Indonesia

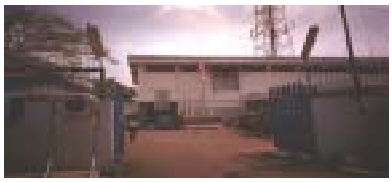
Junction Network For Expanded Jakarta Exchange Area Project

Report Date: October, 2002
Field Survey : July, 2002

1. Project Profile and Japan's ODA Loan

Project Site

Centralized Supervisory



Exchange

Transmitter

1.1 Background

The telephone density in Indonesia was significantly lower than in other ASEAN countries: 0.56 sets/100 persons as of 1990. Also, the number of waiting applicants had reached 690,000 lines (68% of existing total subscriber lines) as of the end of 1990. Moreover, if potential telephone demand had been taken into account, the number of waiting applicants would have been greater, since there was a lengthy time lag between subscription and actual installation.

A substantial increase in demand for telecommunications services in the Jakarta Metropolitan Area (an area covering 30 km from the center of Jakarta) was expected as a result of the expansion in social and economic activities in Jakarta and its outskirts, in line with the implementation of the regional development policy promoted by the government. However, transmission lines in the Jakarta Metropolitan Area did not have capacity to cope with future demand; The Fifth Five-Year Development Program (REPELITA-V) in 1989, therefore, highlighted expansion of transmission lines in the Jakarta Metropolitan Area, especially between Jakarta and its outskirts, as a top priority project.

1.2 Objectives

To upgrade and extend transmission lines in the Jakarta Metropolitan Area in order to cope with increasing telecommunications demand, especially for calls between DKI Jakarta and peripheral areas. The upgrade was expected to improve the current telecommunications situation, including call completion rates, and eventually to contribute to the development and expansion of economic activities throughout the region.

1.3 Project Scope

The project consists of the following works:

1) To introduce a new Optical Fiber Cable Transmission System (140 Mbps, 17 routs, 156 km)
2) To expand the existing Optical Fiber Cable Transmission (140 Mbps, 6 routs, 13 km and equipment)
3) To introduce a new Digital Microwave Transmission System (11 GHz, 2 Routs, 2 Hops, 29.0 km)
4) To provide consulting services (Foreign 148M/M, Local 220 M/M)

1.4 Borrower/Executing Agency

The Government of the Republic of Indonesia / PT. Telekomunikasi Indonesia (TELKOM) (the former Perusahaan Umum Telekomunikasi (PERUMTEL))

1.5 Outline of Loan Agreement

Loan Amount	3,556 million yen
Loan Disbursed Amount	2,450 million yen
Exchange of Notes	September 1991
Loan Agreement	September 1991
Teams and Conditions	
Interest Rate	2.6 %
Repayment Period (Grace Period)	30 years (10 years)
Procurement	General Untied (Partially Untied for Consultant)
Final Disbursement Date	October 1996

2. Results and Evaluation

2.1 Relevance

At the time of appraisal, the project plan was considered relevant to national development policy, objectives and scope. The reasons are as follows.

2.1.1 Consistency with the national development policy

Installation of telecommunication infrastructure was considered crucial to realizing further industrialization, the main objective of the Fifth Five-Year Development Program (PELITA-V) (1989-1993). Especially in areas where the Indonesia government was implementing regional development programs, construction of telecommunication infrastructure was a top priority issue.

2.1.2 Solution to the Increasing Demand for Telephone access in the Jakarta Metropolitan Area

Along with the rapid economic development, economic and social activities had expanded

from Jakarta to the outskirts (JATABEK[1]) under the regional development programs of the Indonesian government. Domestic and foreign investment increased in the Jakarta Area, and the demand for telephone lines rose accordingly. However, transmission lines in Jakarta were not designed to expand to the surrounding areas, and consequently this project was formulated as a top priority project.

The demand for telephones in the Jakarta Metropolitan Area is still very high; as shown in Figure 1 of section 2.3.2 of this report, the number of telephone lines continues to increase. This proves that even now the objective of this project -- to establish transmission lines to meet telecommunications demand in the Jakarta Metropolitan Area -- is applicable to the present situation.

2.2 Efficiency

2.2.1 Project Scope

In order to cope with the heavy traffic in the JATABEK area, an optical fiber cable system was added, routes were changed, and the Centralized Supervisory System[2] was reinforced. Accordingly, the consulting service period by local engineers was extended. Furthermore, installation of a digital microwave system in the target areas was cancelled since it was decided to install digital optical fiber transmission lines in another project. All these modifications in the project scope were necessary and reasonable means of implementing the project efficiently.

2.2.2 Implementation Schedule

Initially, the implementation schedule spanned a 42-month period, from conclusion of the Loan Agreement, in September 1991, to completion of installation and maintenance work on the equipment in February 1995. The actual completion date was September 1996, 19 months later than expected. This delay was caused by delays in the construction of telephone stations and of an outside plant.

2.2.3 Project Cost

The total project cost ran approximately 891 million yen under budget; the planned project cost was 4,184 million yen, and the actual project cost was 3,293 million yen. The expense in foreign currency was 2,327 million yen, 1,140 million yen less than the planned cost of 3,467 million yen, while the cost in local currency was 966 million yen, or 249 million yen higher than the planned cost of 717 million yen.

The reason for the foreign currency cost-under run was mainly the fact that imported materials were replaced with domestic ones; this modification contributed to lowering the cost of supplying materials. On the other hand, cost in local currency ran over budget due to the changes in the project scope, like the expansion of the Optical Fiber Cable System and of the Centralized Supervisory System.

2.3 Effectiveness

2.3.1 Number of Waiting Applicants

According to TELKOM, the problem of waiting applicants was solved in 1993. At present, telephone lines are managed from the supply side, and are constructed beforehand, based on future demand forecasting. Thus, telephone service is now being provided immediately upon

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[1] JATABEK consists of Jakarta, Tangerang and Bekasi. The target area of the plan included Bogor at the time of appraisal, and was called JABOTABEK. However as Bogor was excluded at the time of implementation, the target area is now being called JATABEK

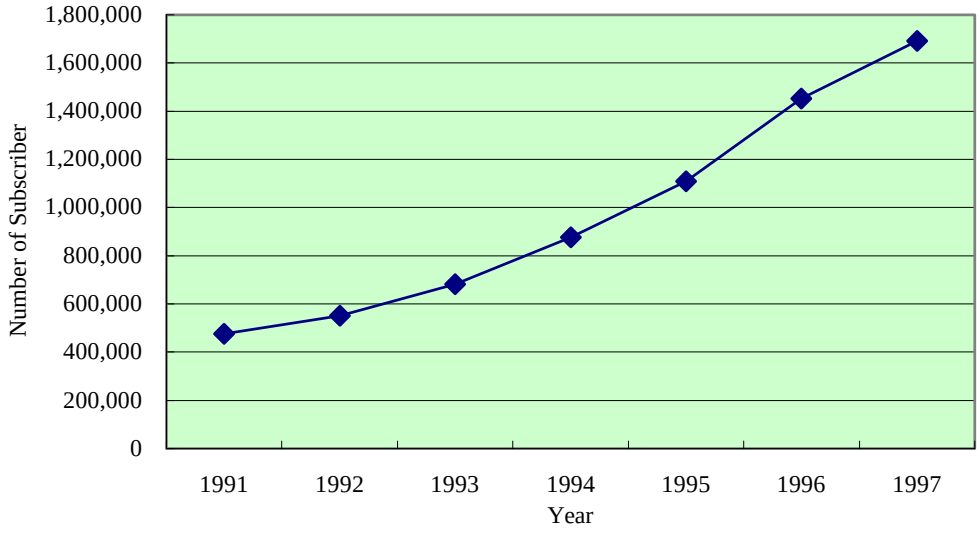
[2] Centralized Supervisory System is a system that supervises the condition of transmission lines.

subscription. This improvement owes much to the installation of the optical fiber cable system, which can cope with large volume telephone lines. The project has been effective in solving the problem of waiting applicants.

2.3.2 Number of Subscribers

The number of subscribers in the Jakarta Metropolitan Area is shown in Figure 1. Figures are increasing every year; about 1 million new lines were installed from 1991, when the project started, to 1996, when the project ended. The expansion and new installation of Optical fiber transmission lines realized through this project has contributed to TELKOM's ability to cope with the high traffic demands.

Figure 1. Number of Subscriber in Jakarta Metropolitan Area

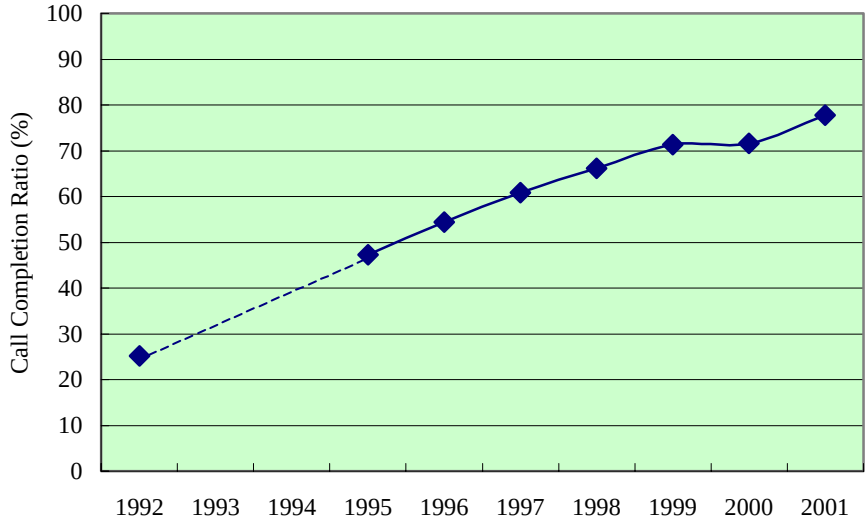


Source: BPS

2.3.3 Call Completion Rate

The trend in the Call Completion Rate in the Jakarta Metropolitan Area is shown in Figure 2. The Call Completion Rate is the percentage of total attempted calls that are successfully connected. The Call Completion Rate has improved year after year, which proves that the quality of telecommunication service has been upgraded. Normally, a low Call Completion Rate occurs when the number of calls attempted surpasses the capacity of the telecommunication network. By replacing metal cables with optical fiber cables, the capacity of the network is enlarged drastically, as it was in this project. In this respect, the project has contributed greatly to improving the quality of telecommunication service.

Figure 2. Call Completion Ratio



Source: TELKOM
Note: [1] Year 1993 and 1994: no data, [2] Year 2001: Until April 2001

2.3.4 Internal Rate of Return

The Financial Internal Rate of Return (FIRR) turned out to be 9.4%, the result of the recalculation of FIRR using figures for total revenue and maintenance cost for telephone service from annual reports from 1992 to 2000. The result falls below the figure that was the forecast at the time of appraisal, 9.6%. For the actual calculation, revenue and cost per telephone line were computed based on the same preconditions that were used at the time of appraisal. (see below)

Assumption used for FIRR calculation at the time of appraisal

1) Telephone Lines Installed (New Subscribers in the Project)
2) Income from Telephone
    a) Minimum Charge
    b) Installation Fee
    c) Local Call Charge
    d) Long Distance Call Charge
    e) International Call Charge
    f) Miscellaneous Revenue
3) Transmission Revenue (30% of Income from Telephone)
4) O&M Expense
5) Project Life: 20Years

2.4 Impact

2.4.1 Impact on Natural Environment and on Local Residents

As the work consisted of burying Optical Fiber Transmission Lines along existing roads, TELKOM reports that there were no negative impacts either on the natural environment or on local residents.

2.5 Sustainability

2.5.1 Operation and Maintenance

At the beginning of the project, Perusahaan Umum Telekomunikasi (PERMUTEL) was the agency responsible for operation and maintenance of this project. However, this institution was privatized in September 1991 and became PT. Telecomunikasi Indonesia (TELKOM) (66.2% of the shares are owned by the government), the current operation and maintenance agency for this project. Operations of the project are being supervised by Division II, one of the seven Regional Divisions in TELKOM supervising the Jakarta Metropolitan Area. The Atelir Division is in charge of maintenance.

The total staff of TELKOM numbers 37,705 people, as of the end of year 2000, and number of telephone lines per staff member has increased from 160.1 in 1999 to 176.7 in 2000.

TELKOM has applied, since 1996, the so-called KSO (Kerja Sama Operasi) method to promote the rapid improvement of telecommunication service. This method consists of participation of foreign carriers in Divisions I, III, IV, VI, and VII, excluding Jakarta and East Java (Surabaya included), and implementation of expansion, operation and maintenance of telecommunication facilities using the foreign carriers funds and technical skill.

2.5.2 Technical Capacity

According to TELKOM, no significant problems are found in the technical capacity of the staff. The Training Division conducts in-house training courses to retain the sustainability of the technical capacity and to maintain the skills of the staff.

2.5.3 Condition of Equipment

The Centralized Supervisory System in the Regional Network Control Center (RNCC) at TELKOM headquarters, and transmission facilities inside telephone stations in the Jakarta Metropolitan Area, Kebayoran, Cipete, Pasar Minggu and Kalibata were surveyed during the site visits, and all of them were found to be in good condition.

2.5.4 Financial Status

Financial ratios calculated historically from the consolidated financial statements of TELKOM are shown in Table 2.

The decline in revenue from 1996 to 1998, caused mainly by the Asian economic crisis, lowered the profitability of those years. However, after 1998, returns and turnover rates have been rising, and TELKOM’s financial status has been improving. The financial soundness of TELKOM is considered good under the present favorable circumstances, although there are some worries about it’s the organization’s long-term funding.

In general, the financial status of TELKOM is good, and its business is operating well. There are no particular concerns in terms of the sustainability of the project.

Table 2. Financial Ratios of TELKOM

	1993	1994	1995	1996	1997	1998	1999
Return on Equity (ROE)	14.1%	19.1%	15.2%	18.5%	12.5%	11.6%	19.1%
Return on Assets (ROA)	9.4%	10.9%	9.3%	12.3%	8.6%	6.5%	11.9%
Return (Current Income) on Stockholders' Equity	22.4%	27.5%	21.6%	25.5%	17.5%	14.1%	26.1%
Profit (Current Income) on Net Sales	26.0%	28.3%	25.2%	40.8%	27.5%	21.6%	38.0%
Turnover Rate of Total Assets	0.36	0.39	0.37	0.30	0.31	0.30	0.31
Turnover Rate of Stockholders' Equity	0.86	0.97	0.86	0.62	0.64	0.66	0.69
Ratio of Net Worth	41.3%	38.5%	46.5%	49.9%	48.3%	44.4%	46.4%
Ratio of Fixed Assets	203.2%	222.3%	170.1%	174.4%	183.9%	190.9%	161.3%
Ratio of Fixed Assets to Long-Term Capital	101.6%	100.2%	90.2%	98.8%	100.7%	95.1%	86.0%
Current Ratio	92.2%	98.6%	168.7%	109.0%	94.7%	139.1%	194.9%

Source: TELKOM

Comparison of Original and Actual Scope

Item	Plan	Actual
(1) Project Scope		
1.Procurement and Installation of the facilities		
1) New Transmission:		
- Optical Fiber Cable System	140 Mbps, 17 Routes (Total 156 km)	140 Mbps, 47 Routes (Total 422.1 km)
- Digital Micro Wave System	11 GHz, 2 Routs, 2 Hops (Total 29.0 km)	Cancelled
2) Extension of Transmission Lines:		
- Optical Fiber Cable System	140 Mbps, 6 Routes (Total 13 km and installation of equipment)	140 Mbps, 4 Routes (Only installation of equipment)
3) Additional Scope of Work	None	Duct System (47km) Expansion of Centralized Supervisory (C-SV System)
2.Consultancy Service		
- Foreign	148M/M	145M/M
- Local	220M/M	235M/M
(2) Implementation Schedule		
- Loan Agreement	September 1991	September 1991
- Selection of Consultants	September 1991 to March 1992	October 1991 to March 1992
- Consulting Service	April 1992 to March 1995	April 1992 to July 1996
- Tender Process	October 1992 to May 1993	November 1992 to May 1993
- Manufacturing and Transportation	July 1993 to April 1994	December 1993 to July 1995
- Installation and Maintenance	July 1993 to February 1995	November 1993 to September 1996
(3) Project Cost		
Foreign currency	3,467 million yen	2,327 million yen
Local currency	10,544 million Rp.	17,889 million Rp.
(in Yen)	(717 million yen)	(966 million yen)
Total	4,184 million yen	3,293 million yen
ODA loan portion	3,556 million yen	2,450 million yen
Exchange Rate	1Rp.=0.068 yen (As of April 1991)	1Rp.=0.054 yen (As of July 1993)

Independent Evaluator's Opinion on
Junction Network For Expanded Jakarta Exchange Area Project

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The project is relevant to the Indonesia's telecommunication-sector development program as stated in The 5th Five-year Development Program in the Telecommunications Development Plan. Although the project's impacts were more on enhancing the transmission capacity and service quality rather than expanding the capacity of telephone lines, both objectives were already granted by the Plan as basic requirements necessary to establish a good and reliable telecommunication system in Indonesia.

The project's designated area was Jakarta Metropolitan Area, where the telephone traffics were abundant and the customer's expectation was high. The quality of telecommunication service was critical and therefore, a good and reliable service quality was demanded. The project's intension was to increase the transmission capacity to carry more traffic growth and to anticipate the sudden rise of data communication and Internet demand in the near future. As Jakarta was a central-locus of economic activities in Indonesia, the project seemed to be granted a high degree of priority and promising a prospective business feasibility.

There were some modifications of scope of project and alteration from foreign portion to local portion, to promote local competencies as well as to keep the price down. The modification did not affect the project efficiency and still maintained project's relevancy to the previous goals.

As expected, the project resulted positive impacts on improving the CCR performance, improving transmission reliability, and providing more transmission capacity for either carrying more traffic growth, or anticipating data communication demand in the near future. The project was part of total digitalization of telecommunication network program in Jakarta Metropolitan Area.

The project provided indirect positive impact on improving the sosio-economic condition of outskirt Jakarta area and allowing the people to have better access to social service. The project didn't have any significant impact on natural environment.

The sustainability of the project will depend on the TELKOM's commitment to provide a good and reliable telecommunication system in Indonesia. The report shows that TELKOM has capabilities to keep the positive impacts' of the project sustainable over its lifetime. The sustainable is enhanced considering the project areas are Jakarta Metropolitan Area, the most developed city in Indonesia, allowing the project to have a comfortable financial viability.

Overall, Evaluator agrees that the project has accomplished its intended goals. The project provides positive impacts to contribute significantly more to the objectives and sustain longer than its negative impacts (if any).