

People's Republic of China

Hangzhou-Quzhou Expressway Construction Project

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Field Survey: August-October 2006

1. Project Outline and Japan's ODA Loan



Project Area Map



Hangzhou-Quzhou Expressway near the Jinhua Service Area

1.1 Background

The Chinese government planned the construction of a national trunk highway network, known as the “five longitudinal and seven latitudinal plan,” with the aim of encouraging the development of the nation’s economy and the economy of the interior regions. The 12 highways planned for development will form arterial roads through the coastal regions and link the interior with the coastal regions and harbor cities. The goal is to complete the 12 highways as priority infrastructure routes by 2020. The current project (Hangzhou-Quzhou) covers one section (from Hangzhou in Zhejiang Province to Nanchang in Jiangxi Province) of the Shanghai-Kunming route that forms one of the 12 highways earmarked for development. The construction of this route was intended to increase the transportation efficiency between the coastal economic zone centered on Hangzhou, Zhejiang Province and the interior economic zone centered on Jinhua and Quzhou and to link the two zones with a short-distance route. The route construction was also intended to strengthen the connection between the two economic zones by efficiently linking hub cities in the region along the highway, such as Zhuji and Yiwu. In the Ninth Five-Year National Development Plan and the 2010 Long-Term Plan, Zhejiang Province planned this project as part of the highway network development within the province along with the development of

the Hangzhou-Ningbo Expressway and Shanghai-Hangzhou Expressway.

The plan for this project was to construct a 237-kilometer expressway from Hangzhou to Quzhou, two cities in Zhejiang Province. This section of an expressway forms part of the Shanghai-Kunming route, one of the 12 routes in the “five longitudinal and seven latitudinal plan,” which is a high priority plan to construct a highway network in China.

1.2 Objectives

The objectives of this project were to improve transportation between Hangzhou—the capital of Zhejiang Province—and the interior region of the province, respond to increased demand for passenger and freight transport in the future, and ensure road safety by constructing a total of 237 kilometers of expressway linking Hangzhou and Quzhou in the interior region, and thereby promote the economic development of Zhejiang Province.

1.3 Borrower/Executing agency

Ministry of Foreign Trade and Economic Cooperation, and Ministry of Communications, People’s Republic of China

(Note: Zhejiang Provincial Communication Department is responsible for project implementation and the Hangzhou-Jinhua-Quzhou Expressway Company is responsible for operation and maintenance.)

1.4 Outline of Loan Agreement

Loan Amount / Disbursed Amount	30,000 million yen / 26,647 million yen
Exchange of Notes / Loan Agreement	December 1998 / December 1998
Terms and Conditions Main contract – Interest Rate – Repayment Period – Grace Period – Procurement Consulting – Interest Rate – Repayment Period – Grace Period – Procurement	 1.8% 30 years 10 years General untied 0.75% 40 years 10 years Bilateral tied
Main Contractors	Shanghai No. 1 City Engineering Co., China No. 20 Metallurgy Construction Co, No 1. Engineering Bureau of Railway Ministry, Zhejiang Provincial Road and Bridge Engineering Division, and 13 other Chinese companies
Consulting Services	Japan Overseas Consultants Co., Ltd., Shanghai Tongji Engineering Consulting Co., Beijing Shuanghuan Engineering Consulting Co., Shanxi Provincial Traffic Construction Engineering Supervision General Co., Hebei Provincial Traffic Construction Consulting Co., and nine other Chinese companies
Feasibility Study(F/S)	Japan International Cooperation Agency (1993), Zhejiang Provincial Communication Department (1995)

2. Results and Evaluation

2.1 Relevance

2.1.1 Project Relevance at Time of Appraisal

In the Ninth Five-Year Plan (1996-2000), the Chinese government articulated its intention to promote the economic development of the country's interior by constructing a network of 12 roads for automobile travel, known as the "five longitudinal and seven latitudinal plan." Seven routes, known as "two longitudinal, two latitudinal, three routes," are arterial highways through the coastal regions and routes linking the country's interior regions with the coastal regions and harbor cities. A priority goal was to construct three routes connecting between Beijing and Zhuhai, between Beijing and Shenyang, and between Beijing and Shanghai by the year 2000.

Zhejiang Province, which is located in a coastal region and next to Shanghai, an economic center, has aggressively imported foreign capital. During the first half of the 1990s, the province achieved remarkable economic development, mainly in coastal cities such as Hangzhou, Ningbo, and Shaoxing, maintaining annual economic growth above 30%. By constructing one section of the national trunk highway from Shanghai, an economic center in China's coastal region, to Kunming in the interior province of Yunnan, this project aims to strengthen connections to Shanghai through the development of a highway network and to promote an economic ripple effect on the interior region. Accordingly, the project was consistent with the above policy and was relevant.

2.1.2 Project Relevance at Time of Evaluation

With the aim of achieving a harmonious society, the Eleventh Five-Year National Economic and Social Development Plan (2006-2010) set out the objectives of bringing the development of the interior region of the country, which has been lagging behind, into balance with the level of development in the coastal cities; maintaining the advantage of the eastern region; and promoting the development of the western, northeastern, and central regions through mutual exchange, complementation, and integration. The development of a safe, rapid transit network was set as a goal for promoting the economic development of the interior region. Like the ninth and tenth plans, the Eleventh Five-Year Plan made the acceleration of construction of the planned "five longitudinal and seven latitudinal" highways a priority issue. In particular, the plan called for "three longitudinal and two latitudinal routes" to be completed within years of the plan

(2006-2010) and for construction planning to begin for eight routes in China's western region. Goals were to lay a total of 1,600,000 km of road and extend expressways to 25,000 km, and to complete three routes, Beijing-Zhuhai, Beijing-Shenyang, and Beijing-Shanghai by 2005. This project, the plan for which is to construct a section of the national trunk highway from Shanghai to Kunming, which is one of the "three longitudinal and two latitudinal routes," has continued to be a priority project. This is a very important project, as it responds to increasing demand for road transportation and contributes to the stimulation of the regional economy.

The Tenth Five-Year Provincial Economic and Social Development Plan (2006-2010) put priority on the development of the central part of Zhejiang Province. Six cities (Yiwu, Yongkang, Lanxi, Dongyang, Pujiang, and Wuyi) and industrial areas located along the expressway developed under this project were earmarked for priority development. The upgrading of the transportation sector has remained a top-priority issue, and the development of trunk highways, including expressways, has been made into a priority investment project. In particular, projects to develop arterial highways from the important center of Hangzhou (highways that connect between Hangzhou and Nanjing, Hangzhou and Jinhua/Quzhou, and between Jinhua and Lishui/Wenzhou as well as a ring highway around the city of Hangzhou), are priority projects, and so this project remains high-priority.

Moreover, the National Expressway Development Plan (NEDP), which was newly established in 2004, set out a plan to lay a total of 85,000 km of highways by 2020, and gives priority to 9 routes running north to south and 18 routes running east to west. This project is one of the 18 routes running east to west, and is therefore a high-priority project.

2.2 Efficiency

2.2.1 Outputs

Table 1 gives an overview of the project plan and shows the actual outputs. The outputs achieved were almost as planned, but changes were made to the number of tunnels, bridges, and interchanges. The ground at a location where no tunnel was planned turned out to be more solid than expected, and so the type of construction was changed from excavation to tunneling. This resulted in four tunnels, counting the highway in both directions, being constructed at two locations. Following revisions of the Ministry of Communications' (MOC) classification standards for

bridges, the number of bridges classified as large increased, having been upgraded from midsize and small bridges. Accordingly, the number and total length of large bridges increased. The number of midsize and small bridges also increased when the type of construction was changed from the initially planned box culverts to bridges to meet transportation demand. The number of interchanges was increased at the request of the local authorities (with the establishment of Yang Fan Qiao interchange). Junctions were also added to connect with the new ring highway around Hangzhou and the Hangzhou-Ningbo Expressway, resulting in interchanges at three additional locations.

The number of traffic monitoring centers was increased with the establishment of a monitoring center in Jinhua to improve the efficiency of traffic control due to increased traffic volume. Regarding the procurement of operation and maintenance machinery and material, the trucks and various other equipment intended for purchase were purchased under other projects. Accordingly, the plan for this project changed and rollers and other paving machines that are needed for operation and maintenance work on the expressway were purchased instead. All changes were appropriate.



Xiaoshan East Toll Plaza on the Hangzhou-Quzhou Expressway

Table 1 Project Outline and Outputs

Item	Plan (Time of appraisal)	Result
1. Highways	Total length: 237 km 6-lane sections: 10.5 km 4-lane sections: 226.1 km Width: 34.5-26.0 m	Total length: As planned 6-lane sections: 9.3 km 4-lane sections: 227.7 km Width: As planned
2. Bridges	Total: 111 (Length: 9,330 m) Large: 13 locations (4,970 m) Midsize and small: 108 locations (4,360 m)	Total: 182 (Length: 14,170 m) Large: 39 locations (7,960 m) Midsize and small: 149 locations (6,210 m)

3. Tunnels	1 location (1,390 m)	2 locations (1,510 m)
4. Interchanges	17 locations	20 locations
5. Toll gates	18 locations	As planned
6. Service areas	5 locations	As planned
7. Traffic monitoring centers	2 locations	3 locations
8. Traffic operation system	4 systems (traffic control, communication, toll collection, lighting and electricity supply)	As planned
9. Management offices	5 locations	As planned
10. Maintenance vehicles and equipment		
a. Asphalt and concrete mixers	2	0
b. Paving machines	2	As planned
c. Bridge test vehicles	1	0
d. Trucks	29	0
e. Crushers	0	1
f. Vibrating rollers	0	4
g. Pneumatic tire rollers	0	2
11. Consulting services	48MM	As planned

2.2.2 Project period

At the time of appraisal, the planned implementation period for the project was December 1998 to April 2003 (four years and four months). The actual period went from December 1998 to December 2002 (four years at time of completion) and so was shortened by four months.

The start of construction was delayed by about a year and began in September 1999. This delay was a result of the time needed to determine and approve the successful bidders. The delay was appropriate to eliminate arbitrary discretion from the evaluation of bids. In contrast, the construction period was shortened from an initial 48 months to 39 months, resulting in an overall shortening of the execution period. The construction period was shortened by increasing the number of workers, machinery, and materials in order to avoid paving work during the winter. The efforts of the executing agency to shorten the construction period were highly evaluated. The expressway was opened to traffic as soon as the earthwork and paving were completed, but construction of a noise barrier at Shaoxing and landscape beautification works at Quzhou continued after the road was opened.

2.2.3 Project Cost

The total project cost as estimated at the time of appraisal was 105,801 million yen (ODA loan portion of 30,000 million yen). The actual cost came to 84,290 million yen (ODA loan portion of 26,647 million yen). The project cost dropped by 20% from the estimated amount due to: (1) a decline in bidding price resulting from competition among Chinese contractors and (2) strict fulfillment on the part of the employer in assessing and approving design changes and payment requests.

2.3 Effectiveness

2.3.1 Traffic Volume on the Project Expressway

Table 2 shows the annual average daily traffic. The traffic volume has been increasing above the planned volume since the expressway was opened in December 2002. The increase in annual average traffic volume was sharper than anticipated, increasing 15% compared to a projected increase of 9% on the Hangzhou-Jinhua section and increasing 20% compared to a projected increase of 7% on the Jinhua-Quzhou section. At the same time, the number of vehicles in Zhejiang Province increased 59% during the three years from 2002 to 2005 and the number of licensed drivers increased 52% from 4.56 million in 2002 to 6.95 million in 2005, as shown in Table 3.

Table 2 Annual Average Daily Traffic on Expressway

(Unit: Vehicles/day)

		2002	2003	2004	2005	2006
Hangzhou-Jinhua	Planned	22,000	24,000	26,000	28,000	31,000
	Actual	—	27,000	37,000	40,000	41,000
Jinhua-Quzhou	Planned	10,000	11,000	12,000	12,000	13,000
	Actual	—	15,000	20,000	23,000	26,000

Table 3 Numbers of Vehicles and Licensed Drivers in Zhejiang Province

	2002	2003	2004	2005
Vehicles (thousands)	4,588	5,592	6,544	7,282
Licensed drivers (thousands)	4,561	5,492	6,170	6,946

2.3.2 Numbers of traffic accidents and fatalities

Table 4 shows the number of accidents and fatalities that occurred on the expressway. While the number of accidents is increasing, the number of fatalities has decreased. With the number of vehicles and traffic volume having increased dramatically in recent years, the Hangzhou-Jinhua-Quzhou Expressway Company has implemented traffic safety measures, including installment of road signs in areas identified as having many accidents, in order to reduce the number of accidents.

Table 4 Number of Accidents

	2003	2004	2005	2006 (January-June)
Fatalities (persons)	97	98	90	39
Accidents (number of accidents)	1,118	3,327	3,372	1,627

2.3.3 Financial Internal Rate of Return

The financial internal rate of return (FIRR) at the time of appraisal was 12.96%, calculated with the road construction cost, operation, maintenance, and management cost, and taxes as the costs and the highway tolls as the benefit. In this evaluation, the FIRR was recalculated at 17.98% using the actual construction cost and the actual values from 2002-2006 for the road operation and maintenance cost, taxes, and toll income and projected values for remaining project life period. As recalculated, the FIRR greatly exceeded the value estimated at the time of appraisal.

The economic internal rate of return (EIRR) at the time of appraisal was 15.74% based on an economic analysis using the road construction cost and road operation and maintenance cost as the costs and the reduction in travel costs and time costs, the reduction in transportation costs achieved by clearing congestion, and the economic effect of reduced traffic accidents as the quantitative benefits. The EIRR was recalculated as 21.90% at the time of ex-post evaluation using the same conditions as given above.

Conceivable reasons for the improved internal rate of return are the drop in investment costs and the fact that the increase in traffic volume greatly exceeded the projection. Due to the fact that the traffic volume is relatively high and there is

a high level of contribution to the community, including stimulation of the regional economy, the investment was relevant and the project is considered to have sufficiently achieved the goals set at the time of appraisal.

Table 5 Internal Rate of Return (%)

	Time of appraisal	Time of ex-post evaluation
FIRR	12.96%	17.98%
EIRR	15.74%	21.90%

2.4 Impact

2.4.1 Distribution

The project has contributed to the promotion of region-wide distribution as traffic capacity increased following the construction of the expressway (Table 6). During the current evaluation, the evaluator visited and interviewed bus and cargo transport operators and general companies. These interviews confirmed the fact that following completion of the project distribution became smoother, which has contributed to reduced transportation costs in addition to improving the efficiency of transporting farm produce and manufactured goods. In addition, it was also confirmed that the new expressway has lead to greatly decreased vehicle maintenance costs through gasoline and other fuel savings, reduced replacement of tires and other parts, and reduced operation and maintenance costs.

Table 6 Freight Volume by Section of the Expressway (Unit: 1,000 tons)

	1999	2000	2001	2002	2003	2004	2005
Zhejiang Province	458	551	557	646	709	785	814
Hangzhou	81	114	106	128	138	131	—
Shaoxing	46	57	60	70	76	81	—
Jinhua	59	64	74	88	111	98	—
Quzhou	34	36	36	43	45	61	—

2.4.2 Economic and Social Development in the Region

During the ex-post evaluation, a beneficiary survey was taken by conducting interviews in the region along the expressway, which received the benefits of the constructed highway. The field survey was conducted in eight districts along the expressway. Replies were obtained from 361 people. The results of the beneficiary survey confirmed that the investment environment improved, the number of travelers increased, the development of industrial and agricultural land and market chains was accelerated, tourism and distribution were facilitated, and other positive effects obtained in the corridor area as a result of the highway construction. Moreover, the new expressway eased traffic congestion on an existing road (Provincial Route 3).

The growth rate in the project area, which had been in the region of 8-12% before construction of the expressway, rose to about 15% after the expressway was opened at the end of 2002, and has since achieved a rate above 13% (Table 7).

Table 7 Economic Growth Rate by City (%)

	1998	1999	2000	2001	2002	2003	2004	2005
Zhejiang Province	10.2	10.0	11.0	10.6	12.6	14.7	14.5	12.8
Hangzhou	11.2	10.2	12.0	12.2	13.2	15.2	15.0	13.0
Shaoxing	—	—	—	11.6	13.8	15.0	15.3	13.3
Jinhua	8.1	8.6	10.1	10.3	12.9	15.5	16.2	14.0
Quzhou	7.3	9.1	9.2	11.6	12.9	14.6	15.2	13.6

According to the Inter-Province Regional Economic Cooperation Office in Quzhou, with the increased employment opportunities produced by this project, interest in labor training offered by local governments along the road rose and training programs were expanded, which has led to improved labor productivity. Moreover, since the expressway was open to traffic in 2003, Quzhou has attracted 1,500 new investments with a total investment amount of 30,000 million yuan. The project has also contributed to foreign investment and promotion of tourism; the number of tourists visiting Quzhou has been increasing by as much as 30% annually, and the number of foreign investment projects has also been increasing greatly (Tables 8 and 9). The evaluator also confirmed that the project contributed to the promotion of tourism, foreign investment, and the expansion of commerce in Lanxi, Jinhua, Yiwu, and Zhuji, which are cities along the expressway that were visited during this evaluation.

Table 8 Number of Tourists in Longyou

Year	Tourists (people)
2002	703,000
2003	856,000
2004	1,057,000
2005	1,240,000

(Source: Longyou City Department of Tourism)

Table 9 Foreign Investment in Longyou

Year	Projects	Total invested (100 millions of yuan)
2003	143	21
2004	146	23.6
2005	154	27.1
2006 (Jan.-Aug.)	90	29.4

(Source: Longyou City)

The advancement of Japanese companies into Zhejiang Province has in the past been concentrated in Jiaying and Quzhou, which neighbor Shanghai. After the new expressway was opened, however, they increasingly expanded into the interior cities, Shaoxing, Jinhua, and Quzhou, where their numbers increased to 238, 47, and 22, respectively (as of June 2005). According to the most recent data (as of the end of November 2006), in particular, the number of Japanese companies in Shaoxing has grown to 347, increasing suddenly by about 50% in a year and five months. Yiwu in Jinhua City has a number of plants that manufacture products sold in 100 yen shops and garment factories that manufacture the clothes sold in boutiques in Harajuku, Omotesando, and other fashionable areas in Japan. Many Japanese buyers visit the city to make purchases. A fluorine compound manufacturing plant was set up in Jinhua in recent years under joint management by the investment of a major trading firm. Therefore, it can be said that this project has contributed to the expansion of the local advance of this company.

Following the opening of the expressway, access to markets became easier and

distribution systems were improved, resulting in higher incomes for residents in the project area (especially farmers). On a beneficiary survey, 76% of respondents replied that their income had increased after completion of the expressway, and 87% of respondents indicated that employment and commerce opportunities had improved. The income per resident in Zhejiang Province can be seen to have increased to roughly 1.5 times the national average (Table 10). Further, 99% of respondents to a beneficiary survey praised the construction of the expressway for improving access to neighboring markets and public services. It has also been pointed out that the highway has contributed to the social and economic development of the region by making access to Shanghai from Zhejiang, Jiangxi, and Hunan easier.

Table 10 Income per Resident (Unit: yuan)

	1999	2000	2001	2002	2003	2004	2005
China	5,854	6,280	6,860	7,701	8,472	9422	—
Zhejiang	8,428	9,279	10,465	11,716	13,180	14,546	16,294
Hangzhou		9,668	10,896	11,778	12,898	14,565	16,601
Shaoxing		9,422	10,534	11,747	13,152	14,542	17,516
Jinhua	8,166	9,223	10,385	11,264	12,445	13,910	15,387
Quzhou	6,642	7,592	8,709	9,330	10,079	11,477	13,255

Table 11 Income per Farmer (Unit: yuan)

	1999	2000	2001	2002	2003	2004	2005
China	2,210	2,253	2,366	2,476	2,622	2,936	—
Zhejiang	3,948	4,254	4,582	4,940	5,431	6,296	6,660
Hangzhou	—	4,496	4,896	5,242	5,740	6,382	7,655
Shaoxing	—	—	5,343	5,690	6,143	6,970	7,704
Jinhua	3,520	3,725	3,945	4,157	4,506	5,018	5,516
Quzhou	—	—	—	3,595	3,980	4,414	4,850

Note: Inflation from 1999 to 2004 was almost zero.

2.4.3 Impacts on the Environment, etc.

Environmental protection measures in line with national and provincial regulations were taken during construction of the expressway. These included noise prevention measures, protection against dust, wastewater management, and environmental maintenance. Noise barriers were erected along sections of the expressway near public facilities such as hospitals and schools to prevent noise. Even after the expressway was opened, efforts have been taken to maintain a good landscape, including planting trees in the median and taking regular care of the grass on the shoulder slopes.

Soil erosion occurred in some areas, but environmental measures were taken, including the planting of trees and grass. The area of land acquired was 1,544.48 ha, for which the total compensation paid was 672 million yuan. Of the people affected by the land acquisition, 1,586 were hired by three offices of the Hangzhou-Jinhua-Quzhou Expressway Company (HJQEC) as toll collectors and employees at service areas.



Quzhou East Interchange (terminus) on the Hangzhou-Quzhou Expressway

2.5 Sustainability

2.5.1 Operation and Maintenance Organization

The project was implemented by the Zhejiang Provincial Communication Department (ZPCD), but the operation and maintenance after completion of the expressway are being handled by the Hangzhou-Jinhua-Quzhou Expressway Company (HJQEC). Accordingly, below is a description of HJQEC's setup.

2.5.1.1 Technical Capacity

HJQEC is an organization that specializes in the operation and maintenance of highways. Experienced engineers work for the company. Of the head office staff members, 21 are university graduates and 41 graduated from a junior college or higher institution. Of the engineering personnel, 10% have senior engineer qualifications and 35% have engineer qualifications. HJQEC has been acknowledged by the Ministry of Communications (MOC) and ZPCD as having an "excellent" quality control system. While daily maintenance is entrusted to the

Zhejiang Shunchang High-Grade Highway Maintenance Company, private companies are employed through competitive bidding to perform medium- and large-scale repair and improvement work.

2.5.1.2 Organization

HJQEC has a total staff of 552. The head office in Hangzhou consists of 62 personnel in eight departments. Local offices have been established in three cities—Shaoxing, Jinhua, and Quzhou—to decentralize and transfer the responsibility for the planning and operation of road maintenance and improvement work to branch offices. The Shaoxing Office headquarters consists of 109 personnel in six departments. It oversees six toll plazas, two services areas, and one tunnel, and employs a total of 486 people. The Jinhua Office headquarters consists of 82 personnel in six departments. It manages nine toll plazas and two service areas, employing a total of 552 people. The Quzhou Office headquarters consists of six departments where 96 people work. It manages three toll plazas and one service area, employing a total of 220 people.

2.5.1.3 Financial Status

The traffic volume on the expressway has exceeded the planned amount. The current volume is about 35,000 vehicles per day. The annual toll income for 2005 was 1,550 million yuan (Table 12).

Table 12 Annual Toll Income (Millions of yuan)

	2003	2004	2005
Toll income	876.9	1,323.6	1,546.6

2.5.2 Operation and Maintenance

HJQEC treats high quality operation and maintenance as its top priority. As mentioned above, it has been evaluated highly by MOC and ZPCD. Annual operation and maintenance costs are shown in Table 13. The company has secured sufficient budgets for normal operation and maintenance. The large increase in operation and maintenance costs after starting business is attributable to the work performed to repair the approaches to bridges and box culverts that had settled in the soft ground area in Shaoxing after the expressway was opened.

Table 13 Operation and Maintenance Costs (Millions of yuan)

	2003	2004	2005
Operation and maintenance costs	39.1	143.3	219.5

3. Feedback

3.1 Lessons learned

None

3.2 Recommendations

None

Comparison of Original and Actual Scope

Item	Plan	Actual
1. Output		
Highways	Total length: 237 km 6-lane sections: 10.5 km 4-lane sections: 226.1 km Width: 34.5-26.0 m	Total length: As planned 6-lane sections: 9.3 km 4-lane sections: 227.7 km Width: As planned
Bridges	Total: 111 (Length: 9,330 m) Large: 13 locations (4,970 m) Midsize and small: 108 locations (4,360 m)	Total: 182 (Length: 14,170 m) Large: 39 locations (7,960 m) Midsize and small: 149 locations (6,210 m)
Tunnels	1 location (1,390 m)	2 locations (1,510 m)
Interchanges	17 locations	20 locations
Toll gates	18 locations	As planned
Service areas	5 locations	As planned
Traffic monitoring centers	2 locations	3 locations
Traffic operation system	4 systems (traffic control, communication, toll collection, lighting and electricity supply)	As planned
Management offices	5 locations	As planned
Maintenance vehicles and equipment		
a. Asphalt and concrete mixers	2	0
b. Paving machines	2	As planned
c. Bridge test vehicles	1	0
d. Trucks	29	0
e. Crushers	0	1
f. Vibrating rollers	0	4
g. Pneumatic tire rollers	0	2
Consulting services	48MM	As planned
2. Project period	December 1998 to April 2003 (4 years, 4 months)	December 1998 to July 2004 (5 years, seven months, loan completion)
3. Project cost (total project cost)		
Foreign currency	30,000 million yen	26,647 million yen
Domestic currency	4,738 million yuan	4,025 million yuan
Total	105,801 million yen	84,29 million yen

ODA loan portion	30,000 million yen	26,647 million yen
Exchange rate	1 yuan = 16.0 yen	1 yuan = 16.0 yen