Ex-ante Evaluation

1. Name of the Project
Country: The People's Republic of China Project: Jilin Afforestation Project (Loan Agreement: March 30, 2007; Loan Amount: 9,500 million yen; Borrower: The Government of the People's Republic of China)
2. Necessity and Relevance of JBIC's Assistance
Ever since the founding of the nation in 1949, China has set land afforestation as one of its basic policies. As a result, forest coverage ratio has increased from 8.6% immediately after the founding of the nation to 16.6% in 1998. However, because of the vastness of the land area, the severity of natural conditions, and deforestation to meet the rising timber demand, forest coverage ratio in China remains below the international average of 29.6% as of the year 2000 (as compared to Japan's 64.0%). Against this background, a major flood broke out in 1998, in which more than 4,000 people lost their lives. In 1999, after concluding that forest degradation was one of the factors that led to such a serious damage, the Government of China announced its "National Ecological Environment Construction Plan" and adopted a national framework for the next 50 years covering four areas of activity: afforestation, water utilization, agriculture and environmental protection. In the area of afforestation, the government divided the country into eight regions and set a number of goals, including prevention of desertification in the Three North area (north, northwest and northeast China) and prevention of soil erosion in the black soil region of northeast China. Additionally, in the 11th Five-Year Plan (2006–2010), the government continues to focus on implementing projects related to the protection and restoration of the natural ecosystem with the aim of raising the rate of forest cover to 20% by 2010. Jilin Province (population: 27.16 million [equivalent to the population of Canada]; land area: 187,400 km^2 [equivalent to half the land area of Japan]) in northeast China is located in the upper and middle stream of the Songhua River that flows into the Japan Sea. In Jilin Province, excessive logging of forestland and cultivation of grassland have taken place since the founding of the nation to meet timber demand and expand cropland. In the hilly and mountainous area of the central and eastern parts of the province, the area of forestland that has been neglected since the logging now accounts for 70% of all forestland. This has led to forest degradation and seriously undermines the capacity to retain water and prevent soil erosion, with the ratio of the volume of trees to forestland decreasing to 0.918 m^3/km^2 from 1.585 m^3/km^2 at the time of the founding of the nation. As a result, soil erosion amounts to 130 million tons per year and flood disasters are becoming increasingly serious (annual flood damage: 1,320 million RMB; those affected by floods: 818,000 people) in Jilin Province. Thus, there is an urgent need for afforestation in degraded barren land and for improvement of desolate forests. In the plain area of the western part of the province, livestock overgrazing and other factors have caused desertification in 14,600 km^2 of land (accounting for about 7.5% of the total area of the province). Today deserts are spreading by 420 km^2 and advancing eastward at the rate of 1.1 km per year. As a result, as many as 93 sand storms are recorded every year in Jilin Province. There is therefore an urgent need for afforestation and vegetation cover to reverse desertification.

The project addresses environmental conservation, one of the priority areas designated in the Economic Cooperation Program for China prepared by the Government of Japan and the Medium-Term Strategy for Overseas Economic Cooperation Operations of JBIC (FY2005–FY2007). Thus, JBIC's support for this project is highly necessary and relevant.

3. Project Objectives

The project aims to increase forest coverage ratio and restore grasslands through afforestation and vegetation cover in Jilin Province. It will thereby help recover multiple functions of forests and reverse desertification.

4. Project Description

(1) Target Area

23 counties and 5 cities in Jilin Province and the wards under its jurisdiction

(2) Project Outline

The project involves afforestation and vegetation cover, the development of related facilities, procurement of materials and equipment, and implementation of a training program in the aforesaid target area as follows:

- Afforestation (red pine, poplar): 171,000 ha
  (Forests for water resource recharge and soil/water conservation: 130,000 ha; forests for wind/sand protection: 41,000 ha)
- Vegetation cover (sheep grass): 22,000 ha (desertification prevention)
- Renovation of seed collection facility: 1 location (seed storage capacity: 620 t)
- Renovation of model nursery gardens: 4 locations (annual seedling production volume: 1 million)
- Renovation of model forest ecology parks: 4 locations (lot area: 583 ha)
- Training in Japan: Implementation of training in general afforestation techniques for 80 people
- Training in China: Implementation of theoretical and practical training in afforestation and vegetation cover for a total of 30,000 people

(3) Total Project Cost/Loan Amount

14,596 million yen (Yen Loan Amount: 9,500 million yen)

(4) Schedule

July 2007–December 2012 (66 months). The definition of project completion is "when inspection of the project is finally completed and accepted."

(5) Implementation Structure

    (a) Borrower: The Government of the People's Republic of China

    (b) Executing Agency: Jilin Provincial People's Government

    (c) Operation and Maintenance System: Same as (b)

(6) Environmental and Social Consideration

    (a) Environmental Effects/Land Acquisition and Resident Relocation

        (i) Category: B

        (ii) Reason for Categorization

This project is not likely to have significant adverse impact on the environment due to the fact that the project sector and project characteristics are not likely to exert impact and the project is not located in a sensitive area under the "Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations" (established in April, 2002). Thus, this project is classified as Category B.

        (iii) Environmental Permit

The preparation of the Environmental Impact Assessment (EIA) report related to the project is not required under the domestic laws of China.

        (iv) Anti-Pollution Measures

The poject plans to use organic fertilizer and agricultural chemicals that are not harmful to the environment. Thus, no significant adverse impact on the environment is forseen.

        (v) Natural Environment

The project site is not located in or around sensitive areas, such as national parks, and so adverse impact on the natural enivronment is assumed to be minimal.

        (vi) Social Environment

The project involves planting trees in land the particpants themselves have the right to use. Thus, the project involves neither land acquisition nor resident relocation.

        (vii) Other/Monitoring

In the project, the Forestry Observation Design Research Institute attached to the Jilin Forestry Department will monitor afforestation and the like.

    (b) Promotion of Poverty Reduction

The poverty rate in the target area of the project(the average of the 23 counties and 5 cities) is 5.7%, which is higher than the national average of 2.8%. Implementing the afforestation project in this area is expected to have a direct benefit of creating job opportunities and an indirect benefit of reducing damage from floods and sand storms as well as improving living conditions.

    (c) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases including AIDS, Participatory Development, Consideration for the Handicapped, etc.)

In implementing afforestation and vegetation cover programs in national forest sites, local residents living in the vicinity of the area concerned will be hired as a contingent work force, and in such a case, poor residents and women who want to render their services will be hired on a preferential basis. At other forest sites, the land the participating residents themselves have the right to use will be afforested with the funds they will raise by taking out ODA loans at low interest rates, while payment will be made with the profit they will make from the sale of forestry products.

(7) Other Important Issues

Coordination with Miyagi Prefecture, a friendship city of Jilin Province, and the Japan-China Friendship Association of Miyagi Prefecture.

5. Outcome Targets

(1) Evaluation Indicators (Operation and Effect Indicator)

Indicator	Baseline (2005 actual performance)	Target (2012, at project completion)
Afforestation area (10,000 ha)	–	17.1
Survival rate (%) After the first growth period of afforestation*	–	95
After the third growth period of afforestation*	–	85
Forest coverage ratio (%)**	34.23	35.63
Vegetation area (10,000 ha)	–	2.2
Number of residents participating in afforestation*** (households)	–	***15,316

(Reference Indicator)

Average annual income of residents (RMB)**	3,264	3,500
Average annual income of residents participating in afforestation*** (RMB)	****** Set later	****** Set later

* The growth periods are from spring to fall. In the project, trees are planted in spring, so "after the first period" refers to the fall of the same year. "After the third period" refers to the fall of the year after next.

** The target area comprises 23 counties, 5 cities, and the wards that come under the direct jurisdiction of Jilin Province.

*** Residents who implement afforestation in the land that they themselves have the right to use (residents who only provide their services not included).

**** Participants who take part in the project account for 0.3% of the total number of farm households (4.52 million) in the target area of the project (23 counties, 5 cities, and wards under the direct jurisdiction of Jilin Province).

***** After the launch of the project, the Jilin Forestry Department will set the baseline and target values when the residents participating in the afforestation project are confirmed (August, 2007).

(2) Number of Beneficiaries

Eighty thousand km^2 of area (equivalent to the area of Hokkaido) will benefit from the project. The number of beneficiaries is expected to reach around 16.02 million (equivalent to the population of the Netherlands). When the trees planted in the afforestation program matures, it is estimated that the annual amount of soil erosion will be reduced by 8.03 million tons per year (equivalent to the amount carried by 40 large tankers) and that 610,000 tons of CO_2 per year (equivalent to the amount of CO_2 residents of Kobe emit per year) will be absorbed.

(2) Internal Rate of Return (Financial and Economic Internal Rate of Return)

Based on the conditions given below, the financial internal rate of return (FIRR) is 6.8%.

[FIRR]

(a) Cost: Project cost, operation and maintenance expenses
(b) Benefit: Income from the sale of forestry products (seeds, felled vegetation, etc.)
(c) Project Life: 40 years

6. External Risk Factors

Decline in the survival rate of planted trees due to large-scale natural disasters such as droughts and floods

7. Lessons Learned from Findings of Similar Projects Undertaken in the Past

The evaluation results of afforestation projects carried out in the Philippines demonstrate that the success of programs designed to improve the livelihood of residents who participate in afforestation projects tends to lead to an increase in the income of beneficiaries and capacity building of resident organizations, and even to appropriate activities for forest operation and maintenance. The lesson learned from these findings is that similar afforestation projects should clearly include livelihood improvement programs. In this project, in addition to designing a project scheme that will improve the livelihood of participating residents through the operation and maintenance of trees planted in afforestation programs with the view to ensuring the incentive of residents for operation and maintenance after afforestation, if, by chance, a natural disaster or the like should inflict an unexpected damage on the trees that have been planted, monetary compensation will be made by drawing the necessary funds from the budgets of the Jilin Provincial People's Government and the County Government.

Moreover, with regard to the implementation and operation of sub-projects, the evaluation results of the afforestation projects carried out in the Philippines demonstrate that there are cases that require more detailed guidelines at the stage of project implementation. Thus, it has been learned that implementation structures and methods ought to be provided in the form of guidelines at the stage of project planning. In this project, the guidelines in question are expected to be provided by the executing agency (the Forestry Department of the Jilin Provincial People's Government) and that those involved in the training in China are expected to be thoroughly informed of this fact.

8. Plans for Future Evaluation

(1) Indicators for Future Evaluation
    (a) Afforestation area (10,000 ha)
    (b) Survival rate (%)
    (c) Forest coverage ratio (%)
    (d) Vegetation area (10,000 ha)
    (e) Number of residents participating in afforestation (households)

(2) Timing of Next Evaluation
After project completion