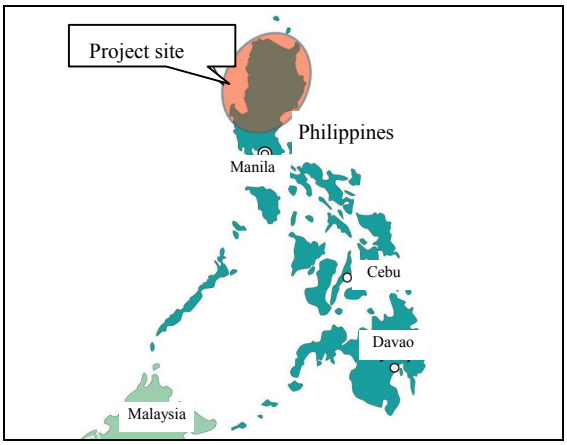
Philippines

Regional Telecommunications Development Project in Region III

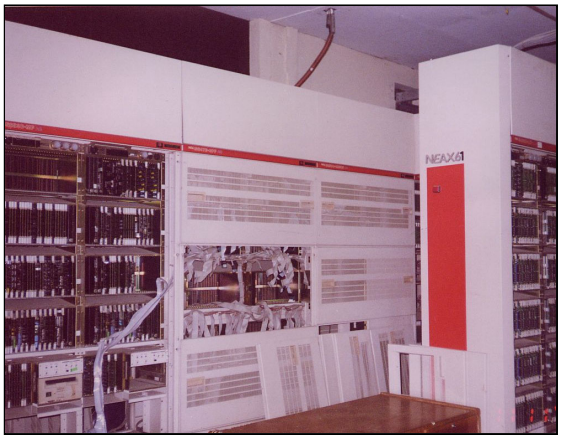
Report Date: January 2003

Field Survey: October - December 2002

1. Project Profile and Japan's ODA Loan



Project location map (Regions I and II)



Switching facility (Santiago, Isabela Province)

1.1 Background

At the time of appraisal, the telecommunications sector in the Philippines was less developed than that in most of the neighboring Asian countries. The number of telephone sets installed per 100 persons (telephone density) in 1990 was 14.0 in Malaysia, 2.5 in Thailand, and 0.57 in Indonesia, while that in the Philippines was 1.4. In the Philippines, there was a huge disparity between other areas and the National Capital Region (NCR), where 74% of telephone lines in the country were concentrated on Metro Manila with a population accounting for 13% of the national population. The average telephone density in the Philippines except for Manila (telephone density: 8.31sets/100 persons as of 1990) was 0.44. By region, 0.41 in Northern Luzon where this project was carried out, 0.46 in Central and Southern Luzon, 0.60 in Visayas, 0.27 in Mindanao. The telephone density in Northern Luzon was the lowest after Mindanao.

Based on the recognition that an underdeveloped communications network is one of the factors inhibiting economic and social development, the Philippines government set the target of achieving a telephone density of 4.0 in 1998 by constructing an additional 1.32 million telephone lines during the period of the Medium-Term Development Plan (1993-1998). It was also planned to increase the percentage of cities and municipalities covered by telephone services from 31% in 1993 to 100% in 1998, leaving no city or municipality without telephones. In Northern Luzon (Regions I and II), an ODA loan project "Regional Telecommunications Development Project: Phase I" (1983-1986) and Phase II (1998-1992) was implemented in 51 cities and municipalities as part of the Northern Luzon Communication Network Development Plan under the National Telecommunications Development Plan (Master Plan). As a result, about 20,000 telephone lines were constructed and the telephone density was improved to 0.41. Still, as 67% of all municipalities were not covered by a telephone

network, it was necessary to continue development in this field following Phase I and Phase II.[1]

1.2 Objectives

The objective of this project was to improve the communications situation in Northern Luzon (Regions I and II) by constructing telecommunications facilities, and thus to contribute to social and economic development of the region.

1.3 Project Scope

This project consists of the following 2 sub-projects:

(1) Sub-project A (expansion project)

Expand and improve the communications network by implementing installation and expansion of digital switches, expansion and replacement of the extension/direct connections (subscriber connection system), construction of a digital radio transmission system, and construction of trunk cables and subscriber cables.

(2) Sub-project B (improvement and repair project)

Enhance the reliability of the communication network by introducing a loop system to trunk microwave transmission lines and establishing a backup system in the event of failure, and replace the existing 800MHz UHF radio system with 2GHz system. Also, rehabilitate communications equipment, station buildings, steel towers and cables broken by typhoons, earthquakes, or sabotage by anti-government groups to return them to normal operations.

The ODA loan covered the entire foreign currency portion of the project cost. Specifically, it was to provide the funds to purchase equipment related to this project and procure construction works and necessary materials and services, and the funds to procure consulting services.

1.4. Borrower/Executing Agency

Government of the Republic of the Philippines/Department of Transportation and Communications (DOTC)

1.5 Outline of Loan Agreement

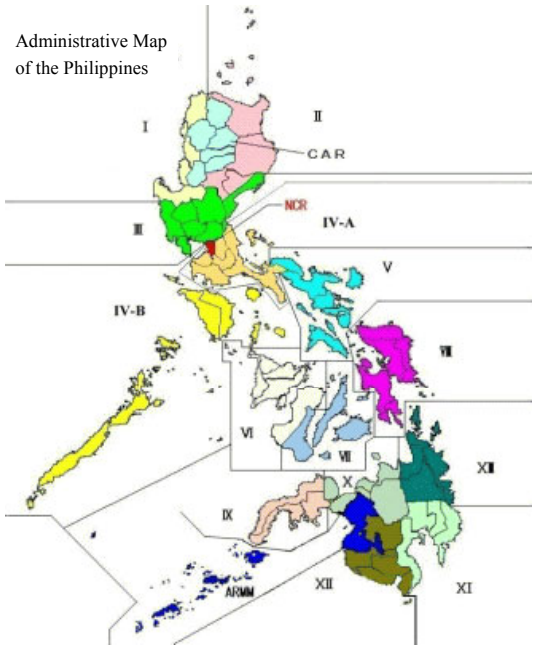
Loan Amount Loan Disbursed Amount	3,803 million yen 3,557 million yen
Exchange of Notes Loan Agreement	August 1993 August 1993
Terms and Conditions -Interest Rate -Repayment Period (Grace Period) -Procurement	 3.0% 30 years (10 years) General untied
Final Disbursement Date	December 2000

[1] Local governments in the Philippines have a 3-layer structure composed of 1) Province, 2) City and Municipality and 3) Barangay, each of which belongs to one of the 16 administrative districts including 14 Regions, 2 Autonomous Regions and NCR. "City or municipality without telephone" means a city or municipality where no telephones are installed.

2. Results and Evaluation

2.1 Relevance

Figure2-1: Administrative Map of the Philippines



The telecommunications sector in the Philippines has been led by private companies, with the public sector (national and local governments) playing a supplementary role and providing only 6% of the total switching capacity as of 1990. While entry into the telephone business and expansion of services by private companies were expected in profitable urban areas, it was recognized that there would be a limitation to private-sector-led service expansion in rural areas due to their low profitability and the difficulty in raising funds necessary for expanding services and providing telephone services to every part of the country. This project was carried out to fulfill the government's role to improve communication services as part of social infrastructure in rural areas.

This project was also a succeeding project of an ODA project "Regional Telecommunications Development Project: Phase I" (1981-1987) and Phase II of the same project (1988-1995) implemented as part of the Northern Luzon Communication Network Development Plan under the National Telecommunications Development Plan (Master Plan). Phase I focused on the construction of trunk microwave lines and exchanges. In Phase II, UHF transmission lines and trunk cable transmission lines extended or branched from trunk lines, and exchanges including subscriber line facilities were mainly constructed. In this project, or Phase III, the service area was expanded to include more remote areas that have insufficient access to communications mainly through the construction of local exchanges under the control of the exchanges (Primary Centers) constructed in Phase II, and the updating of outdated equipment and systems installed under Phase I and Phase II. In parallel with this project, another ODA loan project "National Telephone Program (NTP I-I) (1990-1997)" was carried out in 71 cities and municipalities in Central and Southern Luzon (Regions III, IV-A, IV-B, and V).

This project was designed in line with the Medium-Term Philippine Development Plan (MTPDP 1993-1998), which was in the draft stages at the time of appraisal. MTPDP aimed to (1) construct an additional 1.32 million telephone lines to achieve a telephone density of 4.0 by the end of 1998, (2) install public telephones in all cities and municipalities, (3) interconnect all local exchanges, and (4) improve meteorological forecast facilities, coastal radio facilities and the government's communication facilities.

The current MTPDP (2001-2004) set four overall goals of (1) Macroeconomic stability with equitable growth on free enterprise, (2) Agriculture and fisheries modernization with social equity, (3) Comprehensive human development and protecting the vulnerable, and (4) Good governance and the

rule of law. “Development of information communication technology” is listed among 6 issues to be addressed in order to achieve the first goal (Macroeconomic stability with equitable growth on free enterprise). Although the telephone density (number of telephone sets per 100 population) in the Philippines increased from 2.01 in 1995 to 9.05 in 2000, most of the additional telephones were installed in urban areas and it is recognized that regional disparity in telephone services has not been eliminated. Based on this situation, a target was set to provide fixed telephone services to at least 80% of 1,602 municipalities throughout the country by 2004.

This project was designed within the framework of the communications sector development plan of the Philippines and therefore was consistent with the overall government policy. Also, from the fact that the current MTPDP calls for elimination of disparity between urban and rural areas in communications service, the project meets the present needs and remains relevant on an overall level.

However, the use rate of the facilities covered by the project is as low as 46.9%. This low rate may be attributable to: entry by private companies into fixed telephone services in the project area; the spread of mobile telephones, which has reduced the incentive to install fixed telephones; the executing agency’s poor structure for implementing the project; and introduction of a digital radio transmission system which limited extensibility of telephone lines and made it difficult to deal with new demand. This project was implemented as a government-led project targeting rural areas that cannot receive a sufficient service under private-sector-led development in order to fulfill the government’s role to provide people with social infrastructure and services. Whether this policy was appropriate is open to some doubt today, although it would have been difficult to predict the present situation at the time of appraisal.

2.2 Efficiency

2.2.1 Project Scope

The project scope was modified based on the results of the review of the situation after appraisal, including the advancement of service expansion plans by DIGTEL and the revision of demand forecasts. For example, the number of local exchanges constructed or expanded was reduced from the originally planned 18 exchanges with 7,800 lines to 11 exchanges with 5,220 lines. Some outside trunk cables were converted to radio system because some of the existing trunk cables were damaged by accident or theft. Similarly, other aspects of the project scope were also changed according to the actual situation of the project area.

2.2.2 Implementation Schedule

The project took 71 months from August 1993 (signing of L/A) to June 1999 (completion of the consulting services), longer than the initially planned 47 months from August 1993 to June 1997. The following factors contributed to this delay: (1) the contractor was late in submitting necessary documents, which led to the delay in implementation of the schedule, (2) natural disasters such as typhoons destroyed bridges in some parts of the project area and caused delay in the installation work, (3) public security was disturbed in some parts of the project area due to stepped up anti-government activity, and (4) Claveria Exchange, located in Cagayan Province in Region II, was damaged by fire in September 1996 and took almost a year to repair.

2.2.3 Project Cost

The total project cost was reduced from the initially estimated 5,013 million yen (ODA loan portion: 3,803 million yen) to 4,344 million yen (ODA loan portion: 3,557 million yen). The reduction was mainly due to the change in the project scope.

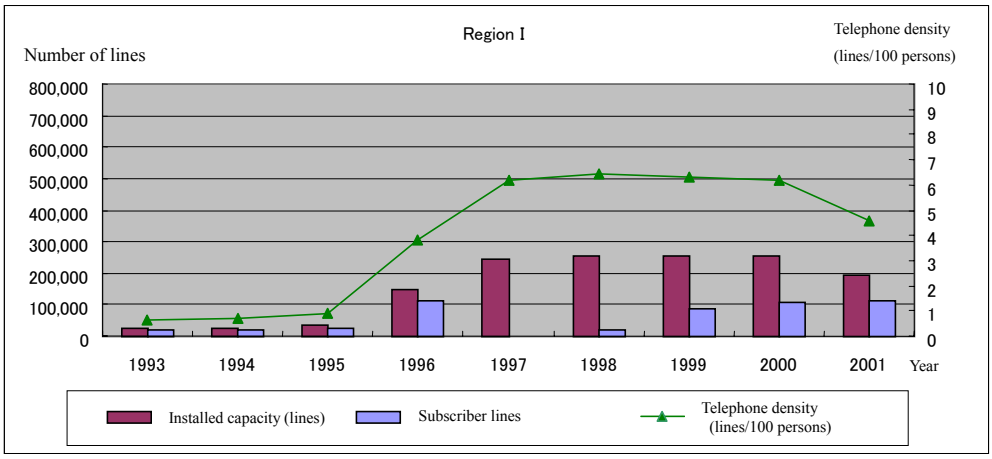
2.3 Effectiveness

2.3.1 Number of Telephone Lines

This project set the target of increasing telephone density[2] in the project area of Regions I and II from 0.41 lines/100 persons to 0.52 lines/100 persons. As of 2001, the telephone density in Region I and Region II was 4.59 lines/100 persons and 1.30 lines/100 persons respectively, well beyond the target (see Figures 2-2 and 2-3).

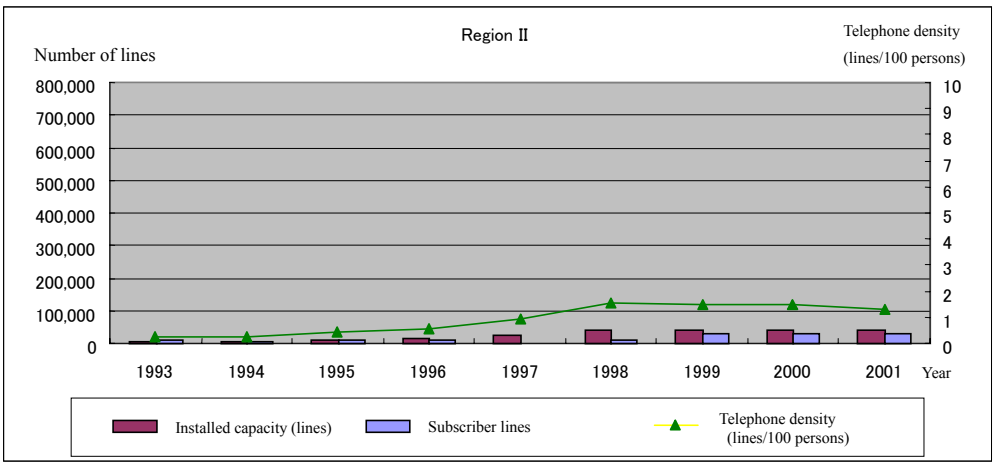
[2] Telephone density is usually expressed as the number of main telephone lines instead of the number of telephone sets (main telephone lines/100 persons).

Figure 2-2: Telephone capacity and telephone density in Region I



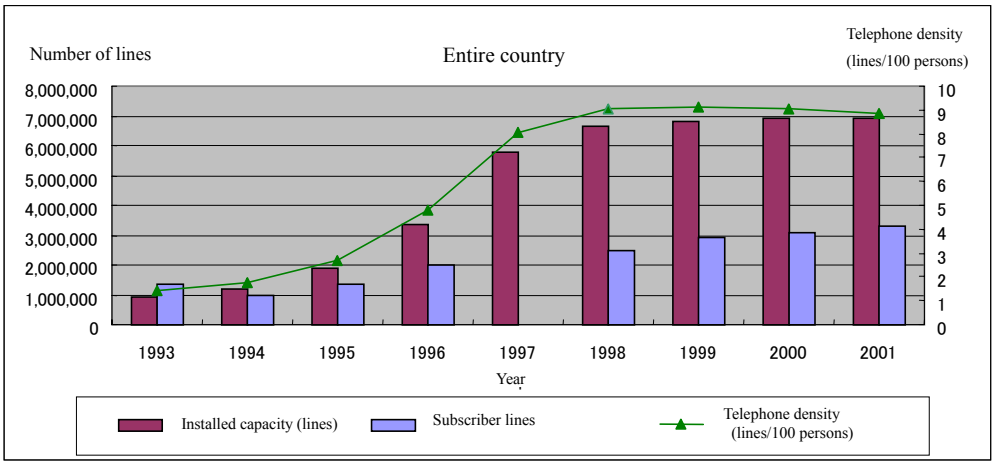
Source: Philippine Statistical Yearbook, NSCB.

Figure 2-3: Telephone capacity and telephone density in Region II



Source: Philippine Statistical Yearbook, NSCB.

Figure 2-4: Telephone capacity and telephone density in the Philippines



Source: Philippine Statistical Yearbook, NSCB.

Table 2-1 below shows the telephone density in each province in Regions I and II. Putting aside the absence of some data and differences among provinces, telephone densities generally can be said to have increased year by year during the project implementation period through to after completion. However, the portion of the increase directly brought about by the increase in telephone lines that resulted from construction and expansion of exchanges under this project accounted for only 2.3% of the total increase (Table 2-2). This figure is related to the fact that the expansion of telephone lines occupied about 60% of the project scope and the remaining portion was repair and improvement of the existing facilities. The increase in telephone densities is largely attributed to new investment and expansion of telephone facilities by private telecommunications companies. The telephone densities in Region I and Region II reached 4.59 lines/100 persons and 1.30 lines/100 persons respectively in 2001.

Table 2-1: Telephone densities in the project area

(Unit: lines/100 persons)

Region/Province		1995	1996	1997	1998	1999	2000	2001
I	Ilocos Norte	n.a.	1.90	4.81	n.a.	n.a.	4.66	n.a.
	Ilocos Sur	n.a.	0.76	4.95	n.a.	n.a.	3.34	n.a.
	La Union	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
II	Cagayan	0.30	0.50	0.63	0.90	1.36	1.40	1.13
	Isabela	0.32	0.48	0.73	n.a.	0.83	0.84	1.08
	Quirino	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Nueva Vizcaya	0.47	0.46	0.45	n.a.	1.21	1.28	1.26

Table 2-2: Changes in installed telephone capacity from 1993 to 2000 (Regions I and II)

(Unit: lines)

	1993 Planning stage	2000 Post-completion	Increase (a)	Increase directly caused by the project	Contribution to (a)
Region I	24,361	256,828	232,467		
Region II	6,042	41,246	35,204		
Total	30,403	298,074	267,671	6,250	2.3%

2.3.2 Use Rate of Project Facilities

As a direct result of this project, the capacity of installed telephone lines in Regions I and II was increased by 6,250 lines. Table 2-3 below shows the situation of the use of the project facilities summarized based on the data obtained in this survey. The difference between the total (whole project) of 6,337 lines shown in the table and the actual figure of 6,250 lines may be the result of the executing agency's (DOTC/TELOF) having transferred part of unused subscriber lines to the project facilities.

This data shows that the 6,337 line capacity is subscribed to by 2,971 lines, achieving a facility use rate of 46.9% for the whole project. This figure is an average, and situations vary by province and municipality. Among 36 municipalities in 7 provinces in Regions I and II covered by the project, 15 municipalities (42% of the total) achieved facility use rates of over 70% and 9 municipalities (25%) achieved facility use rates of over 90%, while the rate is below 50% in 17 municipalities (47%) including 5 municipalities (14%) with facility use rate of below 10%. By region, the use rate in Region I is higher than that in Region II. These low rates are caused partly by factors common to all local exchanges and partly by factors unique to each of them. In this survey, the following points were made clear.

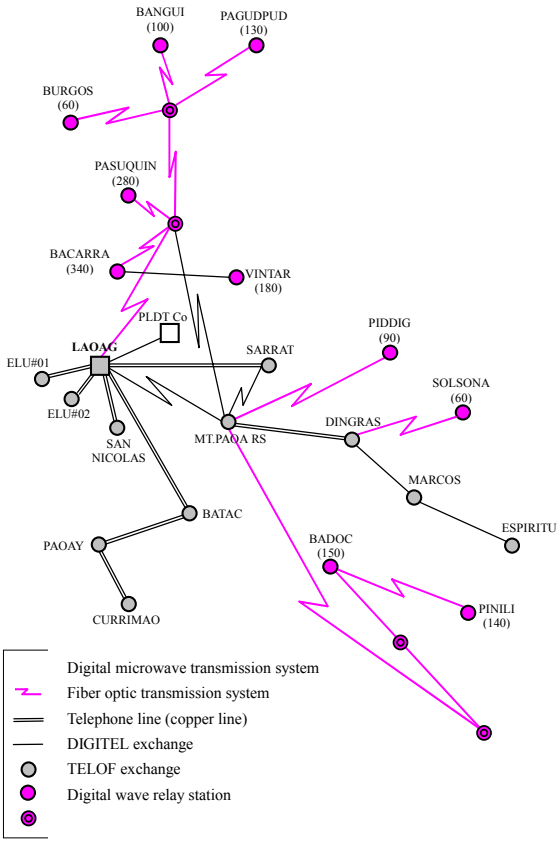
Table 2-3: State of use of project facilities

	Installed capacity (lines)	Subscriber lines	Waiting applications (lines)	Use rate (%)	Remarks
REGION I					
I. Ilocos Norte Province					
1. Bacarra	340	38	10	11.2	PLDT service area
2. Pasuquin	280	8	n.a.	2.9	PLDT service area
3. Vintar	180	6	30	3.3	PLDT service area
4. Burgos	60	58	62	96.7	
5. Bangui	100	99	100	99.0	
6. Pagudpud	130	126	80	96.9	
7. Badoc	150	105	20	70.0	
8. Pinili	140	130	15	92.9	
9. Piddig	90	90	50	100.0	
10. Solsona	60	58	60	96.7	
Subtotal	1,530	718	427	46.9	
II. Ilocos Sur Province					
1. San Juan	130	125	50	96.2	
Subtotal	130	125	50	96.2	
III. La Union Province					
1. Bangar	260	233	5	89.6	
2. Balaoan	280	144	11	51.4	
3. Luna	240	176	n.a.	73.3	
4. Bacnotan	190	106	6	55.8	
5. San Juan	210	5	n.a.	2.4	
Subtotal	1,180	664	22	56.3	
Total for Region I	2,840	1,507	499	53.1	
REGION II					
I. Cagayan Province					
1. Abulug	100	18	25	18.0	
2. Alcala	140	23	30	16.4	
3. Allacapan	130	61	40	46.9	
4. Claveria	120	120	50	100.0	
5. Gattaran	130	55	20	42.3	
6. Lasam	190	54	42	28.4	
7. Sta. Ana	30	2	18	6.7	
8. Tuao	220	90	45	40.9	
9. Gonzaga	60	28	15	46.7	
Subtotal	1,120	451	285	40.3	
II. Isabela Province					
1. Angadanan	140	34	45	24.3	
2. Aurora	180	74	40	41.1	
3. Cordon	200	108	35	54.0	
4. Gamu	100	14	25	14.0	
5. Jones	250	100	45	40.0	
6. Naguilian	140	0	7	-	Waiting for installation
7. Reina Mercedes	130	0	18	-	Waiting for installation
8. San Mariano	290	11	n.a.	3.8	
9. Cauayan (GRTS)	667	447	50	67.0	
Subtotal	2,097	788	265	37.6	
III. Quirino Province					
1. Diffun	120	93	10	77.5	
Subtotal	120	93	10	77.5	
IV. Nueva Vizcaya Province					
1. Aritao	160	132	10	82.5	
Subtotal	160	132	10	82.5	
Total for Region II	3,497	1,464	570	41.9	
Grand total (whole project)	6,337	2,971	1,069	46.9	

(Source) prepared based on DOTC's data and the interview survey.
(Note) Philippine Long Distance Telephone Company (PLDT)

(1) The presence of two telecommunication companies in one telephone network

This project was designed and implemented as a succeeding project (Phase III) of Phase I and Phase II of the Regional Telecommunications Development Project. All the project facilities constructed in Phase I and Phase II such as exchanges and trunk lines were leased by Department of Transportation and Communications (DOTC) to a private telecommunications company DIGITEL (Digital Telecommunications Phils., Inc.) which operates and maintains these facilities. The facilities covered by this project, or Phase III, were also planned for lease to DIGITEL, as in the previous phases. However, as it was difficult to ensure sufficient profitability for a private business, operations and maintenance of these facilities were placed under the responsibility of the Telecommunications Office (TELOF), a division of DOTC.



Note: In Ilocos Norte Province, the project facilities managed by TELOF are connected to Laoag Exchange (Primary Center) under the control of DIGITEL.

This situation does not benefit telephone users. Figure 2-5 on the right is the network chart of the area served by Laoag Exchange located in Ilocos Norte Province in Region I. Local exchanges (covered by this project) belong to the network under the control of Laoag Exchange (Primary Center), and Laoag Exchange and upper exchanges (facilities covered by Phases I and II) are operated by DIGITEL. As a result, the service area of one exchange is divided into small parts, each of which is covered by either of the two telephone companies. A telephone call connected via another company is regarded as an out-of-area call even if it is made to a location within the same area.

For example, a telephone call from Bangui to adjacent Burgos is treated as a local call, whereas a telephone call from Bangui to Piddig located in the TELOF service area is treated as an out-of-area call because it is connected via a DIGITEL exchange, even though it is within the service area of Laoag Exchange.

In order for TELOF subscribers to place out-of-area calls or long-distance calls, they must either subscribe to DIGITEL in addition to TELOF or make telephone calls after purchasing prepaid cards issued by DIGITEL[3]. The telephone rate system of TELOF is a fixed system while that of DIGITEL is a usage-based system. Therefore, TELOF users are charged redundant charges when making

[3] To make a telephone call after purchasing a prepaid card issued by DIGITEL, the caller dials the number printed on the purchased prepaid card before the number of the callee when making an out-of-area call from the fixed telephone in the caller's house. The caller can use the DIGITEL's service according to the number of units paid for.

out-of-area calls. As a result, telephone charges are higher than those of Philippine Long Distance Telephone Company (PLDT), which provides local calls, out-of-area calls and long-distance call services. This is one factor which makes telephone users hesitate before applying for subscription to TELOF's service.

(2) Competition with other telecommunications companies

This project aimed to establish communications infrastructure in rural areas that often cannot enjoy sufficient services under private-sector-led development. However, in some municipalities such as Bacarra, Pasuquin and Vintar in Ilocos Norte Province, PLDT started providing telephone services before the completion of the project, and took away most of the potential subscribers to the services of this project. PLDT has the largest number of subscriber lines in the country[4] and provides telephone services at lower charges than TELOF by taking advantage of its nationwide network. Therefore, telephone users tend to use the PLDT service. Another concern common to all municipalities including those named above is the expansion of the service areas of mobile telephone companies from urban areas to rural areas, which has created an environment where many rural areas can receive mobile telephone services. As competitors and mobile telephone companies have expanded their services into the project area, means of communication other than those provided under the project by TELOF have been made available. This situation also contributes to the low use rate of the facilities covered by the project.

(3) The ineffectiveness of TELOF's structure for providing services

In Naguilian and San Mariano in Isabela Province in Region II, 270 telephone lines remain unavailable (unused) due to lack of funds at TELOF to procure equipment and materials necessary in providing subscriber lines, while applicants have already paid telephone installation fees to TELOF. At other local exchanges (municipalities) other than above-mentioned two municipalities, where there is a low facility use rate and enough capacity to accept new subscribers, the number of waiting applications has yet to be reduced to zero for the same reasons as stated above. If waiting applications were accepted to the extent of the capacity at each local exchange (municipality) listed in Table 2-3, the facility use rate of the whole project would be increased from 46.9% to 63.8%

(4) Miscellaneous

According to the executing agency, in some parts of the project area where the population and economic activity have not grown to the level expected at the time of planning, telephone services may be in oversupply. Also, it has been pointed out that subscribers have not increased much because the project area is a relatively low-income area and residents may consider the payment of the subscription fee and monthly telephone charges a heavy burden.

2.3.3 Quality of Telephone Services

Since the facilities constructed under this project form part of the local network that was constructed in Phase I and Phase II and is operated by DIGITEL, it is technically impossible to extract data on local exchanges that are covered by this project and operated by TELOF, such as call

[4] According to the National Telecommunications Commission 2001 Annual Report, shares of the leading 5 telecommunications companies on the telephone market in terms of the number of subscriber lines as of December 2001 are (1) PLDT: 62.63%, (2) DIGITEL: 11.68%, (3) BAYANTEL: 6.39%, (4) GLOBE TELECOM: 4.35% and (5) PILTEL: 2.31%.

completion rate and fault rate. Therefore, the quality of the services provided under this project has not been evaluated. Evaluation of the telephone service quality by beneficiaries is presented in "2.4.1 Case study". According to the executing agency (DOTC/TELOF), in some parts of Region I, telephone cables were damaged by a typhoon in July 2001 and the telephone service was suspended for 30-44 days.[5] Also it was reported that in Abulug, Cagayan Province in Region II, the telephone service was interrupted from June 19 to December 19, 2000 due to the damage by lightning.

2.3.4 Recalculation of the Financial Internal Rate of Return (FIRR)

The FIRR of this project was calculated at 13.9% at appraisal. In the present survey, the FIRR was not calculated because basic data necessary for the calculation, such as the income from telephone charges and operations and maintenance costs, has not been provided by the executing agency. Considering the present situation of the use of the project facilities, the FIRR is estimated to be much lower than projected. At appraisal, the FIRR was calculated according to the following conditions:

(Conditions for calculation)
Benefit: income from telephone charges, other income (telephone directory sales, income from advertisements, etc.), estimated amount receivable
Cost: initial investment costs, operations and maintenance costs
Project life: 25 years after completion

2.3.5 Result of a Case Study on the Effect of the Project

In this survey, we conducted a case study to evaluate the present situation and the effects and impact of the project. Details are shown in the following section. Here are some results related to the effects of the project.

With respect to the satisfaction level accorded the telephone service provided by TELOF, 60% of the respondents say they are satisfied while 40% express dissatisfaction with the service. Reasons for dissatisfaction are "frequent network failure" (65%), "poor maintenance" (32%), "failure on receipt of telephone calls" (15%) and "expensive telephone rates" (3%). Not all of these reasons are attributed to TELOF. In fact, there is little problem with local calls and users understand that many problems occur with out-of-area calls and long-distance calls via DIGITEL.

In the interview survey of general households and companies that do not use the telephone service, it was found that they cannot use the service because subscriber lines are provided to the capacity of exchanges and new applications for subscription are not accepted. In Bangui and Claveria, the number of allocated subscriber lines is too small relative to the population and therefore the telephone service does not cover all households. Both municipalities are requesting DIGITEL and TELOF to increase subscriber lines, but this is difficult to effect under the present situation. The reason is that only a limited number of telephone lines are available within the frequency band of the digital radio transmission system introduced under the project. In order to increase the capacity of the current system, radio transmission towers need to be constructed, and this would entail huge costs. Even if the capacity were increased by the construction of towers, given the number of subscribers in these areas, it would be difficult to cover the construction costs with the income from telephone charges. For these reasons, both TELOF and DIGITEL are unwilling to expand facilities.

[5] TELOF/DOTC explains that because of the typhoon which hit the country from 4th to 5th of July 2001, the telephone service was interrupted for 30 days between Sinbat and Badoc, 38 days between Badoc and Pinili, and 44 days between Cabugao and San Juan.

As already stated, the facility use rate of the whole project is low. In some parts of the project area, the population has not increased as predicted or the economy has not grown as much as expected at the planning stage. In other parts, on the contrary, service supply cannot meet the demand. From these facts, it is assumed that the need for telephone services in each region was not thoroughly examined at the time of planning. If an appropriate number of telephone lines had been constructed based on an accurate estimation of needs, higher use rate would have been achieved.

2.4 Impact

2.4.1 Case Study

We conducted a case study to evaluate the impact of this project on the project area. In the case study, we selected two municipalities where telephone services started for the first time under the project and surveyed (1) pubic service providers (administrative bodies, schools, hospitals and police stations), and (2) residents and companies. (2) was divided into households/businesses with telephones and those without telephone. For both of (1) and (2), we conducted interviews based on a prepared questionnaire. The two municipalities of Bangui and Claveria have 100 and 120 subscriber lines respectively, of which nearly 100% are in service. The surveyed areas and targets are shown below.

Table 2-4: Surveyed areas and targets (residents and companies)

Surveyed area	Surveyed target and classification	Number (persons)	Total (persons)
Region I Ilocos Norte Province Bangui	(1) Households with telephones	32	64
	(2) Households without telephones	10	
	(3) Companies with telephones	12	
	(4) Companies without telephones	10	
Region II Cagayan Province Claveria	(1) Households with telephones	21	62
	(2) Households without telephones	10	
	(3) Companies with telephones	21	
	(4) Companies without telephones	10	
Total	(1) Households with telephones	53 (42%)	126
	(2) Households without telephones	20 (16%)	
	(3) Companies with telephones	33 (26%)	
	(4) Companies without telephones	20 (16%)	

Summary of case study

(1) Impact on municipal administration

In this project, one telephone set and three telephone sets were installed at the municipal offices of Bangui and Claveria respectively. In Bangui, a mobile telephone service by a private telecommunications company also started a few years ago, though it functions only within a limited area. Neither municipality had a telephone service before project. At that time, they communicated with provincial governments or neighboring cities and municipalities by direct visit, mail or personal delivery, or on police radio. After the completion of the project, access to provincial governments, neighboring cities and municipalities and the central government agencies have been remarkably improved. As a result, the time to communicate with other cities and municipalities or to do business, as well as the traveling time, has been reduced. Improvement has also been seen in the communications systems for disasters or emergencies and for the maintenance of public security.

As no public telephone has been installed under the project, each municipal office offers residents the opportunity to use the telephone and facsimile installed in the office for a fee, and thus provides a supplementary public telephone service. Communication between the administration and residents has been facilitated only to a limited extent, however, because the switching capacity and the number of available subscriber lines are limited in both municipalities, and only some residents have telephones in their houses.

In general, the administrative side evaluates this project as having contributed to the economic growth and development of information technology in the municipalities.

(2) Impact on police, hospitals and schools

In this project, telephones were installed in police stations, hospitals and schools in Bangui and Claveria, with one set for each. Before the project, police stations communicated with each other via radio, although such communications were often interrupted. The introduction of a telephone service enabled them to directly communicate with other stations. In hospitals, the telephone service helped establish closer communication with other hospitals and promote communication with patients and their families. As for schools, since they are required to make a report or submit documents on a regular basis to the education authority of the county or district, installation of telephones and facsimile machines contributed to more efficient paperwork and closer communications. Bangui Police Station at one stage allowed residents without telephones to use the telephone in the station. However, this service was suspended with respect to out-of-area calls because of the increase in the amount of telephone charges left unpaid by users. In the hospital, the telephone is placed in a locked room except for the hours between 8:00 a.m. and 5:00 p.m. on weekdays as a measure to prevent private use by clients or employees. When asked how they respond to emergency calls on holidays or at night when the telephone is unavailable, they explained that an emergency communications network is in place, under which information is promptly forwarded to the hospital by the person in charge of communications.

Although there still is room for improvement in the use of telephones, the project generally contributed to the improved services and efficiency at police stations, hospitals and schools.

(3) Impact on companies and general households

In general households, the most common purpose of telephone calls is “conversation with family members and friends”(79%) followed by “communication in an emergency” (74%), “business transactions” (36%) and “shopping” (15%) (multiple answers). The purposes selected by companies are “business transactions” (94%), “communication in an emergency” (36%), and “shopping” (27%).

With regard to the frequency of telephone use, 75% of general households place 10 calls or less a day, 21% place 10-20 calls, and 4% place 20 calls or more. In the case of companies, 61% place 20 calls or less, 24% place 20-30 calls, and 15% place 30 calls or more a day. As for incoming calls, 72% of general households receive 10 calls or less a day, 24% receive 10-20 calls, and 4% receive 20 calls or more, while 67 % of companies receive 20 calls or less, 21% receive 20-30 calls, and 12% receive 30 calls or more a day. In general, companies use the telephone more frequently than general households.

Further to these results, almost all respondents (95%) answered that their way of living has changed since the installation of telephones. 84% of the respondents from general households selected “communication among family members has been promoted” as a positive impact, and 47% say that

they “gained access to information”. Another notable impact indicated by the respondents is that “improvement has been made in family safety, responses to health issues, income and employment”. Ilocos Norte Province traditionally has many people working abroad and telephone service is particularly helpful in that it allows families to maintain contact.

On the other hand, 45% of the respondents pointed out negative impacts. In particular, 90% of the respondents mentioned the payment of telephone charges as an additional expenditure, saying, “Our financial burden has increased since the installation of telephones”. However, in response to a specific question concerning the telephone charges, 65% answered there is no problem with the payment of telephone charges and the remaining 35% answered they have some problem. Based on this result, it is assumed that additional expenditure was incurred as a result of telephone installation, and that the expenditure was not seriously detrimental to family or business finances, or at least within a payable amount. Also, some respondents complained about “long telephone conversations” (15%) and “nuisance phone calls” (3%).

With respect to the quality of the telephone service, interruption of the dialing tone frequently occurs during a strong wind or heavy rain. This problem is caused by the digital radio transmission system introduced under the project. It was also found out that long-distance-calls are frequently interrupted. Since out-of-area calls and long-distance calls are transmitted from TELOF to DIGITEL, differences in the transmission modes of the two companies are thought to cause the above problem. As for sound quality, most respondents answered that the telephone sound is very good.

(4) Summary

In the area where we conducted this case study, this project has had a great impact on people’s lives, including the promotion of communications among family members and increase in accesses to information. In the field of public services, efficiency at local administrative bodies, police stations, hospitals and schools has been improved, and the system of communications between government agencies has been strengthened. Although the telephone service has yet to reach every resident due to limited capacity, it is of great significance that an area that had been without a telephone service gained access to a telephone service for the first time. Aside from some problems that need to be solved, the project has made a great contribution to the development of local communities.

2.4.2 Environmental Impact

The main construction work undertaken in this project was the construction of station buildings, antennas and telephone lines, and not of large structures. According to the executing agency, no particular negative impact on the environment has not been reported.

2.4.3 Impact on Local Residents

Land acquisition for the implementation of the project was limited to land for station buildings and access roads. Most of the sites of station buildings were offered free of charge by municipalities in the project area and there were no particular problems. No relocation of local residents was required.

2.5 Sustainability

2.5.1 Organizational System

All the facilities covered by Phase I and Phase II of the project were leased by DOTC to a private

telecommunications company, DIGITEL, which operates and maintains these facilities. At appraisal, it was expected that the facilities covered by this project would be operated effectively and in an integrated fashion by DIGITEL, under a lease agreement. However, operation and maintenance of these facilities eventually fell under the responsibility of the Telecommunications Office (TELOF), a division of DOTC.

TELOF aims to provide communication services throughout the country, particular focusing on those areas where private communication companies find it difficult to provide services and those services that it is difficult for these companies to provide. TELOF owns 98 digital exchanges, 605 public telephone stations, 1,483 telegraph offices, 4 trunk radio stations, 33 satellite communications stations and 3 maritime communications facilities all over the Philippines, and operates and maintain them. Among 4,927 employees of TELOF, 314 are assigned to Region I and 283 are assigned to Region II.

2.5.2 Technical Capacity

TELOF mainly maintains transmitters, telephone lines and radio receivers. Maintenance items include monthly patrols, cleaning of facilities, and changing battery and engine oil. Maintenance of exchanges is basically the responsibility of DIGITEL. As the telephone business of TELOF has been gradually taken over by private telecommunications companies such as DIGITEL under the government policy of privatizing the communications sector, TELOF is restructuring its organization. Employees from each local office responsible for the maintenance of project facilities have been reduced to the minimum number, and the number of vehicles for service is not enough. Under these circumstances, there remains some concern regarding the maintenance of facilities.

On the other hand, DIGITEL has been updating outdated systems installed in exchanges under its control with its own funds, creating a gap with TELOF exchanges in systems modernization and facility maintenance. This gap presents a problem for the future.

2.5.3 Financial Status

As no data on the financial aspect was provided by DOTC/TELOF, we could not evaluate the financial aspect in detail. However, as already explained, TELOF's mission is to provide telephone services to those areas that can enjoy private sector services only to a limited extent. Therefore, low profitability is inevitable. The project income basically consists of the monthly telephone charges (fixed charges), telephone installation fees, and the 15% commission that DIGITEL pays TELOF for out-of-area or long-distance calls (when such calls are charged by DIGITEL to TELOF subscribers). According to TELOF, however, an out-of-area or long-distance call placed using the prepaid card issued by DIGITEL is treated as a telephone call connected within the DIGITEL service area (i.e. as a call that has not gone through TELOF exchanges) because of differences in the exchange systems of the two companies. TELOF claims that this means that the full 15% that should be paid to TELOF is not being paid, and is demanding DIGITEL to fulfill the agreement properly. Moreover, as the current facility use rate is only 46.9%, the income from telephone charges has not increased as expected.

As was mentioned in 2.3.2 above in connection with the use rate of the project facilities, due to inadequate budget allocated by the government to TELOF, even urgently needed work such as the construction of subscriber lines is delayed. Concerns are arising over the financial sustainability of TELOF.

3. Feedback

3.1 Lessons Learned

A multiple-phase project in the communications field should be carried out flexibly, taking into account the effects generated in each phase and based on the evaluation of the preceding phase. It is necessary to examine the demand prior to each phase and modify the project scope accordingly.

In an evaluation of Phase I carried out prior to this project (Phase III), some questions were raised regarding the effectiveness of the project. The results of this survey indicate that the demand for telephone lines was different from the initial estimate in some areas. In the communications field, demand has often changed due to the rapid technological advances made in recent years. In addition, there is a growing trend in which the services provided by the public sector are being replaced by the private sector. Therefore, in a project like this – a multiple-phase project in the communications field – it is advisable to conduct surveys on needs prior to each phase and flexibly modify the project scope based on the results of the surveys.

3.2 Recommendations

(To JBIC)

It is necessary to monitor the executing agency's structure for implementing the project and continue checking improvement of the use rate of the project facilities.

As stated above, it would be possible to increase the use rate of the project facilities if TELOF's structure for implementing the project were improved. As a measure to examine the effectiveness of the project, the operations of TELOF should be monitored from time to time.

(To the executing agency)

In order to improve operational conditions, it is worth considering entrusting the operations of the project to the private sector, as with the previous phases.

While Phase I and Phase II are operated by a private company under a lease agreement, this phase is operated by TELOF because of the difficulty in securing sufficient profitability for a private business. However, considering the increased demand for telephone services and the unfavorable financial condition of the executing agency, it could be necessary to consider the possibility of entrusting the project to the private sector, as with Phases I and II, on condition that the appropriate service is ensured and the profitability is thoroughly examined.

Comparison of Original and Actual Scope

Item	Plan	Actual
1 Project Scope		
(1) Sub-project A (expansion)		
(1-a) Digital telephone system		
- Construction of local exchanges	3 stations (2,050 lines)	3 stations (2,280 lines)
- Expansion of local exchanges	15 stations (5,750 lines)	8 stations (2,940 lines)
- Construction of extension/direct connections	35 stations (5,680 lines)	26 stations (4,550 lines)
- Update of extension/direct connections (replacement of old equipment)	2 stations (270 lines)	2 stations (290 lines)
(1-b) Digital radio transmission system		
- Digital microwave system	20 links	20 links
- Digital radio multiple-access subscriber system (DRMASS)	2 systems	6 systems
(1-c) Improvement of outside facilities		
- Trunk cables	17 links	6 links
- Local cables	44 areas	32 areas
(1-d) Construction of station buildings	38 locations	38 locations
(2) Sub-project B (repair and improvement)		
(2-a) Construction of trunk microwave transmission lines	4 links	6 links
(2-b) Replacement of digital microwave system	12 links (Replacement of the existing 800MHz UHF radio system with 2GHz microwave system)	12 links
(2-c) Repair of equipment broken by typhoons and earthquakes	Radio equipment, Trunk cables, local cables and a set of spare parts, etc.	As left
(3) Consulting Services	Total 47 M/M	Total 48 M/M
2. Implementation Schedule		
(1) L/A conclusion	Aug. 1993	Aug. 1993
(2) Bidding	Mar. 1994 – Mar. 1995	Jul. 1994 – Aug. 1994
(3) Construction and installation	Mar. 1995 – Oct. 1996	Dec. 1994 – Apr. 1999
(4) Assistance for maintenance and operations	Jul. 1996 – Jun. 1997	May 1997 – Nov. 1997 Jun. 1999 – Dec. 1999
(5) Consulting services	Aug. 1993 – Jun. 1997	Oct. 1993 – Jul. 1997 Apr. 1999 – Jun. 1999
3. Project Cost		
Foreign currency	3,803 million yen	3,803 million yen
Local currency	1,210 million yen (242 million peso)	571 million yen (242 million peso)
Total	5,013 million yen	4,344 million yen
ODA loan portion	3,803 million yen	3,557 million yen
Exchange rate	1 peso = 5 yen (As of Jan. 1993)	1 peso = 2.36 yen (Average for 1993 – 1999)

Third Party Evaluator's Opinion on
Regional Telecommunications Development Project in Regions I and II

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Relevance

At time of appraisal, the Philippine telecommunications sector was largely underdeveloped and lagging behind those in neighboring countries. Telephone density was only 1.4 landlines per 100 persons, compared to 2.5 for Thailand and 14.0 for Malaysia. The Medium-Term Philippine Development Plan (MTPDP) 1993-1998 set a target of 4.0 landlines per 100 persons, with all the cities and municipalities to be covered by telephone services by the end of the Plan period, and the project was to contribute to these objectives.

As early as in 1987, however, the seeds of liberalization in the industry were already being sown, as the Aquino government issued new licenses for international gateways and cellular mobile telephone services (CMTS). Liberalization was hastened with the Ramos administration. Executive Order (EO) 59 of February 1993 mandated compulsory interconnection of all public telecommunications carriers. EO 109 of July 1993 increased the number of CMTS providers but required them to install at least 400,000 fixed telephone lines within three years. By the time of the signing of the loan agreement in end-1993, liberalization of the sector was well underway.

In the project area itself, the Evaluation Report (ER) points out that the project's scope was modified after appraisal because the private service provider for the area, DIGITEL, advanced its service expansion plan and the demand forecasts had to be revised. The numbers of local exchanges and lines to be constructed or expanded had to be reduced. Even then, the facility use rate is only 47%, compared to 64% for DIGITEL (nationwide) and 62% for Regions I and II. Competition from PLDT in four towns and the spread of CMTS usage also contributes to the low project facility use rate.

DIGITEL, in fact, operates and maintains the facilities set up under earlier phases of the Regional Telecommunications Development Project (of which this project is Phase III) under a lease contract with government. The facilities covered by this project were also planned for lease to DIGITEL. Why this has not materialized is not clear. The result, however, is obvious: one can call a neighbor (or even himself in another phone) and be charged long-distance rates if the two phones have different service providers. This situation certainly needs to be corrected.

Impact

The ER shows that at the planning stage (1993), Regions I and II had only 30,403 installed lines; the project's 6,250 additional lines would have constituted a significant capacity addition. By post-completion in 2000, however, installed lines numbered 298,074, dwarfing the project's contribution. Industry liberalization certainly is responsible for this tremendous expansion in landline capacity (not to mention the growth in CMTS coverage and usage). Even without the project, therefore, it is possible that private service providers (DIGITEL, PLDT, and CMTS companies) would have filled in the perceived demand-supply gap. The need for a thorough market study in project preparation should be stressed.

Access to telecommunications services certainly improves the quality of life, and the case studies conducted by the evaluation team on the after-project socioeconomic impact attest to this. But it is also highly likely that, without the project, private service providers would have come in anyway, and the improvement in the quality of life may have been greater.

JBIC View

Regarding the impact of the project

Professor Alonzo mentions, in his opinion, that even without the project, it is possible that private service providers would have filled in the perceived demand-supply gap and it is highly likely that without the project, private service providers would have come in anyway, and the improvement in the quality of life may have been.

Actually, in the Phase 1 and 2 of this project, the facilities had been leased to DEGITEL, a private telecommunication company. However, in the phase 3 (this phase), operations and maintenance of these facilities were placed under the responsibility of the government agency, TELOF because it was deemed difficult to ensure sufficient profitability for a private business. There was a doubt, at the time of appraisal, to what extent a private service provider would provide services to places where the business would not pay, considering the fact that this phase of the project covered marginalized areas. It was also thought that private service providers would take much longer time to expand their coverage to the areas and start the services.