Guatemala

Capital Area Digital Telephone Network Improvement and Expansion Project

Report date: March 2001
Field survey: August 2000

1. Project Profile and Japan's ODA Loan

Site Map: Guatemala City in the Republic of Guatemala

Centro Exchange

1.1. Background

The telephone density rate in Guatemala was 1.6 units per 100 persons, the second lowest among the five Central American countries after Honduras. In addition, 7.2 telephone density for the capital area only satisfied half the telephone demand in the metropolitan area. One reason for this was that in addition to the lack of switching machine capacity and telephone lines, the switching machines were old-fashioned and were becoming increasingly obsolete. Another was that it was difficult to secure spare parts, making it impossible to respond to malfunctions. Urgent improvements were needed.

1.2. Objectives

The objective of the project was to meet growing telephone demand in the Guatemala City capital area and to improve and modernize the telephone network, thus enhancing the city's core urban functions, as well as constructing infrastructure for the citizens and revitalizing socioeconomic activity.

1.3. Project Scope

The project comprised (1) installing new digital switching machines and incidental electric power facilities, (2) laying subscriber cables, (3) installing transmission equipment, and (4) providing consulting services. It covered three of the twelve telephone exchanges in the Guatemala City capital area (i.e. Parroquia, Centro, Lourdes exchanges). The ODA loan covered all project costs quoted in foreign currency.

1.4. Borrower/Executing Agency

Empresa Guatemalteca de Telecomunicaciones (Guatel) (guaranteed by the Republic of Guatemala)

1.5. Outline of Loan Agreement

Loan amount/Loan disbursed amount	¥5.875 billion/¥5.616 billion
Exchange of notes/Loan agreement	February 1988/February 1990
Terms and conditions	Interest rate: 3.75% (3.25% for consulting services), Repayment period (grace period): 30 years (10 years), Partially untied
Final disbursement date	June 1997

2. Results and Evaluation

2.1. Relevance

The project was positioned as part of the Telecommunications Development Master Plan (1981-2000). It was designed to fill the outstanding supply-demand gap after completion of a World Bank funded project, implemented prior to the present project under the Master Plan, which targeted an increase in telephone lines in the capital area to 79,000. Partly because the World Bank project had been delayed by more than five years at the time of appraisal, the present project was expected to be implemented at the earliest time. It addressed the capital area in which the supply-demand gap was particularly tight and given the urgency of the situation, the project was considered relevant. Even today, improvement of the telephone communications network in the capital area is still highly needed and the project continues to be relevant.

After loan disbursement was completed in 1997, the project facilities were privatized with the aim of greater management efficiency and improved services[1]. Currently, these facilities are operated and maintained by a private company called Telecomunicaciones de Guatemala, S.A. (Telgua). The privatization was not predicted at the time of appraisal, but these facilities are being operated without issue and have helped to improve communications in the capital area.

2.2. Efficiency

(2.2.1.) Project Cost

Actual costs were ¥5.907 billion, approximately 15% lower than the 6.975 billion estimated at the time of appraisal. This is attributed to the rapid appreciation of the

[1] In 1997, a decision was made to privatize Guatel, including the project facilities, i.e., the sale of telephone facilities in the capital area to a private company. In October 1998, Telgua capital (a new private company to which the functions in urban areas---those in the capital area and in provincial areas---were transferred) was sold to LUCA S.A., a private company in Guatemala. The Guatemalan government guarantee continues.

Japanese yen against the quetzal, Guatemala's currency, during the project period.

(2.2.2.) Implementation Schedule

Project completion was delayed by a total of approximately three years. This is attributed to the delay in bidding preparations and evaluations, procurement procedures, installation and other operations.

2.3. Effectiveness

(2.3.1.) Meeting Telephone Demand

With respect to the capacity of telephone lines, the project achieved the goal of installing 50,000 lines in 1997 after project completion, with the number of subscribers reaching 50,000 in 1998. The number of subscribers has also continued to grow in line with increased telephone line capacity. As of March 2000, the capacity of telephone lines for the three exchanges covered by the project was estimated at 87,936 and the number of subscribers at around 83,000.

The number of subscribers on the waiting list, which stood at 6,000 in 1997, continued to decline in subsequent years and had been reduced to half in 2000. It is reported that new telephones are installed on project-related lines within seven days of application, indicating an improved response to telephone demand.

Judging from the points described above, it is considered that the project is making a significant contribution to the improvement and expansion of telecommunications services in the Guatemala City capital area under the operating system of Telgua, which commenced business at the end of 1998.

(2.3.2.) Contribution to Improved Telephone Density in the Capital Area

The telephone density in the capital area, which was 7.2 units per 100 people at the time of appraisal, was expected to rise to 11.5 units through the implementation of the World Bank project (targeting an increase in telephone lines to 79,000) and this project. The World Bank project was completed in 1992, the actual telephone density in the capital area was 18.32 units at the end of 2000 (The World Bank project was completed in 1992, and the project was completed in 1997.) (See Table 1).

(2.3.3.) Contribution to the Increased Reliability of Communications Services in the Capital Area

The actual fault occurrence ratio (outside the exchange) per 100 lines surveyed in August 2000 was 4.7%, lower than the goal set after project initiation (See Table 1). In addition, the call completion ratio at the end of 2000 was 55.67%, exceeding the targeted figure of 50%. Thus, the project has partially contributed to the increased reliability of communications services.

Table 1 Telephone Network in the Guatemala City Capital Area: Pre- and

Post-project Indicator Values

Indicator	Pre-implementation (1990)	Post-completion benchmark	Actual results		
			1998	1999	2000[1]
(1) Fault occurrence ratio (outside the exchange) per 100 lines (%)	15	7	-	-	4.7
(2) Telephone density (units/100 days)	7.2	11.5	-	-	18.32[2]
(3) Call completion ratio (%)	40	50	43	48	56

Source: Materials provided by the Superintendencia de Telecomunicaciones (SIT) and Telgua

Notes: (1) The results of interviews with Telgua personnel indicate that on average, the figure consistently ranges between 4 and 5.
(2) From SIT statistics.

(2.3.4.) Financial Internal Rate of Return (FIRR)

The FIRR recalculated based on the same assumptions as used at the time of appraisal was 5.1%, lower than the 9.9% initially obtained. In terms of project cost, the main reason for this was that the cost quoted in local currency (quetzal) inflated due to exchange rate fluctuations. In terms of benefits, overall benefits were diminished due to reductions in international call rates and other factors.

The start of the project was delayed by approximately three years, and overall completion was also delayed. During this interval, the exchange rate fluctuated substantially, increasing the project cost estimated in local currency. The exchange rate of the quetzal against the Japanese yen as weighted for the project implementation period depreciated from the GTQ1.00=¥64.80 at the time of appraisal to GTQ1.00=¥18.11, or 3.5 fold.

Benefits: Additional income gained from facilities constructed under the project (facility fees and call charges)
Costs: Initial investments + operation and maintenance costs
Project life: 20 years

2.4. Impact

The increased telephone density and qualitatively improved telephone services described above are believed to have generated various socioeconomic benefits by improving communications efficiency in the capital area. However, no data are available to elucidate these benefits and no analysis of socioeconomic impact was conducted.

2.5. Sustainability

As mentioned above, after loan disbursement was completed (before project completion), the Guatemalan government announced that the project facilities would be sold to a private company. The facilities are currently owned and operated by Telgua. Some of the technical experts from the former Guatel remain at Telgua and are engaged in the operation and management of the project. Guatel still exists but only operates the telephone lines in rural areas that are not operated by private

companies and part of the pay telephone lines. The Superintendencia de Telecomunicaciones (SIT), which was established as an agency of the Ministerio de Telecomunicaciones, Transportes, Obras Púbilicas y Vivenda in November 1996 prior to the privatization of Guatel, is responsible for the establishment and supervision of public regulations in the communications sector.

Telgua mainly operates the facilities located in urban areas including the capital area that were formerly administered by Guatel. As described in Section (2.3.2.), greater efficiency was achieved during the short period of time after Telgua started to operate the facilities at the end of 1998.

In technological terms, Telgua is continuing to promote the digitalization of its facilities and to install optical fiber cables.

The company has adopted measures to improve customer services by establishing 65 branch offices in its seven operating regions. In 1999, the ratio of complaints received per 100 lines was 7.48% and the ratio of fault repair work performed within 72 hours of occurrence was 72.33%. Telgua is targeting increases in the ratios to 6.00% and 85%, respectively, by 2001.

As discussed above, the current status of Telgua operations, indicates that the quality of telephone services is better than when the facilities were operated by Guatel and that Telgua will continue to develop independently in the future.

The communications sector has been liberalized, and as of June 2000, the number of registered companies in the communications industry had exceeded 200. In the capital area, the diffusion rate for cellular phones is increasing rapidly. Given the fact that the project telephone lines were installed in areas where demand is high, the demand for these lines is unlikely to change dramatically in the years to come but may be affected by the results of competition.

Comparison of Original and Actual Results

Item	Plan	Results
1. Project scope		
· Digital switching machines and incidental electric power facilities	50,000 lines for three exchanges	Same as left
· Subscriber cable	724 km for three exchanges	1,073 km for three exchanges
· Transmission facilities	Optical fiber cable: 29.5 km Cable PCM system: Two sections	15.7 km Same as left
· Consulting services	Supervision of construction work, factory inspection, training, etc.	Same as left
2. Implementation schedule		
· Bidding preparations-evaluation	1989-1991	1989-1992
· Contract	1991	1992
· Production-delivery	1991-1993	1992-1993
· Installation	1992-1993	1993-1996
· O&M	1993-1994	1995-1998
3. Project cost		
Foreign currency	¥5.875 billion	¥5.616 billion
Local currency	GTQ16.56 million	GTQ16.38 million
Total	¥6.975 billion	¥5.907 billion
ODA loan portion	¥5.875 billion	¥5.616 billion
Exchange rate	GTQ1.00=¥64.80 (1987)	GTQ1.00=¥18.11*

* This indicates the weighted average rate taking into consideration the actual annual loan disbursement.