

Ex-ante Evaluation

1. Name of the Project

Country: People's Republic of China

Project: Guizhou Province Environment Improvement and Education Project

(Loan Agreement: June 23, 2006; Loan Amount: 9,173 million yen; Borrower: The Government of the People's Republic of China)

2. Necessity and Relevance of JBIC's Assistance

Guizhou Province, where this project is to take place, is situated in the middle and upstream reaches of the Changjiang River in Southwestern China. Some 97% of the province's land is covered by hills or mountains, and the income level in the province is one of the lowest in the country.

The local farming villages which form the project's target area have many slopes and a karst topography. Moreover, due to excessive culling of forests for fuel, the land can no longer hold water in the soil and soil erosion is severe, the result being ever more extensive flood damage. Improvements to the environment, the securing of alternative fuel supplies, and the provision of flood control facilities are needed.

In addition, in the local farming villages which constitute the project's target area, toilets are established in livestock pens, and during the rainy season, excreta from the livestock is allowed to flow out along roads for daily use in the vicinity of their dwellings, making conditions very unsanitary. Not only can this affect the underground water, but because drinking water facilities have not been provided in the farming villages or suburban cities, the filth has become a primary cause of infectious disease. Worse yet, should farmers contract an infectious disease, they cannot rely on run-down medical facilities in the suburban cities; because the farmers must commute to hospitals in the urban area, it is simply not feasible for those living in the target area to enjoy suitable and adequate services. As a result, it is possible for those living in such inferior environments to spread infectious diseases, pointing ever more strongly to the need for better environmental hygiene.

Moreover, in the project's target area, because of insufficient capacity at the senior high school level, only 37% of children attend senior high school (the nationwide average is 61%). In order to provide capable people who can shoulder sustainable development of the region's society and environment, it is critical that requisite high school facilities be provided.

This project is in line with the Economic Cooperation Program for China set by the Japanese government, and also the Basic Strategy of Japan's ODA Loan, which focuses on the environmental protection and education as its priority field. Thus, JBIC's assistance for this project is highly important and relevant.

3. Project Objectives

This project aims to improve environmental hygiene and educate people of farming villages and

suburban cities in 12 counties of Guizhou Province. This will be done by providing 1) environmental measures including methane gas facilities, waste treatment and disposal facilities, and reforestation; 2) hygiene measures in such facilities as roads for daily use, drinking water facilities, and medical facilities; and 3) facilities for senior high school. In this way, it is hoped that the project can contribute to sustainable environmental and social development in the region.

4. Project Description

(1) Target Area

Twelve counties in Guizhou Province

(2) Project Outline

In the farming villages and suburban cities in 12 counties of Guizhou Province, the provision of training, public utilities construction, and machinery and materials needed for the endeavors described below.

- (a) Activities to improve hygiene and the environment in local farming villages.
- (b) Activities to improve hygiene and the environment in suburban cities.
- (c) Activities to educate capable people.
- (d) Training.

(3) Total Project Cost/Loan Amount

13,216 million yen (Yen Loan Amount: 9,173 million yen)

(4) Schedule

July 2006 to end of May 2011 (59 months)

(5) Implementation Structure

- (a) Borrower: The Government of the People's Republic of China
- (b) Executing Agency: Guizhou 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 classified as Category B according to the "Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations" (established April 2002). This categorization is assigned because, judging from the descriptions in said guidelines, this project is expected to have minimal impact on the environment, does not correspond to large-scale endeavors in the waste disposal and management sector, and does not apply to attributes or regions that are easily affected by project activities.

(iii) Environmental Permit

The Environmental Impact Assessment (EIA) for this project was approved by the Guizhou

Province Environmental Protection Bureau in June 2005.

(iv) Anti-Pollution Measures

Drainage water from landfills for the disposal of waste matter will be handled in a way that meets China's domestic water emissions standards and allowed to flow into drainage channels. In addition, medical waste will be collected separately from other waste, and will be properly disposed of using existing medical waste treatment facilities.

(v) Natural Environment

This project entails the provision of small-scale infrastructure in farming villages and suburban cities. It will not take place on or near any national parks, and any adverse environmental impact stemming from this project is expected to be minimal. As for reforestation work, native tree varieties will be used.

(vi) Social Environment

Approx. 5ha of land will need to be acquired for certain subprojects, including the provision of water supply facilities, the provision of medical facilities, and the provision of senior high school facilities. Land will be acquired in accordance with China's domestic protocol. No residents are to be relocated.

(vii) Other/Monitoring

County construction bureaus and the like will monitor effluent water from the waste disposal facilities.

(b) Promotion of Poverty Reduction

The poverty rate in the 12 counties that constitute the project's target area is 10.1% (420,000 people), substantially higher than the national average of 2.8%. Conducting this project is expected to help reduce the poverty level.

(c) Promotion of Social Development (e.g. Gender Perspective)

By improving sanitation in target areas, this project is expected to help control the spread of infectious disease, improve maternal and child health indices, and reduce the household labor burden on women.

(7) Other Important Issues

None.

5. Outcome Targets

(1) Evaluation Indicators (Operation and Effect Indicators)

Project Name	Indicators	Baseline (2004)	Target (2013, 2 years after completion of project)
Methane gas	Culling of forests (10,000 tons/year)	450	52
Anti-flood measures	Maximum flooded area (km ²)	399	244
	Maximum number of households flooded (1,000 households)	19.3	9.5
Reforestation	Planted area (1,000ha)	31	77
Water supply	Population served with water	706	1,016

	(1,000 people)		
	Percentage of population served water (%)	40	50
Medical	In-patients (1,000 people)	102	125
	Out-patients (1,000 people)	255	303
	Emergency patients (1,000 people)	20	32
Waste disposal	Volume of waste disposed of (1,000 tons/year)	0	96
	Percentage of waste disposed of (%)	0	86
Senior high school	Attendance rate of senior high schools	37	54

* Among the above indicators, percentages indicate average figures for the 12 counties of the project area, and the other figures represent total figures.

(2) Internal Rate of Return

(a) Methane gas provisions in farming villages

Based on the following prerequisites, this subproject's Economic Internal Rate of Return (EIRR) is set at 19.7%.

- Cost: project costs (excluding tax), operation and management fees
- Benefit: savings in fuel costs, reduction in burden of the collection of firewood, charcoal, and lumber
- Life of subproject: 20 years

(b) Flooding countermeasures, reforestation in farming villages

Based on the following prerequisites, this subproject's EIRR is set at 16.0%.

- Cost: project costs (excluding tax), operation and management fees
- Benefit: proceeds from forest products, reduction in flooding
- Life of subproject: 40 years

(c) Water supply in suburban cities

Based on the following prerequisites, this subproject's Financial Internal Rate of Return (FIRR) is set at 13.5%.

- Cost: project costs (excluding tax), operation and management fees
- Benefit: proceeds from water supply fees
- Life of subproject: 20 years

(d) Medical services in suburban cities

Based on the following prerequisites, this subproject's FIRR is set at 6.2%.

- Cost: project costs (excluding tax), operation and management fees
- Benefit: proceeds from medical fees

- Life of subproject: 20 years

6. External Risk Factors

- Inadequate funding or the fee collection resulting from policy changes regarding the handling of fees and charges, with a resulting adverse effect on operation and maintenance.
- The occurrence of widespread drought, flooding, or other natural disaster.

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

When the World Bank conducted similar projects in this province in the past, because project executive offices had not been established in the municipal government which serves as liaison between provinces and counties, delays were reported in coordinating work between governments. Based on this lesson, project executive offices will be established at the city level to enhance mutual understanding.

8. Plans for Future Evaluation

(1) Indicators for Future Evaluation

- (a) Culling of forests (10,000 tons/year)
- (b) Maximum flooded area (km²)
- (c) Maximum number of households flooded (1,000 households)
- (d) Planted area (1,000ha)
- (e) Population served with water (1,000 people)
- (f) Percentage of population served with water (%)
- (g) Number of in-patients (1,000 people)
- (h) Number of out-patients (1,000 people)
- (i) Number of emergency patients (1,000 people)
- (j) Volume of medical waste disposed of (1,000 tons/year)
- (k) Percentage of medical waste disposed of (%)
- (l) Senior high school attendance rate (%)

(2) Timing of Next Evaluation

After completion of project