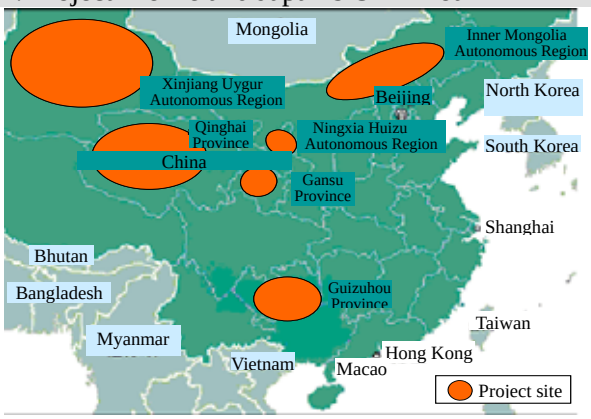
China

Interior Regions Telecommunications Network Expansion Project

External Evaluator: Yuko Kishino

Field Survey: October 2004

1. Project Profile and Japan's ODA Loan



Project site location map

Earth station in Xinjiang Uygur Autonomous Region

1.1 Background

Since China adopted the reform and open-up policies in 1978, development and improvement of infrastructure in various fields have been implemented in order to facilitate the transition from a planned economy system to a socialist market economy. In the field of telecommunications, based on the idea that it is essential to collect accurate economic information and establish a system of utilizing such information, construction of communication facilities was included in priority policies of the Eighth 5-Year Plan (1991-1995), and the telecommunication capacity has been remarkably improved by digitization. On the other hand, the telephone density[1] in urban areas in china was only 3.1 as of the end of 1992, and communication facilities were still insufficient. Also, there was a large gap in telephone density between the eastern urban area experiencing rapid economic growth and the western urban area, in which telephone densities were 4.1 and 2.3, respectively.

1.2 Objectives

The project's objective was to improve the poor communication condition and cope with the expected increase in demand in the future by expanding and modernizing local telephone communication networks in 6 provinces and autonomous regions in the interior regions of China, and thereby contribute to the promotion of economic development through the improvement of the investment environment.

[1] The number of telephone per 100 persons

1.3 Borrower / Executing Agency

Government of People's Republic of China / Ministry of Posts and Telecommunications (at appraisal), Ministry of Information Industry (at evaluation)

1.4 Outline of Loan Agreement

Loan Amount / Disbursed Amount	15,003 million yen / 13,482 million yen
Exchange of Notes / Loan Agreement	December 1996 / December 1996
Terms and Conditions - Interest Rate - Repayment Period (Grace Period) - Procurement	 2.3% 30 years (10 years) General untied
Final Disbursement Date	June 2002
Contractors (Civil Works and Equipment)	Beijing International Switching System Corporation Ltd.(China)
Consultants	-
Feasibility Study (F/S), etc.	Chinese Government (1996)

2. Results and Evaluation

2.1 Relevance

In China's Ninth 5-Year Plan (1996-2000), communication networks were mentioned as important infrastructure. In particular, expansion of telephone networks in the interior regions as a measure to promote the development of regional economy and reduce the disparity between these regions and the coastal regions was one of the priority objectives of the plan. This project was intended to improve communication conditions in the interior 6 provinces and autonomous regions, which were particularly underdeveloped in China, and therefore was highly important for regional economic activities in the regions. Thus, the relevance of the project at the time of appraisal is fine.

Modernization of the information infrastructure including the establishment of communication networks is also an important policy of the Tenth 5-Year Plan (2001-2005), and establishment of communication networks in the interior regions remains an important issue to be tackled in order to reduce regional disparity. In the China Western Development Plan (2001-2010), construction of infrastructure in 12 provinces[2] and autonomous regions including the 6 covered by this project is listed among priority projects. The strategy contains the

[2] Gansu Province, Shaanxi Province, Qinghai Province, Xinjiang Uygur Autonomous Region, Ningxia Huizu Autonomous Region, Sichuan Province, Yunnan Province, Guizhou Province, Tibet Autonomous Region, Chongqing City, Inner Mongolia Autonomous Region and Guangxi Zhuangzu Autonomous Region

objectives of improving trunk transmission networks such as fiber optic and micro transmission lines and the satellite communication system, as well as constructing a fixed telephone network in the target provinces and autonomous regions. This project is consistent with these objectives and therefore remains relevant today.

2.2 Efficiency

2.2.1 Output

This project was to increase the capacity of local switches and construct intra-provincial transmission lines in 6 particularly underdeveloped provinces and autonomous regions in China: Xinjiang Uygur Autonomous Region, Gansu Province, Qinghai Province, Ningxia Huizu Autonomous Region, Guizhou Province, and Inner Mongolia Autonomous Region (Fig.1). The ODA Loan covered the entire foreign currency portion listed below.

Fig. 1 Six Provinces and Autonomous Regions in Interior China

Table 1 Comparison of Output (Plan/Actual)

Province / Autonomous Region	Plan	Actual
Xinjiang Uygur Autonomous Region	① **Local switches:** 510,000 circuits ② **Satellite communication network:** construction of 3 earth stations and installation of additional equipment at 5 existing earth stations	① As planned ② As planned

Gansu Province	① **Local switches:** 140,000 circuits ② **Fiber optic cable transmission lines:** 13 sets of STM[1)]-1 equipment, 4 sets of STM-4 equipment (total length: 1,051.35km) ③ **Microwave transmission lines** (in urban areas) 24 sets of STM-1 equipment (total length: 463.8km) ④ **Fiber optic cable transmission lines or Microwave transmission lines** (local lines in rural areas): 235 sets of STM-1 equipment and 20 sets of PDH[2)]34Mb/s equipment	① Mostly as planned ② - ④ **Fiber optic cable transmission lines:** 26 sets of STM-1 equipment, 51 sets of STM-4 equipment (total length: 4,926km)
Qinghai Province	① **Local switches:** 100,000 circuits ② **Fiber optic cable transmission lines:** 42 sets of STM-1 equipment (total length: 2,445km) ③ **Subscriber circuits**: 3,800km	① **Local switches:** 123,000 circuits ② **Fiber optic cable transmission lines:** 49 sets of STM-4 equipment (total length: 2,326km) ③ **Subscriber circuits:** 3,109km
Ningxia Huizu Autonomous Region	① **Local switches:** 310,000 circuits ② **Fiber optic cable transmission lines:** 13 sets of STM-4 equipment	① As planned ② As planned
Guizhou Province	Local switches: 330,000 circuits	As planned
Inner Mongolia Autonomous Region	① **Local switches:** 100,500 circuits ② **Fiber optic cable transmission lines**: 80 sets of PDH34Mb/s equipment (total length: 2,000km) ③ **No. 7 type command network[3)]:** LSTP[4)] equipment at 11 locations	① **Local switches:** As planned ② **Fiber optic cable transmission lines:** 40 sets of PDH34Mb/s equipment (total length: 2,000km) ③ **No. 7 type command network:** LSTP equipment at 5 locations

Note 1) STM stands for Synchronous Transport Module, an international standard of transmission mode classified by transmission capacity. STM-1 has a capacity of 155Mb/s（worth approximately 2,000 circuits） and STM-4 has 4 times the capacity of STM-1.

Note 2) PDH stands for Pre Synchronous Digital Hierarchy, the existing transmission mode.

Note 3) A common signal mode that transmits information for the control and connection of circuits within the network of communication service providers. It allocates optimum capacity to the exchange of service management information so as to make the most of the capacity of the transmission line.

Note 4) LSTP stands for Local Signal Transfer Point, the station that exchanges or relays signal messages in the No.7 type command network.

The planned output was achieved in Xinjiang Uygur Autonomous Region, Ningxia Huizu Autonomous Region, and Guizhou Province. In 3 other provinces and autonomous regions, some changes were made to the plan at the appraisal time such as the increase in the number of local switches and changes in the length of transmission lines and transmission modes (see the shaded columns of Table 1).

In Gansu Province, it was planned to construct fiber optic cable transmission lines in limited areas and microwave transmission lines in the remaining areas due to budget restrictions. However, at the stage of basic design after appraisal it turned out to be possible to construct fiber optic cable transmission lines in the entire target region, and the plan was changed. Also, with the change of the main transmission mode from PDH to SDH (Synchronous Digital Hierarchy), a high-speed digital system with a huge capacity, planned introduction of PDH in rural areas were cancelled, and SDH was introduced in all areas with a view to enhancing reliability and quality of communication services.

In Qinghai Province, the length of fiber optic cable transmission lines and subscriber circuits was shortened based on the result of the up-to-date demand survey in prefecture-level city and prefectures in the province, and the saved funds were used to increase the highly needed local switches. As a result, the capacity of local switches was increased by 23,000 circuits, and the length of fiber optic cable transmission lines and subscriber circuits was respectively reduced by 119km and 691km from the original plan.

In Inner Mongolia Autonomous Region, as the signing of L/A took place much later than expected, 40 sets of PDH34Mb/s equipment for fiber optic cable transmission lines and No. 7 type command network LSTP at 6 locations were covered by the counterpart funds.

2.2.2 Project Period

The whole project was planned to take 25 months from December 1996 to December 1998, whereas the actual implementation period was 54 months from December 1996 to May 2001 (116% longer than planned). Main factors of delay were: (1) it took time to adjust for the changes in the output that arose at the stage of basic design after appraisal due to the lack of accuracy of F/S; (2) it took time from bidding to contracts due to inexperience in international bidding (Xinjiang Uygur Autonomous Region and Qinghai Province); and (3) the construction work was delayed by adverse weather (Qinghai Province)[3].

2.2.3 Project Cost

The total project cost was 25,105 million yen, or 74.4% of the appraisal time estimate of 33,735 million yen. The amount disbursed under the ODA Loan was 13,482 million yen, which

[3] 80% of Qinghai Province is plateau country exposed to harsh natural conditions such as heavy snow from November to April.

was within the approved amount (15,003 million yen). The project cost was reduced as the result of efficient contracting through international competitive bidding.

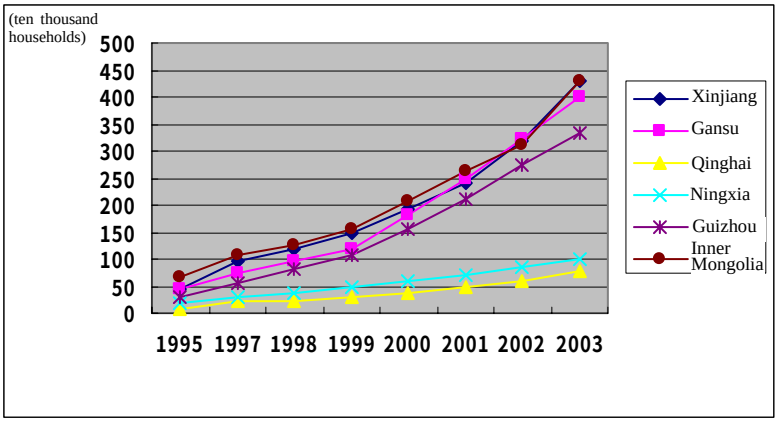
2.3 Effectiveness

2.3.1 Improvement of Communication Conditions

(1) Number of households with fixed telephone (subscriber households)

The number of subscriber households marked a 6- to 12-fold increase in each province and autonomous region, including the remarkable increase in Guizhou Province from 0.28 million before the start of the project (1995) to 3.32 million after the completion of the project (2003) (Fig.2). In addition to the increase in capacity of station switches (Fig.3), reduction in the telephone installation charge[4], call charges and the basic rate, and the improvement of telephone services are considered to be the contributing factors. As for the number of waiting list for main lines, the only available data of Gansu Province shows that the number has been reduced from 6,000 households in 1995 to zero in the year following the completion of the project.

Fig. 2 Number of Households with a Fixed Telephone (Subscriber Households)

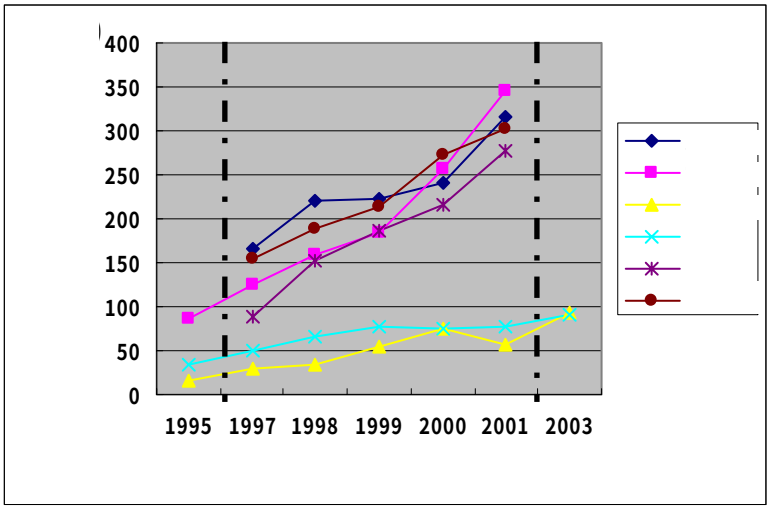


Note) The data for 1996 was not available.

Source: China Telecommunications Statistics Annual Report 2003; China Information Almanac 2002 for the data for 1997/98

[4] The installation charge was reduced from 5,000 yuan in the most expensive regions to 158-300 yuan.

Fig. 3 Capacity of Stations Switches



Note) The data for 1996 and 2002 was not available.

Source: China Information Almanac 2002; China Telecom in each province and autonomous region for the data for 1995/2003/04

(2) Telephone Density

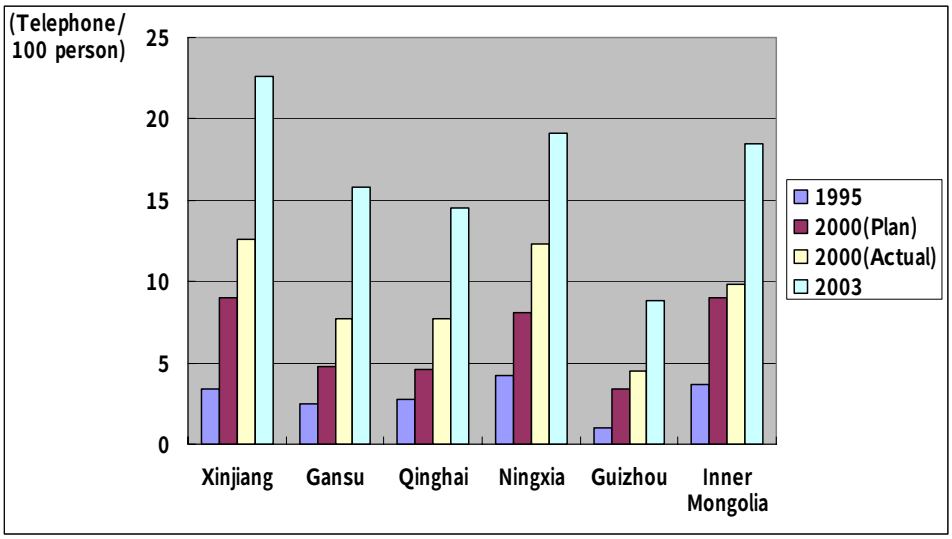
The telephone density in each province and autonomous region exceeded the level planned for 2000 and thus achieved the initial target (Table 2, Fig.4).

Table 2 Telephone Density

(unit: Telephone / 100 person)

Province / Autonomous Region	1995 Actual	2000 Plan	2000 Actual	2003 Actual
Xinjiang Uygur Autonomous Region	3.4	9.0	12.6	22.6
Gansu Province	2.5	4.8	7.7	15.8
Qinghai Province	2.8	4.6	7.7	14.5
Ningxia Huizu Autonomous Region	4.2	8.1	12.3	19.1
Guizhou Province	1.0	3.4	4.5	8.8
Inner Mongolia Autonomous Region	3.7	9.0	9.8	18.5
China	4.7	10.0	12.4	21.1

Fig. 4 Telephone Density



Source: China Telecommunications Statistics Annual Report 2003

(3) Traffic Density

In Gansu Province, the local traffic density increased nearly 9 fold from 964 million calls before the start of the project (1995) to 8,538 million calls after the completion of the project (2003). The traffic density of long-distance and overseas calls also increased 3.6 fold and 1.5 fold respectively. Table 3 shows the traffic density in each province and autonomous region where the data is available.

Table 3 Traffic Density

(unit: hundred million calls)

	Traffic Density (Local)						Traffic Density (Long-distance)						Traffic Dencity (Overseas)					
	1995	1999	2000	2001	2002	2003	1995	1999	2000	2001	2002	2003	1995	1999	2000	2001	2002	2003
Xinjiang	—	—	—	—	141.00	—	—	—	—	—	70.00	—	—	—	—	—	—	—
Gansu	9.64	24.90	27.70	60.10	71.00	85.38	0.87	1.87	2.20	2.74	2.86	3.11	0.02	0.02	0.03	0.02	0.02	0.03
Qinghai	1.44	—	—	—	—	15.36	—	—	—	—	—	—	—	—	—	—	—	—
Ningxia	3.37	8.21	10.24	34.29	32.15	29.92	1.10	1.90	2.49	2.97	2.75	3.58	—	—	—	—	—	—
Guizhou	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Inner Mongolia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Source: China Telecom in each province and autonomous region

2.3.2 Recalculation of Financial Internal Rate of Return (FIRR)

FIRR was calculated at the time of appraisal based on the project life of 20 years (15 years for Ningxia Huizu Autonomous Region), income from call charges as the benefits, and general administrative expenses and selling expenses as the costs. The results were 10.59% for Xinjiang

Uygur Autonomous Region, 9.16% for Gansu Province, 7.78% for Qinghai Province, 8.29% for Ningxia Huizu Autonomous Region, 8.39% for Guizhou Province, and 10.52% for Inner Mongolia Autonomous Region. For the ex-post evaluation, necessary data was not available; however, according to the calculation by China Telecom, FIRR for Xinjiang Uygur Autonomous Region and Qinghai Province is 12.76% and 8.15% respectively, both exceeding the values calculated at the time of appraisal.

2.4 Impact

2.4.1 Development of Regional Economy

The average GRDP growth rate from 2000 to 2003 of each province and autonomous region exceeds the national average (Table 4). The total investment amount (Fig. 5) in each province and autonomous region increased 2.5 to 4.5 fold.

Since various factors contribute to the growth of GRDP and the investment amount, these data do not show the impact of this project exclusively. Generally speaking, however, improvement of the communication infrastructure has a positive impact on economic development and investment expansion. Therefore, it can be said that this project contributed to the regional development to a certain extent.

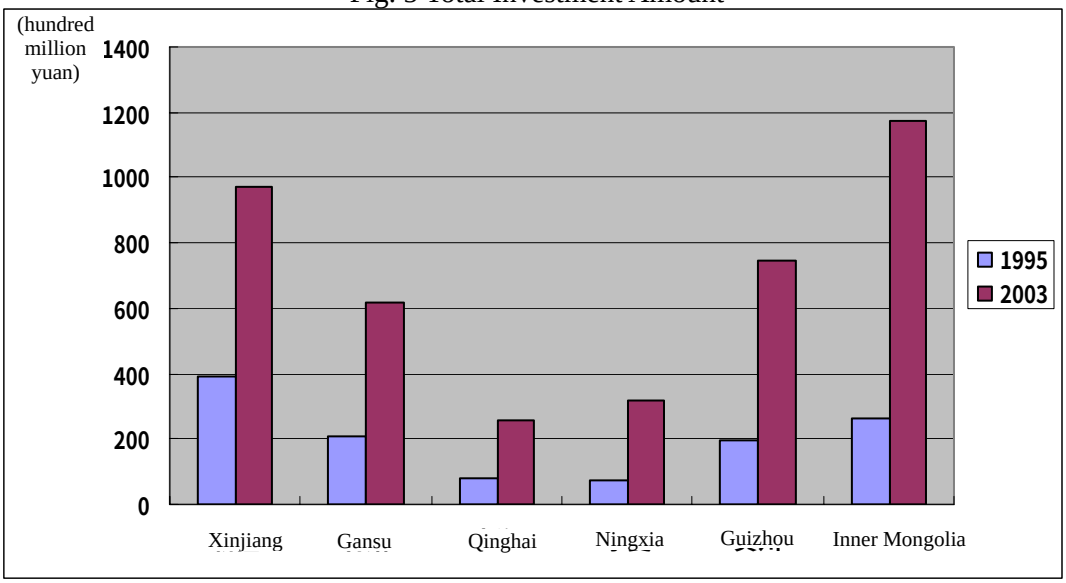
Table 4 Average GRDP Growth Rate (2000-2003)

(%)

China	Xinjiang	Gansu	Qinghai	Ningxia	Guizhou	Inner Mongolia
8.6	8.8	9.4	11.4	10.6	9.2	12.1

Source: China Statistical Yearbook

Fig. 5 Total Investment Amount



Note) The data for 1995 for Xinjiang Uygur Autonomous Region is actually the data for 1996.

Source: China Statistical Yearbook

2.4.2 Diffusion of the use of the Internet

In China, use of the Internet has been rapidly expanding since around 2000 due to the government's active promotion policy and improvement of communication facilities. In this project, the growth of capacities of local switches helped the increase of the number of households with a fixed telephone, which increases the number of households using Internet thorough dial up access, and thus contributed to the diffusion of the Internet.

As shown in Table 5, the number of households using Internet has increased from 4,700 households in 1998 to 337,000 households in 2001 in Gansu Province and from 3,800 households in 1998 to 1,614,200 households in 2001 in Inner Mongolia Autonomous Region. In other provinces and autonomous regions, too, users have increased significantly.

Table 5 Number of Households Using Internet

(unit: ten thousand households)

	Population (ten thousand)	1997	1998	1999	2000	2001	2002	2003	2004
Xinjiang	1,934	-	-	-	-	24.00	44.80	59.30	69.30
Gansu	2,603	-	0.47	-	-	33.70	-	-	-
Qinghai	534	-	-	-	0.90	3.26	-	-	-
Ningxia	580	0.01	-	0.34	3.41	8.00	14.00	19.56	-
Guizhou	3,870	-	-	-	5.97	11.89	-	-	-
Inner Mongolia	2,380	0.38	-	-	-	161.42	-	-	-

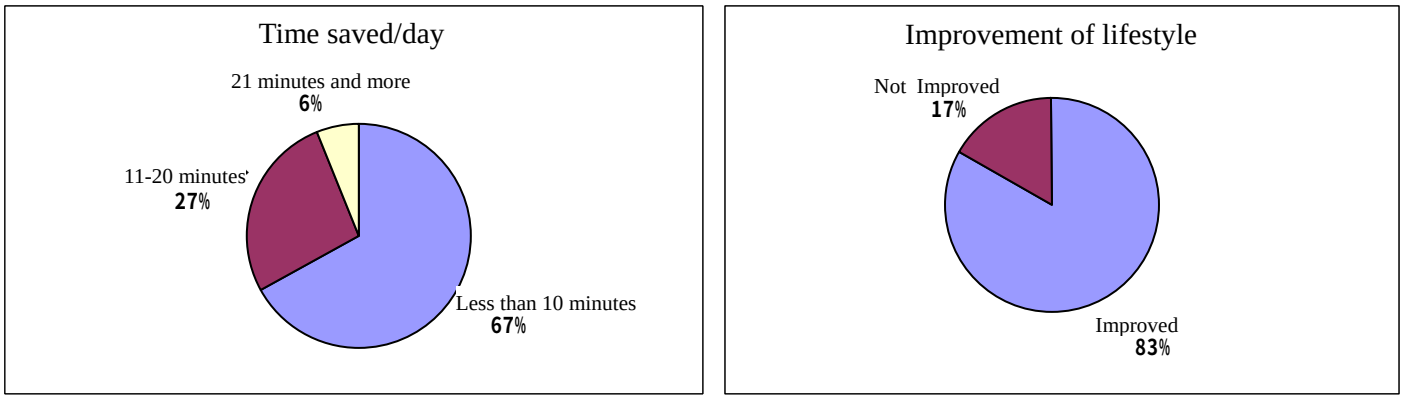
Note) The population is as of 2003.

Source: China Information Almanac 2002; Ningxia Telecom Company Limited; Xinjiang Communications Bureau

2.4.3 Improvement of Convenience for Local Residents

In the beneficiary survey conducted in urban and rural areas in Gansu Province, Qinghai Province, and Inner Mongolia Autonomous Region, it was confirmed that subscription to fixed telephone service saved time compared to going out to make telephone calls. More than 80% of the respondents said that their "lifestyle has improved" through the facilitation of communication with their families and friends (Fig.6). Also, 83% of the respondents answered that they are "satisfied with the communication services provided today", showing that the project contributed to the improvement of convenience for local residents.

Fig.6 Results of the Beneficiary Survey



In the survey of bulk users, some cases were found where the increase in telephone lines after the completion of the project lead to the improvement of business efficiency. In the case of a food company in Gansu Province, for example, the number of subscribed fixed telephone lines increased from 10 before the start of the project to 300 after the completion of the project. As a result, the telephone waiting time was reduced, thus saving 6,000 hours a month throughout the entire company.

2.5 Sustainability

2.5.1 Executing Agency

2.5.1.1 Technical Capacity

The majority of the operation and maintenance staff are graduates of college or higher level educational institutions. According to the executing agency, the technical capacity of the employees is satisfactory, and the quality of operation and maintenance work is high. The training programs including the broadband user terminal repair course, network general repair course, and other 5- to 17-day courses on operation and maintenance for elementary, intermediate, and advanced levels are provided to 340 employees every year. In addition, 80-100 employees are given opportunities to receive technical training at manufacturers. The fact that a total of 12,494 employees receive 25 types of training programs a year shows they have an adequate training system.

2.5.1.2 Operation and Maintenance System

The executing agency at the time of appraisal was the Ministry of Posts and Telecommunications. Following the administrative reform in the 1990s, the executing agency under the L/A was changed to the Ministry of Information Industry, which was established in 1998 on the bases of the Ministry of Posts and Telecommunications, Ministry of Electronics, and Ministry of Electric Power. Also, Posts and Telecommunications Bureaus of each province and autonomous region that were operation and maintenance agencies at the time of appraisal

are now incorporated as China Telecom Corporation Limited (China Telecom) and China Network Communications Group Corporation (China Netcom) (see Table 6). Operation and maintenance of facilities covered by this project are performed by fully-owned subsidiaries of these corporations in each province and autonomous region.

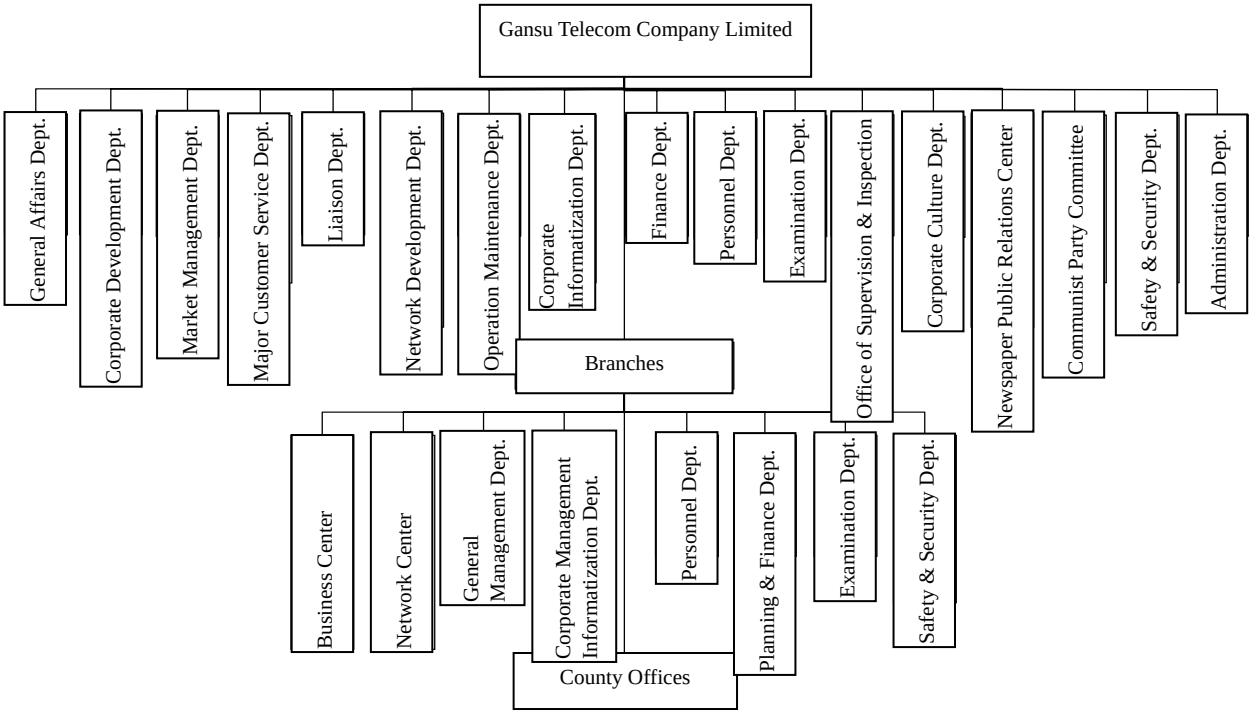
Table 6 Operation and Maintenance Agency

	China Telecom	China Netcom
Service Area	21 Southern Provinces (**Xinjiang Uygur Autonomous Region, Gansu Province, Qinghai Province, Ningxia Huizu Autonomous Region, Guizhou Province,** Shanghai, Jiangsu Province, Guangdong Province, etc.**)**	10 Northen Provinces (**Inner Mongolia Autonomous Region,** Beijing, Tianjin, Liaoning Province, etc.)
Employees	around 100,000	around 150,000
Main Businesses	Local, in reginon long distance and international long distance phone calls, broadband and Internet services, IP telephone, local radio communication services, data transmission, etc.	Same as the left
Business Scale (as of the end of 2003)	Number of households with a Fixed telephone: 160 million households Number of households using Broadband: 7.35 million households	Number of households with a Fixed telephone: 94.1 million households Number of households using Broadband: 3 million households

The organization of subsidiaries in each province and autonomous region is almost the same. Here we take the example of that in Gansu Province (Table 7). Gansu Telecom Company Limited consists of 16 departments including Operation Maintenance Department, Network Development Department, Market Management Department, Major Customer Service Department, Newspaper Public Relations Center, 14 branches etc. with 8,156 employees in total. Branches in each prefecture-level city and prefecture are composed of 2 centers, Business Center and Network Center, 6 departments including General Management Department and Safety and Security Department, and county (district) offices[5].

[5]An administrative unit subordinate to prefecture-level city and prefecture

Table 7 Organization Chart of Gansu Telecom Company Limited



2.5.1.3 Financial Status

Table 8 shows the semiannual operationg expenditure and receipt of China Telecom. The growth rate from the half term ended December 2003 to the term ended June 2004 was 8%, and the profit to net sales of the term ended June 2004 was 18%, indicating growth potential and profitability. It has a huge amount of assets; the equity capital as of the end of the term ended June 2004 was 80.9 billion yuan, and the total assets amounted to 411.7 billion yuan. The equity ratio of 35% and the current ratio of over 200% show that the company is solvent enough (Table 9).

China Telecom in each province and autonomous region are subsidiaries fully owned by the parent company which has self-supporting accounting system. They contribute a portion of their profit to the parent company at a rate determined for each subsidiary according to their business performance. Although financial data of each subsidiary was not available, financial relations between the parent company and subsidiaries are stable, and there is no problem with financial sustainability.

China Netcom reported a net profit of 4.3 billion yuan for the term ended June 2003 and 4.9 billion yuan for the term ended June 2004 (Table 8). The operating profit on sales for the same term was 26%, and the profit to net sales was 15%, indicating high profitability. The equity capital was 1.8 billion yuan, total assets were 156.3 billion yuan, equity ratio was 27%, and the

current ratio was 17%. There is no problem with financial stability or long-term solvency (Table 9).

China Netcom Inner Mongolia recorded an annual operating receipt of 2,371.1 million yuan for 2001, 2,535 million yuan for 2002, 2,866.04 million yuan for 2003, and reported net losses of 702.09 million yuan, 411.72 million yuan, and 406.62 million yuan for the respective years, posting a deficit every year. The cost of sales account for as much as 89%-90% of the sales, and the selling expenses and general administrative expenses account for 23%-29% of the sales. The non-operating expenses such as the loss from the sales of fixed assets worth 0.5% of the sales also affect profitability. As of the end of 2003, its equity capital was 2,378.25 million yuan, total assets were 10,362.65 million yuan, equity ratio was 23%, and current ratio was 28%. Although the profitability is not enough, considering the stable relations with the parent company, there seems to be no major problem with sustainability.

Table 8 Profit and Loss Statement

(unit: hundred million yuan)

	China Telecom (half-year term ended December and the term ended June 2004)				China Netcom (half-year term ended June)	
	2001	2002	2003	2004	2003	2004
Operating Receipt	685	755	740	802	291	325
Operating Profit	N/A	N/A	182	201	72	86
Net Profit	68	169	130	147	43	49

Table 9 Balance Sheet

(unit: hundred million yuan)

	China Telecom		China Netcom			
	2003	2004	2001	2002	2003	2004
Assets Section						
Current Assets	3,708	3,725	177	174	175	130
Fixed Assets	331	392	1,693	1,735	1,620	1,433
Total Assets	4,039	4,117	1,870	1,909	1,795	1,563
Liability Section						
Current Liabilities	1,491	1,618	576	688	869	749
Fixed Liabilities	1,027	1,034	702	599	493	385
Total Liabilities	2,518	2,652	1,278	1,287	1,362	1,134
Equity Section						
Equity Capital	756	809	18	18	18	18
Surplus	752	642	574	604	415	411
Others	13	14				
Total Shareholders' Equity	1,521	1,465	592	622	433	429
Total Liabilities and Shareholders' Equity	4,039	4,117	1,870	1,909	1,795	1,563

2.5.2 Operation and Maintenance Status

Communication Facilities are managed by operation maintenance departments etc. at the provincial and autonomous regional level, the prefectural level, and the county (district) level according to the instructions of the parent companies. In the daytime they are controlled by each network center at the county level whereas at night they are controlled by the network center at the prefectural level with the centralized computer system. They work on a 24-hour basis so as to respond to emergency situations. Operation of the network is analyzed and evaluated on a regular basis at regular meetings of operation maintenance departments. These facts indicate that a well-established system of detecting failure of facilities and solving problems is in place.

Maintenance activities are performed by the persons licensed by the national government on daily, weekly, monthly, quarterly, and yearly bases in accordance with the operation and maintenance rules (for network, microwave, fiber optic, satellite, and long-distance wave communication systems) set by the parent companies. The operation and maintenance manual for each facility is maintained and revised every 4 years.

Spare parts of various kinds including those of foreign manufacturers are always stored at Spare Parts Store Centers in each prefecture-level city and prefecture so that they are promptly supplied.

Thus, the operation and maintenance system is well established, and there is no problem with the sustainability of the project.

3. Feedback

3.1 Lessons Learned

None

3.2 Recommendations

None

Comparison of Original and Actual

Item	Plan	Actual
① Output	**Xinjiang Uygur Autonomous Region**: ① Local switches: 510,000 circuits ② Satellite communication network: construction of 3 earth stations and installation of additional equipment at 5 existing earth stations **Gansu Province**: ① Local switches: 140,000 circuits ② Fiber optic cable transmission lines: 13 sets of STM-1 equipment, 4 sets of STM-4 equipment (total length: 1,051.35km) ③ Microwave transmission lines (local lines in urban areas): 24 sets of STM-1 equipment (total length: 463.8km) ④ Fiber optic cable transmission lines or microwave transmission lines (local lines in rural areas) : 235 sets of STM-1 equipment and 20 sets of PDH34Mb/s equipment **Qinghai Province**: ① Local switches: 100,000 circuits ② Fiber optic cable transmission lines: 42 sets of STM-1 equipment (total length: 2,445km) ③ Subscriber circuits: 3,800km **Ningxia Huizu Autonomous Region**: ① Local switches: 310,000 circuits ② Fiber optic cable transmission lines: 13 sets of STM-4 equipment **Guizhou Province**: Local switches: 330,000 circuits **Inner Mongolia Autonomous Region**: ① Local switches: 100,500 circuits ② Fiber optic cable transmission lines: 80 sets of PDH34Mb/s equipment (total length: 2,000km) ③ No. 7 type command network: LSTP equipment at 11 locations	**Xinjiang Uygur Autonomous Region**: ① As planned ② As planned **Gansu Province**: ① Mostly as planned (153,184 circuits) ②-④ Fiber optic cable transmission lines: 26 sets of STM-1 equipment and 51 sets of STM-4 equipment (total length: 4,926km) **Qinghai Province**: ① Local switches: 123,000 circuits ② Fiber optic cable transmission lines: 49 sets of STM-4 equipment (total length: 2,326km) ③ Subscriber circuits: 3,109km **Ningxia Huizu Autonomous Region**: ① As planned ② As planned **Guizhou Province**: As planned **Inner Mongolia Autonomous Region**: ① As planned ② Fiber optic cable transmission lines: 40 sets of PDH34Mb/s equipment (total length: 2,000km) ③ No. 7 type command network: LSTP equipment at 5 locations
②Project Period	Dec. 1996 – Dec. 1998 (25 months)	Dec. 1996 – May 2001 (54 months)
F/S	Apr. 1995－Jun.1996	Aug. 1995－Sep. 1997
Basic design	Apr. 1996－Dec. 1997	Oct. 1997－Nov. 2000
Bidding / Contracts	Oct. 1996－Jun. 1998	Nov. 1997－Jun. 2000
Personnel training	Apr. 1997－Dec. 1997	Apr. 1997－Dec. 1999
Preparatory work	Apr. 1997－Dec.1997	Apr. 1997－Dec. 1997
Installation of equipment	Oct. 1997－Sep. 1998	Oct. 1997－Nov. 2000
Trial operation / acceptance	Jan. 1998－Dec. 1998	Jan. 1998－May 2001

validation Formal operation	Oct. 1998－	
③Project Cost		
Foreign Currency	15,003 million yen	13,482 million yen
Local Currency	18,732 million yen (local currency: 1,561 million yuan)	11,625 million yen (local Currency: 843 million yuan)
Total	33,735 million yen	25,105 million yen
ODA Loan Portion	15,003 million yen	13,482 million yen
Exchange Rate	1 yuan＝12 yen	1 yuan＝13.8 yen