Asia-Pacific Network for Sustainable Forest Management and Rehabilitation

PROJECT PROPOSAL

Rehabilitation and Management of Degraded Forests in Miyun Reservoir Watershed, Beijing

Beijing Forestry Society

March 2015

Project title	Rehabilitation and Management of Degraded Forests in Miyun Reservoir Watershed, Beijing
Supervisory agency	Beijing Municipal Bureau of Forestry and Parks (BMBFP)
Executing agency	**Beijing Forestry Society (BFS)**

Expected project duration: 01/07/2015 to 30/ 06/2018, in total 36 months

Target area (project locations and context)
Three demonstration sites located in the Miyun Reservoir Watershed, in Beijing, China, where the challenge is forest quality for source-water protection.

Total budget(USD)	**Expected APFNet grant(USD)**	**Counterpart contribution (USD)**
696,300	491,100	(in cash and in-kind) 205,200

Project summary:

This project addresses the issue of forest management in the Miyun Reservoir Watershed, Beijing, China, with the goal to safeguard water quality of watershed by applying integrated forest management approaches. The project will focus on transforming monoculture plantation of *Pinus tabuliformis* and *Platycladus orientalis (Linn.)Franco* into mixed forests with braod-leaved tree species, improving management approaches of the existing orchard of *Juglans regia* and *Castanea mollissima*, promoting development of eco-tourism, strengthening capacity building of relevant stakeholders and summarizing best practices to guide development of long-term forest management plan in the watershed.

The project is planned to achieve the following specific objectives :
a) to improve the water conservation capacity of the forests in three sites of the project by applying close-to-nature management approach;
b) to reduce water pollution caused by fertilizer application in the orchard selected;
c) to improve the livelihood of the local community selected by promoting the development of forest recreation;
d) to enhance the capacity of relevant stakeholders in forest management in environment-friendly manner;
e) to produce best practice models for a better long-term forest management in the watershed.

It is expected that, after the implementation, the water conservation capacity of the

forests in demonstration site can be improved, and best management models can be produced to contribute to find solutions to the conflict between forest protection for water conservation and rural development and further contribute to development of policies in this regards by local government in order to safeguard the water supply and quality of Miyun Reservoir.	
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Prepared and Submitted by Mr. Li Hao Project Director, Beijing Forestry Society **(Printing name and title)** Project Proponent Signature on behalf of EA Date 15 March 2015	Reviewed and Nominated by Mr. Zhang Zhongtian Director of Multilateral Relations, Department of International Cooperation, SFA **(Printing name and title)** Focal Point Signature Date

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Abbreviations and Acronyms

APFNet Asia-Pacific Network for Sustainable Forest Management and Rehabilitation
BFPIC Beijing Forestry and Parks Department of International Cooperation
BRMPs Best Rehabilitation & Management Practices
BFS Beijing Forestry Society
BFU Beijing Forestry University
CAF Chinese Academy of Forestry
CIF Canadian Institute of Forestry
CU Cornell University
EA Executing Agency
GEF Global Environment Facility
LTM Long-term Forest Management Planning
NGO Nongovernmental Organization
NTFP Non-timber Forest Product
OECD Organization for Economic Co-operation and Development
PLCU Participatory Land Use Planning
PMWP Partnership for Mega-city Watershed Protection
SA Supervisory agency
SFA State Forestry Administration
UNDP United Nations Development Program

1. Background and Rationale

The available per capita water usage in Beijing has dropped to 100 cubic meters, much lower than the internationally acknowledged warning line of 1,000 cubic meters per capita, according to the Beijing Water Authority. The water shortage in Beijing has touched water crisis level. Water supply for Beijing depends on surface water, underground water and water diverted from the outside. The water table also dropped rapidly in part of Beijing, it is impossible to use more underground water. Though the city will receive some 1 billion cubic meters of water each year from the South-to North Water Diversion Project, it cannot meet the annual shortage of 1.5 billion cubic meters. The situation urges a better use and protection of Reservoirs around Beijing. The Miyun Reservoir, the largest of its kind in north China, is the primary source of drinking water for Beijing residents, provides more than 60% of the capital's surface drinking water. The reservoir, in recent years, has been plagued by both pollution and degradation of forests around it, which worsens the situation of water shortage and poses a threat to the quality of drinking water. Accounting for 70% of the total area of the watershed where the reservoir located, forests play an important and irreplaceable role in conserving water and protecting the reservoir and safeguard the quality of water running into the reservoir. With respect to the multi-functions, especially for conserving water, of the forests, there are considerable deficiencies due to lack of wise management. About 75% of the forests in the Miyun Reservoir Watershed are categorized as "sub-healthy", with the feature instable forest ecosystems and low water conserving capacity. In addition, traditional management practice of orchards, especially application of fertilizer, produce pollution on surface water before running into the reservoir, posing a threat to the quality of drinking water of Beijing residents. Meanwhile, the contradiction between livelihood improvement of forest dependent communities and protection of forest resources is challenging as extremely stringent water conservation regulations laying restrictions on industrial development and land use in upper watershed areas has limited local residents' access to forest resources and intensified their poverty. All these issues, having direct or indirect impacts on water, shall be addressed properly. For a sustained supply of high quality water from the reservoir, a long term forest management plan in the water shall be developed, taking into account of forest management, livelihood improvement and water quality and with a focus on increasing water conserving capacity of forests, reducing pollution from unwise forest management, improving livelihood of forest dependent communities and capacity building of relevant stakeholders in forest management. Therefore, the project is proposed to demonstrate how to manage monoculture plantations of *Pinus tabuliformis* and *Platycladus orientalis (Linn.)Franco*, how to improve management of existing orchard to reduce pollution and how to improve the livelihood of local communities by wisely using forest resources.

2. Relevance and methodology

The project meets APFNet priorities specifically by improving forest management to reduce forest loss and degradation (i.e. mitigation and adaption to climate change) and promoting forest rehabilitation to meet multi-functional objectives (i.e. water conservation, socio-economic livelihood, ecological processes and services,).The project will be implemented over three years in a participatory approach engaging multi stakeholders in consultation, planning and implementation of the project that is composed of demonstration of forest management in field and livelihood alternatives, expert consultation, training of relevant stakeholders, dissemination of best practices.

3. Goal and Objectives

3.1 Goal

The goal of the project is to safeguard water quality of Miyun Reservoir watershed by applying integrated forest management approaches.

3.2 Objectives

a) to improve the water conservation capacity of the forests in three sites of the project by applying close-to-nature management approach;

b) to reduce water pollution caused by fertilizer application in the orchard selected;

c) to improve the livelihood of the local community selected by promoting the development of forest recreation;

d) to enhance the capacity of relevant stakeholders in forest management in environment-friendly manner;

e) to produce best practice models for a better long-term forest management in the watershed.

4. Outputs and Strategic Activities

The outputs and main activities are as follows:

<u>Output 1</u>

Monoculture plantations of Tabuliformis and Platycladus orientalis (Linn.)Franco of 280 hectares in three project sites is managed in a close-to-nature approach.

Activity 1.1 Development of five-year forest management plan of project sites

An expert team, composed of both local experts and international experts, will be established to conduct field survey and consultations with local communities and other relevant stakeholders to develop a five-year forest management plan for each site.

Activity1.2 Transforming monoculture plantation of Pinus tabuliformis and Platycladus orientalis (Linn.)Franco into mixed forests with broad-leaved species

The monoculture plantations of about 280 hectares, including *Pinus tabuliformis* planation and *Platycladus orientalis (Linn.)Franco* plantation of 150 hectares in Shicheng Village located in the First Class protected Area in the west of the watershed, *Platycladus orientalis (Linn.)Franco* plantation of 30 hectares around the orchard of *Juglans regia* and *Castanea mollissima* and Pinus plantion of 100 hectare in Shichangyu Village in the downstream of the Reservoir, will be transformed and managed in Close-to-nature approach with different technical models.

Activity 1.2.1 Management of Pinus *tabuliformis* plantation in Shicheng Village

The plantation, built in 1980's on sunny and semi-sunny slopes with a altitude lower than 400m and a thin layer of soil, presents a poor performance featured by low-rise stands, stagnant height growth, flat-topped shape, a lower stocking volume and one story of some aged stands. The plantation has a poor eco-function and low value of landscape recreation. By application of close-to-nature management approach, the stands of poor quality and crashing stands will be harvested while targeted stands and broadleaved stands in under-stories remained. Meanwhile enrichment planting by using native broad-leaved species such as Quercus variabilis, Quercus aliena, Acer truncatum, Fraxinus Americana and Ailanthus altissima will be conducted to change the composition of forest stands, cultivate dominant stands story and finally transform the Pinus monoculture into a

mixed coniferous and broad-leaved forests of different aged stands with native broadleaved species as dominance.

Activity 1.2.2 Management of Platycladus orientalis (Linn.)Franco plantation in Shicheng Vilage

The plantation, established in 1980's and 2005, is featured by a high canopy closure (more than 70%), a high difference of stand height and a high density of stands. The management objective of the plantation is to transform the plantation into mixed forests, changing the structure of stand composition from one story of same aged stands to multistory of different aged stands of different species, to increase litter and soil fertility and give a full play of protective function of the forest. The management measure to be applied include selection and mark of target stands, leaving more spacing for the target stands, pruning the dead or dying branches of target stands, thinning the stands with a closure more than 70% by cutting crashing stands, harvesting crashed and poor stands through thinning practices, protecting and cultivating seedlings of native broadleaved species in the understory and, if necessary, enrichment planting of native broadleaved tree species.

After intervention in Activity 1.2.1 and 1.2.2, shrub and glass cover is expected to increase by 5 %; soil retention capacity of the forest is expected to increase by 10-20 % and soil erosion reduced by 10-20 %.The water conservation capacity of the forests is improved

Activity1.2.3 Management of Platycladus orientalis (Linn.)Franco plantation around the orchard of Juglans regia and Castanea mollissima in Maoshigou Village

The village, located in the Second class protected area of the watershed in the north of the reservoir, highly depends on forestry and fruit industry. Forests and tree stands, mainly Platycladus orientalis plantations built in 1998 and 1999, take up more than 86%. The quality of surface water has direct impact on water quality of the reservoir as the surface water runs into the reservoir directly. Due to the traditional management practice in the

orchard of Juglans regia and Castanea mollissima and aging of tree stands, over application of fertilizer in the area poses a threat of pollution to the surface water. At the same time, the forests in the village territory, dominated by monoculture of Platycladus orientalis (Linn.)Franco, functions poorly in filtering pollutants from orchard management. To reduce pollution risk caused by orchard management, the Platycladus orientalis plantation of 30 hectares around the orchard will be managed in same manner as in Activity 1.2.2 to increase filtering function of the forests.

The project will also help local communities to gradually replace part of the existing walnut and chestnut trees with new varieties through replanting and grafting to improve yields, thus reducing application of fertilizer and pesticides. It is expected that, with the intervention of project activities, TN will be reduced by 70-80 %; TP by 50-60%; COD by more than 80%.

Activity 1.2.4 Management of Pinus tabuliformis plantation of 100 hectares in Shichangyu Village

Shichangyu village, located in the downstream of Miyun Reservoir, highly depends on agriculture and forestry for income. Of the total village territory, there are farmland of 67hectares, orchards of 47 hectares and forest plantations of 557hectares. The forest plantations mainly built in 1960s' and 1980s' from Pinus tabuliformis and Platycladus orientalis, are categorized as protective forests. Due to lack of management, the Pinus Tabuliformis plantation, with a low eco-function and landscape value, is plagued with a high density and fragmentation of structure and canopy layers. The plantation shall be managed in Close-to-nature approach to improve stand composition, structure and canopy layers to enhance its eco-functions and landscape value. In this regard, management measures in Activity 1.2.1 and 1.2.2 will be introduced.

Output 2 The livelihood of local community improved by promoting eco-tourism

Shichangyu village is blessed with rich forest resources and convenient transportation which can be make the village a good spot for Beijing residents whose forest recreation demands are increasing. It is planned to turn the village into a base for forest recreation and natural education. With the development of eco-tourism, it is expected that the income of local community can be increased, the dependence on forest resources can be decreased and the awareness of forest protection can be further enhanced.

Activity 2.1 An eco-tourism plan developed

An expert team will be set up to conduct consultation with local village and other stakeholders including government agencies of the Miyun County conduct field survey to identify tourism resources or spots, carry out an analysis of market demands and finally develop an eco-tourism plan for the village.

Activity 2.2 Development of tourism infrastructure

In this project, a footpath of 8km in forest, a culture exhibition house of 200 m^2 and infrastructure for forest recreation at different spots will be built. Local households will be encouraged and supported to set up Guesthouses and home restaurants.

Activity2.3 Marketing in Beijing

A marketing plan will be produced and a marketing team will be organized to conduct marketing in Beijing through Medias and cell phones and volunteers employed to disseminate posters and brochure.

Activity 2.4 Management plan of eco-tourism developed and implemented

A team or experts will be employed to conduct consultation with tourism authority in the County and the village to develop tourism management plan and set up criteria for tourism services, including forest protection, fire management, pricing of tickets, guesthouse and home restaurant management.

Output 3 Capacity of local communities in managing forest and eco-tourism improved.

Activity 3.1 Training manuals development

Experts will be invited to develop a training manual for close-to-nature forest management approach and a manual for eco-tourism management. The manuals will be written in plain and simple language and printed into brochure.

Activity 3.2 Training local forest practitioners for implementation of the Long-term Forest Management Plan

Two training sessions including indoor training and on-site demonstration will be organized after the Long-term Forest Management Planning is developed. About 50 local forest practitioners will be trained on how to implement the Plan in the demonstration sites.

A technical training session will be organized in each field demonstration site to help the local staff to fully understand the technical requirements and rules of close-to-nature forest management approach and master basic skills in this regard.

Activity 3.3 Training local farmers involved in eco-tourism

A training session will be conduct to train farmers who are employed to manage the recreation infrastructures in forests and patrolling to increase their capacity to maintain the infrastructure in good shape and take care of the environment and reduce risks of accidents such forest fire and injuries.

A training session will be organized for households engaged in providing guesthouse and home restaurant services to raise their awareness of better services and safety as these are key elements for visitors.

A training session for village committee will be organized on management of eco-tourism to let them learn some regulations and rules of tourism management, thus to raise their awareness and capacity of leadership , coordination and management to ensure the eco-tourism development in healthy and sustainable way.

Output 4 experience and lessons learned summarized and disseminated

Activity 4.1 Establishment of knowledge hub

A network and knowledge hub, on the basis of the website of BFS and PMWP, will be developed to post on monthly newsletters, progress and achievement of the project. The project team will be responsible for collecting data, compiling newsletter and reports and maintaining the hub.

Activity 4.2 Organization of workshops.

A national workshop will be organized, on the occasion of the 6th Beijing Forest Forum to be held in October 2016, for policy-makers and technical staff from Beijing, Hebei Province and Tianjin City to disseminate project practices of the project. And site tour will be organized after the workshop.

An international workshop will be held, on the occasion of the Guiyang Eco-Forum in April 2018, to present the outcome of project and disseminate the best practices from it. National and international experts will be invited to present their experiences and lessons learned in other watersheds.

Activity 4.3 Preparation and submission of policy recommendations to local and Beijing municipal governments.

Based on the outcome of the project, the implementing agency will make effort to summarize experience and lessons learned and further consult with local communities to prepare a recommendation report on how to manage the forests in the watershed of Miyun Reservoir, especially how balance forest protection and rural development , to improve water conservation capacity of the forests. The implementing agency will submit

the report to the Beijing Municipal Government through the Green Channel of Beijing Association for Science and Technology

4. Risks and assumptions

The proposed project is entirely feasible given that it is within the scope and experience of the executing agency, BFS. Success will be measured not simply by the completion of the work, but by the degree of the influence it has on the Miyun Reservoir Watershed and on other source-water areas in China.

The possible risks of this project include:

a. Mobilization of resources and multiple stakeholders.

This project involves different stakeholders. At the local level, forestry authorities, forestry researchers, practitioners, and local forestry communities will be involved in project implementation. Internationally, there will be experts from Canada and the US, who will provide their experience and expertise in forest management and community involvement. Lack of efficient and effective communications or support from any of those stakeholders will result in difficulty in implementing a successful project. Innovative mechanisms and facilitation strategies are needed to manage this risk. For example, there is lack of knowledge and awareness among local community members in terms of forest protection and management, which may impact their willingness to participate. The project will provide employment opportunities for them and conduct training and education activities among them, to boost their enthusiasm.

b. Effective development of demonstration sites.

It is unrealistic to expect the instant development of a biological entity, such as a forest. Development of the site will be a process requiring effort of years. This is mitigated in this project by the use of: i) Long-term Forest Management Planning which is available for future stakeholders; ii) the ongoing investment and commitment by BFS to site development.

5. Human Resources and capacity assessment

1) Organizations and Staff

The project will be implemented by BFS, with assistance from supporting partners, BFU, CAF, CIF and CU. BFS was established in 1955 by a group of foresters in Beijing, and it currently consists of over 2800 members. The membership brings together a rich variety of specialists working in diverse forest related fields with the common goals of promoting sustainable forestry and community development. It is an information exchange platform for professionals and practitioners in Beijing, elsewhere in China and the world. BFS mainly focuses on forestry related science promotion, environment protecting, capacity building, climate change mitigation and watershed management. Over the years, BFS have made full use of its expert resources and geographical advantage to cooperate with IUCN, WWF, UNDP GEF, Forest Trends and other international organizations on over 20 programs related to sustainable forest management, close-to nature forest management, improvement of forestry communities' livelihood, climate change mitigation, forest landscape restoration, forest certification, watershed management and more. These same groups will also be engaged in this project to provide their experience and expertise, and help to disseminate project outputs. Currently, BFS has 13 full-time staff, and over 100 long-term consultants.

The following table highlights key project staff and their responsibilities:

Name	**Role**	**Responsibilities**
Qin Yongsheng	Project director	Overall project management and supervision
Li Hao	Project manager	Project implementation
Shen Qianqian	Project coordinator	Assist the project manager in all aspects of project implementation
Wang Yongchao, Xia Lei, Shao Dan	Project support staff	Organization of training sessions and education programs
Zhang Yao, , Wang Chang	Admin/finance staff	Administration and financial control, to ensure that activities are implemented

(BFS)		according to APFNet financial requirements.

2) Coordination and Communication Mechanism

To ensure efficient and effective project implementation, a project steering committee consists of multiple stakeholders, i.e. officials from APFNet, SFA and BMBFP, will be convened annually to provide supervision and recommendations.

6. Budget, funding resources and financial management

The estimated total project cost is 696,300 USD, including an expected grant of 491,100 USD from APFNet and a counterpart contribution of 205,200 USD from BFS. The counterpart contribution will channeled through BFS's other ongoing projects or as direct in-kind contribution.

Total budget(USD)	**Expected APFNet grant(USD)**	**Counterpart contribution (USD)**
696,300	491,100	(in cash and in-kind) 205,200

The financial staff will be trained before project implementation and will be under the direction of the project co-directors. They will be in regular and effective communication with project managers and project coordinator.

A detailed financing schedule will be prepared before project implementation upon approval from APFNet and a financial plan for each quarter will be reflected in the annual project work plan. Any adjustment can only be made after written consent from APFNet. Disbursement of costs and expenses shall be strictly in line with APFNet requirements.

7. Monitoring and evaluation

Monitoring and evaluation will be conducted during project implementation and after project completion. There will be internal monitoring, APFNet monitoring and final external evaluation. For the final evaluation, the OECD (Organization for Economic Co-

operation and Development) evaluation method will be employed, in which project outputs will be evaluated in terms of their relevance, effectiveness, efficiency, impacts and sustainability.

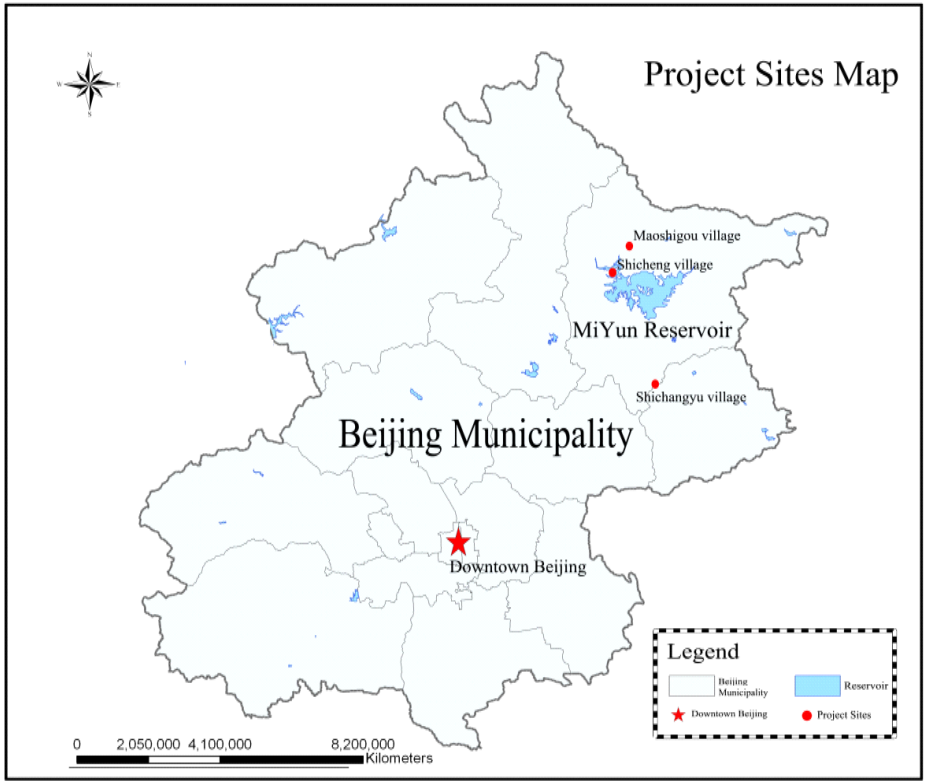
Outputs	Monitoring indicators
The goal is to safegard water qaulity of watershed by applying integrated forest management approaches.	
Outpu Monoculture plantations of Tabuliformis and Platycladus orientalis (Linn.)Franco of 280 hectares in three project sites is managed in a close-to-nature approach. t 1	The rehabilitation of 280 hectares of degraded forest ecosystems in designated demonstration areas. i) For water conservation capacity, in the Shicheng Village, shrub and glass cover will increase by 5 %; soil retention capacity will increase by 10-20 %; soil erosion will reduce by 10-20 %. ii) For water purification, in the Maoshigou Village, TN will reduce by 70-80 %; TP will reduce by 50-60%; COD will deduce by more than 80 % and soil erosion will reduce by 8-20 %; The quality of inflow to the reservoir will reach the 2nd surface water standard. iii) In the Shichangyu Village, 100 hectares of forest is managed, 8 of recreational forest paths built, and 20 eco-toilets and 20 energy-saving brick-beds built).
Output 2 **The livelihood of local community improved by promoting eco-tourism**	a. Eco-tourism plan for the village in place; b. Infrastructure developed c. Capacity of managing eco-tourism improved d. Management plan implemented e. Income to be increased
Output 3 Capacity of local communities in managing forest and eco-tourism improved.	a. Forest practitioners in project sites fully trained to understand and capable to implement the forest management plan b. Technical staff trained to guide the field work c. People involved in eco-tourism trained

Output 4 Project results are disseminated in Beijing and in China. Policy recommendation for upscaling project practices submitted to Beijing forestry authorities and high level policy-makers.	i) Training sessions and workshops for at least 24 policy-makers and 120 technical staff from Jing-Jin-Ji region and other domestic cities within the PMWP network. ii) At least one policy recommendation on forest management and livelihood improvement in the Miyun Reservoir Watershed will be submitted to the Beijing Municipal Government.

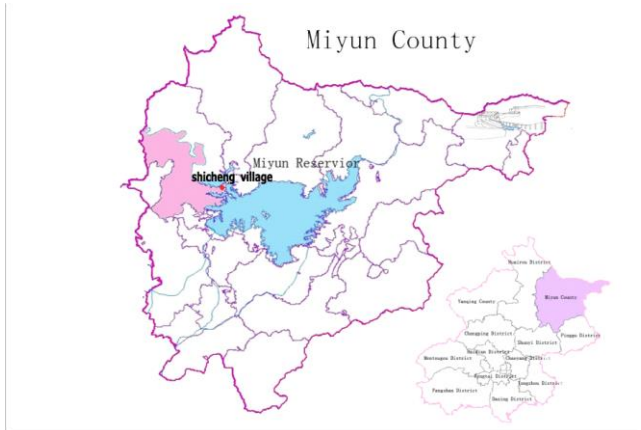
8. Dissemination and sustainability

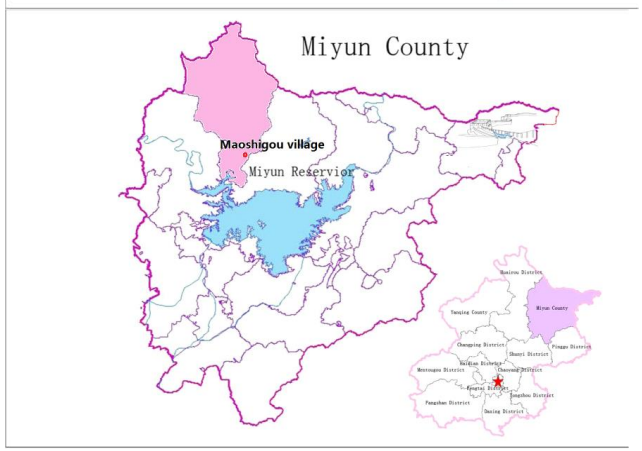
During implementation of the project, important activities and achievements at different stages will be recorded, lessons learned and practices will be disseminated to the general public and stakeholders through multiple media, project brochures and display boards. Forests in the three demonstration sites will be sustainably managed by the local communities based on the Long-term Forest Management Planning. The project activities will be combined with other projects implemented by BFS, such as "The Transformation Project for Low-quality Forest in Beijing Mountainous Area", "IUCN-EU Mega-cities and their Watersheds: Nature-based Solutions for Sustainable Drinking Water Sources", "Research and Demonstration Program on Forest Landscape Restoration Technical Systems in Miyun Reservoir Watershed" and other domestic and international projects, to disseminate project influence through multiple media.

Lessons learned and good practices gained through the implementation of the project will also be distributed to other regions and areas, through network of BFS and PMWP. Project staff will also identify and participate in other project networks to learn their experience, to facilitate project implementation; the project will be integrated with other projects, and expert recommendation will be submitted to local and regional policy-makers.


Project Sites Map
Maoshigou village
Shicheng village
MiYun Reservoir
Shichangyu village
Beijing Municipality
Downtown Beijing
Legend
Beijing Municipality
Reservoir
Downtown Beijing
Project Sites
0
2,050,000
4,100,000
8,200,000
Kilometers

Three demonstration sites are located in Miyun County, Beijing's important drinking water protection area, and it is also where the Miyun Reservoir is located. Forest management and protection as well as community development and stability around the Reservoir can safeguard the sustainable social and economic development of the capital. Miyun County has a rather dry, monsoon-influenced humid continental climate, characterized by hot, humid summers, and generally cold and dry winters. The precipitation averages around 661.3 mm annually, a majority of which occurred from June to September. In rainy years, the maximum rainfall is 905.8 mm, as against 376.7 mm in dry years. Demonstration area in the three selected sites is 280 hectares.





Shicheng Village

The Shicheng village is in the west of the Miyun Reservoir. Forest coverage rate in the village is 82.66 %. Most of the forest is source-water protection forest. The village is located in the Reservoir's 1st level conservation zone. It is close to the reservoir (1-2 kilometers), and it is in the riparian areas, where extremely stringent regulations on water protection are applied, and industry and husbandry have been prohibited since the 1990s, which has resulted in poor local community livelihood. In this project, consultations with local

authorities and communities will be organized to develop a practical forest management plan based on the LTM which will be implemented to sustain and improve the water protection function of local forest. Meantime, local communities will be employed in forest management activities.

Maoshigou Village

The Maoshigou Village is situated in the 2nd water conservation zone. The area is 270 hectares and its landform is defined as Low Mountain. There is a population of 441 persons and most of them rely mainly on forestry and stock farming. Non-point source pollution due to overuse of fertilizers and pesticides in walnut and chestnut trees has degraded quality of water flowing into the reservoir. The project will help local communities to gradually replace part of the existing walnut and chestnut trees with new varieties. Also, grafting techniques will be applied. Both replanting and grafting will improve yields and demand for less fertilizers and pesticides, leading to reduction in non-point source pollution. In addition, forest management will also be implemented here to reduce the risk of non-point pollution of nutrient and sediment;

Shichangyu Village

The Shichangyu village is in the downstream area of the Reservoir. It has good access as it is very close to the Jing-Cheng Express Way. The village covers an area of 799.26 hectares. The annual per capita income is RMB 10,000, mainly from agriculture, forestry and fruit growing and migrant working. In the village, there are 336.17 ha of forested land (305.75 ha for coniferous forest and 30.42 for broad-leaved forest), 316.46 ha of shrub wood and 5.34 ha of open forest land. The forest cover is 46.05% and rate of woody plant cover is 70.87%. The forest land is collectively-owned forest land which BFS has leased with 30 years of use rights. Most of local young people have moved into urban areas to work as migrant workers. The local community is declining and has lost its vitality. Eco-tourism integrating low-carbon infrastructure and enhanced forest landscape, will be developed to improve local livelihood and meet urban residents' increasing demand for natural recreation. Specifically, measures will include development of recreational forest paths

and other facilities, transformation of eco-toilets and energy-saving brick beds, and management of landscape forest. In addition, a strong partnership between BFS and the local community will be established, to allow local farmers to participate in development and operation of the demonstration area.

Items	**Intervention logic**	**Objectively verifiable indicators of achievement[5]**	**Sources of information and means of verification[6]**	**Assumptions[7]**
Goal(s)[1]	The goal is to to safegard water qaulity of watershed by applying integrated forest management approaches.	Long Term Management Planning for each site is prepared; 280 hectares of forest in three sites are managed in close-to-nature forest management approach;BRMPs produced and disseminated; Policy recommendations submitted to policy-makers	Submitted documents; External evaluations	Commitment of consulting experts; Cooperation among consultants, volunteer experts and team members; Multiple stakeholders involved
Objectives[2]	a)to improve the water conservation capacity of the forests in three sites of the project by applying close-to-nature management approach; b)to reduce water pollution	BRMPs are documented and disseminated; Capacity of relevant stakeholders increased;	Submitted documents; External evaluations	

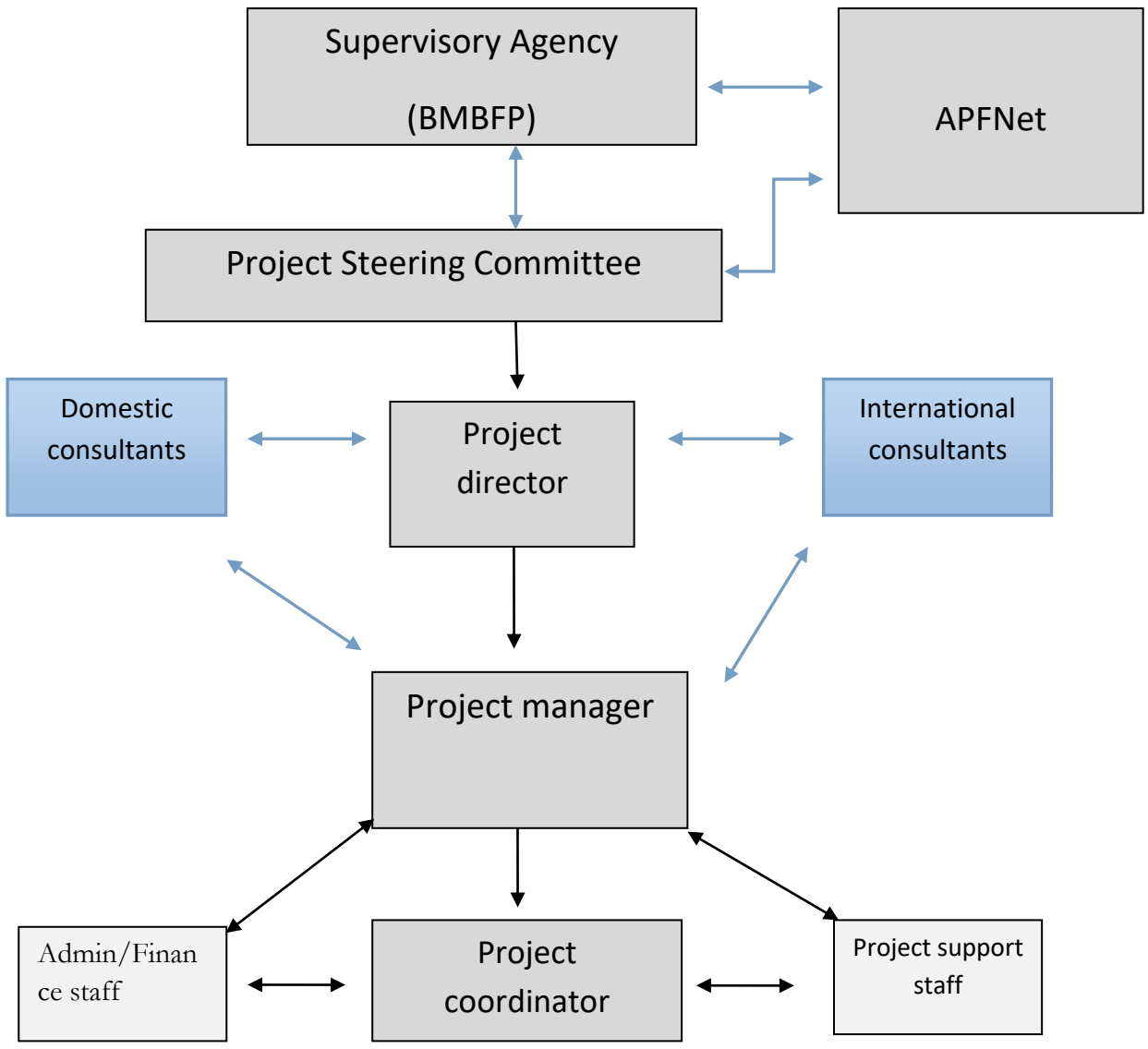
	caused by fertilizer application in the orchard selected; c)to improve the livelihood of the local community selected by promoting the development of forest recreation; d)to enhance the capacity of relevant stakeholders in forest management in environment-friendly manner; e)to produce best practice models for a better long-term forest management in the watershed.	Local livelihood improved; Project results are disseminated.		
Output 1	Monoculture plantations of Tabuliformis and Platycladus orientalis (Linn.)Franco of 280 hectares in three project sites is managed in a close-to-nature approach.			
Activity 1.1	Development of Long-term	Long-term Forest		

	Forest Management Planning (LTM) for the demonstration areas.	Management Planning for each site developed	A completed LTM plan is part of the communication package.	
Activity 1.2	Transforming monoculture plantion of Pinus tabuliformis and Platycladus orientalis (Linn.)Franco into mixed forests with broad-leaved species	Agreements between EA and local communities formally signed; Work plan developed and activities conducted in line with the work plan	Signed agreements; Work plan for each demonstration site; Field visits during external evaluations; Documentation of forest changes, field activities and results	
Output 2	The livelihood of local community improved by promoting eco-tourism			
Activity 2.1	An eco-tourism plan developed	A complete eco-tourism plan developed	Submitted documents External evaluation	
Activity 2.2	Development of infrastructure	Accomplishments of development of infrastructure planned	Submitted documents External evaluation	
Activity 2.3	Marketing in Beijing	A complete marketing plan developed A set of posters and brochure	Submitted documents (marketing plan, posters and brochure) External evaluation and documentation of local farmers' income	

Activity 2.4	Development of eco-tourism management plan	A complete eco-tourism management plan developed		
Output 3	Capacity of local communities in managing forest and eco-tourism improved.			
Activity 3.1	Training manuals development	Two complete training manuals developed (close-to-nature forest management & eco-tourism management)	Submitted documents External evaluation	
Activity 3.2	Training local forest practitioners for implementation of the Long-term Forest Management Plan	Two training sessions for local forest practitioners	Documentation of training sessions (faculty, agenda and participants etc.) External evaluation	
Activity 3.3	Training local farmers involved in eco-tourism	Three training sessions for local farmers	Documentation for training sessions (faculty, agenda and participants etc.) External evaluation	

Output 4	experience and lessons learned summarized and disseminated			
Activity 4.1	Establishment of knowledge hub	Knowledge hub established and functioning well	External evaluation	
Activity 4.2	Organization of project dissemination workshops.	Workshop and training sessions conducted	Proceedings and reports of relevant meetings and trainings	
Activity 4.3	Preparation and submission of policy recommendations to local and Beijing municipal government agencies.	Policy recommendations formulated and submitted to relevant authorities	Formulated policy recommendations and feedback from relevant authorities	

Please use a chart to clearly illustrate project implementation and management structure, and communication/coordination mechanism. Describe key roles and their responsibilities.


Supervisory Agency
(BMBFP)
APFNet
Project Steering Committee
Domestic consultants
Project director
International consultants
Project manager
Admin/Finance staff
Project coordinator
Project support staff