

## Ex-ante Evaluation

### **1. Name of the Project**

Country: The People's Republic of China

Project: Qinghai Ecological Environmental Improvement Project

(Loan Agreement: December 21, 2007; Loan Amount: 6,300 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, the forest coverage ratio has increased from 8.6% at the time of the founding of the nation to 18.2% in 2005. However, because of the severity of natural conditions and deforestation to meet the rising timber demand, the forest coverage ratio in China remains below the international average of 30.3% as of 2005. Moreover, desertification caused by excessive grazing and other man-caused factors has become a serious problem. While the desertification area has tended to decrease since 2000, deserts still account for 18.1% of China's national land (1.74 million km<sup>2</sup> in 2004).

In 1999, 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. Among the plan's goals are prevention of soil erosion in the upper and middle reaches of the Yellow River and desertification in areas that have turned into deserts and prairies. 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.

In the eastern and southern areas of Qinghai Lake in Qinghai Province, the project site, excess logging of forests and other human activities have caused a marked reduction in the water resource recharging capacity and the water and soil retention capacity. Of the 9.87 million ha of land covered by the project, 2.35 million ha has been affected by soil erosion. In Qinghai Lake, as a result of the reduction of the water resource recharging capacity, the water's edge receded 3.78 m and the water volume decreased by 400 million m<sup>3</sup> from 1959 to 2004. There is thus an urgent need to improve the water resource recharging capacity and the water and soil retention capacity in these areas.

Additionally, in the western and southern areas of Qinghai Lake, desertification caused by sand blown into the area from the basin in the western part of the province is becoming a serious problem. Of the total 7.82 million ha of land, deserts expanded from 1.32 million ha in 1999 to 1.66 million ha in 2004. There is thus an urgent need to prevent further desertification in these areas.

Furthermore, grasslands are receding in Qinghai Province due to human activities such as grazing. Of the 4.67 million ha of grassland covered by the project, 220,000 ha has a bare ground surface, 2.3 million ha has suffered pest damage, and 1.06 million ha has lost its natural vegetation due to abnormal proliferation of weeds. There is thus an urgent need to improve the degraded grasslands in the area.

This project addresses environmental conservation, one of the priority areas designated in the Economic Cooperation Program for China prepared by the government of Japan and JBIC's Medium-Term Strategy for Overseas Economic Cooperation Operations. Thus, JBIC's support for

this project is highly necessary and relevant.

### **3. Project Objectives**

The project aims to improve the forest coverage ratio and vegetation coverage ratio in the periphery of Qinghai Lake in Qinghai Province by improving the degraded grasslands, preventing further desertification, afforestation and water/soil conservation measures, and thereby contribute to the restoration of the multi-faceted functions of forests and grasslands.

### **4. Project Description**

#### (1) Target Area

10 counties in Qinghai Province

#### (2) Project Outline

The project involves improvement of degraded grasslands, afforestation, construction of related facilities, procurement of materials and equipment, and training.

- (a) Improvement of degraded grasslands: Grass planting, construction of fences to keep livestock out, measures to control damage caused by field rats and pests<sup>1</sup>, and construction of livestock cribs
- (b) Prevention of desertification: Desert closure, forests for wind/sand protection, and control works to prevent sand dunes from moving
- (c) Afforestation: Forests for water resource recharge, forests for water/soil retention, and forest protection and management<sup>2</sup>
- (d) Water/soil conservation measures
  - (i) Erosion control work: Building of small-scale sand-trap dams, bank protection work, construction of erosion protection walls
  - (ii) Support for afforestation of forests for water resource recharge and water/soil retention: Development of irrigation facilities
- (e) Equipment procurement, etc: Patrol/work vehicles, monitoring equipment, office equipment, etc.
- (f) Training: Training in Japan, experts dispatched from Japan, and training in China concerning improvement of degraded grasslands and afforestation (techniques for restoration of grasslands, techniques for management of grasslands, feeder management, forest management, etc.)

#### (3) Total Project Cost / Loan Amount

8,453 million yen (Yen Loan Amount: 6,300 million yen)

#### (4) Schedule

March 2008–November 2014 (81 months). The definition of project completion is “when the project is finally accepted by the Qinghai Provincial People’s Government.”

<sup>1</sup> This involves the use of mousetraps and chemicals to prevent damage caused by field rats, grass- hoppers, caterpillars and the like.

<sup>2</sup> This involves railing the periphery after complementary planting and taking care of forests low in density but with promising regenerative capability.

(5) Implementation Structure

- (a) Borrower: The Government of the People’s Republic of China
- (b) Executing Agency: Qinghai Provincial People’s Government
- (c) Operation and Maintenance System:

Subproject	Operation and maintenance system
Improvement of degraded grasslands	Grassland management station and grassland stations of each county
Prevention of desertification and afforestation	Forestry Bureau of each county
Water/soil conservation measures	Water Bureau of each county/city

(6) Environmental and Social Consideration

(a) Environmental Effects / Land Acquisition and Resident Relocation

- (i) Category: B
- (ii) Reason for Categorization

This project is classified as Category B according to the “Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations” (dated April 2002), as this project does not correspond to sectors or regions described in the said guidelines as being sensitive to negative impact, and as it is not deemed to have a significant harmful impact on the environment.

(iii) Environmental Permit

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

(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 environment is assumed to be minimal.

(vi) Social Environment

The project will be implemented on the lands the government or the participants themselves have the right to use. The project involves neither land acquisition nor resident relocation.

(vii) Other/Monitoring

In the project, the Environmental Protection Bureaus of the province and each county will monitor the impact chemicals used to control rats and pests have on the natural environment.

(b) Promotion of Poverty Reduction

The poverty rate in the target area of the project (the average of the 10 counties) is 11.2%, which is higher than the national average of 2.3%. Thus the project is categorized as a poverty reduction project. Implementing the 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 the living conditions.

(c) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases

including AIDS, Participatory Development, Consideration for the Handicapped, etc.)

Among residents in the target area and those in the neighboring areas who attend the briefing session for residents that will be held before the project is launched, people who wish to participate in this project will be hired as a labor force, and in such a case, the executing agencies (grassland stations, etc.) are expected to give preference to hiring women and poor people.

(7) Other Important Issues

None

## 5. Outcome Targets

(1) Evaluation Indicators (Operation and Effect Indicator)

Project	Indicator	Baseline (at project launch )	Target (2014, at project completion)
Grass planting (improvement of severely degraded grasslands)	Area (ha)	–	3,916 ha
	Rate of vegetation cover after 2 years (%)	25% or lower	50–60%
Grass planting (improvement of moderately degraded grasslands)	Area (ha)	–	8,310 ha
	Rate of vegetation cover after 2 years (%)	50–60%	70%
Construction of fences to keep livestock out	Area (ha)	–	35,828 ha
	Rate of vegetation cover after 3 years (%)	60–70%	85%
Measures to control rodents using rodenticide	Area (ha)	–	334,196 ha
	Reduction rate of burrows after implementation (%)	–	90% or higher
Mechanical means to capture rodents	Area (ha)	–	356,840 ha
	Reduction rate of burrows after implementation (%)	–	90% or higher
Measures to control pest damage	Area (ha)	–	259,374 ha
	Reduction rate of pests after implementation (%)	–	90% or higher
Desert closure	Area (ha)	–	36,651 ha
Forests for wind/sand protection	Afforested area (ha)	–	3,823 ha
	Survival rate after 1 year (%)	–	70% or higher
	Survival rate after 3 years (%)	–	65% or higher
Control work to prevent sand dunes from moving	Area (ha)	–	2,500 ha
Afforestation (forests for water/soil retention)	Afforested area (ha)	–	14,913 ha
	Survival rate after 1 year (%)	–	70% or higher

	Survival rate after 3 years (%)	–	65% or higher
Afforestation (forests for water resource recharge)	Afforested area (ha)	–	674 ha
	Survival rate after 1 year (%)	–	70% or higher
	Survival rate after 3 years (%)	–	65% or higher
Forest protection and management	Area (ha)	–	24,289 ha

(2) Number of Beneficiaries

Approximately 1.92 million

(3) Internal Rate of Return (Economic Internal Rate of Return)

Based on the following conditions, the economic internal rate of return (EIRR) of the project is 8.2%. [EIRR]

- (a) Cost: Project cost, operation and maintenance expenses
- (b) Benefit: Restoration of grassland, prevention of desertification, forestation, flood prevention
- (c) Project Life: 40 years

**6. External Risk Factors**

Occurrence of natural disasters

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

From the evaluation results of an afforestation project carried out in the Philippines, there have been cases where it became necessary to adopt detailed guidelines concerning the operation and maintenance of subprojects at the project implementation stage. Thus, it has been learned that the arrangement and method of implementation should be developed at the project planning stage. In this project, the executing agency (Qinghai Provincial People's Government) is expected to provide the guidelines, and the concerned parties will be thoroughly versed in them through domestic training. In addition, the evaluation results of the same project carried out in the Philippines demonstrate that when programs successfully improve the livelihood of residents who participate in afforestation projects, it tends to lead to higher income for beneficiaries, increased organizational strength of neighborhood community associations, and even to operation and maintenance activities appropriate for forest conservation. A lesson learned from this is that programs designed to improve people's livelihood should be adopted in a similar afforestation project. In this project, the important thing is to ensure that those who participate in the vegetation improvement program in the lands over which individuals have the right of use be given the incentive to operate and maintain the project after it is implemented. Of the areas targeted by the project, the lands over which individuals have the right of use are basically grasslands. The fact that long-term operation and maintenance of the project will directly impact the livelihood of the participating residents themselves will provide the necessary incentive to convince local residents to participate. Additionally, efforts will be made to ensure the project's smooth operation and maintenance by monitoring and undertaking educational activities.

**8. Plans for Future Evaluation**

(1) Indicators for Future Evaluation

- (a) Grass planting (improvement of severely/moderately degraded grasslands): Area (ha), rate of vegetation cover after 2 years (%)
- (b) Construction of fences to keep livestock out: Area (ha), rate of vegetation cover after 3 years (%)
- (c) Measures to control rodents using rodenticide, mechanical means to capture rodents, measures to control pest damage: Area (ha), reduction rate of burrows/pests after implementation (%)
- (d) Desert closure, control work to prevent sand dunes from moving, forest protection and management: Area (ha)
- (e) Forests for wind/sand protection: Afforested Area (ha), survival rate after 1 year (%), survival rate after 3 years (%)
- (f) Afforestation (forests for water/soil retention, forests for water resource recharge): Afforested Area (ha), survival rate after 1 year (%), survival rate after 3 years (%)
- (g) Economic internal rate of return (%)

(2) Timing of Future Evaluation

At project completion