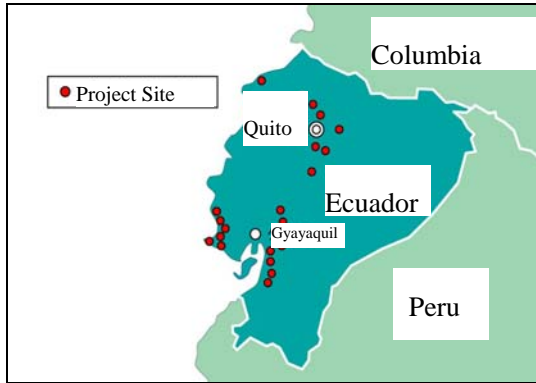


Telecommunication Network Expansion Project

Field Survey: July 2003

1. Project Profile and Japan's ODA Loan



Project Site Map



Switchboard at the Posmaqui Exchange

1.1 Background

At the time this project was planned, there were three telephone subscribers per 100 people (1985 data) in Ecuador, which placed Ecuador behind other countries in Central and South America in telephone service spread. According to the World Bank¹, in the mid-1980s there existed a gap in supply and demand because the number of telephone lines in operation in Ecuador was approximately 55% of the number necessary for the country overall. Moreover at that time, even in areas with telephone service, the quality of the service provided was not adequate, with conditions such that calls could not be connected, to the extent that business activities in Quito and Guayaquil were hampered. In 1982, a supply and demand gap already existed in cities that benefited from this project. In these cities, there were areas where crossbar switchboards², etc., had been introduced, but there were also areas with absolutely no telephones.

In addition to the fact that Ecuador lacked basic telephone facilities, digital switchboards were already becoming the global standard at the time of project planning, and so it was necessary for Ecuador to change as quickly as possible from the old switchboards such as S x S³ and crossbar switchboards to digital switchboards.

1.2 Objectives

The objectives are to expand and modernize the telephone network in order to respond to demand for telephone service in the capital city of Quito, the surrounding area⁴, the major commercial city of

¹ World Bank, Primer Proyecto de Telecomunicaciones IETEL-BIRF-CDC, June 1989

² Temporarily remembers telephone number information such as dial pulses using mechanical relay and performs group switching, with an analog signal, of information for call and charge management.

³ Step-by-Step Switchboard: Immediately performs speech path control with dial pulse signals.

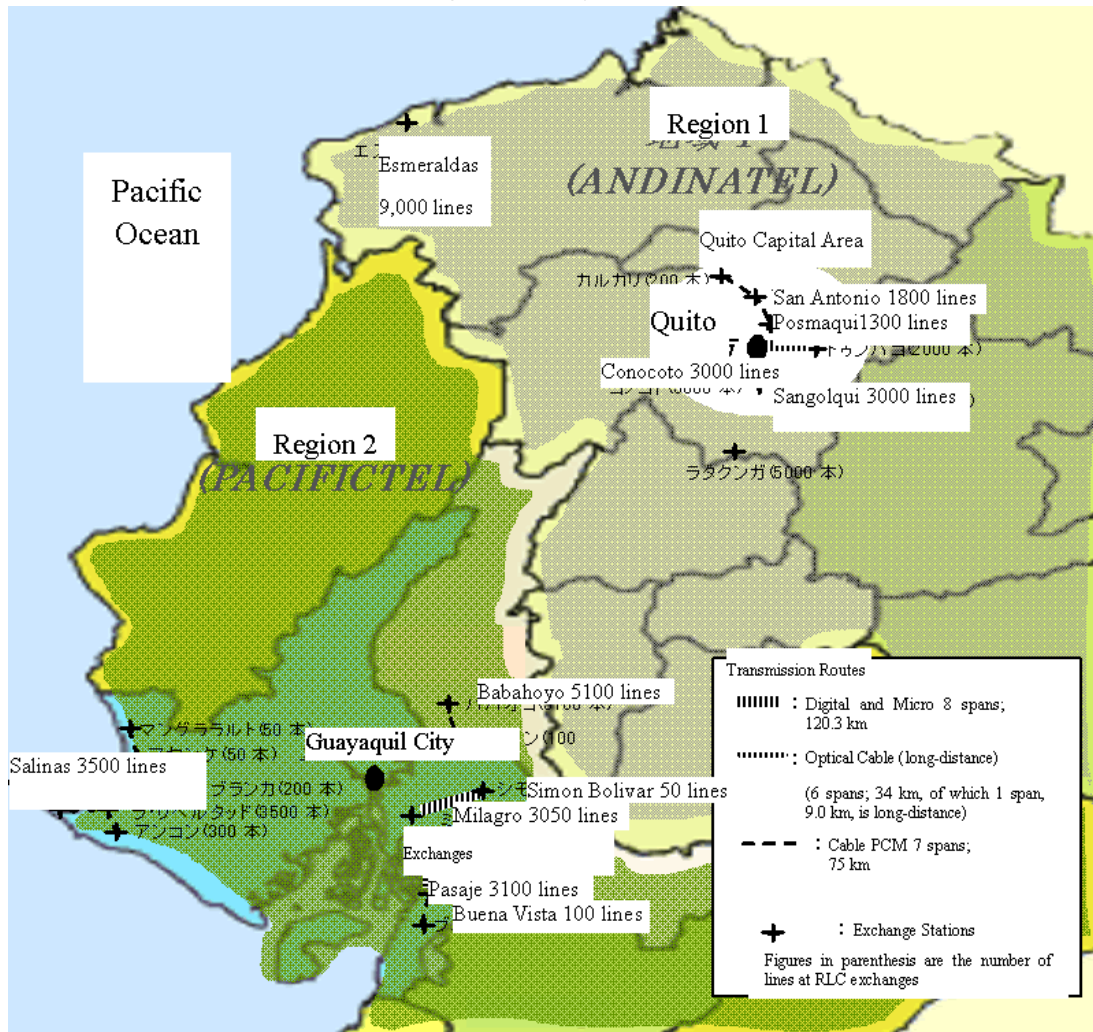
⁴ The cities in the Quito environs included in this project were Conocoto, Sangolqui, Posmaqui, San Antonio, Calcali.

Guayaquil, and other regional cities⁵ that are important centers of industry, tourism, and export ports.

1.3 Outputs

A. Digital Switchboard Installation:	24 exchanges, 68,950 lines
(However, includes 8 RLC exchanges and 1,050 lines)	
B. Transmission System Installation:	
Optical Fiber Transit Trunks	6 spans, 34 km
Digital Transit Trunks	7 spans, 75 km
Microwave Transit Trunks	8 spans, 120.3 km
C. Engine Generator installation:	15 exchanges, 1,800 KVA
D. Consulting Services	103 M/M

Figure 1 Project Area



⁵ Latacunga, Esmeraldas, Babahoyo, La Libertad, Milagro, Simon Bolivar, Salinas, Pasaje, Buena Vista, etc.

1.4 Borrower/Executing Agency

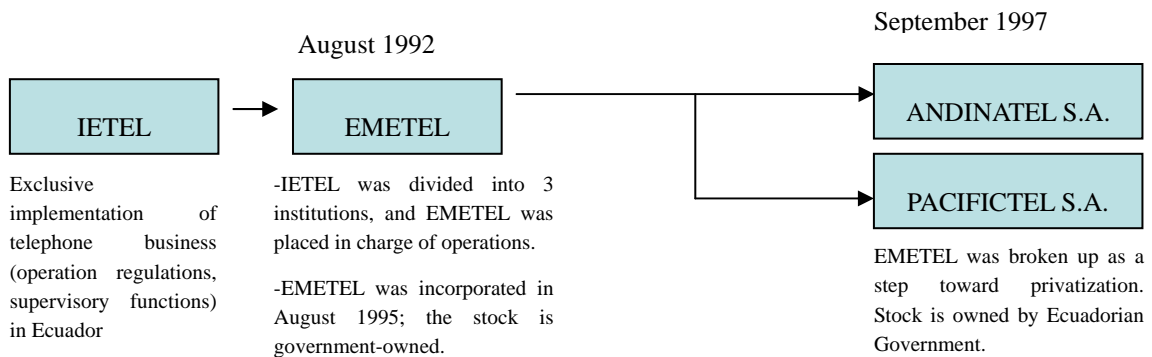
Borrower: Republic of Ecuador

Executing Agency: IETEL (at the time of loan agreement)

Note: After the loan agreement, the executing agency for this project changed as shown in Figure 2 below. Since EMETEL was divided into ANDINATEL S.A. and PACIFICTEL S.A. in 1997, ANDINATEL S.A. and PACIFICTEL S.A. have separately implemented operations and maintenance of the equipments installed by this project⁶.

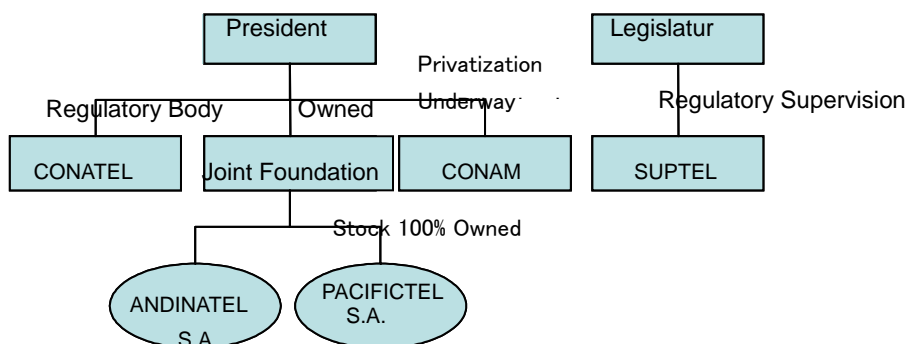
Figure 2: Changes in the Executing Agency and the Project Implementation Schedule

Changes in the Executing Agency



⁶ In August 1992 under a special law related to communications, IETEL, which had monopolized telephone-related business in Ecuador, was broken up into three institutions, Consejo Nacional de Telecomunicaciones (CONATEL), the national communications commission in charge of regulation, Superintendencia de Telecomunicaciones (SUPTTEL), the communications supervisory agency, and EMETEL, which operates the telephone business. In December 1993, the national modernization law was enacted, establishing Consejo Nacional de Modernización (CONAM), the national modernization council with the aim of modernizing and privatizing government-owned companies, which then incorporated EMETEL, sold the stock owned by the government to private companies, and prepared a system to promote privatization of telephone business ownership. Subsequently, the government studied the possibilities of allowing investment by investors or selling to private interests the stock of ANDINATEL S.A. and PACIFICTEL S.A. which had been created in 1997. However, at the time of appraisal, both companies were 100% owned by the Ecuadorian Government (through a joint foundation which is a government agency) (See Figure 2).

Figure3: Major Institutions in Ecuador's Telecommunications



1.5 Outline of Loan Agreement

Loan Amount/Loan Disbursed Amount	7,670 million yen / 3,390 million yen
Exchange of Notes/Loan Agreement	March 1987 / February 1988
Terms and Conditions	
-Interest Rate	3.75%
-Repayment Period (Grace Period)	30 years (10 years)
-Procurement	General Untied
Final Disbursement Date	October 1995

2. Results and Evaluation

2.1 Relevance

At planning time, the 4-Year Plan for Telecommunications Expansion (1985 – 1988) stated as its goal the improvement of all services through efficient expansion of telecommunications infrastructure, and this project was consistent with that goal. Moreover, since various projects were being implemented at the time to improve telephone service in Ecuador by the World Bank, the Inter-American Development Bank, and the governments of France, Italy, Mexico, Brazil, and Spain, etc., this project had high relevance as a part of international efforts⁷.

At the time of evaluation, both ANDINATEL S.A. and PACIFICTEL S.A. were preparing separate

⁷ Each donor's project outline is as follows. World Bank (expansion and repair of telecommunications network, improvement of IETEL's organizational capacity: 45 million dollars), Inter-American Development Bank (new installation of long-distance telecommunications network: amount unknown), France (installation of 6 exchanges in Ibarra, Tulcan, Ambato, Manta increase of 40,000 lines), Mexico (increase of 14,000 lines in Guayaquil and 10,000 lines in Machala, and boost capacity of exchange in Guayaquil), Spain (increase of 15,000 lines in Quito), Brazil (new establishment of 19 exchanges, boosted capacity of 13 exchanges, and increase of 15,400 lines: 1.15 million dollars).

project plans that placed priority on telephone network expansion⁸, and they remained consistent with the objectives of this project. Also, as the result of a series of communications projects including this one, the fixed telephone density rate rose from 3.2% in 1983 to 11.02%⁹ in 2002. However, the telephone density rate remains low compared to that of the neighboring countries¹⁰. Since the need for expansion of telecommunications infrastructure continues, the relevance of this project's plan at the time of evaluation is recognized.

2.2 Efficiency

2.2.1 Outputs

Because of the delay of approximately 3 years between the start of this project and the preparation of bidding documents, 4 exchanges that were urgently necessary were built with the executing agency's owned capital. (see 2.2.2 for details). As a result of this, the number of switching stations that were built by ODA loan was 20. The remaining output of the project was generally consisted to plan.

2.2.2 Project Period

This project was scheduled for completion in March 1990. However, Region 1 (ANDINATEL S.A.. jurisdiction region) was completed in January 1997, and Region 2 (PACIFCTEL S.A. jurisdiction region) was completed in January 1994.

The main causes of the delay are considered to be 1) adjustments to the outputs, and 2) the Ecuadorian Government's adjustments related to hiring consultants. Moreover, the difference in the completion dates in Region 1 and Region 2 is due to the delay in Region 1 in coordinating specifications for transmission routes and switchboards.

2.2.3 Project Cost

The amount of the ODA loan disbursed, which is equivalent to the foreign currency portion, was reduced to 3,390 million yen because of efficient procurement due to competitive bidding, approximately 44% of the initially planned amount (7,670 million yen)¹¹.

2.3 Effectiveness

The objective of this project was to respond to the increased demand for telephones by expanding and modernizing the telephone network in the beneficiary cities. There are limitations on the latest available data due to repeated organizational modifications of the executing agency, but the scope of

⁸ Since private sector vitality was actively introduced to promote efficient development of the telecommunications sector through the series of reforms in that sector by the Ecuadorian Government (footnote 6), 1998 was the final year of development plans at the national level. However, following 1998, the major institutions in the Ecuadorian telecommunications sector each prepare telephone network expansion plans.

⁹ "World IT Visual Data Book 2004"

¹⁰ The fixed telephone density rates in the countries near Ecuador in 2002 were Brazil: 22.32%; Columbia: 17.49%; Chili: 23.04%; and Panama: 12.99%. ("World IT Visual Data Book 2004")

¹¹ Calculated in foreign currency, which accounts for approximately 90% of total project cost, since no system was in place for managing and recording the costs in local currency which were actually incurred by the executing agency at the time.

the survey results stated below shows that the telephone network is being steadily expanded in the jurisdictions of both institutions and also that the equipments introduced by this project are generally functioning in satisfactory condition. Therefore, it can be said that this project played a part in the expansion of the telephone network in the beneficiary region.

2.3.1 Quantitative Expansion of Communications Infrastructure

Through this project, 20 switching stations were built and 68,950 lines were set up in Region 1 and Region 2, which means that the telephone line network in the project areas was expanded.

Looking at subscriber lines in Region 2 where it is possible to compare the number of them before and after the project, in 1995 there were 310,687 subscriber lines, in 1996 there were 346,589 subscriber lines, and in 1997 (project completion year) there were 415,428 subscriber lines (Figure 4).

Looking at the total traffic volume for Regions 1 and 2, traffic volume increased from 164,013 calls/minute¹² in 1994 to 241,089 calls/minute in 1997, an increase of 47% (Figure 5).

Figure 4 Trends in Number of Subscriber Lines

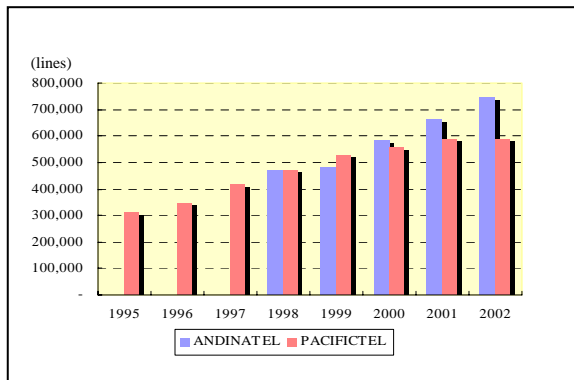
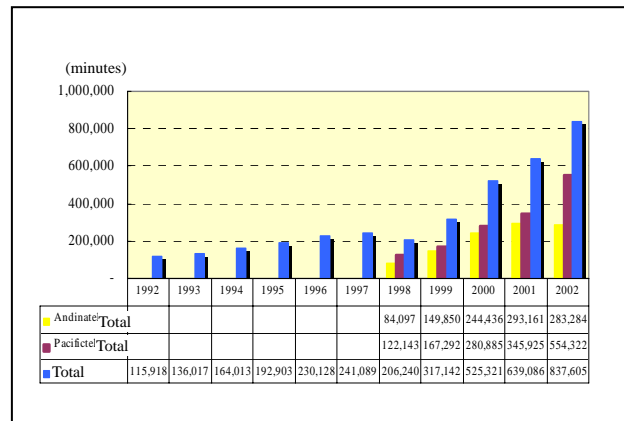


Figure 5 Trends in Traffic Volume of ANDINATEL S.A. and PACIFICTEL S.A.



An improvement is also visible in the telephone density rate. Whereas it was an average of 5.87% in Ecuador overall in 1994 prior to this project, in 1997 it rose to 8.7% in Region 1 and 6.1% in Region 2 (Table 1).

Table 1 Telephone Density Rate (1983~2002) (unit: %)

1983 Note 1)	1995	1996	1997	1998	1999	2000	2001	2002
	ANDINATEL S.A. Jurisdiction (Region 1)	3.2%	NA	8.70%	9.60%	10.30%	11.30%	12.70%

¹² "Calls/minute" equals "number of calls" (per hour) multiplied by "average call time" (aggregate of call time per hour (minutes))

PACIFICTEL
S.A..Jurisdiction
(Region 2)

3.2%	5.80%	6.30%	6.10%	6.80%	7.50%	7.70%	7.70%	8.60%
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Source: 1983 data is from this project's appraisal report

Figures for 1995 and thereafter are from hearing studies at ANDINATEL S.A. and PACIFICTEL S.A.

ANDINATEL S.A.'s 1997 telephone density rate is from the telecommunications sector development plan.

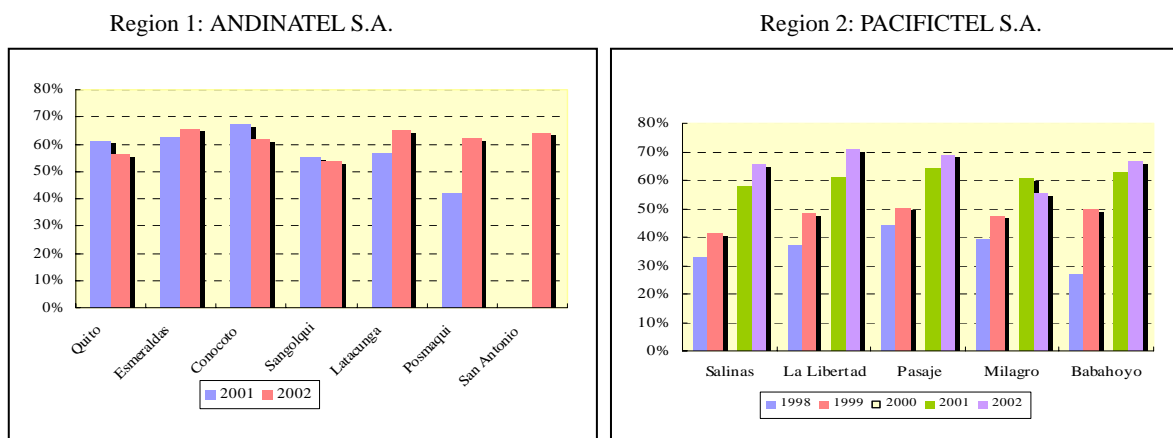
Note 1): The 1983 telephone density rate is the average for Ecuador overall. It is likely that the telephone density rate at that time for Region 2, which is currently under the jurisdiction of PACIFICTEL S.A., was even lower than the national average. Meanwhile, the telephone density rate in Region 1 is unclear, but it is presumed to be higher than the national average.

2.3.2 Qualitative Improvement of the Communications Infrastructure

Data on the call completion rate prior to the project could not be obtained from any source. However at that time, problems frequently occurred wherein calls could not be connected and telephone lines were broken, etc., and so it is presumed that the call completion rate was extremely low.

The latest data obtained on the call completion rate are for 2001 and thereafter in Region 1 and for 1998 and thereafter in Region 2, and so it is impossible to compare data before and after this project. However, the exchange stations built by this project in Region 1 had a call completion rate in 2002 of 53.7% - 65.3%, and likewise in Region 2, the figures were 55.3% - 70.6%.

Figure 6 Call Completion Rate at Exchanges that Benefited from Project Figure 7 Call Completion Rate at Exchanges that Benefited from Project



Source: Response by executing agency ANDINATEL S.A. to questionnaire Source: Response by PACIFICTEL S.A. to questionnaire

2.3.3 Internal Rate of Return (IRR)

The financial internal rate of return (FIRR) calculated at the time of appraisal was 9.0%. At the time of evaluation, financial data for many years could not be obtained from the executing agency due to repeated organizational modifications.

2.4 Impact

2.4.1 Stimulation of International Commercial Activities

Concerning the volume of international telephone traffic, the volume of calls made grew from 12.7 million calls/minute in 1987 to 52 million calls/minute in 1997, an increase of 4 times. Calls received also rose from 79 million calls/minute in 1991 to 189 million calls/minute in 1997, an increase of 2.4 times. The causal linkage between this data and stimulation of international commercial activities cannot be firmly confirmed, but it can be said that this project played a role in environmental improvement for expanding business opportunities with overseas interests.

2.4.2 Impact on Environment and Society

For this project, no land was acquired and no residents were relocated. There were no specific comments concerning the environmental impact or other social impact of this project in its beneficiary regions.

2.5 Sustainability

2.5.1 ANDINATEL S.A.

(1) Executing Agency

1) Technical Capacity

Since there were almost no personnel transfers or staff turnover among operations and maintenance personnel following this project, the knowledge and know-how for operations and maintenance of equipments installed by this project were safeguarded, and there were no particular problems.

2) Operations and Maintenance System

After the project, the Operation Department inside ANDINATEL S.A. is in charge of operation and maintenance work. The Operation Department is divided into the Exchange Section, Transmission Route Section, and the Electric Power Section. The total of 26 staff in the sections conduct operation and maintenance of the equipment. The operation and maintenance work consists of periodic maintenance and repair work carried out based on the manuals produced by the suppliers.

3) Financial Status

Looking at the Profit and Loss Statement, operating profit increased from 53,612 thousand dollars to 76,812 thousand dollars during 2000 to 2001. The ratio of net profit to sales remained basically unchanged, at 41.6% in 2000 and 40.8% in 2001. Looking at the Balance Sheet, there was little variation, with the owned capital ratio at 81.5% in 2000 and 83.1 in 2001; the long-term fixed rate was 87.3% in 2000 and 86.8% in 2001; and the fixed assets ratio was 97.0% in 2000 and 94.4% in 2001.

Regarding the operation and maintenance expense, the actual operation and maintenance expense of the equipment funded by this project was 14,094 dollars in 2000, 18,468 dollars in 2001, and 32,562 dollars in 2002, and the financial status is in satisfactory condition.

Table 2 ANDINATEL S.A.'s Profit and Loss

Statement (unit: 1,000 dollars)

Item	2000	2001
Operating Income	128,790	188,263
Operating Expenses	75,178	111,451
Operating Profit	53,612	76,812
Ordinary Profit	58,424	74,014
	Note 1)	
Pre-tax Current Net Profit	36,674	46,499

Source: ANDINATEL S.A.'s Annual Report 2002

Note 1): Ordinary profit is larger than operating profit because non-operating income such as profit on exchange rates was 4,812 thousand dollars.

Table 3 ANDINATEL S.A.'s Balance Sheet

(unit: 1,000 dollars)

Item	2000	2001
Fixed Assets	628,057	631,121
Floating Assets	165,875	173,480
Total Assets	793,932	804,601
Long-term Liabilities	72,286	58,885
Floating Liabilities	74,290	77,415
Total Liabilities	146,576	136,300
Capital	647,356	668,301
Total Liabilities and Capital	793,932	804,601

Source: ANDINATEL S.A.'s Annual Report 2002

(2) Operation and Maintenance Status

As a result of hearings with related parties at ANDINATEL S.A. and also inspections of the current condition of the facilities through the latest field surveys, expansion of part of the facilities is being undertaken with ANDINATEL S.A.'s own capital, but the operating condition of the switching equipments, transmission-related equipments, and engine generators installed by this project is satisfactory overall.

2.5.2 PACIFICTEL S.A.

(1) Executing Agency

1) Technical Capacity

Since personnel transfers and staff turnover did not occur frequently among operations and maintenance personnel following this project, the knowledge and know-how for operations and maintenance of equipments installed by this project were safeguarded with almost no difficulty.

2) Operations and Maintenance System

After the project, the Operation Department inside PACIFICTEL S.A. is in charge of operation and maintenance work. The operation and maintenance of the equipments installed by this project is carried out mainly by the staff (6 persons) in the operation and maintenance group of the city exchange affiliated with the Operation Department.

3) Financial Status

Looking at the Profit and Loss Statement, net profit shifted during 2000 through 2002 from 17,129 thousand dollars in 2000, to 8,131 thousand dollars in 2001, to 9,496 thousand dollars in 2002. Despite the increase in traffic volume, the profit ratio declined from 11.7% in 2000 to 4.0% in

2002. This is attributable to the increase in expenditures due to renewal of switchboards and payment of retirement allowances. Looking at the Balance Sheet, the owned capital ratio was 68.2% in 2000 and 65.0% in 2001; the long-term fixed rate was 94.0% in 2000 and 97.3% in 2001; and the fixed assets ratio was 121.2% in 2000 and 124.4% in 2001. In view of these figures, PACIFICTEL S.A. is aware of the need to improve profit performance, and the transfer of the public company's management rights to a private company is being studied under the current administration to improve management efficiency.

In addition, the actual operation and maintenance expense for equipment installed by this project is unclear since PACIFICTEL S.A. itself did not conduct cost management for each project. According to a hearing study at PACIFICTEL the budget for operation and maintenance has been in a downtrend for the past two years, and it seems sometimes happen that cost of repair parts cannot be adequately paid.

Table 4 PACIFICTEL S.A.'s Profit and Loss Statement (unit: 1,000 dollars)

Item	2000	2001	2002
Gross Income	146,916	179,772	268,596
Gross Expenditures	129,787	171,641	259,100
Net Profit	17,129	8,131	9,496

Table 5 PACIFICTEL S.A.'s Balance Sheet (unit: 1,000 dollars)

Item	2000	2001
Fixed Assets	587,560	590,901
Floating Assets	123,033	140,423
Total Assets	710,593	731,324
Long-term Liabilities	140,946	132,404
Floating Liabilities	84,995	123,737
Total Liabilities	225,941	256,142
Capital	484,652	475,181
Total Liabilities and Capital	710,593	731,324

Source: Financial data presented at hearing study

(2) Operations and Maintenance Status

The equipments installed by this project are operating in generally satisfactory condition.

2.5.3 Trends in Consignment of Management Rights of ANDINATEL S.A. and PACIFICTEL S.A. to the Private Sector

The current government, which assumed power in mid-January 2003, has the stated policy of consigning the management rights of ANDINATEL S.A. and PACIFICTEL S.A. to the private sector in order to improve business performance and management efficiency of the public companies. As a part of this, a public announcement was made in October 2003 concerning the private consignment of the management operations of ANDINATEL S.A. and PACIFICTEL S.A., but there were no bidders. This matter requires continued close observation.

3. Feedback

3.1 Lessons Learned

None

3.2 Recommendations

None

Comparison of Original and Actual Scope

Item	Plan	Actual Performance
1) Outputs	<p>A. Digital Switchboard 24 exchanges, 68950 lines; however, includes 8 RLC exchanges and 1050 lines</p> <p>B. Transmission Facilities</p> <ul style="list-style-type: none"> • Optical fiber transit trunks: 6 spans, 34 km • Digital transit trunks: 7 spans, 75 km • Microwave transit trunks: 8 spans, 120.3 km <p>B. Engine Generator: 15 exchanges, 1800KVA</p> <p>D. Consulting Service: 103M/M</p>	<p>A. Digital Switchboard 20 exchanges, 68950 lines; however, includes 8 RLC exchanges and 1050 lines</p> <p>B. Transmission Facilities</p> <ul style="list-style-type: none"> • Optical fiber transit trunks: 7 spans • Digital transit trunks: 2 spans • Microwave transit trunks: 14 spans <p>C. Engine Generator: 13 exchanges, 1418KVA</p> <p>D. Consulting Service: 48M/M</p>
2) Project Period	<p>A. Consultant procurement: September-November 1986</p> <p>B. Bidding document preparation: April-July 1987</p> <p>C. Bidding/Evaluation: February -May 1988</p> <p>D. Contract negotiations/signing: June-August 1988</p> <p>E. Manufacture/Shipping: September 1988-June 1989</p>	<p>A. Consultant procurement: September 1989</p> <p>B. Bidding document preparation: May 1990</p> <p>C. Bidding/Evaluation: February 1991</p> <p>D. Contract negotiations/signing: August 1991</p> <p>E. Manufacture/Shipping: ANDINATEL S.A. January 1992-October 1994; PACIFICTEL S.A. November 1991-August 1994</p>

	F. Installation/Acceptance testing: May 1989-March 1990	F. Installation/Acceptance testing: ANDINATEL S.A. January 1997 (provisionally accepted September 1994), PACIFICTEL S.A. June 1993-January 1994
3) Project Cost		
Foreign Currency	7,670 million yen	3,390 million yen
Local Currency	849 million yen (local currency: sucre)	unclear (Local currency: sucre)
Total	8,571 million yen	unclear
ODA Loan Portion	7,670 million yen	3,390 million yen
Exchange Rate	1 sucre = 1.06 yen	(no data)

Note) : The actual local currency portion is unclear since the executing agency did not conduct cost management for each project.