity building*  
Develop curriculum materials and tools for FMR training  
Organize 2-week training in FMR planning for 3 provincial forest management expert teams

**I-A-3**  
*FMR Planning*  
Provincial forest management expert teams, working with guidance and support from national forest management expert(s), provide capacity building training to SFFs and local stakeholders (e.g. county/municipal forestry department) in FMR planning  
Provincial forest management expert teams work with SFFs & local stakeholders to conduct comprehensive situation analysis in and around 7 pilot State Forest Farms (Gonglongping, Guihua, Caoyuan, Huangtuliangzi, Mulan, Jinpenshan, and Anzidong SFFs) to determine biophysical and business priorities to guide FMR  
Provincial forest management expert teams, working with guidance and support from national forest management expert(s), develop 5-year FMR plans for 7 pilot SFFs  
Based on 5-year FMR plans, 7 pilot SFFs and local forestry bureaus develop annual FMR implementation plans  
Provincial and national forestry experts review annual FMR implementation plans  
SFFs revise and finalize annual FMR implementation plans

**YEARS 2-4**

**I-A-4**  
*Pilot testing of FMR plans (See attached implementation activities for 7 pilot SFFs)*  
SFFs upgrade nursery capacity to produce native trees, plants and grasses identified in FMR and sustainable development plans  
SFFs perform site preparation for annual FMR activities including prescribed harvesting, thinning, irrigation and soil treatments as necessary  
SFFs acquire new germplasm as prescribed by FMR plans  
SFFs implement annual planting and other silviculture activities  
SFFs establish permanent plots for monitoring
I-A-5  **Adjustment and continued implementation of FMR (Years 3 & 4)**
Assess results of implementation in year 2; adjust 5-year FMR plans if necessary
SFFs repeat I-A-3(d) in Years 3 and 4
SFFs repeat I-A-4(b) in Years 3 and 4

I-A-6  **Replication of FMR planning (Years 2, 3, and 4)**
Based on experience of I-A-2 to I-A-5, national forest management expert(s) prepare templates and guidelines for 5-year FMR planning and annual FMR implementation plans
In an additional 3 SFFs per province/municipality, provincial forest management expert teams repeat activities I-A-3 (a), (b), & (c)
National forest management expert(s) review 5-year FMR plans of additional SFFs
Provincial forest management expert teams revise additional FMR plans
Additional 3 SFFs per province/municipality complete I-A-3 (d)
Provincial forest management teams complete I-A-3 (e)
Additional 3 SFFs complete I-A-3 (f)
Provincial forest management teams report annually on progress in FMR planning and implementation

I-A-7  **Upscaling of FMR planning (Years 3 & 4)**
National forest management expert(s) review quality of FMR plans produced in pilot SFFs and annual reports on FMR planning of implementation by provincial experts
Based on experience to date, national forest management expert(s) revise templates and guidelines for 5-year FMR planning and annual FMR implementation plans
National SFF administration disseminates 5-year FMR and annual FMR implementation planning templates and guidelines to all 4855 SFFs nationally (in Year 3 with follow up in Year 4)
Conduct a national survey of 4855 SFFs and analyze randomly sampled FMR plans produced by project end to assess uptake (in Year 4)

I-B  **Ecosystem services monitoring and valuation**

Year 1

I-B-1  **Preparatory activities**
Engage national ecosystem services (ES) expert(s)
Engage provincial ES expert team (ecologists, hydrologists, botanists, etc.)

I-B-2  **Capacity building 1 for provincial expert teams**
Organize 2-week training for 3 provincial ES expert teams to build technical expertise in ES and biodiversity (BD) monitoring methods
I-B-3 Identification of monitoring indicators
Conduct site analysis and stakeholder consultation in landscapes around 7 SFFs in 3 pilot areas to determine which ES & BD to monitor
National and provincial expert teams work with SFFs and local stakeholders to establish feasible monitoring indicators

I-B-4 Development of monitoring methods
National and provincial experts develop:
- Protocols for data collection and sampling (e.g. soil, water, voucher specimens) protocols
- Methods for analysis of data and samples
- Laboratory facilities for analysis of data and samples
- Data repositories and sample repositories (e.g. herbarium)

I-B-5 Establish participatory data collection teams
SFFs develop equitable and gender-balanced selection process with adjacent township forestry stations to identify 50 community monitoring team members (including 5 team leaders) and 50 SFF personnel for each of 7 SFFs in 3 pilot areas
Establish participatory monitoring teams according to the required frequency and area for each target ecosystem service

I-B-6 Capacity building 2: training data collection teams
Expert teams provide training to SFF staff, township forestry station personnel, and monitoring team leaders for each pilot SFF on how to follow monitoring protocols and organize monitoring schedule

I-B-7 ES data collection - Baseline and periodic
Expert teams work with community monitoring teams to conduct baseline surveys for each monitored ecosystem service
Community monitoring teams collect monitoring samples/data on regular basis following protocols and submit to lab/data repository; repository tracks work of each monitoring agent for payment
SFF technical staff, township and county personnel review monitoring data collected on monthly basis

I-B-8 ES data sharing
Technical expert team collect monitoring data on a quarterly basis and submits annual reports on each monitored ecosystem service to project
Annual monitoring reports are provided to Provincial Forestry Technical Expert teams to inform modification of 5-year SFM plans, if necessary

I-B-9 Upscaling through national ES valuation and eco-compensation schemes
National ecosystem service technical expert team improves models for valuation of targeted ecosystem services
National ecosystem service technical expert team prepares annual reports on SFF ecosystem service values to national/provincial/local and private data users (e.g. Gross Ecosystem Product, Natural Capital Balance Sheet;
national carbon accounting system; eco-compensation providers)

I-C  Implementation of FLR at county and municipal levels

I-C-1  Preparatory Activities
Engage international, national and provincial forestry expert teams to support development of FLR tools and capacity building
Prepare training materials and Restoration Opportunity Assessment Methodology (ROAM) tools adapted for use in China

I-C-2  Capacity building
Provide capacity building trainings for technical expert team and multi-sector county/municipal/provincial personnel in China-adapted ROAM in three municipalities (Bijie, Chengde, Ganzhou)

I-C-3  Data collection
Work with relevant sector offices to collect data for China-adapted ROAM in 3 pilot areas

I-C-4  FLR planning at municipal level
Produce municipal FLR plans based on use of China-adapted ROAM and centered around SFFs and other important forest zones

I-C-5  Assessment of uptake
Assessment of adoption/uptake of FLR plan at pilot area level and recommendations for improvement; distributed to municipal and provincial governments

I-C-6  Promotion and upscaling
Expert team produces handbook for ROAM/FLR adapted to China context
SFA publishes ROAM/FLR handbook
SFA disseminates ROAM/FLR handbook widely through SFF platform (see 3.3), Provincial Forestry Departments, and national institutions involved in land-use planning; promote in all project meetings

Pilot Activities II  Increasing the institutional sustainability of the SFF system

II-A  Development of sustainable sustainable development (SD) plans

Year 1
II-A-1  Preparatory activities
Engage national forest economics expert(s) and 3 provincial/municipal business expert teams (for each pilot area)
National business expert prepares curriculum materials for SFF-level SD planning
**II-A-2**  
Capacity building - SD planning  
National forest economics expert(s) deliver(s) capacity building training to 3 provincial/municipal business expert teams to prepare for SFF-level SD planning  
3 Municipal/Provincial expert teams deliver capacity building to 7 SFFs and local Forestry Bureau personnel

**II-A-3**  
Information gathering  
Expert teams work with SFFs to design data collection instruments  
Expert teams conduct site studies and surveys with local stakeholders at SFF, County and Municipal levels

**II-A-4**  
Development of sustainable development (SD) plans  
Expert teams prepare SD plans incorporating SFF key attributes (including prioritized ES and BD), market demand for SFF ecosystem services and goods, SFF human resources, partnerships, outreach functions, etc.

**Years 2-4**  
**II-A-5**  
Pilot testing of SD plans  
With advice from municipal/provincial business experts, SFFs reorganize their internal governance and management structure based on functions prescribed by SD plans  
SFFs provide retraining to existing staff and engage new staff and/or external human resources for implementation of SD plans  
SFFs prepare communication materials designed to obtain support for SD plans from public and private partners (Year 2)  
SFFs organize 2 meetings per year with government support agencies (e.g. county investment promotion, tourism bureau, etc.) and potential business partners, community collaborators, donors, buyers, etc. to secure support for the sustainable initiatives they have developed and planned (Years 2-4)  
Review and report on progress in implementation of SFF SD plans two times per year (Years 2-4)

**II-A-6**  
Upscaling through governance reform of SFF (Policy Component)  
National forest economics expert(s) prepare(s) a report for use in reorganizing SFF governance (End of Year 2), indicating:  
what SFF functions needed to be created or revised;  
what human resources were needed;  
what external communications and coordination activities were useful;  
what external partnerships were developed;  
other best practices & lessons learned, etc.

**II-B**  
Development and promotion of bankable initiatives  
**Year 2**  
**II-B-1**  
Preparation  
National forestry economics expert(s) develop(s) curriculum for
capacity building in market analysis
Municipal/provincial expert team works with 7 pilot SFFs to develop a list of potential government projects and subsidy programs, donors and private sector PPP partners at municipal, provincial and national levels

II-B-2 Capacity building – Market analysis
National forestry economics expert provides training to 3 municipal/provincial expert teams in market analysis (e.g. choice experiment)

II-B-3 Data collection and synthesis
Conduct questionnaire survey to determine preferences of public and/or private investors/donors for ecosystem service and economic forest sub-projects
Develop bankable ecosystem service and economic product sub-projects based on SFF FMR and SD plans tailored to preferences of investors/donors

Years 3 & 4
II-B-4 Develop informational/promotion materials and contract templates
Prepare attractive investment portfolios or small grant concept notes as brochures to share with potential investors/donors (End of Year 2)
Prepare investment/sales contract templates to use to formalize investment agreements (with private investors/buyers of ecosystem goods and/or services) (Year 3)

II-B-5 Outreach activities
SFFs and GEF project organize face-to-face meetings with potential government projects and subsidy programs, donors and private sector PPP partners to market bankable initiatives associated with the project

II-B-6 Upscaling - Sharing of best practices and lessons learned
Municipal/provincial experts and national forest economics expert(s) conduct a survey of pilot SFFs to assess outcomes of development and promotion of bankable initiatives
Experts collaborate to produce an analysis of best practices and lessons learned
SFA shares best practices and lessons learned broadly throughout national SFF system and encourages uptake of useful approaches
Appendix VIII. Preliminary situation analyses and potential FMR and SD implementation activities for 6 pilot State Forest Farms (SFFs)

After project inception, the project will conduct an in-depth situation analysis to inform the development of forest management and restoration (FMR) plans as well as sustainable development (SD) plans. SD plans will identify business strategies and initiatives, including engagement with communities, public and private sector partners and programs, and associated necessary changes to farm management/governance.

Based on the FMR and SD plans for each pilot SFF, the project's 7 pilot SFFs will implement their annual restoration activities using national funds with support from the TRI China Project for incremental activities. Incremental activities are considered to be all new or revised initiatives arising from the planning processes that have been accomplished with support from the Project.

During the project preparation (PPG) phase, the Project design team conducted site visits to six SFFs and conducted focus group discussions and key informant interviews with local forestry and SFF personnel and village leaders. The purpose of these visits and consultations was to collect information to inform the design of the project overall, and to envision the processes the project would need to engage in to bring incremental value to the SFFs' restoration programs. In the course of these visits and consultations, the Project design team identified a number of specific challenges and potential strategies that could be further developed through in-depth situation analyses and development of FMR and SD plans, and addressed in implementation of restoration activities generally referred to in the Project's workplan under Target 1.1A (under Outcome 1.1)\(^3\) and under Target 3.1 (under Outcome 3.1)\(^4\).

The specific challenges and strategies identified by the Project design team as part of their preliminary situation analysis will be useful to the eventual Project management team as an orientation, and may also be useful to the SFFs and local forestry departments in preparing their participation in the project. These findings may be taken as recommendations from the project design team for consideration, but are not meant to be prescriptive for implementation under Output 1.1.

\(^3\) Target 1.1A is as follows: “China’s State Forest Farms (SFFs) implement sustainable forest management and restoration (FMR) plans incorporating FLR and targeting delivery of specific ecosystem services (incl. conservation of biodiversity)”.

\(^4\) Target 3.1 is as follows: “SFFs implement sustainable business plans incorporating 1-3 strategic targets to support FLR.”
The names of the six pilot farms visited during the PPG phase are as follows:

1. Gonglongping SFF (Bijie, Guizhou)
2. Guihua SFF (Bijie, Guizhou)
3. Caoyuan SFF (Chengde, Hebei)
4. Huangtuliangzi SFF (Chengde, Hebei)
5. Jinpengshan SFF (Ganzhou, Jiangxi)
6. Anzidong SFF (Ganzhou, Jiangxi)

The relative areas of the six farms visited are shown in Table 1.

In addition to these, a seventh pilot farm was added, namely Mulan SFF located in Hebei Province. The final section of this document includes information regarding Mulan SFF provided by the State Forest Administration.

Table VIII - 1. Area and forest cover of each SFF visited during PPG phase. Note however that these area calculations may be misleading, as the SFF area is generally fragmented and interspersed with other land designations and settlements.

<table>
<thead>
<tr>
<th>Province</th>
<th>Municipality</th>
<th>County/ District</th>
<th>State Forest Farm</th>
<th>Area</th>
<th>Forest Area</th>
<th>Forest Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guizhou</td>
<td>Bijie</td>
<td>Qixingguan</td>
<td>Gonglongping</td>
<td>3,312</td>
<td>3,067</td>
<td>92.66%</td>
</tr>
<tr>
<td>Guizhou</td>
<td>Bijie</td>
<td>Zhijin</td>
<td>Guihua</td>
<td>2,773</td>
<td>2,552</td>
<td>92.01%</td>
</tr>
<tr>
<td>Hebei</td>
<td>Chengde</td>
<td>Fengning</td>
<td>Caoyuan</td>
<td>8,660</td>
<td>3,953</td>
<td>45.60%</td>
</tr>
<tr>
<td>Hebei</td>
<td>Chengde</td>
<td>Pingquan</td>
<td>Huangtuliangzi</td>
<td>15,200</td>
<td>14,026</td>
<td>92.20%</td>
</tr>
<tr>
<td>Jiangxi</td>
<td>Ganzhou</td>
<td>Anyuan</td>
<td>Anzidong</td>
<td>11,883</td>
<td>11,631</td>
<td>91.00%</td>
</tr>
<tr>
<td>Jiangxi</td>
<td>Ganzhou</td>
<td>Xinfeng</td>
<td>Jinpengshan</td>
<td>10,545</td>
<td>10,079</td>
<td>97.10%</td>
</tr>
</tbody>
</table>

A number of the pilot SFFs feature forest parks, nature reserves, and wetland reserves. The areas of these features are shown in Table 2.
Table VIII - 2.  Area of forest parks, wetland parks, and nature reserves located within 7 pilot SFFs.

<table>
<thead>
<tr>
<th></th>
<th>Forest Park</th>
<th>Wetland Park</th>
<th>Nature Reserve</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Area (ha)</td>
<td>Number</td>
<td>Area (ha)</td>
</tr>
<tr>
<td>Gonglongping</td>
<td>1</td>
<td>2,600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guihua SFF</td>
<td>1</td>
<td>739</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CaoYuan SFF</td>
<td>1</td>
<td></td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>Huangtuliangzi</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MuLan SFF</td>
<td>3</td>
<td>17,698</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>50,637</td>
</tr>
<tr>
<td>Jinpenshan SFF</td>
<td>1</td>
<td>4,643</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>3,710</td>
</tr>
<tr>
<td>Anzidong SFF</td>
<td>1</td>
<td>33</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on the inputs from FGDs and informants, as well as on the direct observations of the Project design team, an initial series of potential pilot activities -- including FMR objectives, complementary SD planning targets, and related approaches -- was developed for each farm. An overview of the main findings of the design team is presented in Table 3. It is noted that the actual development of activities will follow the FMR and SD plans completed during the first year of the project and the information presented below is for guidance purposes only.

In the following pages a short description of each farm and its main environmental and business sustainability problems is presented to substantiate the subsequent recommendations of specific activities, i.e. the “Potential area and SFF-specific forest management and restoration activities” and the “Potential complementary sustainable development planning activities”.

Table VIII - 3. Potential FMR objectives, SD planning targets, and relevant approaches, based on discussions and observations during field visits to six State Forest Farms in the three pilot Project areas.

<table>
<thead>
<tr>
<th>Pilot Area</th>
<th>SFF visited</th>
<th>Potential FMR objectives</th>
<th>Potential SD Planning Targets</th>
<th>Relevant approaches</th>
</tr>
</thead>
<tbody>
<tr>
<td>All areas</td>
<td>All</td>
<td>•Climate resilient forests</td>
<td>•Climate adaptation programs</td>
<td>•Assisted species migration</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>•Permanent study plots with species introduced from lower altitude and/or neighboring climate zones</td>
</tr>
<tr>
<td>1. Bijie City, Guizhou Province</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qixingguan District</td>
<td>Gonglongping SFF</td>
<td>•Biodiversity conservation</td>
<td>•Carbon PES programs</td>
<td>•Selective harvest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>•Production of non-timber forest products (NTFPs)</td>
<td>•Biocultural ecotourism</td>
<td>•Enrichment planting</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>•NTFP marketing</td>
<td>•Community co-management</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>•Ecological education</td>
<td>•Livestock exclosures</td>
</tr>
<tr>
<td>Zhijin County</td>
<td>Guihua SFF</td>
<td>•Biodiversity</td>
<td>•Provision of germplasm for assisted species migration</td>
<td>•Selective harvesting and enrichment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Flood prevention</td>
<td>•Community co-management</td>
<td>•Eco-friendly tea production</td>
</tr>
<tr>
<td>2. Chengde City, Hebei Province</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fengning County</td>
<td>Caoyuan SFF</td>
<td>•Erosion/Sandification remediation</td>
<td>•Ecotourism/bird ecotourism</td>
<td>•Natural/assisted regeneration exclosures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>•Wetland rehabilitation</td>
<td>•Water PES</td>
<td>•Enrichment planting</td>
</tr>
<tr>
<td>Pingquan County</td>
<td>Huangtuliangzi SFF</td>
<td>•Soil improvement</td>
<td>•Mushroom cultivation</td>
<td>•Negotiation with migrant herders</td>
</tr>
<tr>
<td></td>
<td></td>
<td>•Biodiversity conservation</td>
<td>•Community co-management</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>•Water PES</td>
<td></td>
</tr>
<tr>
<td>3. Ganzhou City, Jiangxi Province</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Xinfeng County</td>
<td>Jinpenshan SFF</td>
<td>•Soil restoration, soil carbon</td>
<td>•Forestry research</td>
<td>•Assisted natural succession with native pioneer species</td>
</tr>
<tr>
<td></td>
<td></td>
<td>•Biodiversity conservation</td>
<td>•Arboretum/education</td>
<td>•Multi-aged mixed forest</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>•Native tree nursery/seedling provision</td>
<td></td>
</tr>
<tr>
<td>Anyuan County</td>
<td>Anzidong SFF</td>
<td>•Mining reclamation</td>
<td>•Ecotourism</td>
<td>•Assisted natural succession with aggressive pioneer species</td>
</tr>
<tr>
<td></td>
<td></td>
<td>•Land rehabilitation (post-orchard)</td>
<td>•Water PES</td>
<td>•Mixed planting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>•Mixed broadleaf forest</td>
<td></td>
<td>•Selective understory management</td>
</tr>
</tbody>
</table>
Pilot Area 1: Bijie Municipality, Guizhou Province

Gonglongping State Forest Farm (Qixingguan District)

SFF General Description

Gonglongping SFF is located at 27°13'50.22"N/ 104°59'36.57"E in Qixingguan District, a county-level administrative zone within Bijie Municipality. The total area of the SFF is reported to be 3,312 ha, with forest area of 3,067 or 92.66% cover.

The SFF is located within a 30 km drive from the urban center of Bijie, and for this reason has been targeted for development as an ecotourism destination and an education center. This SFF has been the target of a large private investment of ca. USD11 million, with which the SFF has built several buildings and other facilities including a 30-km bike path, an outdoor auditorium, and a wild animal rescue enclosure under wire netting.

Gonglongping features monocultural plantations of Chinese fir (*Cunninghamia lanceolata*), Chinese white pine (*Pinus armandii*) and other common species. Although Chinese white pine, planted in the 1960s, is a native tree, it causes land degradation (acidification) and should be replaced; however, the SFF lacks funds to accomplish this and faces restrictions on cutting due to the logging ban (see Figure 1 for images of physical features observed during field visit).

There is abundant natural regeneration of native species in the understory of some parts of these plantations, including various *Camellia* and *Rhododendron* spp. Other native plants such as Chinese rose (*Rosa chinensis*), are used decoratively along paths. A wetland area is planted in grasses and kept clear, in part as a tourist attraction. In areas close to paths in the more developed part of the forest park, there has been some enrichment planting with *Taxus chinensis*, an IUCN red list species.

The SFF features areas of unmanaged natural karst forest on steep slopes and deep chasms.

Recent forest management activities include thinning to improve growth of tree stock. After a fire several years ago, the SFF restored the area with mixed broadleaf species, including oak (*Quercus* spp) using funds from a carbon credit program (the germplasm was provided by the China Green Carbon Fund). Another logged area was planted with mixed deciduous trees, funded by 5 banks (信合林) in a one-time payment of ¥400,000.

According to SFF management, Gonglongping provides support services (nutrient cycling), provisioning services (food, fresh water, timber and fiber, fuel); regulating services (climate and flood regulation, water purification); and cultural services (spiritual experience, forest education, and landscape photography).
SFF vicinity and community relations

Gonglongping SFF is located near Shalaxi Township, in which there is a well-functioning tea factory, with many activities including a senior residence facility. Last year the SFF asked for land for a parking lot for tourism which was provided. There is a substantial interaction between the township and the SFF, especially as regards developing ecotourism facilities. The township and SFF collaborate on fire prevention.

According to villagers from a nearby village (Damatangcun, a “poverty village” with annual incomes of ca. ¥2000), the SFF would like to acquire additional land from the village to create a buffer zone around a high biodiversity area, but villagers are reluctant to engage because they do not understand what benefit they might get in the future. The village has 2000 ha of CCFP land. 10 villages have 10000 mu that could be enrolled in CCFP but quotas are decreasing.

![Figure 1. Key features of Gonglongping State Forest Farm and local area. From top left to right: Natural regeneration in SFF understory; mature Chinese cedar plantation forest; karst formation with diverse native vegetation. From lower left to right: Wetland management in SFF; erosion caused by extreme terracing as preparation for restoration; land degradation due to over grazing in community-managed landscape nested within SFF.](image)
The farm hires the villagers to collect pine nuts and they pay them per kilo. They do not let them come in to the forest to gather pine nuts for themselves. There are a lot of opportunities for such work. There are two families in the village who grow chickens, sheep, etc. in the collective forest area outside the SFF. To date the SFF does not sell or provide seedlings to villages around the farm.

According to informants from Songshancun, another village adjacent to SFF, private fruit companies (e.g. cherries) give out seedlings and offer technical training to villagers. One informant said he was old and not well, and there is not enough labor in the village for agriculture. For this reason, it makes sense to retire the land and grow cherries.

The project design team was told by the SFF staff that there was a stony desertification zone within the SFF boundaries. The team requested to see the area and were brought to a karst valley with a large cave at the end which features a formation that resembles a seated Guanyin Buddha in late afternoon. The valley belongs to Damatangcun Village.

The sides of the valley are terraced and degraded by cattle and horses. The steep slopes are covered with native tree species on all sides. The valley is of great touristic and potentially archaeological interest. Potentially tea or another economic forest crop could be planted on the old terraces as a restoration crop which would bring economic benefit to villagers, and potentially be marketable if the SFF becomes an important tourist destination.

The SFF staff are interested in taking over management of this valley, on the grounds that the agricultural land belongs to the village, but the forest on the cliffs belongs to the farm. The SFF staff suggested restoring the karst forest slopes by planting trees. If tree planting were to be conducted on these steep slopes that have fragile vegetation, attention would need to be paid to soil protection and biodiversity (natural regeneration, potentially with some enrichment planting and protection, is likely a better strategy).

**Observed challenges:**

The design team noted several challenges facing Gonglongping SFF:

1. The farm has been targeted for ecotourism development by a private partner, which brings great opportunities for development. However, the investment is being used to transform the farm landscape with no prior market research to ensure that the decisions made are sustainable from a business perspective.
2. The landscaping of large areas of the SFF appears more damaging to the topsoil layer than necessary.
3. The biodiversity of the natural karst formations within the SFF and in the neighboring village lands has not been studied and does not seem to be valued. These formations
have significant conservation, ecotourism and recreation potential. In addition, they are natural repositories of species that could have a range of values in restoration.

**Potential area and SFF-specific forest management and restoration activities**

1. **Biodiversity conservation**

   A. Identification and reproduction of endemic/native tree & plant species.
      a. Based on the situation analysis, establish clear areas within SFF boundaries to maintain as conservation zones.
      b. Produce an inventory of tree and plant biodiversity as part of the baseline for monitoring.
      c. Collect available ecological literature on all tree and plant species, and create a database summarizing phenology data, seed type, dispersal mechanism, recruitment potential, and ecological function of native species within SFF.
      d. With advice from a provincial botanist, collect germplasm of endemic/native species of interest for reproduction in SFF nursery.

   B. Protection of natural regeneration in the forest understory

   C. Enrichment planting
      a. Based on the situation analysis -- taking into account 1) species site suitability and silvicultural indications, 2) ecosystem service and biodiversity priorities, and 3) business targets -- identify 2-4 species (preferably endemic or native) suitable for enrichment planting in cleared or thinned forest and/or forest edges.
      b. Prepare sites for enrichment planting (clearing/thinning)
      c. Introduce enrichment species to sites and apply appropriate silvicultural treatments.

   D. Establishment of corridors to increase connectivity between natural forest patches
      a. Identify pathways between sites with high endemic/native biodiversity in which to establish corridors of endemic/native biodiversity.
      b. Based on ecological characteristics of endemic/native species in Bijie, select a suite of species with high survival & recruitment potential.
      c. Prioritize corridor transformation over 5-year forest management and restoration plan, through planting of endemic/native trees in deforested areas, and selective harvest and replacement of monoculture tree crops.

2. **Soil remediation and carbon storage**

   1. Assess current treatment of topsoil in preparation for restoration and cease or reduce practices that disturb topsoil and naturally regenerating undergrowth, taking into account landscape contours.
   2. In afforestation, reforestation and enrichment planting, use minimally invasive techniques to prepare soil for planting, increasing the frequency of tending planted seedlings with 1) minimum liberation clearing and biomass removal in the understory and 2) application of mulch and organic fertilizers as prescribed by ecological requirements of introduced species.
   3. **Establishment of permanent plots for climate resilience testing**
• Acquire germplasm (# and characteristics of species to be determined) from lower altitude and/or beyond neighboring ecotone (likely to the south), prioritizing species that exist in hotter (e.g. +1-3°C) and drier conditions.
• Establish 9 study plots, three in low, medium and high-altitude range within SFF.
• Plant acquired species per prescribed silvicultural practice and monitor survival, growth, and phenology through and beyond the project period.

Potential complementary sustainable business activities

1. Community co-management of disputed lands and village lands adjacent to SFF holdings

   A. Through township forestry station and/or social development partners (e.g. Women's Union), initiate a facilitated dialogue with men and women from local communities (Damatangcun Village and other neighboring villages surrounded by or on the edges of SFF holdings.
   B. Clarify use rights of community and SFF lands and propose concessions or adjustments based on joint interests in restoration and economic development.
   C. Identify potential restoration activities (such as livestock exclosures, rotation of grazing areas, and introduction of economic/ecological species of interest) and associated economic benefits.
   D. Develop a business plan for ecotourism and establish fair benefit-sharing mechanisms, potentially linked to other forestry and land-use subsidies to which local communities have access (fruit production; conversion of cropland to forest; closed mountain subsidies).
   E. Establish a system for equitable identification of community members and jointly engage in restoration activities using germplasm generated or acquired by SFF (afforestation of degraded land with little or no endemic tree diversity; enrichment planting; corridors between SFF patches; multiuse buffer zones with economic activities reserved for local communities; under-forest economic activities including production of non-timber forest products).
   F. Remunerate local community members for their participation in restoration activities based on equitable selection process and equal pay for equal time committed by both men and women.

2. Environmental education

   1. As part of sustainable business development activities, establish programs for on-site and off-site environmental education in collaboration with municipal and provincial schools and educational programs.
   2. Seek funding for environmental education for children and young people from Bijie municipality, prioritizing participation of local children and youth.
   3. Engage local youth in hands-on learning through technical internships.
Pilot Area 1: Bijie Municipality, Guizhou Province

Guihua State Forest Farm (Zhijin County)

SFF General Description

Guihua SFF is located at 26°38'4.97"N/105°45'3.26"E in Zhijin County, ca. 5 km south of the urban county center. The total area of the SFF is 2,773 ha, with 2,552 ha of forest or 92% cover. The SFF plans to develop a new Forest Park of 740 ha. The landscape is steeply sloping with some karst features. The SFF tree plantations largely feature cedar (*Cryptomeria* spp.).

A 333 ha portion of the SFF located closest to the urban center was lost in a forest fire in 2009; in 2011, that area was leased to a tea company and converted to an intensive monocultural tea plantation. The tea company rents the land for 100,000 yuan per year but will not start paying until 8 years after their investment. All the income goes to the county, and only a proportion comes back to the farm (e.g. 20%).

There is a 67 ha area of native forest on 20 degree mountain slope in one area. Around the SFF is collective forest land, including some natural forest, belonging to villages. The deeper valleys with flat bottom land cutting into the SFF belong to local villages. The farm cuts all the grass under the trees from October to January to build fire belts (ca. 20 m wide) between the villages and the forest.

The design team visited an old stand of cedar trees. The understory was kept clean, which does not allow for natural regeneration. Selective logging is now prohibited; if later allowed the SFF director would be inclined to cut smaller trees and leave the larger ones. For enrichment planting, the opposite might be a better strategy, or cutting of small patches for replacement with native/endemic species, and larger timbers could be sold.

In all, there are about 30 rangers at this SFF, largely for fire protection and guarding the forest from incursions by villagers. They also keep watch over the tea plantation, but their salaries are not covered by the tea business. The tea plantation was established in 2011, and provides labor jobs to local villagers, who tend the trees and apply (spray) pesticide and fertilizer.

According to perceptions of SFF staff interviewed, Guihua SFF features “no land degradation.” About 67 ha is natural karst forest, located in Heitu Township (黑土镇). Ecological benefits of the SFF have not been assessed. In terms of how they select trees for enrichment: they choose from a small number of known species and “try” to do good site-species selection.
SFF vicinity and community relations

The farm provides 100-150 jobs to local villagers, mainly in “forest protection” and road construction (physical labor).

The project design team visited a small settlement next to the tea plantation, and interviewed a local forest ranger living there. In all, there are about 30 rangers at this SFF, largely for fire protection and guarding the forest from incursions by villagers. They also keep watch over the tea plantation, but their salaries are not covered by the tea business. The tea plantation was established in 2011, and provides labor jobs to local villagers, who tend the trees and apply (spray) pesticide and fertilizer.

Figure 2. Key features of Guihua State Forest Farm and local area. From top left to right: A map illustrating plans to develop a forest park; mature Chinese cedar plantation with cleared understory preventing natural regeneration; monocultural tea plantation planted over 333 ha following forest fire. From lower left to right: chicken farm relocated from forest park site to edge of SFF in Shuanglongcun Village, with degraded SFF plantation land on hills in background; Shuanglongcun Village landscape featuring agriculture on sloping land vulnerable
to rocky desertification and biodiverse karst forest on upper slopes; Shuanglongcun village fields being converted to fruit orchards and village collective or household tree lots on slope.

SFF Rangers patrol/monitor areas of ca. 50-70 ha. In addition to other ranger tasks, one ranger (female) described work of public communication and dissemination about forest fire prevention, including to local schools. They advise on no-burn periods and organize fire prevention patrol (Spring is the most dangerous time). Usually local people are cooperative in helping with fire prevention.

According to SFF personnel, there are occasionally land disputes with local villages. Locals are allowed to enter the farm and there is some under forest economy inside the farm that local people can engage in, but it is not “very developed”. Around 2015, the farm started some limited development of tianma (Gastrodia elata), a valuable NTFP in the orchid family. It is not clear what access and usufruct rights are granted to local villagers (if any), and who is able to obtain permissions and how.

The design team met with the village head (female) and CCP head (male) of Shuanglong Village, located in a valley in the southern part of the SFF, in a closed meeting at the SFF. Later, the team visited the village with the village leaders and 5 other residents. The valley is narrow, with small agricultural fields on the lower slopes, patches of household tree lots, and collective forests higher up. The edges of the SFF land are visible at the upper reaches of the valley slopes and on hills beyond the village forests. On the upper slopes on the west and north side, the SFF starts. The boundary is at the crest of the hill, though in some places, the farm comes about 1/3 the way down the hill into the valley.

From interviews with several villagers and SFF staff, it seems that there is moderate agreement about where the boundaries are, although not 100%. According to the CCP head of the village, there are “no boundary disputes” between the residents of this village and the SFF, contrary to what SFF staff had indicated. He himself is a forest ranger, and said that he would discourage villagers to farm in SFF land.

Village forest lands are either natural karst type vegetation or plantations (e.g. of cedar). From the look of the natural forest visible on slopes above Shuanglongcun village, it is likely that the village-owned valleys extending into the SFFs, with forest adjacent to SFF planted forests, feature greater natural diversity than much of the SFF land itself.

The population of the village is 702 households. The village is classified as a poverty village, and there remain 46 poverty households. Less than 50 people have work in the SFF; those who do work in the SFF earn ca. 100 CNY per day. The tea plantation is too far away for residents to
work there. The village has ca. 2000 mu (130 ha) of collective forest, not yet allocated to households under collective tenure reform.

The design team interviewed a village forest ranger (fire prevention and illegal logging/clearing) who works full time for the township forestry station, for ¥300 per month, overseeing 4500 mu with another 4 rangers. He said he has no communication with the SFF staff/rangers except in case of fire, when the SFF will call them to come and help. (There is another rank in the linye jan called ecological forest protection ranger, and they are paid ¥800/mo. We did not meet one.)

Another 2000 mu of collective owned forest land has been lent to a private company to develop economic fruit trees: The company signed contracts with each household for their land, and according to the contracted area households receive a share of the annual income.

Villagers don’t know very much about SFF reform, but would like to work more closely with SFF in future, and help the village to increase incomes.

At the back of the village, there is a commercial chicken farm (ca. 10,000 chickens) which was originally located in the center of the SFF. It was relocated and land was given from the edge of the SFF. This location is probably more convenient for the owners of the business as it is located next to a village road.

Observed challenges

The design team observed several challenges facing Guihua SFF, as described below.

1. The tea plantation was established without consideration of ecological impact. The area burned in 2009 was expanded and the landscape subjected to extreme terracing to favor monocultural tea growing, and there are no diversified afforested edges, buffer zones or refuges within the tea area. The tea is grown using conventional agricultural techniques with application of non-organic pesticides and fertilizers.

2. The afforested area of the SFF consists largely of non-native monocultures including Chinese cedar (Cryptomeria spp.) and masson pine (Pinus massoniana). Despite restrictions on logging, development of the new forest park, and reclassification of SFFs as “public benefit forests” with a mandate to generate ecosystem services, the SFF continues to plant these species. In at least one area of the SFF, recent plantings survival is low, probably due to soil degradation.

3. SFF activities are heavily geared to fire prevention, which likely reduces the contiguity of forest (within the SFF and beyond, into community forests), negatively affecting regeneration of native species. Meanwhile the species planted by the SFF are highly inflammable (non-native conifers).

4. Accounts regarding the clarity of SFF vs. village land tenure were not consistent among informants. Village forest rangers are employed by township forest stations, with whom
the SFF management do not communicate except for the purpose of fire prevention. Sloping lands above villages have higher native biodiversity than SFF lands, with species that could potentially be more suitable to deliver ecosystem services than the timber species planted in the SFF.

Potential area and SFF-specific forest management and restoration activities

1. Biodiversity conservation
   1.) Identification and reproduction of endemic/native tree & plant species.
      a. Based on the situation analysis, establish clear areas within SFF boundaries to maintain as conservation zones.
      b. Produce an inventory of tree and plant biodiversity as part of baseline for monitoring.
      c. Collect available ecological literature on all tree and plant species, and create a database summarizing phenology data, seed type, dispersal mechanism, recruitment potential, and ecological function of native species within SFF.
      d. With advice from a provincial/university botanist, collect germplasm of endemic/native species of interest for reproduction in SFF nursery and/or village nurseries (see below).
   2.) Protection of natural regeneration in forest understory
      a. Review and adjust practices of understory clearing and management to allow natural regeneration
   3.) Enrichment planting
      a. Based on the situation analysis -- taking into account 1) species site suitability and silvicultural indications, 2) ecosystem service and biodiversity priorities, and 3) business targets -- identify 2-4 species (preferably endemic or native) suitable for enrichment planting in cleared or thinned forest and/or forest edges.
      b. Prepare sites for enrichment planting (clearing/thinning)
      c. Introduce enrichment species to sites and apply appropriate silvicultural treatments.
   4.) Establishment of corridors to increase connectivity between natural forest patches
      a. Identify pathways between sites with high endemic/native biodiversity in which to establish corridors of endemic/native biodiversity, including pathways around tea plantation, and connecting to natural village forests.
      b. Based on ecological characteristics of endemic/native species in Bijie, select a suite of species with high survival & recruitment potential.
      c. Prioritize corridor transformation over 5-year forest management and restoration plan, through planting of endemic/native trees in deforested areas, and selective harvest and replacement of monoculture tree crops.

2. Soil remediation
   1.) Assess current treatment of topsoil in preparation for restoration and cease or reduce practices that disturb topsoil and naturally regenerating undergrowth, taking into account landscape contours that affect erosion.
   2.) In afforestation, reforestation and enrichment planting, use minimally invasive techniques to prepare soil for planting, increasing the frequency of tending planted
seedlings with 1) minimum liberation clearing and biomass removal in the understory and 2) application of mulch and organic fertilizers as prescribed by ecological requirements of introduced species.

3.) In sites where soil is degraded and survival of planted or naturally regenerating species is low, identify potential native pioneer (aggressive invasive) species with which to start a cycle of natural succession.

3. Establishment of permanent plots for climate resilience testing

1.) Acquire germplasm (# and characteristics of species to be determined) from lower altitude and/or beyond neighboring ecotone (likely to the south), prioritizing species that exist in hotter (e.g. +1-3°C) and drier conditions.

2.) Establish 9 study plots, three each in low, medium and high-altitude range within SFF.

3.) Plant acquired species per prescribed silvicultural practice and monitor survival, growth, and phenology through and beyond the project period.

Potential complementary sustainable development planning activities

1. Development of sustainable NTFP production

1.) Assess current tea plantation practices and propose improvements such as integrating forest corridors, forest patches, roadway plantings, etc; implement improvements in collaboration with tea company partner.

2.) Identify potential NTFPs (besides existing tianma plantings) for sustainable wild management or understory planting; include in restoration activities.

2. Community co-management

1.) Through township forestry station and/or social development partners (e.g. Women’s Union), initiate a facilitated dialogue with men and women from local communities (Shuanglongcun Village and other neighboring villages surrounded by or on the edges of SFF holdings.

2.) Clarify tenure and use rights of community and SFF lands and propose concessions or adjustments based on joint interests in restoration and economic development.

3.) Identify synergies with programs that provide subsidies for village forestry activities.

4.) Create opportunities for village residents to participate in and benefit equitably from sustainable NTFP activities/underforest economic activities in SFF.

5.) Identify potential restoration activities such as collection of seeds and seedlings from native forests in village collective lands, establishing village nurseries of native seedlings for use in enrichment planting and increasing density of native/endemic trees and shrubs in natural corridors/forest patches.

6.) Establish system for equitable identification of community members and jointly engage in restoration activities using germplasm generated in village nurseries.
7.) Remunerate local community members for their participation in restoration activities based on equitable selection process and equal pay for equal time committed by both men and women.
Pilot Area 2: Chengde Municipality, Hebei Province

Caoyuan State Forest Farm (Fengning County)

The area of Fengning County is around 8765 km² and the population is ca. 400,000. The county has 11 SFFs covering about 1,290,000 mu.

Overview of SFF

Caoyuan (or "Grassland") SFF is located around 41°54′11.61″N/116°31′39.78″E near Waigoumencun Village in Fengning County, Chengde City. The SFF is on the border of Inner Mongolia. The total area of the SFF is 8660 ha, of which 3,950 ha is forested (45.6%).

The park currently has only ca. 20 active employees. Few young staff join the farm because they have to stay for ca. one month at a time for fire protection and it is very isolated. Monthly salary for senior staff is ca. 5000 CNY per month.

Native tree species include elms (Ulmus spp.), birches (Betula spp.), oaks (Quercus spp.), maple (Acer pictum), willow (Salix mongolica), cherry (Prunus tomentosa); plants include over 100 Chinese medicinal species including Bupleurum chinense, Saposhnikovia divaricate, and Scutellaria baicalensis. Common animals include wild boar, badger, mountain hare, egrets, doves, ducks and several species of reptiles and birds, and insects. Afforestation has mostly used pine, birch, and larch trees.

Caoyuan SFF is at the headwater of the Luan River, one of the main sources of drinking water for the city of Tianjin. The wetlands within the SFF are potentially important for water quality/delivery, but the whole river valley downstream is degraded.

Caoyuan SFF's desertification area now stands at 30,000 acres. The SFF is subject to severe sandification and wind erosion, exacerbated by uncontrolled grazing animals. The SFF is used by Mongolian herders who cross into the farm, causing heavy damage. Although the SFF has been closed for more than 10 years, there has been little enforcement.

Native trees in the SFF are largely elm, growing in stands of 5-10% canopy closure. Elms are mostly large diameters indicating that there is little natural regeneration/recruitment. But an area enclosed for just one year showed marked improvement in grass cover, and growth of planted pine and birch. There is potential to do a lot more work with enclosures, negotiate with herders/government reps to develop rangeland/forest management planning. Enclosures would likely result in natural regeneration of elm forest.
Wetland area also degraded by animal herds. According to SFF personnel, they would like to create a wetland park of ca. 100 ha, but they do not know what to do (what kinds of infrastructure to build, with what budget, what human resources). Wild birds flock in the area between May and September.

The Caoyuan SFF and surrounding area have great potential for ecotourism development due to the natural features of the park, including wide open views and bird watching opportunities. There is potential to establish a forest park, but there is limited investment. According to SFF management, if ecotourism plan is implemented, SFF staff will not be involved. Tourism staff should be organized by private company, and SFF staff would only do forest protection and restoration. So public-private partnership would be important in this case.

When it comes to tourism development there has been a study done by a group of experts in Beijing. The study should be available as of May 2017. The SFF and neighboring village are expecting ca. 100K tourists per year.

**Figure 3.** Key features of Caoyuan State Forest Farm and local area. **From top left to right:** View of degraded grassland with minimal tree cover; cattle grazing in SFF; severe erosion due to overgrazing and degradation of vegetation. **From lower left to right:** Recent exclosure (fence) illustrating improvement in natural regeneration of trees and grasses; wetland
surrounding river bed degraded by grazing livestock; native elm tree species adapted to natural regeneration in dry, sandy soil (if protected).

**SFF vicinity and community relations**

Waigoumencun Village has about 1600 residents, 230,000 mu of land. The village receives subsidies for collective forest (105,000 mu) at about ¥15/mu/year, compared to subsidies received by SFF of about ¥8/mu/year.

About 30,000 mu of village land is managed by the SFF. There is a cooperative afforestation program between the SFF and local village that started in 1980. They agreed that the profits earned from logging are divided into 80% and 20% for village and SFF, respectively. But the agreement didn’t take effect any more due to little revenue. The development of the SFF and the village are very much linked.

There are some plantations of sea-buckthorn (*Hippophae rhamnoides*), a native medicinal shrub, in both the SFF and village (only in starting phase).

The CCP village head perceives a serious climate problem here, with less rain than in the 70s and 80s.

Via the tourism plan, is there an opportunity for integrated landscape planning including the SFF and the county departments of agriculture and animal husbandry, environmental protection, water, lands and NDRC. Forestry may be the dominant government body in these negotiations. SFF wants to make forestry a dominant part of the work by demanding 3 out of 7 positions on the board of the park, as well as reviewing all the development plans and activities to ensure they follow forest protection principles.

**Observed challenges**

A. The wetland and river basin are completely unprotected and degraded.
B. The landscape is deeply gullied, potentially requiring stabilization measures beyond planting of trees/grasses.
C. The SFF is severely understaffed compared to others.
D. The SFF is located in a border area adjacent to Inner Mongolia. It is possible that herders from Inner Mongolia have been grazing their livestock in the SFF for a long time.
E. SFF personnel are potentially unmotivated or afraid to attempt communication or negotiation with Inner Mongolian herders.

**Potential area and SFF-specific forest management and restoration activities**

1. Remediation of sandification and gully formation
1.) Establish exclosures of severely eroded areas.
   a. Map and use fencing to exclose gullied and sandified areas within the SFF.
   b. Assess necessity for and cost-effective methods of slope stabilization.
   c. Identify suitable native species of shrubs, trees, and grasses with potential to establish on sandified and gullied land.
   d. Collect seeds and establish nurseries.
   e. Plant shrubs, trees and grasses in experimental exclosures.
   f. Monitor survival and prioritize high-performing species in future plantings.

2.) Establish exclosures for protection of natural regeneration in SFF areas at risk of severe erosion
   a. Assess SFF landscape to predict locations at risk of sandification/gully formation.
   b. Establish small fenced exclosures taking into account contours of landscape.
      (Avoid establishing exclosures that are so large or obstructive so as to create ill will among seasonal herders, thereby endangering fences.)
   c. Monitor natural regeneration and enhance through planting if native shrubs/trees/grasses do not begin to reestablish within one year.

2. Wetland rehabilitation

1.) Develop infrastructure for watering and movement of livestock
   a. Identify approaches (routes) and locations for watering of livestock, taking into account protection of soils on slopes.
   b. Design cost-effective watering technologies (tanks or reinforced ponds drawing water away from river)
   c. Install livestock watering systems at a sufficient number of locations to ensure herders do not need to drive livestock to riverbank/wetland.
   d. Build bridges or causeways for movement of livestock across river if necessary.

2.) Protect and rehabilitate water sources
   a. Establish buffer area and Installs fencing to protect riverbanks and wetland from movements of livestock.
   b. Identify most beneficial native wetland plant species taking into account nutrition requirements of birdlife as well as the water demand and potential to invade wetland; revegetate or manage wetland and riverbank to favor establishment of those plant species.

3. Establishment of permanent plots for climate resilience testing

1.) Acquire germplasm (# and characteristics of species to be determined) from lower altitude and/or beyond neighboring ecotone (likely to the south), prioritizing species that exist in hotter (e.g. +1-3°C) and drier conditions.
2.) Establish 9 study plots, three in low, medium and high-altitude range within SFF.
3.) Plant acquired species per prescribed silvicultural practice and monitor survival, growth, and phenology through and beyond the project period.

Potential complementary sustainable development planning activities
1. **Development of bird ecotourism**

1.) Establish network of walking paths, boardwalks, and blinds from which to observe migratory birds.
2.) Design and install information on migratory birds and the ecology of the wetland.
3.) Conduct market study and develop plan for promotion of bird ecotourism as part of development plan.

2. **Development of Payment for Ecosystem Services scheme for water ecosystem services**

1.) Identify potential partners with experience in development of water PES schemes.
2.) Conduct market study to identify potential payers, develop PES scheme and promotion plan as part of SFF development plan.

3. **Community co-management**

1.) Livestock management and rangeland rehabilitation
   a. Identify appropriate channels of communication with Inner Mongolian (and other?) livestock herders
   b. Develop clear explanations of purposes and methods of anti-erosion exclosures and wetland management goals for dissemination to herders (e.g. via relevant social agencies in their counties of origin).
   c. Organize events to communicate with herders and discuss broader grassland management goals (e.g. rotation areas) aimed at improving regeneration and sustainable management of grasses and forage.
2.) Clarify tenure and use rights of community, migrant herder and SFF lands and propose concessions or adjustments based on joint interests in restoration and economic development.
3.) Engagement of local villages and migrant herders in SFF development plan
   d. As part of the development plan, identify potential opportunities for local resident and migrant herders to contribute to ecotourism activities. Some potential ideas: horseback riding and tours, yurt camping, restaurants, etc.
   e. Establish a system for equitable identification of community members and jointly engage in development activities.
   f. Remunerate local community members for their participation in SFF development and restoration activities based on equitable selection process and equal pay for equal time committed by both men and women.
Pilot Area 2: Chengde Municipality, Hebei Province

1.) Huangtuliangzi SFF (Pingquan County)

Overview of SFF

Huangtuliangzi is located around 41°16'18.41"N/ 118°41'45.08"E, within 30 km to the north of the urban center of Pingquan County. The SFF is not contiguous, but consists of ca. 15,000 ha of which 14,000 (92%) is forested, within a total area of 40,000 ha. 9,866 ha of SFF land is designated as public benefit forest, and the ration of natural forest to plantations is ca. 6:15. Within the boundaries of the SFF, there are 50+ administrative villages and 4.5 townships, with a total population of 110,000 (Figure 1). Bottom land belongs to villages and townships and is largely agricultural.

The farm employs 190 people, including 36 women (8 of whom are rangers). 56 employees on payroll are retired. There are 6 forest protection stations in the farm. One visited with 8 staff (2 women) oversees 60,000 mu of land.
Figure 4. Map of Huangtuliangzi SFF. The green colors represent SFF lands of different types of forest by main species planted, including Chinese pine (*Pinus tabulaeformis*), larch (*Larix* spp.), locust (*Robinia* spp.), poplar (*Populus adenopoda*), walnut (*Juglans* spp.), and apricot (*Prunus* spp.). The red boundary indicates the area within which hillside forests belong to the SFF.

Since about 5 years, cutting was stopped, and the forest has shifted from production of timber to ecological restoration forest. This involves planting, pruning and staking of young trees and thinning of middle-aged trees. In addition to planted forest, there is naturally regenerating mixed pine and popular forest.

Understory management consists in clearing and brush removal, both in SFF and adjacent collective forests. As an alternative to natural regeneration, given understory treatment for fire safety, the SFF does some enrichment planting with broadleaf species.

Since the logging ban, the SFF has not projected an alternative income stream; the SFF is subsidized by the central and provincial governments. However, they have been doing research
on mushroom cultivation and are trying to patent a particular method. One specialty of the SFF is producing mushrooms high in added selenium.

The SFF management is aware of carbon values and has connections to Beijing Forestry University and Renmin University researchers interested in supporting forest economic development.

The SFF is also working with Hebei Forestry University, who have been working on a plan for underforest economic development. Promising NTFPs include pine nuts and mushrooms, and several processed products. The county government is also promoting underforest development to local communities around the farm area, in particular production of mushrooms.

In terms of SFF capacity building needs, it would be beneficial to increase recruitment of young people. According to SFF director, this farm would benefit from hiring someone to work on business development. Also need to look at links between researchers/developers of alternative economic development in forestry sector and State Forest Farms.

**Challenges:**

Site visits and interviews highlighted several challenges facing Huangtuliangzi SFF.

1. For several reasons, including species selected for planting, understory management for fire prevention and excessive digging of seed traps around trees on slopes, and most recently the disturbance of the soil to bury mushroom spore-inoculated log forms, the topsoil layer at Huangtuliangzi SFF is heavily disturbed. It is likely that the soil’s capacity to hold moisture is diminished, reducing the potential for natural regeneration of many forest species.

2. There is a lack of economic incentives to SFF staff to innovate and develop ecologically sustainable economic forestry activities. For example, there was a private company producing mushrooms in the forest farm, and the forest farm owned a 40% share. But the farm director (as other staff) is a civil servant and cannot be paid by the company so he was unable to continue the relationship.

3. No locals from the villages/townships within the farm have jobs on the farm (other than occasional casual labor).

**SFF vicinity and community relations**

According to both SFF staff and consulted village leaders, there is little conflict between villagers and the SFF. The boundaries of the SFF were drawn using GPS. (Notably, however, village forest tenure certificates did not use GPS. However, according to the CCP head of Longtan Shequ, the boundaries are clear because the SFF land is composed of large forest plots, while the village forests are small land plots, growing different trees.)
The SFF wants to promote integrated sub-catchment management because it is very hard to manage watersheds with both state and collective forest. If they generate funds from business activities they could use it for sub-catchment management. According to 2 rangers interviewed, villagers have a “lot” of CCFP land in the park. The rangers cover both the village forest and the SFF forest. In case of boundary conflicts, the villagers go to the forestry department to mediate.

Figure 5. Key features of Huangtuliangzi State Forest Farm and local area. **From top left to right:** View of pine and larch forest with village laborers in foreground; large plantation with cleared understory; locust saplings grown in depressions for seed collection. **From lower left to right:** Shiitake mushroom cultivation in SFF understory; village mushroom production in growing shed; village firewood from thinning of SFF understory.

Longtan Shequ (including Xiaomiaocun village), within Huangtuliangzi Town, is located within the boundaries of the SFF. Longtan has a population of 1,980 or ca. 500 HH. Pingquan County is a poverty county, and the number of poverty families in Longtan Shequ is now 40 (down from 100 several years ago). Longtan has 19,700 mu of forest land. Current economic activities include mushroom production and production of black pine seeds at ¥12/jin. Larch seeds have brought as much as ¥50/60 per jin.
According to the CCP head, 50 years ago, Longtan was deforested and the mountains were bare. At that time, floods were frequent, and more than 30 households were displaced to Northeast China. In 1954, the SFF opened, and started to reforest the area in collaboration with the village. At that time, the SFF paid the villagers ¥0.30 per day for work on the SFF.

More recently, the SFF followed state policy on benefit sharing with the local community, providing 20% after cost to village from logging and thinning trees. When the farm needs labor, they call the CCP head or village head and tell them how many laborers they need. Day wages for casual labor (usually 4-5 days in spring and 4-5 days in fall) are now ca. ¥60.

A long-term ranger employed by the forestry bureau makes around ¥2000/year, or ¥10000/year for poverty household. Temporary rangers are needed during the fire prevention period. Village rangers earn as much as ca. ¥3000 per month. One shortcoming of SFF casual employment is that payment is not always monthly, but for many jobs it is annual. This corresponds to higher-level budget and subsidy cycles.

Currently, there is a project to produce locust seeds requiring digging of pits around saplings. The SFF pays around ¥2.5 per pit, coming out to ¥120 for women, ¥150 for men per day.

One of the most lucrative activities in Longtan is mushroom production. They have about 9 large production sites, there are both collectives and household production. The mushrooms are grown in long plastic sheeted sheds; the wooden frames of the sheds and the racks on which mushrooms grow are made of wood the villagers receive as part of the benefit of working in the SFF (e.g. thinning/clearing). Most of the work is done by women.

Mushrooms produced range from ¥6-7/jin for low quality, ¥9-10/jin for high quality. The whole village earns about ¥1,500,000 shared among ca. 300 households. This village is relatively well-off, each household making ¥30,000-40,000 per year, by (mostly) female workers in the village, not including outside work by (mostly) men.

All the towns in the area of Huangtuliangzi SFF produce mushrooms, but Longtan produces more than the average. The village got bank loans to start the industry (loans of 400,000-500,000 Yuan/site on average, the largest being 4 million Yuan for 200 mu), and the villagers have access to wood from the SFF. In addition, the SFF mushroom technology is very useful to the village. The farmers are waiting to see the demo effects of selenium-enriched mushroom production by the SFF. If it is successful, they are likely to adopt the technology.

E-commerce development is also taken into consideration. Relevant training for villagers was to be held in June, 2017.

Potential area and SFF-specific forest management and restoration activities
1. **Improvement of soils and hydrological services**

   Reduction of soil disturbance, erosion, and compaction; increase water retention and infiltration
   
a. Potential FMR activities include, based on analysis of soil qualities and site practices, adopting understory management and planting practices that build soil organic matter and increase understory and soil humidity.
   
b. Identify causes of loss of understory litter layer and implement practices that conserve litter layer and understory vegetation.
   
c. Assess potential techniques of collecting tree seeds without excessive digging of collection traps in the soil around trees.
   
d. Improve techniques or avoid construction of new roads in forest area.
   
e. Establish natural vegetation buffers along roads, forest edges, streams and in areas subject to leaching or erosion.

2. **Biodiversity conservation**

   Diversification of tree and plant species
   
a. Establish natural regeneration areas within plantation forest area (including in understory and above-mentioned buffers)
   
b. Assess potential of a range of native/endemic species rarely used in afforestation for multiplication in SFF nurseries and use in enrichment planting
   
c. Selectively harvest patches of and individual mature conifers and replace them with fruiting broadleaf species to support a broader range of forest fauna.

3. **Establishment of permanent plots for climate resilience testing**

   a. Acquire germplasm (# and characteristics of species to be determined) from lower altitude and/or beyond neighboring ecotone (likely to the south), prioritizing species that exist in hotter (e.g. +1-3°C) and drier conditions.
   
b. Establish 9 study plots, three each in low, medium and high-altitude range within SFF.
   
c. Plant acquired species per prescribed silvicultural practice and monitor survival, growth, and phenology through and beyond the project period.

**Potential complementary sustainable development planning activities**

1. **Expansion of NTFP production and marketing**

   a. Continue to expand the range of NTFPs produced in the SFF, based on studies of market demand.
   
b. Assess market delivery mechanisms, including e-commerce, for fresh and preserved/processed NTFPs.
   
c. Upgrade storage and processing technologies.
d. Modernize marketing and promotion of SFF products

2. Development of Payment for Ecosystem Services scheme for water ecosystem services

a. Identify potential partners with experience in development of water PES schemes.
b. Conduct market study to identify potential payers, develop PES scheme and promotion plan as part of SFF development plan.

3. Community co-management

1.) Clarify tenure and use rights of community and SFF lands and propose concessions or adjustments based on joint interests in restoration and economic development activities.
2.) Engagement of local villages in SFF development plan
   a. As part of the development plan, identify potential opportunities for local residents to contribute to NTFP management, production, and marketing.
   b. Establish a system for equitable identification of community members and jointly engage in development activities.
   c. Remunerate local community members for their participation in SFF development and restoration activities based on equitable selection process and equal pay for equal time committed by both men and women.
Pilot Area 3: Ganzhou Municipality, Jiangxi Province

1. Jinpenshan SFF (Xinfeng County)

Overview of SFF

Jinpenshan SFF is located in the vicinity of 25°16’33.02”N/115°11’15.78”E between 20 and 30 km southeast of Xinfeng County’s urban center. It is one of several SFFs in the area, which are being increasingly jointly managed and/or merged. In Ganzhou, there is both public benefit forest and forest where timber production continues. The area of Jinpenshan SFF proper is 10,500 ha, with 10,000 ha forested (97%). There is ca. 3900 ha of native mixed broadleaf forest conserved in the SFF as public benefit forest. Overall, Jinpenshan management sees potential to restore ecosystem services through FLR, enhancing carbon sequestration, biodiversity habitat, and drinking water provision. The SFF has been approved as a national forest park, and will develop in accordance with Jiangxi Province’s “National Forest Park Master Plan”, targeting the gradual development of forest eco-tourism services and NTFP revenue streams.

The SFF has 8 senior engineers and 6 assistant engineers. The director of the SFF reports directly to the county forestry bureau.

The SFF is a watershed protection area for Xinfeng County. After logging in the 1960s and 1970s, the forest has been largely restored and parts of it were allowed to regenerate. There is a 60 ha experimental natural regeneration site within the SFF featuring some 180 tree species. There are stands of planted Chinese fir (*Cunninghamia lanceolata*).

The SFF is currently restoring a large area of forest village-owned land closer to the urban center and before reaching Jinpenshan. Plantings are masson pine (*Pinus massonioniana*) with some air seeding. A broadleaf species is interspersed to reduce fire vulnerability. The soil layer was highly degraded before planting (and possibly further disturbed by aggressive terracing and road building, but this is probably temporary). The cost of this work is about ¥20,000 – ¥30,000 per ha). Near this area, there are some village mushroom cultivation businesses.

In some areas of the SFF and vicinity, continuous cropping of Chinese fir caused a decline in soil fertility, both due to lack of soil organic matter and nutrient imbalances. The outcome of this can be seen in declining yields. Compared to annual growth of 11-13m3 / ha in the first rotation, the second rotation was only 6.3 m3 / ha.

Measures to remEDIATE soil damage include: 1. forest landscape restoration. On land degraded by multiple generations of Chinese fir, the SFF will plant multiple mixed species to address fertility decline. 2. The SFF will change the method of clearing from traditional burning of logging slash to methods that protect soil.
The SFF has outdoor nurseries for enrichment with Chinese yew (*Taxus chinensis*), an IUCN red-listed species, among others.

Existing monitoring capacity includes a fluidized bed reactor (FBR) Soil Moisture Monitoring Station; an HJ-140 Integrated Forest Ecology Monitoring (observation) Station; and a wildlife monitoring network. Jinpenshan Forest Farm is one of 100 state-owned forestry reform monitoring tree farms nationwide.

**SFF vicinity and community relations**

Jinpenshan SFF is surrounded by four villages. There is a staggered distribution over this area of ca. 130,000 mu of village collective forests and 130,000 mu of SFF forest. In the view of SFF management, the SFF’s scientific approaches to forest land and resource use and management have a beneficial effect on both village collective forests and forests contracted out to private companies. The SFF coordinates with the township forest station only when there is fire/protection work to do (as elsewhere, the township forest station oversees some of the inspection and reporting on subsidized household and collective forestry projects).
Figure 6. Key features of Jinpenshan State Forest Farm and local area. From top left to right: Naturally regenerated mixed broadleaf forest (30-40 years old); nursery plot with Chinese yew saplings; border between mixed broadleaf forest (on left side of hill) and fir plantation (on right side of hill). From lower left to right: SFF restoration of degraded village lands with masson pine; SFF restoration of degraded village lands with North American slash pine; boundary with cleared firebreak between SFF mixed broadleaf forest (left side of hill) and village timber plantation (right side of hill).

Nearby, there is a private forest farm operation called Jinji State Forest Farm (Jin Village Branch). This farm its own forest land and contracts other land from the village. It is a state-owned commercial forest farm and was built in 1990s via a World Bank loan. The SFF does not rent the land, but has a household to SFF production sharing arrangement of 30:70 or 20:80 varying according to household opportunity costs. Contracts are for 60 years, but older contracts are expiring, requiring renegotiation.

Closer to the center of the County, there is an SFF tree nursery. The nursery is propagating around 20-25 species, doing some genetic improvement, trees have specific economic values, one tree used for fire breaks. Several species are exotic. The nursery does not have seem to fulfill the purpose of conserving endemic tree biodiversity/genetic diversity.

The design team met with village leaders from two villages near Jinpenshan SFF, Shibeicun and Dawucun. Shibeicun is an administrative village with ca. 1600 ha of commercial Chinese fir (Cunninghamia lanceolate) forest and 260 ha of public benefit forest with leguminous trees. The administrative village has about 133 ha of CCFP land. Very little land is contracted to the SFF. There are naturally regenerating Chinese yew (Taxus chinensis) which villagers sell for a good profit (¥100 per cm by height). The other village, Dawucun Village is an administrative village, with 345 households (1179 people) in 15 villager groups, and has about 1200 ha of commercial forest and 127 ha of public benefit forest. On behalf of local farmers, the village contracted out about 67 ha to the Jinpenshan SFF for a period of 25 years. To date there has been no harvest, and the village head is not sure how benefits would be shared if trees are eventually harvested by the SFF.

The head of Shibeicun Village was a man, the head of Dawucun Village a woman. According to both village heads, there are no boundary problems: villagers know where their land is and they have tenure certificates. Villagers only plant monocultural stands, never mixed species; mixed forest is only on the top of hills. Stand density of fir forest is ca. 3900 stems/ha. Stands are thinned after 8 years and harvested after 15 years. However, according to the head of Shibeicun, rotation cycles have become very long (ca. 20 years). Fir harvests yield ca. 120-150 m3 per ha, and ca. ¥850/cubic meter.
Both villages have two forest rangers each, who report to the township forest station. There have been no forest fires in the area for many years.

**Observed challenges**

1.) For the most part, the only planting now happening in this area is monocultural timber planting. The natural regeneration forest is largely from earlier times, and there are hard lines in the landscape between mixed age mixed species and natural forest that suggests clear cutting of natural forest and replacement with monocultural trees (or 2 species max).

2.) There is interesting management of some of the mixed forest, but there seems to be a pattern of loss except where it is strictly protected. There are also odd configurations of what is called village forest and SFF forest – straight lines coming down hillsides, (i.e. interruption of natural contours and forest area). This might have to do with some village land contracted to farm.

3.) Logging quotas contribute to ineffective forest management practices. SFF management needs to be able to modify species composition over time and mature stems could be sold to generate income for other SFF activities.

**Potential area and SFF-specific forest management and restoration activities**

**A. Biodiversity conservation, soil restoration and increased soil carbon**

1. Identification and reproduction of endemic/native tree & plant species.
   a. Based on situation analysis, establish clear areas within SFF boundaries to maintain as conservation zones.
   b. Produce inventory of tree and plant biodiversity as part of baseline for monitoring.
   c. Collect available ecological literature on all tree and plant species, and create a database summarizing phenology data, seed type, dispersal mechanism, recruitment potential, and ecological function of native species within SFF.
   d. Protect natural regeneration in forest understory, along roads and forest edges, and control non-native invasive species

2. Enhance SFF capacity to generate endemic/native tree & plant species to use in restoration sites county-wide
   a. Identify human resources for germplasm collection, propagation and distribution
   b. With advice from provincial botanists/ecologists, collect germplasm of endemic/native species of interest for reproduction in SFF nursery
   c. Identify source areas for collection of propagative material
   d. Identify and upgrade local nursery facilities
   e. Develop collection/propagation protocols based on species regeneration ecology
   f. Distribute propagated material to restoration areas based on ecosystem role and economic potential
3. Enrichment planting in monocultural plantation sites
   a. Based on situation analysis -- taking into account 1) species site suitability and silvicultural indications, 2) ecosystem service and biodiversity priorities, and 3) business targets -- identify 2-4 species (preferably endemic or native) suitable for enrichment planting in cleared or thinned forest and/or forest edges.
   b. Prepare sites for enrichment planting (selective harvest, clearing/thinning)
   c. Introduce enrichment species to sites and apply appropriate silvicultural treatments to increase the area of mixed-species and mixed-age forest zones.

4. Establish corridors within SFF and outside SFF to increase connectivity between natural forest patches
   a. Identify pathways between sites with high endemic/native biodiversity in which to establish corridors of endemic/native biodiversity.
   b. Based on ecological characteristics of endemic/native species in Bijie, select a suite of species with high survival & recruitment potential.
   c. Prioritize corridor transformation over 5-year forest management and restoration plan, through planting of endemic/native trees in deforested areas, and selective harvest and replacement of monoculture tree crops.

5. In degraded sites, reduce soil disturbance, erosion, and compaction
   a. Adopt understory management and planting practices that build soil organic matter and increase understory and soil humidity.
   b. Identify causes of loss of understory litter layer and implement practices that conserve litter layer and understory vegetation.
   c. Improve techniques or avoid construction of new roads in forest area
   d. Review terracing practices and avoid terracing that disturbs soil layer and damages native seed bank.

6. Test use of resilient native pioneer (invasive) species for restoration of extremely degraded sites through assisted natural succession
   a. Develop a list of native pioneer tree, shrub and grass (e.g. bamboo) species and assess their ecological characteristics
   b. Establish methods for seed/germplasm collection and propagation (seeding and/or planting) of native pioneer species
   c. Establish test sites with different baseline conditions on which to test performance of a number of different native pioneer species
   d. After establishment of pioneers (e.g. 2-4 years), experiment with multiple native secondary species to determine which ones have potential to survive in altered site conditions

B. Establishment of permanent plots for climate resilience testing

1. Acquire germplasm (# and characteristics of species to be determined) from lower altitude and/or beyond neighboring ecotone (likely to the south), prioritizing species that exist in hotter (e.g. +1-3°C) and drier conditions.
2. Establish 9 study plots, three in low, medium and high-altitude range within SFF.
3. Plant acquired species per prescribed silvicultural practice and monitor survival, growth, and phenology through and beyond the project period

Potential complementary sustainable development planning activities
A. Develop and promote Jinpenshan as a research and education site

1. Establish permanent study areas for each forest type and each prioritized experimental practice
2. Identify existing contiguous area of SFF featuring multiple forest types and high biodiversity to establish as a permanent arboretum
3. Seek collaboration with provincial university to curate forest, demonstrating forest management techniques and ecological processes
4. Establish simple visitor facilities built from SFF plantation timbers and train SFF personnel to guide visitors

B. Community co-management

1. Clarify tenure and use rights of community and SFF lands and propose concessions or adjustments based on joint interests in restoration and economic development activities.
2. Engagement of local villages in SFF development plan
   a. As part of development plan, identify potential opportunities for local residents to contribute to NTFP management, production, and marketing
   b. Make useful germplasm available to farmers in areas surrounding SFFs and promote use of native species; seek synergies with township/county extension to collective and household forestry to subsidize distribution of germplasm
   c. Establish system for equitable identification of community members and jointly engage in development activities
   d. Remunerate local community members for their participation in SFF development and restoration activities based on equitable selection process and equal pay for equal time committed by both men and women
Pilot Area 3: Ganzhou Municipality, Jiangxi Province

2. Anzidong SFF (Anyuan County)

Overview of SFF

Anyuan is at the upper watershed of two rivers (Dongjiang and Ganjiang), providing drinking water to Hong Kong and Guangzhou. Problems include erosion due to rare earth strip mining and serious damage to natural environment from illegal logging, which was stopped, but long term restoration is needed. The government implemented a policy with three prohibitions (*san jin*): 1) *Jin fa* (a ban on logging), *jin yu* (a ban on aquaculture), and *jin cai* (a ban on mining). Economic alternatives are very much needed.

Anzidong State Forest Farm is situated around 25° 8'56.28"N/115°23'47.63"E near Guanxicun Village, Chetouzhen Township. The area of the SFF is ca. 11,880 ha, with 11,631 designated as forest and ca. 91% of that actually under forest cover. Tree species planted in the SFF include: Chinese fir (*Cunninghamia lanceolata*), masson pine (*Pinus massoniana*), camphor (*Camphora officinarum*), pomegranate (*Punica granatum*), southern Chinese yew (*Taxus chinensis*), and *Ormosia henryi*. Another nearby SFF is growing *Chimonanthus gramatus* a valued endemic species.

In one part of the SFF, the understory is cleared and enriched with Chinese yew (brought from the nursery in Xinfeng). This management is partly to increase size of trees, partly to enrich with yew, which does not otherwise exist in this area.

Nearby, another forest farm (Gaoyunshan) is extremely degraded. There is no top soil, and the soil is acidified and the water polluted. The site is being rehabilitated with North American slash pine (*Pinus elliotti*). Generally mining companies are required to develop environmental impact and mitigation plans, enforcement is often a problem, and many companies that mined rare earths in Xinfeng and Anyuan counties left un-remediated open mines behind. The cost of restoring with slash pine is about 30,000 – 45,000 CNY/ha which is costly for the SFFs.

SFFs in Anyuan need added capacity to prepare a scientific forest management plan and perform monitoring. Training opportunities are few. They are interested in developing underforest economy (NTFPs e.g. medicinal plants) but they need advice on how to develop this and need systematic planning for each different piece of forest area, capacity building on genetics and seeding, and general expertise on FMR to restore forest and forest ecosystem service, as well as economic advice. There is a plan for carbon trading: Fujian/Beijing companies have come to negotiate with county forestry bureau. The SFFs have not yet done any carbon value estimates.
Figure 7. Key features of Anzidong State Forest Farm and local area. From top left to right: Mixed broadleaf plantation with cleared understory; enrichment planting of broadleaf forest with Chinese yew saplings; reclamation of rare earth mine site with N. American slash pine. From lower left to right: Conversion of mixed broadleaf SFF forest to orange orchard; degraded former orange orchards on hills striken by huanglongbing (citrus greening disease); bamboo production forest in Xunwu County, Jiangxi.

SFF vicinity and community relations

Anzidong was established in 1963, and borders on 8 villages. According to the SFF director, there are some problems with villages until today as territory and ownership are not always clear. In the 1970s it used to be local people managing the farm, which isn’t necessarily the case anymore. Relations are generally good, but could be better.

Input from 4 villagers (1 woman) in meeting with SFF staff: waste generated by the farm is collected by the villages. The township has the Environmental Bureau pick up the waste from each village. Shuji from one village was complaining about ecological effects of too much coniferous forest, suggests growing more broadleaf forest. In 2004, most collective forest lands were distributed to households. Forest preserves water resource for the village and have
worked a lot with the SFF to conserve the forest. “Don’t plant any more conifers because not so good for water!” Propose better collaboration with water department, forestry, etc. Would like village members to be able to have more activities in relation to the forest, e.g. help with landscape improvement and develop under forest economic activities and small businesses.

In another meeting in Guanxicun next to the SFF, the design team interviewed three villagers. One [A] was a village board member who has lived here for 10+ years. The residents of this village are a kind of ecological migrant. The whole village was given subsidies to move out of the forest, where the road wasn’t good; only a few old people are left in their old houses. [A]’s lands are still in the forest area, where they have rice fields but they rent it out. They have trees as well, e.g. fir trees. [A] has 12 mu of land. Another informant [B] has 15 mu (1 ha) of forest, and 30 mu (2 ha) of kiwi plantation. The villagers also have several thousand ha of collective forest land. In the past, there were problems with uncontrolled cutting. The village now has two forest rangers.

The villagers also do a little bit of work around the SFF, e.g. understory clearing. Another informant [C] said the villagers work in the forest to clear the understory 3 or 4 times per year, earning ¥100 per day including lunch. All the ag land and their forest holdings are in the old village. The fruit orchards around the village they are living in now belong to other people who live in the urban center of the county, according to [A]. live in the county town. [B]’s two children (one boy, one girl) have migrated out to work, one in the county and the other in Guangzhou.

[A] mentioned that in the past, development people came to do surveys and then there was no result later. In the past the water was dirty, now it is clear due to forest restoration. They are hoping to get clean water piped directly to their house.

Problem with cutting wood, used to be very chaotic cutting, both by villages and the farmers. They have 2 fuliyuan in the village.

The design team met with a local township mayor (a woman) at a village where the orange trees, a main source of income, had all been removed due to huanglongbing (HLB or citrus greening disease). Now they are looking for restoration alternatives. The Anzidong SFF director suggested that they could come to plant trees and manage them. Would village HH turn over their land to the SFF? The mayor said the local residents would be happy to cooperate, potentially for a share of proceeds but of course “would not be happy to just turn over their land as it is the only land they have.”

**Observed challenges**

1.) As in Xinfeng, SFFs are clearing forest understory and edges thoroughly and preventing natural regeneration. This is in part for the purpose of growing larger trees. One SFF director,
when asked why this was a priority if there was a cutting ban, said “Growing bigger trees is the whole purpose of the state forest farm!”

2.) The region, and even more Xunwu county nearby, was very dependent on oranges which were devastated by HLB. This is a serious problem in terms of replacing income and also in deciding how to rehabilitate degraded orange orchards, which were terraced aggressively and are now subject to erosion.

3.) The whole Ganzhou area is badly scarred by rare earth mining, which causes water pollution and unstable land. The use of slash pine to reclaim these lands may work over time – they seem to survive – but there may be some native invasive pioneer species that would grow more densely and hold the soil better, potentially even preparing the site for eventual colonization by other native species.

A. Mine reclamation

1. Test use of resilient native pioneer (invasive) species for restoration of extremely degraded sites through assisted natural succession
   a. Develop a list of native pioneer tree, shrub and grass (e.g. bamboo) species and assess their ecological characteristics
   b. Establish methods for seed/germplasm collection and propagation (seeding and/or planting) of native pioneer species
   c. Establish test sites with different baseline conditions on which to test performance of a number of different native pioneer species
   d. After establishment of pioneers (e.g. 2-4 years), experiment with multiple native secondary species or other desirable species to determine which ones have potential to survive in altered site conditions

B. Restoration of degraded orange orchards affected by HLB

To study – to a large degree this depends on farmers finding an economic alternative. In the meantime, the soil needs to be conserved.

C. Selective understory management and mixed planting

1. Enrichment planting in monocultural plantation sites
   a) Based on the situation analysis -- taking into account 1) species site suitability and silvicultural indications, 2) ecosystem service and biodiversity priorities, and 3)
business targets -- identify 2-4 species (preferably endemic or native) suitable for enrichment planting in cleared or thinned forest and/or forest edges.
b) Prepare sites for enrichment planting (selective harvest, clearing/thinning)
c) Introduce enrichment species to sites and apply appropriate silvicultural treatments to increase the area of mixed-species and mixed-age forest zones.

Potential complementary sustainable development planning activities

A. Development of Payment for Ecosystem Services scheme for water ecosystem services

1. Identify potential partners with experience in development of water PES schemes.
2. Conduct market study to identify potential payers, develop PES scheme and promotion plan as part of SFF development plan.
3. Ensure PES scheme considers equitable benefit sharing.

B. Community co-management

1. Clarify tenure and use rights of community and SFF lands and propose concessions or adjustments based on joint interests in restoration and economic development activities.
2. Engagement of local villages in SFF development plan
   a. As part of the development plan, identify potential opportunities for local residents to contribute to NTFP management, production, and marketing
   b. Make useful germplasm available to farmers in areas surrounding SFFs and promote use of native species; seek synergies with township/county extension to collective and household forestry to subsidize distribution of germplasm
   c. Establish a system for equitable identification of community members and jointly engage in development activities
   d. Remunerate local community members for their participation in SFF development and restoration activities based on equitable selection process and equal pay for equal time committed by both men and women
Brief introduction to Mulan forest farm

● Farm information

Mulan forest farm build in 1963 is located in Weichang Manchu and Mongolia Ethnic Autonomy County, and is 340 km and 440 km distant from Beijing and Tianjin, respectively. The largest forest farm in Hebei Province has the total area of 106,000 ha, 86.5% of which is covered by forest. It distributes across 285 villages of 34 townships in which there live nearly 400,000 residents.

● Ecosystem services provided

1. Water conservation

Mulan forest farm is located in the upper reaches of Luan River, which is the main source water for Tianjin city. Thus, Mulan forest farm provides significant water conservation service for those downstream users. According to the forest management plan (2015-2024) estimation, the water stored reaches 163 million m³ per year.

2. Sandstorm control

Mulan forest farm is located in the northernmost of north China plain closing with the Otindag Sandy Land of Inter-Mongolia, the forest here retain soil while preventing the sandstorm invasion. The forest management plan estimated that the soil retained per year is 3.5 million tons.

● Potential project strategies

1. Degrading land control

Currently, there are still about 16,000 ha degrading land within the farm. The farm plans to overcome the land degradation via FLR approaches.

2. Forest management

Young and middle-aged forest accounts for the vast majority. The average forest age is only 35.8 years. The forest quality is lower relative to China and world average level. The growing stock volume is only 75m³/ha. Now, the farm is cooperating with Chinese Academy of Forestry (CAF) and University of Freiburg (Germany) to explore and pilot the techniques of close-to-nature forest management by 2019.

3. Biodiversity protection

The farm has a number of rare tree species, such as pine, willow and linden. The protection for them should be strengthened in next.

4. Under-forest management
The farm also wants to pilot the under-forest management like Huangtuliangzi forest farm depending on the GEF project.
Appendix IX. Integration of the TRI Program Steering Committee within TRI Child Projects

The TRI Program will be strengthened by the establishment and operation of a TRI Program Steering Committee (Program SC). The Steering Committee will provide outreach, oversight and recommendations over the course of TRI implementation, to capitalize on emerging opportunities, facilitate linkages to existing and relevant restoration initiatives, and provide recommendations to address any implementation bottlenecks as they arise.

It will be important for TRI Child project documents to acknowledge the Program SC and the institutional linkages between the Program SC and Child projects. This brief is intended to facilitate this, by describing the Program SC roles and responsibilities and the institutional structure of the TRI Program.

Roles, Responsibilities, and Composition of the Program Steering Committee

The TRI Program will be guided by a Program SC comprised of representatives from the three TRI Partner Agencies, the GEF, external experts, country representatives, and other strategic partners. The Program SC will advise on all matters regarding overall Program execution and, accordingly, will review and approve all technical documents, review budgets and financial reports and provide general strategic and implementation guidance to the TRI Program through the TRI Global Coordination Unit (GCU – a supporting body housed within the TRI Global Child project).

The Program SC will meet at least once per year in person – linked to the Annual TRI Knowledge and Learning workshop. In addition, the Program SC will meet virtually at least one additional time each year as necessary. All decisions of the Program SC will be made on the basis of consensus, and will conform to the regulations governing the three Partner Agencies and those of the GEF.

Specific functions of the Program SC shall include:

• Provide overall strategic policy and management direction to the Program and Child projects;

• Review progress of previously agreed Program work plans;

• Define key milestones and points for review;

• Discuss process forward, and any proposed changes to plans and main activities;

• Review group reports and communications to the GEF on Program-level activities;
• Coordinate key interaction with Governments and GEF Operational Focal Points in each country for Program-level activities;

• Coordinate organization of joint workshops and events related to the Program; and

• Serve as the project steering committee for the Global child.

Recommendations provided by the Program SC are of an advisory nature only – TRI child projects are in no way legally bound to follow the advice of the Program SC. However, experience has demonstrated the value that an advisory body, with substantial expertise and experience and a unique vantage point and perspective, can bring to a program. It is therefore hoped and anticipated that TRI Child projects will incorporate recommendations of the Program SC into their work plans and operations.

**TRI Program Institutional Structure and Linkages**

Figure 1 shows the institutional structure and reporting linkages between TRI partners. Note that Child project reporting to the GCU will be identical to the bi-annual Project Progress Reports and annual PIRs submitted, respectively, to Implementing Agencies and the GEF. Therefore, no additional reporting will be required of Child projects by the GCU, which will collate all Child project reports into a single synthesized report on TRI progress for review by the Program SC.

Figure 1. TRI Program institutional structure.
Alignment of TRI China Project with the Global TRI Program

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Child project design features aligned with criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project interventions are designed/informed by forest landscape</td>
<td>The project design was informed by <em>A guide to the Restoration Opportunities Assessment Methodology (ROAM): Assessing forest landscape restoration opportunities at the national or sub-national level</em> (IUCN and WRI, 2014) with attention to 1.) Landscape, 2.) Human well-being and equity, 3.) stakeholder involvement, 4.) restoring ecosystem functionality, 5.) Generating improved flows of</td>
</tr>
<tr>
<td>Challenge</td>
<td>Ecosystem services by (a) applying a suite of strategies. Use a wide range of technical strategies for restoring trees on the landscape, ranging from natural regeneration to tree planting, (b) Tailoring interventions to local conditions, (c) Addressing pressures that cause adverse changes to ecosystem functionality, ecosystem services or human well-being, and (d) adaptively managing forest landscapes by adjusting the restoration strategy conditions change. These approaches are implicitly in line with the Bonn Challenge (see, e.g. the reference to ROAM at <a href="http://www.bonnchallenge.org/what-our-global-restoration-opportunity">http://www.bonnchallenge.org/what-our-global-restoration-opportunity</a>). Other important sources are described in the TRI China Prodoc, Section 4, and include <em>Ten principles for a landscape approach to reconciling agriculture, conservation, and other competing land uses</em> (Sayer et al. 2013) and <em>Beyond Deforestation: Restoring Forests and Ecosystem Services on Degraded Lands</em> (Chazdon 2008).</td>
</tr>
<tr>
<td>Project strategy employs TRI strategic approach, and includes work under each of the four TRI Programmatic components</td>
<td>The Global TRI approach “combines a bottom-up approach at the country level to removing barriers to more widespread commitment to, and effective implementation of, forest and landscape restoration, supported by a Global Learning, Finance, and Partnerships project to capture and disseminate best practices, provide financing tools and bankable models for attracting investment, and leverage key partnerships to yield cost savings and realize greater impact than possible under a fragmented, project-by-project approach.” The TRI China Project is in line with this overall approach. The Project is informed by stakeholder inputs during the design phase to ensure the top-down initiation of the project in China is informed by interests at the local level and barriers identified through extensive consultation; it incorporates TRI’s <strong>Global Learning</strong> through the synthesis and sharing of information and knowledge through many media and exchanges at the international level, including those organized by Global TRI; the Project incorporates <strong>finance</strong> as a focus through the process of developing sustainable development plans and investment promotion capacity and tools; the Project will build capacity of China’s State Forest Farms to identify and establish <strong>Partnerships</strong>.</td>
</tr>
<tr>
<td><strong>Project anticipates making use of supports from TRI Global Learning, Finance, and Partnership project (the Global Child project)</strong></td>
<td>The TRI China project will rely on the TRI Global Child project to organize and implement international knowledge exchanges, to include inputs from China in Global products, to inform and identify opportunities in support of TRI China’s development of approaches to finance and the establishment of partnerships.</td>
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<td>--------------------------------------------------</td>
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<tr>
<td><strong>Project anticipates making contributions to the capture and dissemination of knowledge, for the benefit of all TRI child projects</strong></td>
<td>The TRI China project will, through its Component 4 activities and in particular its annual reports, synthesize knowledge derived from the Project including data from monitoring activities, lessons learned, and overviews of China-targeted knowledge products that are of interest for sharing in English. The Project will ensure participation from China to share best practices and lessons learned in at least two international exchange per year in Bonn Challenge countries.</td>
</tr>
<tr>
<td><strong>Project design recognizes institutional linkages with the Global Child project, including with TRI Program Advisory Committee, for adaptive management.</strong></td>
<td>As noted under Component 4 activities in the China ProDoc, the TRI China project will delegate personnel to participate in annual TRI Program Advisory Committee meetings to be held in conjunction with the annual TRI Knowledge and Learning Workshop, and annual virtual meetings as requested. The TRI China project will submit work plans and relevant project documents to the TRI Program Advisory Committee for review and will share its annual activity and financial reports to enable the Committee to review progress and provide feedback and advice.</td>
</tr>
<tr>
<td><strong>Project includes a planned activity and dedicated funding for participation in Annual TRI Knowledge-Sharing workshops</strong></td>
<td>The TRI China project has committed to participating in Annual TRI Knowledge-Sharing Workshops as one of its activities under component 3 (activity 3.2.1.1) and has allocated specific funds for travel and accommodation.</td>
</tr>
<tr>
<td>Project funding and anticipated global environmental benefits are in-line with estimates made at the time of PFD submission/approval</td>
<td>The TRI China project funding estimates remain valid, and the anticipated global environmental benefits are in line with the PFD estimates.</td>
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<tr>
<td>Other (including any additional support for partnership and knowledge sharing activities with TRI partners)</td>
<td>The TRI China project has included incorporated a plan and funds for international study tours (15 participants 2x per year) to promote FLR exchanges with other Bonn Challenge countries.</td>
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Appendix X. Terms of Reference for the development of Forest Landscape Restoration/Restoration Opportunities Assessment Methodology capacity building and planning activities

FLR focuses on strengthening the resilience of landscapes and creating options to adjust and optimize the type and flow of ecosystem services as societal needs change, or new challenges arise. Applying the FLR/ROAM process means that it is not possible at the project design stage to flesh out all project activities as these will be decided after having undertaken consultations and analyses at each site. The strength of the FLR approach is that the restoration strategies are locally designed together with relevant stakeholders and developed through a combination of advanced ecological technical expertise, situation analysis and understanding of local interests (across scales and sectors).

**FLR Principles**

For the Project, the following FLR principles will be applied:

Maintain a **broad focus** on multiple benefits, multiple methods, and diverse and changing site conditions, with attention to:

1. **Landscape.** Restoring entire landscapes as opposed to individual sites. This typically entails balancing a mosaic of interdependent land uses across the landscape, such as protected areas, ecological corridors, sustainably managed forests, agroforestry, agriculture, plantations and riparian strips to protect waterways.
2. **Human well-being and equity.** Restoring entire landscapes generates opportunities to improve and equitably share the benefits that come from increasing the flow of desired ecosystem services, thereby improving human well-being.
3. **Stakeholder involvement.** Engage stakeholders in an inclusive and participatory planning and decision-making processes regarding restoration goals, implementation methods, risk management and trade-offs.
4. **Restoring ecosystem functionality.** Restore natural capital and ecological processes that underpin ecosystem functionality, thereby generating improved flows of ecosystem services. For example, restoring habitats, improving species and genetic diversity, restoring predator-prey relationships, restoring hydrological and natural disturbance (fire, flood) processes.
5. **Generating improved flows of ecosystem services.** Create an improved flow of ecosystem services, that have been identified as important during stakeholder consultation and planning processes, by:
   a. **Applying a suite of strategies.** Use a wide range of technical strategies for restoring trees on the landscape, ranging from natural regeneration to tree planting.
b. **Tailoring interventions to local conditions.** Adapt restoration strategies to fit local social, economic and ecological contexts; there is no “one size fits all”.

c. **Addressing pressures** that cause adverse changes to ecosystem functionality, ecosystem services or human well-being.

d. **Adaptively managing forest landscapes.** Adjust the restoration strategy over time as environmental conditions, human knowledge and societal values change. Use lessons from monitoring and evaluation to adjust forest management and the flow of benefits to people.

### The FLR planning process

The FLR process involves operating at different scales, from national to local. This requires a multi-layer and iterative planning process. For example, national policy and plans set the overall framework for FLR, provincial and city plans provide more refined strategy and opportunities to link local FLR plans. Local FLR plans identify local stakeholders, opportunities and risk and detailed FLR interventions.

The iterative FLR planning process is designed to ensure that national and sub-national needs for ecosystem services (e.g. catchment protection, biodiversity conservation, timber, climate change mitigation) are considered at local level when planning restoration and local level needs for ecosystem services (e.g. fuelwood, NTFPFS, water) are determined by the people most affected by changes in forest functionality.

The **planning process** at the local level will involve the following steps:

1. **Inspiring people**: raising awareness, mobilizing communities, and stakeholders to participate, identifying partners, facilitating the formation of consultative planning groups (ensuring inclusiveness).

2. **Clarifying use rights.** Before any FLR interventions can be contemplated, it is important to work with local people to develop a shared understanding of land, forest, and tree use rights. Through this process grievances may be identified, recognized and where possible managed. The involvement of different government departments is important at this stage. FLR interventions should protect the needs of vulnerable groups and avoid creating inequity.

3. **Undertaking a comprehensive, integrated situation analysis.** The purpose of the situation analysis is to identify the priority issues for FLR engagement at each location. This is important as there is usually great variation between sites in terms of bio-physical and socio-economic conditions and interest in ecosystem services. The situation
analysis should be conducted with multi-stakeholder participation to co-develop a shared understanding. The integrated FLR situation analyses include:

a. *State and trend of natural resources* (forests, water, agriculture, soil, meadows, fishery etc.). Drivers and pressures of environmental change.

b. *The current flow and trend of ecosystem services* (timber, fuelwood, fodder, NTFPs, water, climate regulation, natural hazard, and disease regulation etc.).

c. *The benefits and costs* of these flows to different social groups (including gender, age and wealth-disaggregated information)

d. *An assessment of needs* for ecosystem services and how these will affect development needs (gender disaggregated). This aspect should identify the various (and potentially competing) needs of stakeholders for different ecosystem services from the landscape, what deficits they suffer, and what opportunities there are to remedy these through FLR. For example; at local level firewood and clean water may be in short supply and the supply situation deteriorating; at national/provincial level water catchment may be of key interest. That is, the needs for ecosystem services should be disaggregated by gender, wealth, and location (e.g. local needs versus national needs).

e. *An identification of priority issues for FLR engagement.* Based on the above analysis the stakeholders should be able to clarify local development opportunities and goals, ecosystem service needs and potential conflicts, pressures on and threats to forest landscapes, equity in terms of benefits and costs etc.

4. **Co-develop FLR plans.** Inclusive participatory planning and negotiation processes, that consider the local context, that lead to agreement on a suite of FLR interventions, that:

a. Are locally-appropriate to bio-physical and socio-economic conditions

b. Deliver desired changes to ecosystem functionality

c. Generate needed ecosystem services

d. Achieve equitable sharing of costs and benefits and improve human well-being

e. Are within the risk appetite of stakeholders (the risk that stakeholders are prepared to accept in pursuit of FLR objectives)

This involves:

a. A wide range of technical strategies for restoring trees on the landscape such as natural regeneration, enrichment planting, seeding, plantation establishment, agroforestry, silvicultural treatments, depending on local bio-physical and socio-economic conditions

b. A variety of management approaches from locally- to nationally-managed forests;

c. A range of economic interventions, such as local enterprise development and eco-tourism.

5. **Implement FLR plans, review, revise and adapt.** The implementation of FLR plans requires the coordinated application of finances, human resources, materials, and
knowledge and capabilities. It also requires safe and reliable access to the area and a social license to operate (ongoing social acceptance of FLR within the local community and by other stakeholders). Successful FLR includes ongoing monitoring, evaluation and adaptation of plans and actions according to experience and evolving challenges and opportunities, including any need to adapt to climate change. The FLR process requires the Project team and government staff to establish and maintain rapport with local communities and stakeholders.
Appendix XI. Environmental and Social Management Framework (ESMF)

I. Rationale for the ESMF

The Project aims to improve the flow of ecosystem services from selected forest landscapes, and is expected to enhance livelihoods, build climate resilience and conserve biodiversity. It is organized in the following four main components:

Component 1: Improving ecosystems services in China's State owned forests farms (SFFs): Implementation of restoration programs and complementary initiatives;

Component 2: Mainstreaming ecosystem services in China’s forest policies: Policy development and integration;

Component 3: Capacity building and knowledge dissemination: Institutions, finance and upscaling; and

Component 4: M&E and information management and communication: Knowledge, partnerships, project monitoring and assessment.

ESMS relevant activities are primarily implemented under component 1. As part of Outcome 1.1 the project intervention will build the capacity of China's State Forest Farms (SFFs) to develop and implement sustainable forest management and restoration (FMR) plans incorporating FLR. This will be done initially in seven pilot SFFs in the three project areas; in years 2 and 3 the process will be replicated in 3 additional SFFs at the level of each of the three prefecture-level cities.

A separate activity set, also under Outcome 1.1, is the upscaling of FLR planning capacity at the municipal level by engaging planners from forestry and non-forestry sectors in Restoration Opportunity Assessment Methodology (ROAM) training. Through this, the Project and city-level stakeholders will produce FLR plans and as such assist city (in Bijie, Guizhou and Chengde, Hebei) and county (in Ganzhou, Jiangxi) forestry departments together with SFFs to engage across sectors to produce FLR plans with SFFs as core areas for transformation of the surrounding landscape.

Environmental impacts of these interventions are expected to be highly positive as the project provides for comprehensive ecological expertise and analysis when developing the FMR and the ROAM/FLR plans. However, forest restoration and changes in forest management regimes may involve negative social impacts due to changes in use rights and respective enforcement. For the city and county FLR plans this risk is considered relatively low as the ROAM approach
ensures that restoration strategies are designed together with relevant local stakeholders. Remaining risks and the fact that the process of developing the FMR plans for SFFs is less defined triggers the need for risk management measures. As the plans and respective restoration activities will only by decided during implementation, risk management provisions need to be integrated into the project. Table 3 in the preliminary situation analysis presented in Appendix VIII provides an overview of SFFs visited during the preparation phase and recommendations for potential activities; but these are only indicative activities.

Social impacts might also be triggered when policies and frameworks on landscape restoration and forest management are rolled out at the national scale (component 2). While such impacts are not directly caused by the project, social impacts might even be more significant as the project has less control over the implementation of such policies and social safeguard instruments may be absent. Examples for policies that might affect peoples’ livelihood are strengthened regulations related to illegal logging and lumbering in Jiangxi and respective enforcement.

In order to ensure that the FRM plans developed by the pilot SFFs and the city & county FLR plans designed during the FLR/ROAM exercise are compliant with the ESMS, an Environmental and Social Management Framework (ESMF) has been developed. An ESMF describes the process for screening, assessing, addressing and managing safeguard issues for project activities that will only be known during project preparation. The ESMF will also provide for ESMS review of the policies and legal frameworks supported by the project under component 2 in order to facilitate possible application of safeguard instruments as risk prevention. More concretely the ESMF will provide the following guidance and procedures:

- Formulating provisions for the ROAM process to be implemented by the identified pilot cities and counties to ensure adherence with ESMS Principles and Standards.
- Establishing a simplified ESMS procedure for identifying and managing environmental and social risks of the FMR and FLR plans as well as of policies and legal frameworks supported by the project.

II. ESMS-enhanced ROAM process

While the Terms of Reference for the development of Forest Landscape Restoration/ Restoration Opportunities Assessment Methodology (ROAM) capacity building and planning activities presented in Annex X of the project document already reflects elements that are similar to the IUCN ESMS risk management approach, this chapter present further enhancements to ensure full ESMS compliance of the ROAM process.

The FLR/ROAM planning process at the local level will involve five distinct steps. The ESMS enhancement of each of the distinct steps is delineated below.
**Step 1 - Inspiring people:** raising awareness, mobilizing communities and stakeholders to participate

In this step it will be critical to ensure an inclusive stakeholder engagement strategy for the local level and that appropriate participants are selected and invited for the local level workshops and other consultation events. The stakeholder analysis conducted during the project design phase identified eight broad stakeholder groups; however these were quite generic and did not reflect the specific conditions of the seven selected project sites. Hence at the outset of the ROAM process a more detailed stakeholder analysis will be prepared in each pilot area to prepare the ground for the engagement strategy.

For engaging community stakeholders a balanced ratio of men and women will be sought as well as balanced representation of stakeholder groups concerning other criteria (e.g. ethnic groups, different age, status/class etc.). As part of the stakeholder and situation analyses conducted in each area at the onset of the Project, the team will hold a preliminary meeting with the respective Pilot Area Advisory Boards (ABs) to request their advice on developing the stakeholder engagement methodology in each area, including identification of legitimate representatives of each group.

The engagement strategy should respect IUCN policy reflected in the ESMS Principle on Stakeholder Engagement and the Principle of Protecting the Needs of Vulnerable Peoples as well as provisions of the Indigenous People Standard. As such it will be ensured that not only stakeholder groups are identified that actively articulate their stake in forest restoration, but also (sub)-groups whose interests and livelihoods might be impacted (positively or negatively) by the forest restoration and management approaches promoted by the project but whose ability to articulate their needs and interests is less pronounced and/or might generally have less access, power and influence on land use decisions processes. Engaging these groups in the project will not only ensure that their needs and concern are taken appropriately into consideration when designing FLR plans but their engagement will also contribute to their empowerment.

The project team will design the workshops and other consultation activities in a culturally appropriate, non-discriminatory and gender-sensitive manner, free of external manipulation, intimidation or coercion. Information relevant to stakeholders will be shared in a timely manner in appropriate language and channels of communication. In village meetings, pro-active involvement of stakeholders will be institutionalized by a priori orientation on what the meeting is about. The meeting facilitators ensure that time and location are suitable for all stakeholder groups, in particular for ethnic groups, women and elderly. Wherever sensible the team will set-up separate meetings for ethnic communities and/or women in order to ensure appropriate levels of participation in the discussion or to accommodate schedules and obligations.

It is good practice to document the meetings and their participatory methods with minutes, describing topics discussed, concerns raised and potential disagreement, together with
names/occupation of participants (but participants not obligated to provide names) and photography or video, where appropriate. Stakeholder consultation will also include other forms of engagement such as interviews with stakeholder or stakeholder groups, results of which should also to be documented.

**Step 2 – Clarifying use rights**

Before any FLR interventions can be contemplated, it is important to clarify the relevant tenure situation and use rights disaggregated by relevant groups. This will involve working with local people to ensure that a good understanding of land, forest, and tree use rights and their actual implementation is developed. While recognizing statutory rights it is critical that also customary rights are well understood and respected when designing FLR interventions. Through this process grievances related to land issues may be identified, recognized and where possible managed. This relates in particular to ethnic communities as they might have experienced negative impacts from land-use decisions including violations of their rights. The involvement of different government departments is important in order to ensure that local policy, legal, and administrative frameworks related to forest management as well as expected changes are taken appropriately into account.

**Step 3 – Undertaking a comprehensive, integrated situation analysis**

The purpose of the situation analysis is to assess each of the selected pilot sites on its biophysical and socio-economic conditions and on local communities’ dependency on ecosystem services; as such it will lay the foundation for the identification of the priority issues for FLR engagement. The situation analysis will be conducted with multi-stakeholder participation to co-develop a shared understanding. In addition to covering the topics delineated in Annex X of the project document this steps should describe and analyse the following:

- Key demographic and socio-cultural features of the project sites including current and emerging social differentiation (based on ethnicity, language, class/status etc.), social organization and importance of family and kinship ties in the communities;
- Economic and social trends and challenges, disaggregated by social groups.

Since each community is different, it is critical to determine social groups in each project site and ensure an appropriate understanding of the development needs and dependencies on ecosystem services of the different groups, in particular of vulnerable members of the community. The consideration of vulnerable groups will include ethnic minorities, people who are landless or displaced, laid-off workers, elderly or disabled, children and groups that are impoverished, marginalised or discriminated against.

A number of ethnic minority groups in the three sites have already been pre-identified such as Miao, Buyei and Yi in Guizhou, She in Jiangxi, Mongolian in Hebei. Migrant herders may or may
not be considered ethnic minorities, depending on their location. The situation analysis should provide a comprehensive overview of the minority groups who inhabit or use the project’s area of influence, describe their language and levels of literacy and their use of land, land-use practices and means of livelihood. The geographic location of their settlements should be mapped as well as the location of main economic or cultural activities (including sites and resources of cultural and religious significance). The analysis should further clarify gender differences within the respective ethnic groups (e.g. land use, rights etc.) and suggest measures for ensuring cultural and location specific appropriateness of the FLR interventions. It will also be essential to determine whether any of these groups qualify as “indigenous peoples” according to IUCN definition.

Local ethnic minority groups and in particular pastoralist groups are sometimes misunderstood and may be confronted with prejudices, sometimes exacerbated by inappropriate policies implemented in the past. These issues would need to be taken into consideration not only in the situation analysis but also in the wider engagement strategies and during the development of the FLR plans.

Data gathering and consultation with monks, religious leaders, women and community leaders will ensure that relevant cultural conditions are perceived and that sites with cultural and/or spiritual importance are located. The latter will be important to ensure that forest management regulation do not prevent access to sites; it might also be relevant when developing potential future tourism and other income generating activities.

The situation analysis should provide for understanding gender specific livelihood strategies, roles or norms and needs and barriers faced by different genders, differences in the dependency on ecosystem services and forest products as well as current roles in forest management - within the SFF and as users of the surrounding forest landscape. Such understanding will allow identifying the potential need for gender differential action when designing FLR plans to address a bias or disadvantage as well as to seek opportunities for empowering women and improving gender equality. This might include identifying opportunities for playing a more active role in forest management, increasing women’s participation in decision-making and providing economic and social benefits through project activities (including access to resources, training, etc.).

**Step 4 – Co-develop FLR plans**

The social baseline data gathered as part of the situation analysis will be instrumental for the development of the FLR plans and to ensure that rights and livelihood context of the different social groups are respected, negative impacts are avoided and social benefits sought wherever possible and in line with the conservation objective. The development of the FLR plans is designed as a participatory process; following the provision described in the section on inspiring peoples (step 1) will ensure inclusiveness of this process.
It is evident that participation in the planning workshops will often be limited to the legitimate representatives elected by the communities at each project site. It is therefore essential that disclosure meetings will be organized at the community level to present the results of the workshops to a wider audience to inform them on the FLR plans and ensure their buy-in as well as feedback on potential risks. Good practice rules for organizing and documenting community meetings are already described under steps 1.

**Step 5 – Implement FLR plan, Review, revise and adapt**

During implementation of the FLR plans it will be important that the Project team and government staff establish and maintain close relationship with the respective local communities and stakeholders in order to ensure ongoing social acceptance of FLR within the local community. Local stakeholders will be actively engaged in monitoring the implementation of the agreed FLR plans. Monitoring should also provide for checking on new environmental and social risks that might emerge during project implementation.

A project-level grievance mechanism will be established following the guidance provided by the generic IUCN ESMS grievance mechanism\(^5\). This generic mechanism will need to be adapted to reflect local customs and institutions; it will be described in the local language and communicated and disseminated in a culturally appropriate way to all relevant stakeholders, women and men, in the project’s area of influence at the beginning of project implementation. To minimise grievances it will be essential that the project team and implementing partners are highly attuned to community concerns and provide for regular consultation during implementation.

**III. ESMS review and risk management procedure**

**a) Screening for potential environmental and social risks**

A simplified ESMS procedure has been established to ensure that the FRM plans developed for the pilot SFFs and the city & county FLR plans as well as the proposed restoration and forest management policies and legal frameworks are each screened for potential environmental and social risks.

The screening of the identified FLR plans is best done during step four of the ROAM process ("Co-develop FLR plans"). It should be undertaken as early as possible - when information on

\(^5\) Available on IUCN website at [www.iucn.org/esms](http://www.iucn.org/esms)
the FLR plans’ interventions is available in sufficient detail (e.g. geographical location, activities etc.).

The screening step will be supported by a questionnaire (ESMS questionnaire) that is designed to tease out risk issues that could give rise to potential negative impacts. It is structured in three sections.

In its **first section** the ESMS Questionnaire analyses impact issues related to the four ESMS standards:

- Standard on Involuntary Resettlement and Access Restrictions;
- Standard on Indigenous Peoples;
- Standard on Cultural Heritage;
- Standard on Biodiversity Conservation and Sustainable Use of Natural Resources.

The **second section** of the ESMS Questionnaire focusses on other environmental or social impacts (beyond the four ESMS Standards) that might be caused by the FRM and FLR plans and the proposed policies. It looks at risks such as

- health and safety issues,
- human-wildlife conflicts,
- community impacts including disturbances to patterns of social relations and social cohesion,
- risk of triggering conflict between communities, groups, or individuals and
- the potential of project benefits leading to discrimination or marginalisation of certain groups.\(^6\)

This step also involves analysing the FMR and FLR plans and policies on economic, social and cultural risks for women (or other gender groups) including the risk of inadvertently perpetuating or aggravating inequalities between women and men. Since the project proposes the creation of significant casual employment opportunities for community members, it is important to check on community dynamics of the employment and potential risks associated with temporal or seasonal employment.

In the **third section** the ESMS Questionnaire addresses risks of the proposed interventions inadvertently increasing the vulnerability of ecosystem and peoples in the context of climate change.

\(^6\) This includes the risk of negatively affecting the livelihood or rights of ethnic minority groups - in case these groups are not considered as indigenous groups (and as such covered by the Standard on Indigenous Peoples).
The results of the screening of the FMR plans for each SFF and FLR plans for each pilot city & county will be documented in form of screening reports according to the provided IUCN template. A separate screening report will be produced for each policy and legal framework supported by the project.

b) Managing environmental and social risks

If the ESMS screening identifies environmental or social risks these will be addressed by

- analysing the probability and significance of the identified risks,
- identifying alternative approaches in order to avoid risks and/or
- developing culturally appropriate and agreed measures for mitigating the risks.

These steps will require additional consultations with the affected groups and other concerned stakeholders which should be initiated as early as possible. Where risks of FLR interventions are identified the consultations include a discussion about alternative project design, trade-offs and mitigation measures. Depending on the nature of the risk this step might also require further environmental and/or social impact assessments (ESIA) and the development of mitigation measures to assist people affected by project activities in their efforts to improve or restore their livelihoods; the latter need to be documented in form of an Environmental and Social Management Plan (ESMP).

c) Relevant norms – ESMS Standards

*Standard on Involuntary Resettlement and Access Restrictions*

The Standard applies to projects where the conservation objectives require (1) resettlement of communities or (2) restricting peoples’ access to areas and/or the use of natural resources with impact on the economic, social, cultural and environmental benefits that people accrue from these resources or areas.

The access restriction component of the Standard is triggered by projects that involve

- establishing use restrictions under formal frameworks (e.g. legal framework for protected area),
- strengthening enforcement of existing resource restrictions and/or
- designing or redesigning protected area boundaries.

The Standard also covers activities that may require resettlement or eviction of households as well as involuntary land acquisition from a village or individual land owners for the purpose of infrastructure development or for the creation of buffer zones around a high biodiversity area.
The Standard does not apply to projects that support local communities in establishing resource use regimes (including access or use restrictions) on a voluntary basis, e.g. for the purpose of sustaining long-term use of resources to which they have legitimate rights. However, the project needs to ensure that these regimes do not put members of the community into a vulnerable position and that the community decision-making process is adequate and reflects voluntary, informed consensus; and if negative impacts on vulnerable groups are expected, that appropriate measures have been put in place to mitigate them.

If a project supports voluntary co-management agreements between relevant agencies and the community or other potentially affected stakeholders such as herders using rangeland within the project’s area of influence, a process of Free Prior and Informed Consent (FPIC) must be established. This process should start with the identification of legitimate representatives of the community and be accomplished through a series of at least 4 well-documented meetings conducted in good faith (an introductory meeting, a consultation meeting, and meeting to present the draft of an agreement, and a meeting to sign the agreement). The Project will ensure the involvement of at least one neutral observer that is not associated with the agency proposing the agreement (e.g. an independent social scientist with knowledge of the socio-cultural context of the affected group(s)).

These meetings should be combined with an analysis of social impacts to better comprehend potential impacts and their significance. If significant social impacts cannot be avoided by adjustments of project design and/or if the above mentioned consultation process does not provide for agreement on mitigation measures, the Standard is triggered and the respective provisions need to be followed.

Gender balanced representation of the affected group(s) in these consultations is desirable, although the project should take the community’s culture and traditions appropriately into account. An expert on gender, familiar with the local context should be able to advice on the right ways to ensure gender-responsive risk management strategy.

**Standard on Indigenous Peoples**

Projects that operate on land or territory of indigenous peoples require the analysis of the specific socio-economic and cultural conditions of these groups, their rights and needs. The applicability of the Standard’s provisions will be established by the integrated situation analysis that determines whether any of the ethnic groups present in the respective site qualify as “indigenous peoples” according to IUCN definition. The screening would then need to check whether potential adverse impacts are avoided or adequately addressed through mitigation measures. It also needs to be ensured that project activities respect indigenous people’s social and cultural identity, traditions and institutions, including their cultural and spiritual values and perspectives on the environment. Wherever relevant and possible, the project should seek
opportunities for providing culturally adequate and gender inclusive benefits to indigenous groups.

Legitimate representatives of indigenous groups need to be involved in relevant components of project design and their consent sought (following FPIC) to activities that might affect their rights, resources or livelihoods. If negative impacts cannot be avoided, mitigation measures need to be developed and agreed with the respective groups; the measures should be either incorporated in the ESMP or, if measures are substantial, articulated in form of a separate Indigenous Peoples Plan. FPIC is also required in case the project seeks to make use of indigenous knowledge or promotes the generation of social or economic benefits from cultural sites or resources to which they have legal rights.

**Standard on Cultural Heritage**

The Standard applies to projects that could adversely affect peoples’ cultural heritage defined as tangible or intangible, movable or immovable cultural resources or natural features of historical, cultural, spiritual or symbolic value.

The Standard is triggered for projects that involve:

- risks of potentially damaging cultural resources when undertaking small scale construction;
- the need of restricting access to cultural resources or sites;
- the development of social or economic benefits from cultural heritage.

**Standard on Biodiversity Conservation and Sustainable Use of Natural Resources**

The situation analysis is expected to achieve a thorough understanding of the state and trend of natural resources, drivers and pressures of environmental change, current flow of ecosystem services. It is further assumed that identification of FLR interventions is carried out in iterative steps where the impacts (positives and also potential negatives ones) on all components of biodiversity are assessed before agreeing on interventions. However, the Standard-related questions in the ESMS Questionnaire should nevertheless be competed as this might hint to issues potentially overlooked in preceding analytical steps.

One aspect that will deserve attention is the project’s intention to improve the conditions of existing tree monocultures by enriching with native species and protecting natural regeneration and soil. The project intends to test the performance of native species introduced from lower to higher altitude and/or from neighbouring climate zones to the immediate south of the sites. To mitigate against the danger of invasive behaviour of species or introduction of pathogens the project will:
- Screen any species to be introduced from beyond its current range for the potential to become invasive (e.g. due to its dispersal mechanism or growth habits) and avoid those species that are likely to be invasive.
- Avoid species subject to a current pathogen that negatively affects the fitness of individuals or populations.

d) Institutional Arrangements for ESMS

The institutional arrangements for implementing the ESMS review and management procedures are the following:

- High-level oversight will be provided by the Implementing Agency (see section 5.1.1 of the project document);
- The Project Management Office (PMO) led by the national Project Manager will be responsible for implementing the ESMS review steps and risk management procedures, including the drafting of respective screening reports and ensure implementation of possible mitigation measures established in the ESMP; he will also provide annual reports demonstrating compliance with the ESMS procedures (see section 5.1.6).
- The screening report of the FLR plan for city or county pilot site will be reviewed and approved by the respective Pilot Areas’ Advisory Boards (see section 5.1.5). The ABs will also monitor the implementation of the ESMP, where relevant.
- The Project technical advisor, the coordinators for each pilot area and other relevant technical staff and consultants will provide technical expertise on ESMS-relevant topics on request of the project manager and/or support him in ESMS-specific stakeholder consultation activities.
- Environmental or social impact assessments (ESIA), where needed, will be carried out through consultancies assignments.
- ESMS Training is provided during the inception phase of the project for all projects staff including the social team at the SFF Office and relevant governmental and non-governmental project partners.

e) Monitoring of ESMP progress and ESMS risks

Monitoring the progress in implementing the mitigation measures presented in the ESMP will be integral part of the project’s monitoring system described in chapter 7 of the project document.

ESMS monitoring also involves tracking the measures’ effectiveness in mitigating the identified environmental and social risks. Social baseline data for the villages and households adjacent to the forest areas belonging to the pilot SFFs will be collected during the project’s inception phase. Baseline data on local communities located in the area of influence of the counties/cities piloting the FLR/ROAM process are expected to be gathered as part of the integrated situation analysis.
Follow-up assessments, conducted at mid-term review and at terminal evaluation, will update these data for the purpose of monitoring and evaluating the effectiveness of mitigation strategy.

If FMR or FLR plans require the establishment of new restrictions on the use of forest resources or the enforcement of existing restrictions, this will require the development of dedicated indicators at village level to monitor livelihood impacts.
Appendix XII. Post-Design Stakeholder Consultation Meeting Notes

GEF TRI Project Meeting

June 19, 2017

In addition to general feedback used to improve project design, this meeting was held in order to identify potential barriers to implementation and mitigation measures, as well as potential risks integrated into the project document text. The barrier analysis is presented in the following tables.

Table XII – 1. Analysis of barriers to project implementation identified by key stakeholders

<table>
<thead>
<tr>
<th>1. Barrier to implementation</th>
<th>Raised by participants from:</th>
<th>Solution proposed by stakeholders</th>
<th>Project design team comment/solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity and capability barriers</td>
<td>Jiangxi, Hebei</td>
<td>J proposes each SFF should have a cadre of technical staff (2-3 specialists); H proposes no solutions.</td>
<td>The project design includes significant capacity building activities for SFF staff and develops permanent provincial capacity to support SFF planning and monitoring. The project’s planning process is expected to reorient the specific activities of co-financed projects to shift forest management towards FLR and augment existing capacities to achieve this.</td>
</tr>
<tr>
<td>• Limited capacity of current SFF technical staff to implement project</td>
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<tr>
<td>o Insufficient capacity for implementation of restoration</td>
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<tr>
<td>o Insufficient capacity for monitoring of ecosystem services</td>
<td></td>
<td></td>
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<tr>
<td>o Existing capacity of co-financed projects is not compatible with GEF project needs</td>
<td></td>
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<tr>
<td>• Low literacy rate of community residents participating in ecosystem service monitoring teams</td>
<td>Guizhou</td>
<td>1. Monitoring team leaders conduct multiple trainings over project 2. Select young people with relatively high literacy</td>
<td>Solution 1 is adopted by the project, and will follow the identification of indicators and data collection protocols that are feasible for community members to follow. The exclusion of older community members is ageist and potentially impractical given rural out-migration patterns.</td>
</tr>
</tbody>
</table>
| Insufficient capacity to attract investors in SFF sustainable development (SD) plans | Guizhou | 5. Collaboration among diverse departments  
6. Make enough preparations  
7. Establish fundraising systems and increase farm capacity to fundraise | Solutions 1-3 are acceptable. The project commits substantial technical assistance to increase capacity of SFFs to design and promote “bankable initiatives”, and will conduct an assessment to share lessons post facto. The knowledge acquired has value in itself to inform sustainability of reformed SFFs, and is an incremental benefit of the project. |
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</thead>
<tbody>
<tr>
<td>Conflict between China’s traditional decision making and the top-down, bottom-up method of decision making of this project</td>
<td>National</td>
<td>Fully research and consider the needs and interests of different stakeholders.</td>
<td>The project does not represent an immediate shift from top-down to bottom-up decision making, but paves the way for more bottom-up decision making by building capacity of provincial and sub-provincial institutions and communities to gather information, develop and propose plans, and implement approved activities.</td>
</tr>
</tbody>
</table>
| Activities are restricted by current policies:  
a. insufficient international travel quota;  
b. insufficient vehicle quota;  
c. Forest management and restoration (FMR) activities, such as cutting trees, are restricted by current policies | National | 1. Study current policies  
2. Plan and apply for permission in advance | Solution 1 is incorporated in project design. The Project should inform relevant national and provincial authorities prior to submission of the ProDoc to the GEF and seek a general sign-off on foreseen activities and/or a blanket exemption based on importance of piloting FLR approaches. Project maintains strong collaborative relationships with authorities and keeps them informed of activities and progress on a regular basis through sharing of reports and outputs. |
| Forestry or relevant government authorities do not approve FMR plans | Hebei | No solution proposed | No solution proposed |
| Challenges to implementation of FLR plans at the city level | Hebei | No solution proposed | Prior to FLR capacity building and planning, the Project has identified viable impact pathways to implementation (direct at SFF level and via receptive complementary projects at the city level such as Hebei’s integrated development plan and the Mountain-Water-Forest-Field-Lake projects); City delegates cross-sector planners to participate; project assesses progress and publishes guidelines and lessons learned. |
| Departments don’t cooperate actively due to: | National | 1. Strengthen training and communications  
2. Establish a cross-department advisory board and strengthen coordination |
| Personnel changes at various levels affect project implementation | Jiangxi | SFF directors must be accountable for continuing project operations in case of turnover. |
| Management of multiple SFFs merge with each other or with other departments and no longer exist to implement the Project. | Hebei | No solution proposed |
| Difficulty in engaging high-level cross-sector government official (e.g. City deputy mayor) to regularly participate in project activities/planning | Jiangxi | At county level, set up cross-sector inter-agency teams chaired by county leaders; at provincial and city levels, set up leadership teams within forestry department |
| SFFs may experience cash flow problems due to delayed disbursement of funds channeled through County Finance Bureaus. | Guizhou | Ensure adequate staffing and training of SFF finance office. |
| Inadequate public engagement | Jiangxi | Improving the communication and dissemination of GEF project; setting up permanent bulletin boards |
| Infrastructure-related barriers |  | The Project’s Institutional Structure and Implementation Arrangements (section 5) have been designed to take into account regional variation in appropriate levels of engagement. The composition of each body will be proposed and approved at project launch. |
| SFF's road conditions are poor | Guizhou | SFF management should develop and implement road improvement works |

The project has multi-level management structure; foreseen personnel changes should be highlighted in all quarterly SFF reports; orientation contingency fund for new personnel incorporated in budget. In case of this eventuality, the project management would negotiate a change in project sites or a handover of the project to the relevant authority with agreement of IUCN and GEF. If this solution proves impossible, the project may be cancelled and the Chinese government might need to return the funding associated with any unrealized output.

In order to ensure smooth cash flow, the Project should submit regular projections and accurate and timely requests for reimbursement to County Finance Bureaus. The Project design includes such awareness-raising tools as well as engagement of community members through township level forestry stations.

Major road works are beyond the scope of the project. SFFs might think creatively as to how to minimize new road building within SFFs through improvement of
Inadequate investment in SFF facilities impedes institutional development

Hebei
No solution proposed

A number of SFFs are endowed with significant facilities due to national and private investments, and some are over-developed. The purpose of Project Component 3 (GEF budget = ca. USD800,000 is to increase capacity of SFFs to obtain sustainable financing).

### Table XII – 2. Potential barriers associated with project design and financing identified by core stakeholders

<table>
<thead>
<tr>
<th>Funding and project design-related barriers</th>
<th>Raised by participants from:</th>
<th>Solution proposed by stakeholders</th>
<th>Project design team comment/solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate [project] funding allocation for FMR planning</td>
<td>Hebei</td>
<td>No solutions proposed</td>
<td>The project will provide technical assistance and additional capacity for FMR planning and monitoring totaling at least USD1,400,000 from GEF financing.</td>
</tr>
<tr>
<td>Inadequate allocation of SFF funds for project implementation</td>
<td></td>
<td></td>
<td>Seek buy-in from Provincial and National forestry authorities to ensure that activities conducted using co-financing funds incorporate shifts in practices following FMR management plans.</td>
</tr>
<tr>
<td>Lack of capacity and experience in fundraising</td>
<td></td>
<td></td>
<td>The Project includes significant capacity building in the</td>
</tr>
<tr>
<td>Issue</td>
<td>Responsibility</td>
<td>Action</td>
<td>Notes</td>
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</tr>
<tr>
<td>Co-financing does not arrive or is delayed</td>
<td>National</td>
<td>SFA coordinates with each province</td>
<td>Regularly communicate with agencies responsible for project co-financing. Establish template for reporting of co-financing by SFFs with each quarterly report based on funds received and spent on FLR-related activities.</td>
</tr>
<tr>
<td>Project valuation methodology design might be inappropriate</td>
<td>Jiangxi</td>
<td>Seek feedback and suggestions from all stakeholders</td>
<td>Design of the valuation methodology will be based on priorities established during the project, and will include feedback from stakeholders at all relevant scales.</td>
</tr>
<tr>
<td>FMR cannot be implemented as expected</td>
<td>National project design team</td>
<td>Study relevant policies; Adjust and reform relevant policies when necessary</td>
<td>Component 2 will address necessary policy analysis and reform; additionally, Project will monitor implementation progress quarterly and take timely steps to mitigate against project failure.</td>
</tr>
</tbody>
</table>
Appendix XIII. Supplemental information on Monitoring of Restoration and Ecosystem Services.

Monitoring restoration is critical to:

- Understand success, failure, and change over time;
- Support implementation of restoration and provide feedback for adaptive management;
- Create greater transparency and provide evidence of progress, achievements, and impact in relation to specific goals and objectives;
- Communicate results and outcomes to encourage positive momentum, inspire replication, scaling and allow for transferable results;
- Support sharing of evidence to restoration investors and enhance trust to foster additional investments;
- Support reporting on national, regional, and international commitments (Buckingham, Sabin, Stolle, & Zoveda, ca 2017).

The project design has considered and incorporated the three key questions posed in the guideline Measuring Progress for Forest and Landscape Restoration (Buckingham, Sabin, Stolle, & Zoveda, ca 2017) including Why restoration? What vegetation? and Which drivers (although the project uses the term pressures instead of drivers). Evidence of this can be found in the project workplan (see, for example ecological and biodiversity monitoring [Outcome 1.2] and project monitoring [Outcome 4.1]). The project provides a clear rationale for why restoration needs to be undertaken, it focuses on landscapes that have trees (SFFs) and it identifies the key contemporary pressures on forests in China including land-use change, habitat fragmentation, over-harvesting of species, alteration of surface and groundwater condition, pollution, introduction of invasive species, and climate change.

Timescale of ecosystem services generation vs. project timescale

A 4-year project cycle is too short to expect to be able to measure significant change in most ecosystem services as an outcome of the project. This is because of the time it takes to implement the project’s activities, the time it takes for ecosystems to change, and the variability of results across sites over short time frames.

The timescale for generating benefits from ecosystem services through restoration and improved management of SFFs depends on a range of factors including:

- The state and trend of the ecosystem (forest) at the start of the intervention
- The ability of the ecosystem to produce an increased flow of ecosystem services
- The type of ecosystem service
- The interventions applied to alter the type and flow of ecosystem services – including human resources, finances, intellectual capital (knowledge and skills), social license (willingness of the community to support changes), and manufactured/technological inputs (e.g. infrastructure to enable access for tourism)

The following table (Table 1.) provides an example of the time required for generating ecosystem services from a SFF that has moderate to good forest cover and moderate productive capacity, with a range of interventions applied (e.g. silvicultural treatment, restoration of degraded areas of forest, protection of riparian zones, establishment of built infrastructure for eco-tourism)

**Table XIII - 1. An example of the time required to generate particular ecosystem services**

<table>
<thead>
<tr>
<th>Ecosystem Service</th>
<th>Example of ecosystem service</th>
<th>Likely timescale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provisioning services</td>
<td>Timber</td>
<td>12-20 years. It is likely some timber will be available immediately and volumes can be increased with good management</td>
</tr>
<tr>
<td></td>
<td>Fuelwood</td>
<td>5-15 years. It is likely some fuelwood will be available immediately and volumes can be increased with good management</td>
</tr>
<tr>
<td></td>
<td>Food</td>
<td>0-8 years. Some foods such as mushrooms can be produced in less than a year, bamboo shoots in 1-2 years and other foods such as tree fruit can take 5-8 years for harvestable quality</td>
</tr>
<tr>
<td>Regulating services</td>
<td>Watershed regulation and flood control</td>
<td>5-15 years. Improved catchment values require good vegetation cover and a reduction in soil erosion</td>
</tr>
<tr>
<td></td>
<td>Climate regulation</td>
<td>5-15 years. Regulation of local climatic conditions requires good ground cover. Forests will begin sequestering carbon immediately but take 5-15 years to generate significant annual carbon stocks</td>
</tr>
<tr>
<td>Cultural services</td>
<td>Eco-tourism</td>
<td>0-2 years. Some sites are likely to be ready for ecotourism immediately, others will require the construction of infrastructure (e.g. pathways, interpretation signs, seating, toilets, car parks) that takes several years to design, gain approval and build.</td>
</tr>
</tbody>
</table>
In order to assess the contribution of the Project to enhancement of ecosystem services, the Project will collect baseline data and establish the mechanisms needed to monitor longer-term effects and these will be up-scaled to use by the institutions involved in developing ecosystem services valuation methods at the national level. Because the project is a pilot project, as ecosystem service valuation methods are adopted and put into use at higher scales, there is a high probability that the baseline data and monitoring data collected during the project will be used in future studies by Chinese forest ecologists, climate change researchers, etc.
## Appendix XIV. Key socioeconomic indicators for China

### Table XIV – 1. China Socioeconomic Indicators

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Population, total (millions)</td>
<td>1,135.19</td>
<td>1,262.65</td>
<td>1,337.71</td>
<td>1,371.22</td>
</tr>
<tr>
<td>Population growth (annual per cent)</td>
<td>1.5</td>
<td>0.8</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Surface area (sq. km) (thousands)</td>
<td>9,563.00</td>
<td>9,562.90</td>
<td>9,562.90</td>
<td>9,562.90</td>
</tr>
<tr>
<td>Population density (people per sq. km of land area)</td>
<td>120.9</td>
<td>134.5</td>
<td>142.5</td>
<td>146.1</td>
</tr>
<tr>
<td>Poverty headcount ratio at USD1.90 a day (2011 PPP) (per cent of population)</td>
<td>66.6</td>
<td>40.5</td>
<td>11.2</td>
<td>1.9</td>
</tr>
<tr>
<td>GNI, PPP (current international USD) (billions)</td>
<td>1,122.93</td>
<td>3,658.90</td>
<td>12,431.61</td>
<td>19,630.58</td>
</tr>
<tr>
<td>GNI per capita, PPP (current international USD)</td>
<td>990</td>
<td>2,900</td>
<td>9,290</td>
<td>14,320</td>
</tr>
<tr>
<td>People</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income share held by lowest 20 per cent</td>
<td>..</td>
<td>..</td>
<td>5.2</td>
<td>5.2</td>
</tr>
<tr>
<td>Life expectancy at birth, total (years)</td>
<td>69</td>
<td>72</td>
<td>75</td>
<td>76</td>
</tr>
<tr>
<td>Fertility rate, total (births per woman)</td>
<td>2.4</td>
<td>1.4</td>
<td>1.5</td>
<td>1.6</td>
</tr>
<tr>
<td>Mortality rate, under-5 (per 1,000 live births)</td>
<td>54</td>
<td>37</td>
<td>16</td>
<td>11</td>
</tr>
<tr>
<td>Primary completion rate, total (per cent of relevant age group)</td>
<td>103</td>
<td>52</td>
<td>110</td>
<td>92</td>
</tr>
<tr>
<td>School enrollment, primary (per cent gross)</td>
<td>129.7</td>
<td>107.4</td>
<td>112.5</td>
<td>104.1</td>
</tr>
<tr>
<td>School enrollment, secondary (per cent gross)</td>
<td>37</td>
<td>61</td>
<td>85</td>
<td>94</td>
</tr>
<tr>
<td>School enrollment, primary and secondary (gross), gender parity index (GPI)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Urban population growth (annual per cent)</td>
<td>4.3</td>
<td>3.6</td>
<td>3.3</td>
<td>2.7</td>
</tr>
<tr>
<td>Energy use (kg of oil equivalent per capita)</td>
<td>767</td>
<td>899</td>
<td>1,955</td>
<td>2,237</td>
</tr>
<tr>
<td>CO2 emissions (metric tons per capita)</td>
<td>2.17</td>
<td>2.7</td>
<td>6.55</td>
<td>7.55</td>
</tr>
<tr>
<td>Electric power consumption (kWh per capita)</td>
<td>511</td>
<td>993</td>
<td>2,944</td>
<td>3,927</td>
</tr>
<tr>
<td>Economy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP (current USD) (billions)</td>
<td>360.86</td>
<td>1,211.35</td>
<td>6,100.62</td>
<td>11,064.66</td>
</tr>
<tr>
<td>GDP growth (annual per cent)</td>
<td>3.9</td>
<td>8.5</td>
<td>10.6</td>
<td>6.9</td>
</tr>
<tr>
<td>Mobile cellular subscriptions (per 100 people)</td>
<td>0</td>
<td>6.7</td>
<td>63.2</td>
<td>92.2</td>
</tr>
<tr>
<td>Individuals using the Internet (per cent of population)</td>
<td>0</td>
<td>1.8</td>
<td>34.3</td>
<td>50.3</td>
</tr>
<tr>
<td>Net migration (thousands)</td>
<td>-824</td>
<td>-2,144</td>
<td>-1,800</td>
<td>-1,800</td>
</tr>
<tr>
<td>Personal remittances, received (current USD) (millions)</td>
<td>196</td>
<td>758</td>
<td>13,636</td>
<td>44,445</td>
</tr>
<tr>
<td>Net official development assistance received (current USD) (millions)</td>
<td>2,032.40</td>
<td>1,749.00</td>
<td>671.9</td>
<td>-331.8</td>
</tr>
</tbody>
</table>

Figures in blue refer to periods other than those specified.
Source: World Development Indicators database. Data from database: World Development Indicators. Last Updated: 06/01/2017
Appendix XV. Age distribution of the Chinese population in 1953 (top) and 2010 (bottom).
Appendix XVI. Co-Financing Letter

October 25, 2017

GEF coordination unit of IUCN

Subject: Co-financing support for Building Climate Resilient Green Infrastructure: enhancing ecosystem services of planted forests in China through forest landscape restoration and governance innovation

Dear Mr. Pirot,

On behalf of General Station of State-owned Forest Farms and Forest Seeds and Seedlings, the State Forestry Administration of P.R.China, I am pleased to commit USD 54,047,570 as co-financing to support the achievement of the objectives and outcomes of the GEF-funded project Building Climate Resilient Green Infrastructure: enhancing ecosystem services of planted forests in China through forest landscape restoration and governance innovation.

The above-mentioned contribution is intended to qualify as co-financing should the project proposal be successful.

Sincerely,

[Signature]

Cheng Tong
Director General of General Station of State-owned Forest Farms and Forest Seeds and Seedlings,
State Forestry Administration of P.R.China

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