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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT  
INTERNATIONAL DEVELOPMENT ASSOCIATION

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APPRAISAL OF THE TELECOMMUNICATIONS EXPANSION PROGRAM  
OF THE  
PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)  
INDONESIA

June 1, 1970

Public Utilities Projects Department

CURRENCY EQUIVALENTS

1969

US\$1 = Rupiah (Rp) 326  
Rupiah 1 = US\$0.003  
Rupiah 1,000,000 = US\$3,067

1970

US\$1 = Rupiah (Rp) 378  
Rupiah 1 = US\$0.003  
Rupiah 1,000,000 = US\$2,645

(See footnote 1 page 19)

FISCAL YEAR - PERUMTEL

January 1 to December 31

INDONESIA  
APPRAISAL OF THE TELECOMMUNICATIONS EXPANSION PROGRAM  
OF THE  
PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

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This report is based on the findings of an appraisal mission to Indonesia in November/December 1969 which was composed of Messrs. C. R. Dickenson, M. DeLima, and J. M. Vance of the Bank.

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## LIST OF ABBREVIATIONS AND TITLES USED IN THE REPORT

Bappenas	- The Indonesian Government organization responsible for planning matters
DEL	- Direct exchange line
EL	- Extension line
HF	- High frequency (radio) - up to 30 mc
IGGI	- Inter-Governmental Group for Indonesia
ITU	- International Telecommunication Union
LU	- Line unit
Perum	- State owned corporation
PERUMTEL	- Perusahaan Umum Telekomunikasi - the State owned corporation responsible for telecommunications
STD	- Subscriber trunk dialing (long distance dialing)
Telex	- Telegraph exchange service for subscribers
UHF	- Ultra high frequency (radio) - 300-3,000 mc
UNDP	- United Nations Development Program
VF	- Voice frequency - Tone signals used for telegraph or telephone signals
VHF	- Very high frequency (radio) - 30-300 mc

## GLOSSARY OF TECHNICAL TERMS USED IN THE REPORT

Carrier telephony	- A system of providing a number of circuits over one radio link, coaxial cable or pair of wires
Central battery exchange	- A manual telephone exchange making use of a central battery for signaling and speaking purposes
Crossbar	- An automatic telephone exchange switching system utilizing a connecting matrix of the crossbar type with common control registers
Distribution cabinets & pillars	- Access points for redistribution of cable pairs
Flexibility	- A system of rearranging cable pair distribution without costly jointing operations
Inter-office cable	- Cables connecting telephone exchanges which together form one multi-office network
Local battery	- A manual exchange making use of separate batteries at each subscriber's premises for speaking purposes
Microwave	- A system of communications using frequencies over 300 mc and working on a line of sight propagation basis
Multiplexing	- Part of the equipment in a carrier system - see above - which shifts and stacks the different circuits in the frequency spectrum appropriate to the particular carrier system
Telephone stations	- Locations where telephone instruments on direct exchange lines or extensions are fitted
Tropospheric scatter	- A system of radio communication at very high frequency or microwave frequencies capable of operating over distances beyond the line of sight by making use of the dispersion of radio waves in the troposphere. Such systems are not subject to interference and distortion common on HF radio links where ionospheric reflection is involved.

## INDONESIA

### PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

#### SUMMARY AND CONCLUSIONS

i. This report appraises a three-year project (1970-1972) forming part of Perusahaan Umum Telekomunikasi's (PERUMTEL) on-going five-year program (1969-1973). This would be the Bank Group's first telecommunications lending operation in Indonesia.

ii. The Borrower would be the Government of Indonesia which would make the funds available to PERUMTEL, a State owned corporation operating the telephone services in Indonesia. The proposed IDA Credit would be relent to PERUMTEL at 12% interest per annum for a period of twenty years including a grace period of four years.

iii. PERUMTEL faces a number of problems caused by the long period of neglect of telecommunications development in Indonesia. These include an inadequate long distance network, the high cost of operating subscribers' lines (over 50% are still manually operated) and the difficulty of maintaining equipment which is obsolescent or already at the end of its life. The Five-Year Development Program of PERUMTEL provides mainly for an increase of about 65,000 telephone stations; improving long distance communications by extending the existing Djakarta-Bandung microwave link to Semarang, Jogjakarta and Surabaya in Java, and on to Bali; constructing a microwave link through Sumatra connecting all the important places and linking into Java; providing a tropo-scatter link between Java and Kalimantan; installing automatic trunk switching centers to provide subscriber dialing of calls; extending the telex network; and constructing buildings for offices and training centers. While the program cannot remove all the present shortcomings, it has picked out the important items which would resolve some of the major ones. The cost of the program is estimated to be Rp 30.2 billion (US\$81.5 million).

iv. The project for IDA financing is a self-contained part of the program and has been selected on account of its high priority. It is estimated to cost Rp 8.6 billion (US\$22.6 million) including a foreign exchange component of Rp 5.3 billion (US\$14.1 million), of which the Association would provide Rp 4.8 billion (US\$12.8 million). The balance of the foreign exchange i.e. Rp 0.5 billion (US\$1.3 million) will be provided under bilateral aid. The funds required to meet local expenditures will be provided from PERUMTEL's cash generation and funds of the Government of Indonesia. The project provides for (a) a trans-Sumatra microwave system linking into Java; (b) a tropospheric scatter system between Java and Kalimantan; (c) telex extensions; (d) cables for telephone distribution networks; and, (e) Subscriber Trunk Dialing (STD) switching, terminal and operator dialing equipment.

v. The project will provide a reasonable network to handle the long distance traffic on a satisfactory basis. An Australian mission has drawn

up details of the project. The Government of Indonesia has requested the Australian Government for the continuance of this mission for three years more to help in the implementation of the project and the response is favorable. With this assistance, PERUMTEL will be able to carry out the works on the project.

vi. The incremental rate of return on the project is calculated to be 16.8%. All items under the credit would be procured by international competitive bidding.

vii. PERUMTEL is seriously deficient in effective management and controls; an effective accounting system is lacking, and there is a shortage of trained accounting staff. Staff morale is low and a general state of disorganization exists--all stemming from the abnormal conditions which have existed in Indonesia since World War II.

viii. In the past PERUMTEL has little more than covered its cash operating expenses due mainly to poor collections from Government. With the Government assuring the payment of its bills promptly in the future and establishing a suitable tariff structure, the tentative forecasts show that PERUMTEL can become a financially viable enterprise.

ix. To remedy the above deficiencies, the Government has set up a Perum (State owned corporation) to run the telecommunications services on commercial lines and has agreed to retain management consultants--to be financed under the proposed credit--to examine PERUMTEL's organization and operation and to recommend introducing the necessary changes. In addition, three experts in the fields of organization, finance and operation would be recruited for a period of three years by the Government and financed under the Colombo Plan. These experts will help the administration to make some immediate improvements, to furnish data to the consultants, and, thereafter, to implement the recommendations.

x. During negotiations, agreement was reached on the points listed under Chapter 7. The project would be suitable for a credit of US\$12.8 million to be repaid over 50 years including a grace period of 10 years, which would be relented to PERUMTEL on terms indicated at (ii).

## INDONESIA

### PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

#### 1. INTRODUCTION

1.01 The Government of Indonesia on September 15, 1969, requested that the Association help finance a telecommunications development program for extending and improving the existing telecommunications facilities. This would be the Bank Group's first telecommunications lending operation in Indonesia.

1.02 Perusahaan Umum Telekomunikasi (PERUMTEL) has drawn up a Five-Year Development Program (1969-1973) to provide mainly for an increase of about 65,000 telephones from 197,000 telephones now in use, extension of the long distance network by installation of microwave links in Java and Sumatra, extension of the telex network and construction of operating, administrative and training center buildings, at a cost of Rp 30.2 billion (US\$81.5 million) including a foreign exchange expenditure of US\$49.4 million. The proposed project to be undertaken during fiscal years 1970 to 1972 forms part of the above program and is estimated to cost Rp 8.6 billion (US\$22.6 million), including a foreign exchange expenditure of Rp 5.3 billion (US\$14.1 million). The proposed credit would provide for Rp 4.8 billion (US\$12.8 million) of the foreign exchange requirement. The balance of the foreign exchange i.e. Rp 0.5 billion (US\$1.3 million) will be provided under bilateral aid. The local expenditures will be met from PERUMTEL's own resources and funds of the Government of Indonesia.

1.03 The project covers the provision of (i) a trans-Sumatra microwave system linking into Java (ii) a tropospheric scatter system between Surabaya in East Java and Bandjarmasin in Kalimantan, (iii) extensions to the telex network, (iv) cables to meet part of the immediate requirements for extension of the telephone distribution networks, and (v) Subscriber Trunk Dialing (STD) switching, terminal and operator dialing equipment.

1.04 The Government of Indonesia would be the Borrower. The Government would make the funds available to PERUMTEL, a State owned corporation charged with providing and operating the domestic and international telecommunications services in Indonesia as a loan. The funds would be lent to PERUMTEL at 12% interest per annum for a period of twenty years including a grace period of four years.

1.05 This report is based on information furnished by PERUMTEL and on the findings of a mission that visited Indonesia in November/December 1969 to appraise the telecommunications development program and the operations of PERUMTEL. The mission was comprised of Messrs. C. R. Dickenson, M. DeLima, and J. M. Vance of the Bank.

## 2. TELECOMMUNICATIONS SECTOR

### General

2.01 Indonesia, situated between the Pacific and Indian Oceans, is an archipelago nation of more than 6,000 named islands (960 inhabited) extending for some 4,800 km from the northern tip of Sumatra to West Irian. The total area of the country is 1,900,000 km<sup>2</sup>. Its population totals some 115 million, with 85% of the people concentrated on Sumatra and Java. Java, with 76 million people, is one of the most densely populated areas in the world. Sumatra has 19 million people. The other inhabited islands are sparsely populated.

2.02 Development of surface transportation in Indonesia's long chain of islands has been difficult and costly, due to the many sea crossings and the mountainous, sometimes swampy terrain. Many parts of the country are inaccessible even by air. Transportation of goods and people is difficult, and therefore telecommunications become particularly valuable in maintaining coordination between business centers and markets.

2.03 Indonesia's gross domestic product is estimated to be US\$9.2 billion, with a per capita income of US\$80. The economy of the country is largely based on agriculture, oil production, rubber and mining. The major export items are petroleum and by-products (US\$272 million), rubber (US\$221 million), agricultural products (US\$150 million), minerals (US\$42 million), and forest produce and lumber (US\$6 million).

2.04 The island of Sumatra is rich in forest produce, rubber, petroleum and minerals, and contributes 60% of Indonesia's total exports. Kalimantan exports oil, mineral and forest produce and has a vast potential for development. Djakarta in Java is the administrative and business center of Indonesia. The development of long distance communications within Sumatra, from Sumatra to Java, and from Kalimantan to Java, is of great importance to the economy of the country and is of high priority.

2.05 Indonesia has faced many problems in attempting to provide adequate telecommunications service. Telecommunications development came to a standstill during World War II. Further setbacks were experienced during the independence movement and subsequent political changes, resulting in an obsolete and ill-maintained network and a disorganized staff. Except for a small amount of development between 1961 and 1965, very little expansion and rehabilitation has taken place. The present development program is designed to provide, within the resources available and on a priority basis, the required expansion and rehabilitation of the network.

Operating Entity

Management and Organization

2.06 Telecommunications were run under the Dutch as a public service under the "Telegraph and Telephone Regulations" issued in 1876. After the transfer of sovereignty to the Republic of Indonesia in 1949, these regulations were continued in force up to 1960. In that year the enactment of Government Law No. 19 changed the status of the organization to "Perusahaan Negara Postal", i.e. State Enterprise for Posts and Telecommunications. By decree in 1965 the organizations for Posts and Telecommunications were separated and a new state enterprise, "Perusahaan Negara Telekomunikasi", was created to take over telecommunications. In April 1970 this enterprise was continued as PERUSAHAAN UNUM TELEKOMUNIKASI (PERUMTEL) a State owned corporation.

2.07 PERUMTEL is entrusted by law to operate all domestic and some international telecommunications services in Indonesia. It is responsible for operating agreements for establishing circuits, division of revenues, etc., with foreign administrations on a bilateral or multilateral basis. It also proposes tariffs for various telecommunications services and applies them after obtaining ministerial and parliamentary consent.

2.08 There are at present separate communications systems for military, civil aviation and maritime use. Further, as PERUMTEL are unable to meet all public needs, licenses are granted annually to private parties by the Ministry of Communications, for the operation of point-to-point HF radio communication.

2.09 In June 1967, the Indonesian Government negotiated with the ITT Corporation to provide international telecommunications. A company has been set up to install and operate a satellite earth station, This company will take over an increasing proportion of international communications as HF radio circuits are replaced by satellite circuits. Salient points in the agreement between the two parties are set out in Annex 1.

2.10 The organization chart for PERUMTEL is set out in Annex 2. Telecommunications are administered by a board of management, which has five members. The chairman serves as the First Director and is the chief executive of PERUMTEL; the other four are responsible for administration and personnel, finance, planning and operations, and supply. The chiefs of the divisions within the four departments assist the directors in running their respective departments. Above the Board, there is a Director General who, working under the Minister of Communications, lays down general policies to be followed by the Board and to be implemented through the First Director.

2.11 The field organization chart is at Annex 3. There are 12 telecommunications districts, each headed by a Regional Director who serves as the district's chief executive and is responsible for the operation and

maintenance of all assets except major construction, planning and programming of telecommunications which is carried out by the Board. Each Regional Director is allocated a budget and has full powers to operate within it.

2.12 Even though many among the engineering staff have the necessary knowledge and training, the operations of PERUMTEL are unsatisfactory due to lack of organization, direction and low staff morale. Commercial, traffic and operating records are not maintained. Planning, programming and administration are carried out with inadequate support data. There is no regular accounting system and PERUMTEL's financial organization and operation are in a state of confusion. The general state of disorganization contributes to serious deficiencies in effective management control and financial discipline.

#### Staff

2.13 The total number of employees in telecommunications is 21,365 (details of breakdown by grade, pay scales, service conditions, etc., are at Annex 4). With a total of 189,600 working telephones excluding a telegraph staff of 5,000, the employed ratio works out to 86 per 1,000 telephones, which is high compared to other developing countries. Government has now agreed not to increase until 1974 the total number of its employees without prior consultation with the Association. This measure would bring down the ratio to 60 per 1,000 telephones by 1974--a more reasonable figure considering the large number of manual exchanges that still will be functioning.

2.14 The pay scales of the staff are low and inadequate in relation to the cost of living. Many PERUMTEL staff, unable to subsist on their very low salaries, take on additional employment outside the organization. The consultants would recommend a suitable wage structure and service conditions (see para 2.17).

#### Training

2.15 In 1960 agreement was reached with UNDP for the establishment of a central telecommunications training center located at Bandung which would give senior and other technicians advanced training. Due to delays in buildings, the three year project, was only begun in 1968 (UNDP's executing agency is the International Telecommunication Union). It also aims to establish 12 regional telecommunication schools. The facilities to be set up under the project should prove adequate for meeting PERUMTEL's training requirements for its development program. Additional information on capacity of the schools, courses to be provided and likely outputs are contained in Annex 4.

2.16 In respect of staff in the financial branch, no training courses have been set up even though these staff are recruited without special entrance qualifications. Government has agreed to make suitable arrangements satisfactory to the Association for the training of PERUMTEL's technical and financial staff.

#### Organizational Changes and Assistance

2.17 PERUMTEL has been set up by an executive order in April 1970 as a State owned corporation (PERUM) (see para. 2.06) to manage and operate telecommunication services. The constitution of a PERUM is contained in Presidential Decree No. 17 of 1967 as reproduced in Annex 5. In order to reorganize PERUMTEL now to function efficiently along commercial lines, as required for a PERUM, the Government has agreed to the appointment of management consultants to examine the present organization and to make recommendations to place PERUMTEL on a sound commercial basis with terms of reference (Annex 6) and to a timetable satisfactory to the Association. The cost of consultants would be covered by the proposed IDA credit. The retention of management consultants is a condition of effectiveness of the credit. The Government has applied for three experts to be obtained under the Colombo Plan for a three-year period to assist the consultants, implement the recommendations as finalized from time to time and continue to advise and assist PERUMTEL in a number of other matters. If these experts cannot be obtained, the terms of reference of the consultants would be extended accordingly. The job descriptions of the experts are at Annexes 7, 8, and 9.

2.18 To help coordinate work on the project, the Government has requested the Australian Government to extend by another three years the period of service of the present technical mission, which has assisted PERUMTEL in preparing the Five-Year Development Program and in the detailed planning of the long distance network.

#### Finances - General

2.19 PERUMTEL's overall financial organization and operation are in a state of confusion stemming from the abnormal political and economic conditions in Indonesia since World War II, including rampant inflation. An accounting system is almost totally lacking. The only financial statements PERUMTEL has been able to prepare are preliminary, rudimentary in form and out of date; they consist mainly of cash receipts and payments for the fiscal years 1967 and 1968, which are constantly being adjusted as new data come to light. The value of assets is not known, nor has a balance sheet been prepared. Depreciation charges have been allowed only to the extent of 10% of cash operating expenses. This is unrealistic in that it is in no way related to the value and life history of the plant and is also well below the level of provision which should be made. PERUMTEL has not made provision for pension costs and liability.

2.20 A basic difficulty is that the PERUMTEL operation, which includes some 100 telephone offices located throughout Indonesia, suffers from a lack of timely information flow from the field to headquarters. The limited financial information produced in the field offices is received in headquarters anywhere from 6 to 8 months late; in some cases it is not sent at all.

2.21 The present financial organization is almost totally lacking in staff trained in accounting principles. The chief financial officer has dealt with financial matters to any significant degree only since 1967 when he joined PERUMTEL from the postal operation.

2.22 The consultants and Colombo Plan experts referred to in para. 2.17 will help correct many of these deficiencies. The consultants will examine PERUMTEL's entire financial organization and operation, and then recommend and, with assistance from the experts, initiate necessary changes that should include a modern accounting system to function as an effective tool of management. The Colombo Plan experts will also help establish and supervise on-the-job training programs.

#### Audit

2.23 The law stipulates that every year PERUMTEL will furnish the Minister and the General Auditing Board an annual account consisting of a balance sheet and an operating statement "according to procedures and time to be fixed by the Minister," and that if no written objections are made by the Minister within two months after receipt of the accounting report, the annual account becomes final and legal.

2.24 In practice, however, the only data submitted thus far have been inadequate statements of cash receipts and payments for the 1967 and 1968 fiscal years. In the present state of PERUMTEL's accounts, an audit would not be possible; therefore, the Association's customary requirement of audited accounts before presentation to the Board will have to be waived until the consultants have had time to value the fixed assets and establish a modern accounting system (see para. 2.17). Although all the consultants' recommendations may not be implemented by 1972, allowing a full fiscal year for establishing an accounting system, independent auditors, satisfactory to the Association, should commence their work beginning with the accounts of 1972. In the interim, the auditing function will be performed--even if partially--by the financial officer/adviser (see Annex 7) obtained by PERUMTEL under the Colombo Plan. During negotiations assurances were obtained that independent auditors, satisfactory to the Association, will be retained to conduct an annual audit beginning with the accounts ending December 31, 1972, and that the audited statements with the auditor's report will be sent to the Association no later than four months after the close of each fiscal year.

#### Present Financial Position

2.25 Although PERUMTEL's accounts as prepared do not provide a basis for a meaningful analysis, the following data were established as a basis for making forecasts.

2.26 The present revenue position was verified and serves as the basis for the revenue forecast. Operating expenses were estimated from data obtained from various sources and by using reasonable assumptions. Estimates of plant value as of December 31, 1968, are based on its known age, type, and the observed condition of a representative cross-section. Detailed notes and assumptions used in constructing these notional figures form part of Annexes 11 and 12. Estimates based on the assumptions are considered to be sufficiently reliable to form a basis for analyzing PERUMTEL's operations.

2.27 In order to give a picture of the financial operations, this report includes a pro forma commercial presentation of the past two years and tentative four-year forecasts of financial operations and position of PERUMTEL, including balance sheets, profit and loss statements and cash flow statements (Annexes 11, 12, and 13, respectively). Following is a summary of the pro forma balance sheet as of December 31, 1969:

	<u>Rp Billion</u>	<u>US\$ Million</u>
<u>Assets</u>		
<u>Fixed assets</u>		
Plant in service	19.2	59.0
Less: depreciation reserve	(8.2)	(25.2)
Plant under construction	1.2	3.7
<u>Total net fixed assets</u>	<u>12.2</u>	<u>37.5</u>
<u>Current assets</u>		
Accounts receivable	3.5	10.7
Other	1.6	4.9
Less: current liabilities	(2.1)	(6.4)
<u>Total assets</u>	<u>15.2</u>	<u>46.7</u>
<u>Liabilities</u>		
Equity	12.2	37.5
Long-term debt	3.0	9.2
<u>Total liabilities</u>	<u>15.2</u>	<u>46.7</u>

2.28 The valuation of plant in service and the depreciation reserve are necessarily tentative and will have to be reviewed by the consultants and formally established. Plant under construction for 1969 is assumed to be 40% of the sum of the 1969 construction program plus plant under construction of the previous year. Net current assets are estimated at Rp 3.0 billion. With the introduction of commercial accounting concepts, the value of plant would become significant and serve as a basis for establishing depreciation rates, tariffs and a rate base, and therefore, should be adjusted to allow for variations in the price level. During negotiations assurances were obtained that PERUMTEL will properly value its plant at least annually in a manner satisfactory to the Association.

2.29 Equity, which accounts for about 80% of total capitalization, is assumed to consist of (a) retained earnings which is the amount of annual profit available for transfer to retained earnings, (b) subscribers' capital contributions, made up of installation charges (footnote 1 to page 1 of Annex 12), and (c) Government investment.

2.30 In the past, Government has financed most of PERUMTEL's construction which has consisted mostly of minor items, and has serviced any foreign credits or loans. For this presentation, however, it is assumed that for the notional accounts for 1968 and 1969, PERUMTEL is responsible for debt from project aid loans incurred on its behalf, and services it on terms similar to present Bank loans, i.e., 7% p.a., a term of 20 years, including a four-year grace period. The notional long-term debt in 1969 of Rp 3 billion (US\$9.2 million) represented 20% of total capitalization and consisted of project aid loans to the Indonesian Government from Australia, Japan, the Netherlands and West Germany and made available to PERUMTEL. The low amount of debt reflects a situation where little debt capital has been obtainable.

2.31 The high level of accounts receivable presents a serious problem; it stems mainly from the fact that the Government, which accounts for some 30% of the total subscribers, rarely pays its bills. PERUMTEL estimates that overdue Government receivables as of June 30, 1969, are between Rp 1.5 billion and Rp 2.0 billion (US\$4.5-6.0 million), amounting to some 30-35% of estimated total billings for the previous 12 months. Corrective action by Government in this respect would have to be taken if PERUMTEL is to become a viable operation and the project is not to be jeopardized. During negotiations assurances were obtained that Government will (a) pay its accounts with PERUMTEL promptly and (b) make arrangements satisfactory to the Association not later than one year after the date of the Development Credit agreement for the settlement of all debt of the Government to PERUMTEL as of June 30, 1970. For the purposes of the financial forecasts in this report, allowing for the least favorable action for PERUMTEL, it has been assumed that past Government overdue accounts will be written off in settlement as a charge against the Government's equity in PERUMTEL.

#### Past Earnings

2.32 Estimated pro forma statements of income for fiscal years 1968 and 1969 are shown in Annex 12. Revenues increased about 27% in 1969 over the previous year, reflecting the full effect of a tariff increase in 1968, while operating expenses increased about 21%, due mainly to increased staff expenses. The high rates of return of 12.8% in 1968 and 17.0% in 1969, along with favorable operating ratios of 76% and 73% are due to the low value of plant (rate base--little plant has been added over the last 20 years) and low wage level. In 1970, the rate of return is estimated to drop to 8.7% and the operating ratio to rise to 84% as a result of assumed higher staff expenses and the expansion program. These rates of return are based on the estimated value of net plant in service, and, until the consultants make a detailed examination of the fixed assets, they must be considered as tentative.

2.33 Due to poor collections from Government, the cash available to PERUMTEL from 1968 and 1969 operations has little more than covered its cash operating expenses; consequently, PERUMTEL has been able to finance only a very small part of its construction works.

#### Tariffs

2.34 Under the constitution of a Perum, Government has the right to set tariff policy. Subject to this, proposals for tariff changes are formulated and implemented within PERUMTEL. At present Government has not established a specific tariff policy.

2.35 Existing charges for service (Annex 10), have not been set in a systematic manner, resulting in an unbalanced rate structure. For example, installation charges in certain areas are US\$345 equivalent, while rental charges are US\$74 per month. The present rate structure and level of tariffs require revision in order to allow PERUMTEL to meet its revenue requirements under a commercial-type operation, and especially in a situation where wages are urgently required to be raised.

2.36 It will be necessary for the consultants to value the fixed assets and examine the structure and level of tariffs. Once the value of fixed assets is established and a rate base determined, tariffs should be adjusted and maintained at a level to assure the future viability of the enterprise, taking into account any future price level changes affecting the value of plant (para. 2.28). Assurances were obtained during negotiations that new tariffs would become effective within six months after the Association's comments on the recommendations of the consultants. While tariff changes should await the consultants' study, there is one aspect that requires correction now. At present there is a high charge differential between manual long distance and STD services resulting in high demand for manual service; this is undesirable and costly in operation. Therefore, wherever STD service is available, the rates for manual and for STD service should be equal--at about the present "urgent" rate. The introduction of this interim measure is a condition of effectiveness. Assurances were also obtained that, other than the foregoing change, no alteration in existing tariffs will be made without the Association's approval, until the consultants have examined the tariffs and made recommendations.

2.37 Tariff increases are assumed in the financial forecasts beginning in the latter part of 1971 and are estimated to increase revenues about 35% over the three-year period 1971-73, which is reasonable in view of PERUMTEL's present tariff level. A rate of return of 10% by 1973, when the revenue from the project would begin to take full effect, would seem to be a reasonable objective for PERUMTEL; it would allow the entity to finance about 40% of its expansion from internal sources. During negotiations it was agreed that PERUMTEL would maintain its tariffs at a level to cover all costs of operations, taxes, debt service, and to finance a reasonable portion of capital expenditure; and after 1972, to produce a minimum rate of return of 10% on average net fixed assets in operation. The valuation of fixed assets is covered by the agreement described in para. 2.28.

### 3. EXISTING TELECOMMUNICATIONS FACILITIES

3.01 The telephone density in Indonesia is 0.15 telephones per 100 persons, and is one of the lowest in that part of the world. Annex 14 sets out the telephone density in Indonesia and some of the adjoining countries. The telecommunication facilities in general are also inadequate. The basic data for the network are set out at Annex 15.

#### Local Telephone Service

3.02 At the end of 1968, the total number of local exchanges functioning in the country was 524 and the number of connected subscribers, 134,429, comprising 23 automatic exchanges with 63,211 connected subscribers, 37 central battery exchanges with 28,051 connected subscribers, and 464 local battery exchanges with 43,167 connected subscribers. Annex 16 shows the breakdown for the various islands. The growth of connected subscribers in the 1963-1968 period (see Note 1 in Annex 17) works out to 9% per annum.

3.03 Only 5% of the telephone exchanges now in operation were installed during the last 10 years. Many exchanges are over 20 years old. About 90% of these comprise local battery exchanges. These have serious limitations in operation and are being replaced in all modern telecommunications networks by more efficient switching systems. The general standard of service is poor and will continue to be so till they are gradually replaced during this and future programs.

3.04 In the largest networks, an underground cable distribution system (presently consisting mostly of armored cable buried directly in the ground) has been adopted, while in the smaller networks and in the rural areas, a mixture of underground and aerial cable (in some cases, wholly open wire) distribution is being used. Flexibility in the cable networks of the large areas is provided through outdoor distribution cabinets and pillars. It is proposed to use duct lines instead of direct cable burial in the major cities. While this would increase the local costs initially, constant and costly digging and reinstatement of roads would be avoided in the long run.

#### Long Distance Service

3.05 Long distance service between Djakarta and Bandung is provided on a microwave system. Between Djakarta and Tandjungkarang, a 12-channel very high frequency (VHF) radio system has been installed. Satisfactory service is provided on only these two links in the whole of Indonesia.

3.06 In the island of Java, long distance service is largely provided on open wire lines and through open wire carrier systems. In Sumatra there are only a few such links and a few isolated ones exist for short distances in one or two of the other islands. The long distance traffic in all these islands is handled on high frequency (HF) radio. Service

between the islands is provided on HF radio systems with a capacity of one or two channels even between large cities. The service also functions for part of the day only, between nearly all places.

3.07 Long distance traffic is handled manually, except between Djakarta and Bandung where STD facilities have been provided. Due to frequent failures and interruption during conversation, the handling of calls is slow and the equipment inefficiently utilized.

3.08 The congestion on long distance circuits is heavy with long delays to traffic due to total inadequacy of the links, and it is unreliable due to unstable open wire and HF radio communications. The quality of speech is unsatisfactory and the service is poor.

3.09 This state of affairs will continue until subscriber trunk dialing over microwave and tropospheric scatter links is introduced. A microwave link has been commissioned on the Djakarta-Bandung section and extensions of the system, first to Surabaya via Semarang and Jogjakarta, and on to Den Pasar in Bali are on hand. Work is expected to be completed in 1970. Details of the existing system, the extensions at present on hand, and proposed under the project, are indicated on the Map.

#### Telegraph Service

3.10 A network of telegraph lines and offices serves all of Indonesia. There are 458 circuits connecting 720 telegraph offices using 20,814 km of telegraph wire. PERUMTEL staff operate all of these offices. There are also 14 leased telegraph circuits.

3.11 Telex facilities are available through 17 exchanges equipped for a total of 680 lines. These exchanges have 406 subscribers.

#### International Facilities

3.12 The international exchange is located at Bandung and has eight switchboards. PERUMTEL has decided to shift this exchange to Djakarta, the major traffic center, during 1970.

3.13 Two high frequency (HF) radio telephone circuits operate to Hong Kong and Singapore and one each to Moscow, Poona, Karachi, Berne, Amsterdam, Manila, Oakland (US), Sydney, Kuala Lumpur and Shanghai.

3.14 International telegraph traffic is handled at Djakarta, Medan, Bandung and Sukarnapura. Direct communication is provided over HF radio and satellite from Indonesia to Kuala Lumpur, Moscow, Karachi, Amsterdam, Hong Kong, Manila, Sydney, Singapore, Shanghai and Bombay.

3.15 International telex service was introduced in 1965. The traffic has grown phenomenally from 532 calls (9,920 call-minutes duration) in 1965 to 28,358 calls (374,779 call-minutes duration) in 1968.

3.16 A satellite earth station has recently been commissioned at Djati Luhur, located between Bandung and Djakarta. Tokyo, London, Frankfurt, Madrid, Kuala Lumpur and Sydney have been linked thus far (three circuits to Tokyo, two each to London and Frankfurt and one each to Madrid, Kuala Lumpur and Sydney). The satellite earth station is maintained by a company set up by agreement between the Government and International Telephone and Telegraph Corporation (para. 2.09 and Annex 1).

#### 4. THE PROGRAM AND PROJECT

##### Program

4.01 PERUMTEL has, with the assistance of an Australian mission, drawn up a Five-Year Development Program for the period 1969-1973. The Government has approved the program, subject to budgetary provisions on an annual basis. The program mainly provides for:

- (a) an increase of about 65,000 telephone stations;
- (b) extending the microwave link from Djakarta-Bandung to Semarang, Jogjakarta, Surabaya and Den Pasar;
- (c) constructing a microwave link through Sumatra connecting with Java to provide trunk service to the towns en route;
- (d) constructing a tropospheric scatter link between Java and Kalimantan;
- (e) providing trunk switching equipment in Java, Sumatra and Bali;
- (f) extending the telex network; and
- (g) constructing buildings for offices and training centers.

The program, which is set out in Annex 18, calls for a total expenditure of Rp 30.2 billion (US\$81.5 million), including a foreign exchange component of Rp 18.4 billion (US\$49.4 million), and is designed to meet the most urgent requirements within the limited resources likely to be available. Since rehabilitation and conversion of old and obsolete manual exchanges to automatic working is urgent, the net growth of connected telephones during this period will be only 5.3% per annum, which is even lower than the historical rate of growth of 9% per annum. The long distance expansion similarly concentrates on the most essential and important routes. Under the circumstances, all funds made available to this sector should be used to complete works in the program. Government has agreed to consult with the Association before any major change is made in PERUMTEL's five year development program (1969-1973).

##### Project

4.02 The proposed project forms part of the 1969-1973 development program and will be undertaken during the three-year period from April 1, 1970 to March 31, 1973. The project provides for:

- (a) a trans-Sumatra microwave system linking into Java;
- (b) a tropospheric scatter system between Java and Kalimantan;
- (c) STD switching, terminal and operator dialing equipment;
- (d) interoffice and local distribution cables; and
- (e) additions and extensions to the telex network.

The selection of these items was done on the basis of their high priority and the self-contained nature of these investments within the program. Long distance communications are being extended and modernised in Java. Sumatra, the next important island and the source of large export earnings has practically no long distance communications. Kalimantan's rich natural resources are also being developed. The project will provide stable and quick telephone communication between these islands and within Sumatra. The provision of cables and telex extensions will extend and improve the local service and provide good service essential in business communication. The total cost of the project is Rp 8.6 billion (US\$22.6 million). The foreign exchange component is Rp 5.3 billion (US\$14.1 million), of which the Association would finance Rp 4.8 billion (US\$12.8 million) with the remainder coming from bilateral sources.

4.03 The plant provisions are described below:

(a) Trans-Sumatra microwave system linking with the Java microwave network. This is a major provision of 960-channel microwave equipment connecting the northwest tip of Java to the main city of Medan in northwest Sumatra, with spurs to Palembang, Djambi, Padang, Bukittinggi and Sibolga. This involves the provision of some 50 microwave stations, some of them at relatively inaccessible locations and requiring access roads that will be difficult to build. Provision for the necessary multiplexing equipment has been made for approximately 500 circuits. Also, it is proposed to use the telephone standby for television relay with a fail-safe condition, so that if the main radio channel should fail, the standby would be taken over for telephone purposes and television signal transmission would cease.

(b) Tropospheric scatter system linking Surabaya in East Java with Bandjarmasin in Kalimantan. The system will consist of two separate tropospheric scatter hops, with an intermediate station on one of the small islands in the Java Sea. The system would have a capacity of 60 channels and would meet foreseeable requirements for the developing area of Kalimantan.

(c) STD switching, terminal and operator dialing equipment for the island of Sumatra, linking with the existing long distance networks in Java and Bali.

Provision has been made in (a), (b) and (c) above for the acquisition of sites, construction of buildings to house the equipment, and purchase of equipment for training of technical staff.

(d) Interoffice and local distribution cables. Additional local distribution and interoffice cables will be provided to meet part of the outstanding requirements in Djakarta. These additions would permit the connection of 5,000 new subscribers and would ease some of the present congestion on the interoffice connections. The relatively high local

expenditure is due to the necessity to install conduits requiring extremely costly excavations and reinstallation in connection with the provisions for new cable. Under the existing circumstances, the alternative of continuing with directly buried armored cable would be uneconomic.

(e) Additions and extensions to the telex network. A new 100-line telex exchange for Medan is included in the project, along with teleprinters to meet immediate requirements for connecting telex subscribers to this and other exchanges forming the telex network.

Costs of the Project

4.04 The schedule below sets out the costs of the project:

	Rp Billion			US\$ Million			% of Total
	Local	Foreign	Total	Local	Foreign	Total	
1. Trans-Sumatra microwave system	2.17	3.21	5.38	5.74	8.50	14.24	62.9
2. Java-Kalimantan tropospheric scatter system	0.16	0.61	0.76	0.41	1.60	2.01	8.9
3. STD switching, terminal and operator dialing equipment for Sumatra	0.21	0.45	0.66	0.56	1.20	1.76	7.7
4. Interoffice and local distribu- tion cables	0.43	0.27	0.69	1.11	0.70	1.81	8.0
5. Additions and extensions to the telex network	0.23	0.19	0.44	0.64	0.50	1.14	5.0
6. Consultants	0.03	0.30	0.33	0.08	0.80	0.88	4.0
7. Contingencies	-	0.30	0.30	-	0.80	0.80	3.5
Total cost	<u>3.23</u>	<u>5.33</u>	<u>8.56</u>	<u>8.54</u>	<u>14.10</u>	<u>22.64</u>	<u>100.0</u>

4.05 Provision has been made in the project for the employment of management consultants to advise, and help in organizing PERUMTEL to run the telecommunications services on commercial lines. An allowance of 7 1/2% has been included under foreign exchange expenditure for contingencies. The total expenditures contain a built in element of 8% for possible contingencies.

4.06 No provision for customs duties on imported equipment has been made as Government has decided to waive customs duties on all equipment received on aid projects.

4.07 The project has been well designed, is technically sound and will be progressively completed between 1971 and 1973. Details of the project provisions indicating the target dates of completion of the various items to enable orderly commissioning of equipment are set out in Annex 19.

4.08 The Government has requested the Australian Government to extend the period of service of the present technical mission by three years to coordinate all works on the project and the response has been favorable. With the assistance of the technical mission and that to be provided by the contractors and equipment installers, PERUMTEL should be capable of carrying out the project satisfactorily and operating the new facilities when they are completed.

#### Procurement and Disbursement

4.09 All items purchased under the credit (items 1, 2, 4 and 5 of para 4.04) would be subject to international competitive bidding in accordance with the established procedure of the Bank group. The STD switching equipment for Java and Bali is being obtained under bilateral aid and PERUMTEL wants to ensure that Sumatra STD equipment is of the same type as Java and Bali. PERUMTEL propose therefore to obtain the STD switching, terminal, and operator dialing equipment for the project (item 3 of para. 4.04) under bilateral aid. Government has assured the Association that it will make arrangements satisfactory to the Association to obtain the necessary foreign exchange financing for this expenditure. This is a condition of effectiveness of the credit. The survey and engineering of the Java-Kalimantan tropospheric scatter system are being done under a bilateral agreement for which the foreign exchange expenditure of Rp 0.04 billion (US\$0.10 million) has already been arranged.

4.10 In Annex 20 are set out the expected annual rate of expenditure and disbursement for the credit, project and program. The disbursements under the credit would be for the CIF cost of the equipment, the foreign exchange costs of the consultants, manufacturers' services, and the overseas cost of training. If there are any overall savings in expenditure in the items proposed for Association financing, these should be used to finance additional items in the program which are of the same type as those included in the original project subject to the agreement of the Association at the time.

## 5. JUSTIFICATION OF THE PROJECT

5.01 Indonesia has all the features which demand the availability of a good telecommunications system. Indonesia depends for its well-being on exports of produce from its various islands. The commercial, economic and administrative activities are situated in Java. Djakarta is the headquarters of the Government and is the main link between Indonesia and the rest of the world. Because of the geographical features, movement of goods from the interior to the ports needs close coordination between all forms of transportation. Further, it is necessary for the principal dealers and exporters in Java to be in close and constant touch with the producers in the various areas of Indonesia. To establish easy and quick contacts between producers, traders, transporters and exporters, a good telecommunications system is essential and will produce major benefits to the economy.

5.02 The inadequacy of the present long distance facilities is discussed in paras. 3.06 and 3.08, and can be summed up by saying that the existing network has neither the capacity, spread, reliability nor transmission quality to meet the demands required of it. Due to this, some 48 public entities, departments and private companies (military communications excluded) have installed their own communication networks using in most cases point-to-point high frequency (HF) radio communications. These are costly to operate and not completely satisfactory, but these networks offer better facilities than PERUMTEL's public network.

5.03 A microwave system has been commissioned between Djakarta and Bandung and subscriber trunk dialing introduced on this section. The requirements of circuits along the long distance arteries in the project have been based on the experience in this section, suitably amended to take into account the community of interest in each case and the experience in other developing countries. The proposed microwave system in Sumatra and between Sumatra and Java and the tropospheric scatter system between Java and Kalimantan have been designed to meet these requirements at a minimum cost in capital and recurring expenditures. These systems will, in addition, provide a reliable and speedy long distance service of adequate quality.

5.04 There is acute congestion in the interoffice traffic in the Djakarta exchange system due to lack of adequate cable capacity. In addition, in Djakarta exchange equipment remains unutilized, despite large unfilled demands, due to lack of cables. The cables provided in the project will help remove the interoffice congestion in Djakarta and enable smooth flow of local and long distance traffic. These cables would also provide for 5,000 new subscribers to be connected in Djakarta.

5.05 Telex service is very useful in business communications and produces a high return on a relatively small investment. There is a heavy unfilled demand for this service. The installation of a teleprinter exchange

at Medan and teleprinters where required would enable 250 additional subscribers to be connected to the network to meet a part of the existing demand.

5.06 The calculation of an incremental financial return is appended as Annex 21. The benefits are established on the basis of the estimated direct revenues from (a) the long distance circuit provisions of the project; (b) the additional subscriber lines to be provided using cable covered by the project; (c) the extensions to be made to the telex network. The discount rate which equates the present value of the cost and attributable revenues over the life of the project, i.e. the incremental rate of return, is about 16.8% at current prices. Indirect returns, although hard to quantify, are considerable and will accrue to other parts of the economy. The incremental financial return may be accepted as a measure of the minimum economic return. This return is considered to be satisfactory, particularly since the calculations are based on conservative estimates.

## 6. FUTURE FINANCES

### Financing Plan

6.01 A forecast of sources and applications of funds for the four years 1970-1973 is shown in Annex 13. The basic assumptions used are: (a) those listed in the notes to Annex 12, in particular an upward adjustment in tariffs and staff remuneration; (b) the execution of the construction program as presently planned by PERUMTEL, and, (c) reasonably stable prices. The financing plan for the three years 1970-1972 covering the construction period of the proposed IDA project is summarized as follows:

	Period of IDA Project - 1970-1972		
	<u>Rp Million</u>	<u>US\$ Million</u> <sup>1/</sup>	<u>%</u>
<u>Requirements</u>			
IDA project	8,370 <sup>2/</sup>	22.1	38
Other construction	12,710	33.7	59
Total development program	21,080	55.8	97
Working capital increase	722	1.9	3
<u>Total requirements</u>	<u>21,802</u>	<u>57.7</u>	<u>100</u>
<u>Sources</u>			
Internal cash generation	8,285	21.9	38
Less: Debt service	2,775	7.3	13
Government tax	799	2.1	3
Net internal cash	4,711	12.5	22
Installation charges	2,038	5.4	9
Borrowings: Project aid loans	8,407	22.2	39
Government funds - IDA	4,646	12.3	21
- Other	2,000	5.3	9
Total borrowings	15,053	39.8	69
<u>Total sources</u>	<u>21,802</u>	<u>57.7</u>	<u>100</u>

1/ Effective April 17, 1970, the Government of Indonesia adopted an exchange reform under which the two former exchange rates--the BE (Bonus Export - Rp 326/US\$1) and the DP (Devisa Pelengkap or Complementary Foreign Exchange - between Rp 375 and Rp 382 to US\$1)--were merged into one at Rp 378 to US\$1. The exchange rate of Rp 378 has been used for all conversions subsequent to April 17, 1970.

2/ This does not include retention payments of Rp 192 million (US\$0.5 million).

Given the uncertain nature of the basic financial data, this financing plan should rather be considered as an illustration of the assumptions used, which would allow some further conclusions to be drawn. The contribution of 31% from internal sources is lower than in many other telecommunications projects, but seems acceptable in view of the large capital expansion. Borrowings would amount to 69%, and while substantially increasing the present low debt ratio, the capital structure would remain acceptable. The financing plan as shown is reasonable.

6.02 The total foreign exchange requirement during the three-year period of the project, other than that covered by the proposed IDA credit, amounts to US\$22.2 million and is assumed to be made available largely through bilateral assistance, presumably from IGGI members. It is further assumed that the average cost of capital to PERUMTEL would be 7%, and that loan capital will be repayable over 20 years including a four-year grace period. Should all the estimated foreign exchange funds not be available to PERUMTEL or the Government, the program will be reduced in consultation with the Association (see para. 4.01). During negotiations assurances were obtained that the availability of funds to carry out the program will be reviewed by PERUMTEL and IDA at least annually during the period of the project. PERUMTEL will be requested, as part of the normal reporting requirements, to inform the Association periodically during the period of the project about medium and long-term debts incurred, including terms and conditions. The maximum level of indebtedness is governed by a debt limitation covenant (see para. 6.11).

6.03 The remaining finances to be provided for the three-year period of the project are local funds amounting to Rp 2 billion (US\$5.3 million), which would be treated as debt on the same relending terms as the IDA credit. The unavailability of any of these funds would also affect the program, similarly as outlined in para. 6.02. The annual review of PERUMTEL's program, mentioned in para. 6.02, would also give an opportunity to review this situation. The completion of the project, for which the proposed IDA credit would provide the foreign exchange financing, has been assured through the commitment by the Government to make funds available, as required. This is justified by the fact that the project is of highest priority and self-contained.

6.04 During negotiations it was confirmed that the proposed IDA credit will be relent to PERUMTEL at an interest rate of 12% and a term of 20 years, including a grace period of four years. PERUMTEL would have to bear the exchange risk for the repayment of foreign currency loans. For the local currency loans, the Government also requires a maintenance of value by basing the rupiah repayment on the notional U.S. dollar equivalent of these loans.

### Future Operating Results

6.05 Forecast statements of earnings for the four-year period 1970-1973 are shown in Annex 12, using assumptions forming part of Annex 12 and others enumerated in para. 6.01. On the basis of these assumptions, together with the expansion and improvement of the long distance and local service facilities under the proposed construction program, the net operating income is forecast to increase from Rp 1.8 billion in 1969 to Rp 2.8 billion in 1973. Total operating revenues over the four-year period would show an average annual rate of growth of 22%, of which 12% is due to assumed tariff increases (see para. 2.37). Operating expenses, not including depreciation, would increase at an annual average of 26% and allow for higher staff wages and a staff pension plan.

6.06 These illustrative forecasts indicate that the rate of return on average net plant in service would be between 8% and 9% during 1970-1972 and then rise to about 10.5% in 1973, the first year following completion of the three-year project. The operating ratio is shown to decline slightly through 1973, partly as a result of the ban on further staff recruitment (see para. 2.13). This ratio is on the high side in relation to the rate of return, primarily because operating expenses are higher than normal as a result of overstaffing and lack of automatization.

6.07 The forecast operating results would be satisfactory in PERUMTEL's circumstances. At some future time, PERUMTEL should be in a position to begin paying a dividend to Government on its investment. The forecast indicates that in 1973 funds would be available for this purpose or for additional reinvestment in capital expansion. During negotiations assurances were obtained that until 1976 PERUMTEL will not make any distribution of its earnings or capital without prior consultation with the Association.

6.08 Government tax on profits is on a graduated scale beginning with 20% and increasing to 45% before profits reach Rp 6.5 million (US\$17,000 equivalent). The maximum rate of 45% would apply for the period of the forecast.

### Future Financial Position

6.09 Estimated balance sheets (Annex 11) as of December 31, 1969 through 1973, show that the value of net plant in service is expected to increase almost threefold. This unusually high increase is due to the estimated low value of net plant in 1969. The debt/equity ratio would rise from 20/80 in 1969 to 61/39 in 1973; equity would increase from Rp 12.2 billion to Rp 14.1 billion, with the Government investment portion decreasing from Rp 10.7 billion to Rp 8.6 billion as a result of charging Government investment with past Government overdue accounts (see para. 2.31). Considering the 45% profit tax paid to Government, the assumed dividend payment, and the fact that the proposed IDA credit and project aid loans are only channelled through Government, the actual net flow of funds from Government to PERUMTEL would amount to only some Rp 0.4 billion--less than 2% of PERUMTEL's total requirements over the four-year period 1970-1973.

6.10 Internal cash generation is estimated to increase from Rp 2.7 billion in 1969 to Rp 4.6 billion in 1973, covering debt service between 2.4 and 5.4 times during the forecast period. Later, when amortization payments would begin on IDA and other Government borrowings, debt service coverage would be at least two times. Internal cash generation, together with installation charges, less debt service, Government tax and dividends, would amount to 36% of total requirements for the four-year period. This is satisfactory considering (a) the substantial allowance made for increasing staff remuneration, (b) the entity's total net fixed assets would considerably more than double, and (c) revenue from the project would not begin to be fully realized until 1973.

6.11 Although PERUMTEL's long-term debt shown in the report is notional, it is assumed that as a Perum (see para. 2.17), PERUMTEL will be able to contract for long-term debt. Therefore, during negotiations, agreement was obtained that PERUMTEL will not incur long-term debt without the Association's approval unless historic 12 months' net revenues (before charging depreciation) would cover maximum future debt service at least 1.3 times.

RECOMMENDATIONS

7.01 During the loan negotiations, agreement was reached on the following principal points:

- 1) Management consultants and experts to reorganize PERUMTEL and technical experts to coordinate works on the project will be employed (paras. 2.17 and 2.18)
- 2) Independent auditors will be appointed to audit PERUMTEL's accounts beginning with fiscal year 1972 (para. 2.24)
- 3) Payment of Government accounts will be made promptly and arrangements made to settle the amount of Government accounts overdue as of June 30, 1970 within one year (para. 2.31)
- 4) New tariffs will be put into effect within six months of the Association's comments on the consultants recommendations and will be maintained at a level to produce a minimum rate of return of 10% on average net fixed assets in operation (paras. 2.36 and 2.37)

7.02 The following conditions have to be met before the credit is effective:

- 1) PERUMTEL shall have retained management consultants (para. 2.17)
- 2) Tariff measure referred to in para. 2.36 will have been put into effect
- 3) Additional financing for expenditure in currency, other than the currency of the Borrower, for STD switching, terminal and operator dialing facilities, will have been obtained or arranged in a manner satisfactory to the Association (para. 4.09)

7.03 The proposed project constitutes a suitable basis for an Association Credit of US\$12.8 million for a term of 50 years including a grace period of 10 years.

June 1, 1970

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

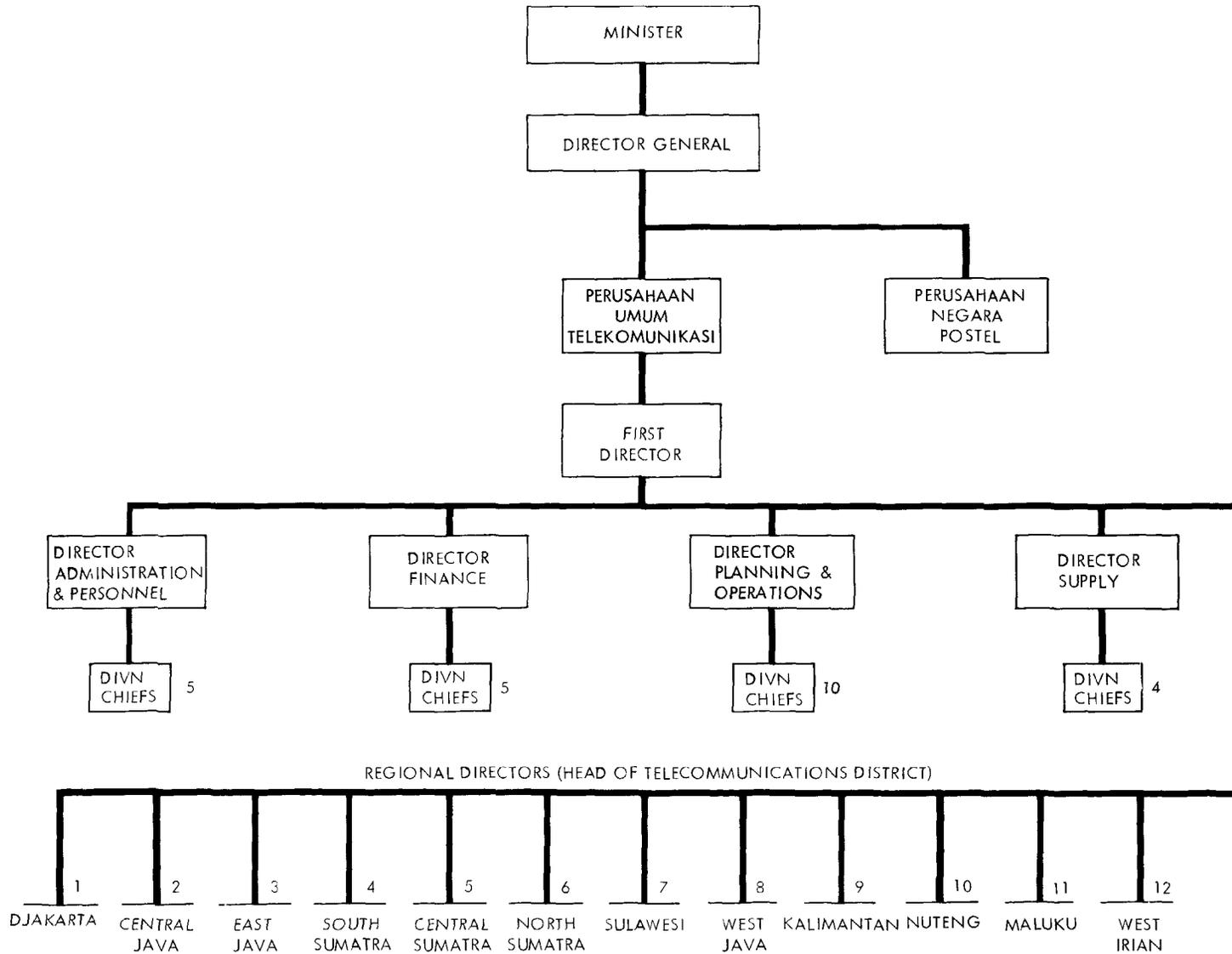
Salient Points in the Agreement between Republic of Indonesia and  
International Telephone and Telegraph Corporation (ITT)

- A. ITT has the right to establish, manage and operate satellite earth stations in Indonesia for the Government. The Company set up for the purpose will have a board of seven directors, three of whom will be appointed by the Government and four, including the managing director, by ITT.
- B. The Company will construct and install the satellite earth station, manage and operate it, and conduct international telephone services to, from, and via Indonesia.
- C. The ownership of the station will be vested in the Government of Indonesia who would lease it to the Company. The lease will be for a period of 20 years.
- D. The Company will make a lease payment to the Government for each fiscal year during which it has a net profit and which will amount to 50% of such profit, subject to any cumulative loss in previous years being first set off against the net profit and, further, the sum of this payment and the equal amount to be retained by the Company exceeds 8% of the value of ITT's average equity investment. For profits between 8% and 16%, the Company would reduce the lease payment to the Government so as to permit it to retain an amount equal to 8% of such average equity investment.
- E. The Government and/or PERUMTEL will provide at no charge (1) extension service to telephones from the station to Djakarta and Bandung metropolitan areas, (2) utilisation of existing or future PERUMTEL HF radio systems as backup to the satellite facilities, and (3) the necessary land for the station.
- F. If in the future it is found desirable to establish international cable facilities for telecommunications, Government and ITT would cooperate in the provision of such facilities while ensuring continued operation of the earth station on a sound financial basis.
- G. The rates to be charged by the Company will not be less than US\$4.00 per minute to Europe, Africa and America, and US\$3.00 per minute in Asia and South East Asia. Charges for international telephone service may be collected by the Company or the local telephone organization, and all such receipts will be deposited directly to the account of the Company. The preferred rate to be charged by the Company for all

voice grade channels leased by it to PERUMTEL for subdivision into record channels will be US\$40,000 per year, and all revenues derived from these channels can be retained by PERUMTEL.

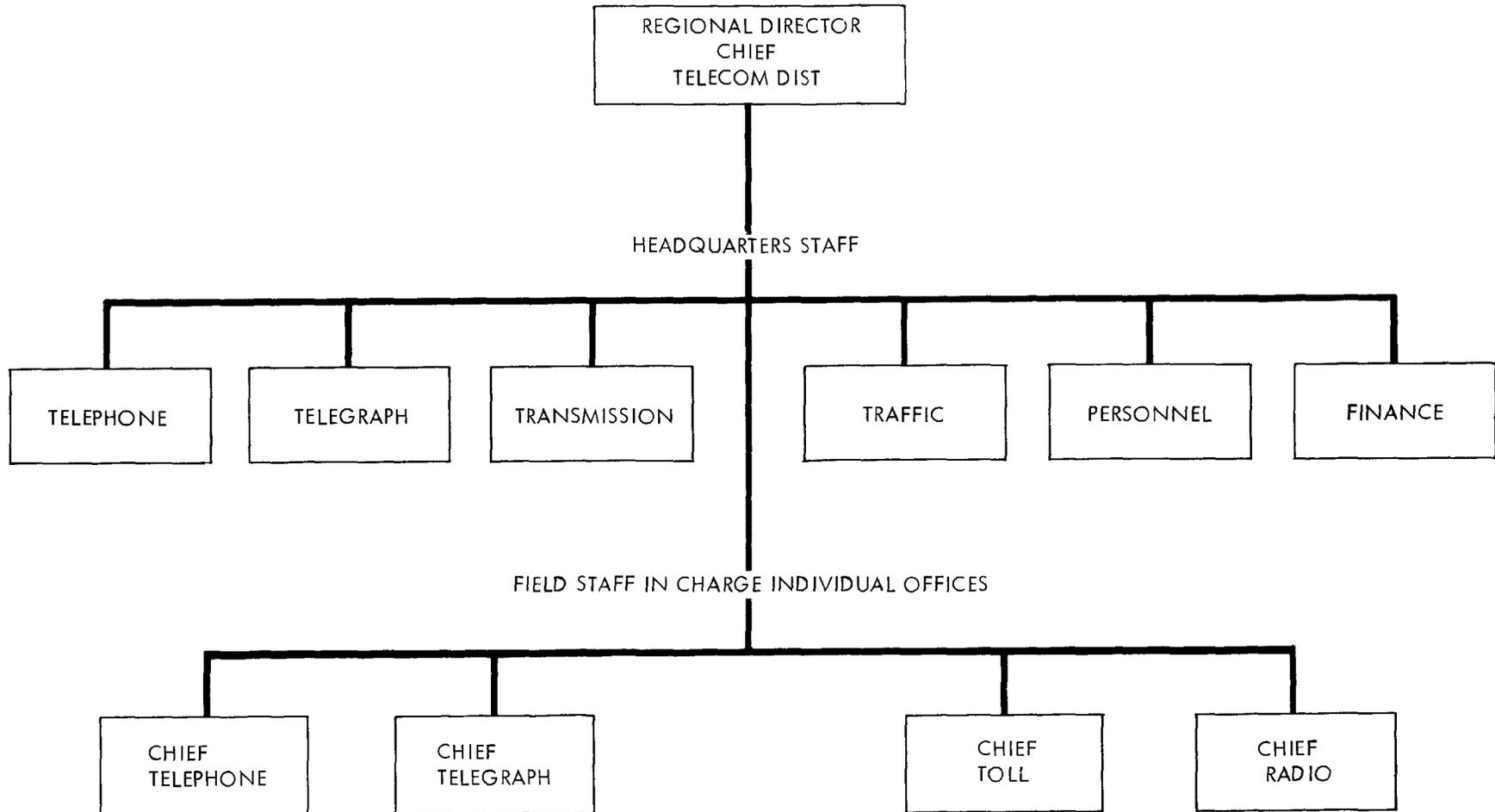
- H. The Company and its contractors will not pay any customs and consular duties, sales and other taxes and royalties on all goods required to be imported for construction and operation of the station.

# INDONESIA: PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL) ORGANIZATION CHART



# INDONESIA: PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

## ORGANIZATION CHART-FIELD



INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

Manpower and Training

As on the 1st of January 1969, PERUMTEL employed a staff of 21,365 people to manage and operate the telecommunication services.

The breakdown of this staff grade-wise was as follows:-

1. Top managers	- Grade IV	-	28
2. Middle managers	- Grade III	-	366
3. Lower managers	- Grade II	-	3,394
Supervisors			
4. Employees	- Grade I	-	<u>17,577</u>
			21,365

A further breakdown of staff into various broad groups required to manage the facilities provided to the public is as follows:-

Administrative personnel	-	5,774
Operators	-	5,459
Technical personnel	-	10,132

Recruitment

The points of entry into the service of this organization are at Grade I, Grade II and Grade III.

Grade I - Staff in this grade are recruited on the basis of advertisement of vacancies, and graduates from elementary and secondary schools are eligible for appointment in this grade. Graduates from high school with special training, graduates from high school without special training, and graduates from elementary school with special training get in that order a higher starting pay in that grade.

Grade II - Recruitment is made from amongst graduates from the Academy or University with Bachelor degree, senior high school with special training and senior high school without training. Higher starting pay in this grade is given to the first two groups of recruits.

Grade III - Recruitment is made from amongst graduates from the University with a Masters degree.

Grade IV - There is no direct recruitment to Grade IV - Promotions to this grade are made from selected and chosen personnel. This grade can be reached by all personnel.

### Promotions

Promotions from Grade I to Grade II and from Grade II to Grade III are made based on length of service and good work records. In some cases examinations for promotions are also held.

Regional Directors are empowered to promote staff within their area up to Grade II level. The First Director at Bandung can promote up to Grade III level - any promotion beyond this level is done by the Director General, after obtaining the approval of the Minister of Communications.

### Dismissals

All dismissals are however carried out centrally at Bandung after following a prescribed procedure. All service records of all the staff are maintained in Bandung.

### Scales of Pay

The scales of pay generally fall in the following range for each grade:-

		<u>Rp per month</u>	<u>\$ per month</u>
Grade I	-	1,000 - 3,000	2.6 - 7.9
Grade II	-	3,000 - 5,000	7.9 - 13.2
Grade III	-	5,000 - 10,000	13.2 - 26.5
Grade IV	-	10,000 - 15,000	26.5 - 39.7

In addition to pay, the staff get free rice on the basis of 10 Kg and the cash value of sugar of 1 Kg for each member of the family. Staff in Grades III and IV get in addition free houses and electricity and, where the interest of service demands it, free cars and telephones. All staff are entitled to free medical attention and hospital facilities. A 50% increase of pay as special allowance has recently been approved.

Though exact information is not available as it is not maintained, PERUMTEL do not experience any large turnover of staff. They feel that it does not exceed 0.5% to 1% every year.

### Pension

All full time staff are entitled to pension benefits. The age for superannuation is 56 years. The staff have the option to retire after 30 years of service. The amount of pension is 75% of the last take-home pay. Staff who wish to retire even before completion of 30 years of service can do so, but the pension is reduced by 2% for every year of service below 30.

### Transfers

All staff in all grades are liable to be transferred to any place within the PERUMTEL area. They are however given a house at PERUMTEL expense at the new station of posting. Generally, however, transfers, except in case of Grade III and Grade IV staff are rare. It has been possible to recruit staff locally in the Districts and also to provide first line supervisory staff by promotion of Grade I staff.

### Training

This is imparted to the staff in two ways--basic at the time when the staff is recruited and in service, later during their career in the PERUMTEL organization.

For a long time now a training center has been functioning at Bandung. Recruits to the posts and telecommunications branches are sent to this center for basic training for the jobs that they are to undertake on appointment to the departments concerned.

In addition, a telecommunications training center has been set up in Bandung with the assistance of funds under the UNDP. The Special Fund allocation to this project is US\$1,156,000, including a Government of Indonesia contribution towards local operating costs of US\$65,800 and a counterpart contribution in kind of US\$1,096,040. The executing agency is the International Telecommunication Union. The duration of the project is three years.

The project aims to establish a telecommunications training center to give a concentrated training program for senior technicians and other technicians, and also to establish twelve Regional Telecommunications Training Centers in Bandung, Djakarta, Semarang, Surabaya, Palembang, Padang, Medan, Makassar, Bandjarmasin, Den Pasar, Amboina and Sukarnapura. The training center in Bandung is to be a residential one with a capacity of about 250 trainees whereas the regional centers will train 50 officials at a time.

The training program aims at the training of in-service technical personnel to cope with the immediate need to improve the telecommunications services in Indonesia, also regular training courses for newly recruited technicians. These courses are broadly classified as follows:

- a. Senior Technicians' Courses of six months' duration, for in-service senior technicians; some of the graduates will be assigned to the Regional Training Units as instructors,
- b. Technicians' Special Courses of four months' duration for training of in-service technicians, and

- e. Technicians' Regular Courses of 12 months' duration for new recruits. The entrance requirements for these courses will be a certificate from a secondary school or equal education.

Senior Technicians' Courses and the Technicians' Special Courses will be held at the Bandung center. The Technicians' Regular Courses will be held at the 12 Regional Training Units.

A total of 1,368 technicians, including 480 senior technicians, 288 in-service technicians, and 600 newly recruited technicians, are expected to complete training during the project period. One hundred and forty-four in-service technicians and six hundred newly recruited technicians will be in training at the end of the project period.

The training center is staffed by five UN experts with a project manager, also provided by the UN, in charge. Counterpart staff who would ultimately manage the center have also been attached to the UN experts by PERUMTEL.

In order to develop practical training courses, the experts, with the assistance of the counterparts, will study the present condition of telecommunications services and work procedures in Indonesia, and in this connection give advice on improvements which, when adopted, should be introduced in the courses as well as in the field by the PERUMTEL.

A range of technical instructions forming a code of engineering, operating and procedural instructions will be prepared by the center in cooperation with PERUMTEL.

It is anticipated that during the project future needs for training and the required training organization will be studied, as also will the assistance required for the establishment of a regular training program for engineers, senior technicians, technicians, artisans, and traffic and administrative staff.

A start has already been made and 200 officials were under training when the mission visited the center. The regional units have also started functioning.

The scheme has been well conceived and is being implemented with vigor. It will undoubtedly produce good results and turn out competent technicians.

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

Decree of President No. 17 of 1967

Activities of Perum (Public Corporation)

1. Main activities are to serve the public interests (production, distribution, consumption in general) and at the same time to make a profit. Activities are to be undertaken while paying the greatest attention to efficiency, effectiveness, economic cost accounting principles and management effectiveness and provide good service to shareholders.

2. It has a juridicial status and is established by law.

3. In general a PERUM must be active in the field of vital services (public utility).

The Government can decide that those corporations having a public utility sense need not be formed and managed as a State enterprise. (e.g. an electricity company to supply a small city which can be financed from private capital).

4. A PERUM possesses its own name and assets and has liberty to pursue its activities as a private enterprise, and to enter into contracts and commitments with other companies.

5. A PERUM can be prosecuted and execute prosecution against others under law.

6. The whole capital may be owned by the State but a PERUM may obtain credits from domestic or foreign sources or raise funds from the sale of public shares.

7. In principle a PERUM is expected to be financially sound, unless due to the policy of the Government, for instance on tariffs and prices, this principle cannot be fulfilled. However whatever the Government policy on prices and tariffs, the system to be adopted is the one referred to in item A4-1.

8. A PERUM must be managed by a board of Directors.

9. The staff are those of a State enterprise separately organized outside the regulations valid to Government employees or those of private limited enterprises.

10. Organization, duties, authority, responsibilities of a PERUM and to whom it should be responsible and other relative matters are specially arranged in accordance with the law governing the establishment of State enterprises.

11. A PERUM need not necessarily be a public utility enterprise, but, especially in regard to Public Utilities, if necessary, the Government can determine the policy on tariffs for the benefit of the public interest and for subsidies in accordance with Al<sup>1/</sup>.
12. Annual reports incorporating balance of profit and loss and the balance of assets must be submitted to the Government.

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1/ Al.

The connection between the Government who supply and the people (consumers) who receive a subsidy should be based on sound financial and cost accounting principle, and every subsidy made available to the people (consumers) in any kind or form must be accounted for.

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

Management Consultants'  
Draft Terms of Reference

The Perusahaan Umum Telekomunikasi is a State owned corporation set up in April 1970 to provide and operate all public, domestic and some international telecommunications services in Indonesia. Due to the war and subsequent difficulties including the limited funds available for rehabilitations and development and with the recent increase in economic activity, there is a considerable unfilled demand for telecommunications service. Improvements in quality of service are also urgently necessary. At present there are some 137,000 telephone lines which, with a population of 115 million, gives the very low telephone density of 0.11 per 100.

Local service is limited to the principal cities and towns and long distance facilities are extremely restricted. During the next four years the number of telephone stations will be increased by about 30% and a backbone microwave trunk system set up through certain of major islands. The development program is being undertaken partly through bilateral and government financing and partly through a proposed International Development Association credit.

PERUMTEL has a staff of about 21,000 persons, but is essentially a technical operating organization.

The Government of Indonesia has decided to give PERUMTEL greater autonomy as a State owned corporation, which should help to ensure a more effective operation of the entity by allowing it to operate according to modern commercial principles whereby timely operational and financial information will be available to management for informed decision-making.

To facilitate the reorganization as a Perum and also improve the operating entity's efficiency, it has been decided to engage management consultants in an advisory capacity. Accordingly, the Government solicits proposals to undertake an examination of the present organization and operations.

It is highly desirable that the engagement of the consultants be coordinated with the establishment of the Perum in order that the management consultants may advise on the form of entity best suited to enable PERUMTEL to run as a commercial organization. It may be advantageous for the consultants appointed to make use of local associates for some of the detailed research involved in the survey.

The consultants' examination should consider, but not limit itself to, the following, it being realized that only after a review has been made of the organization and its operations can the full extent of the consulting assignment be established:

- A. Advise on the form of entity, including the capital structure to be adopted, best suited to enable it to be run as a commercial organization, and its relations with Government within the terms set out in the appropriate legislation. The arrangements to be adopted should provide Government with all the information necessary to review and assess the corporation's financial and technical performance.
- B. Recommend on the degree of independence which the entity should possess with particular reference to:
  1. tariffs,
  2. borrowing powers for both capital and other purposes,
  3. salaries and wages, pension payments and gratuities,
  4. engagement and dismissal of staff keeping in mind the conditions prevailing in Indonesia.
- C. Design the organization of PERUMTEL, both at Headquarters and in the regions, define internal responsibilities, lines of delegation of authority, allocation of duties, responsibilities and authorities of each department, region, district and staff member, provide for introduction of efficient systems procedures and controls throughout the organization.
- D. Develop a modern accounting system to provide reliable information for management; this will involve:
  1. reviewing and evaluating the present accounting practices and routines in detail and revising and redesigning where desirable. This would include all areas of general accounting, including billing, collections, accounts receivable and payable, purchasing and inventory control.
  2. reorganizing the accounting staff to take responsibility for the new procedure;
  3. introducing internal management reports.
- E. Develop an effective budgeting procedure for the planning and control of future operations which would permit comparison of budgeted performance against actual performance by area of responsibility.
- F. Advise on planning procedures both as related to overall policies and detailed responsibilities; consideration should be given to arrangements which will provide both flexibility and continuity while at the same time ensuring effective utilization of plant to desirable levels of efficiency; the establishment of methods for deciding priorities where all demands for service cannot be met; means of reporting project progress; the values which should be attached to the various input factors used in telecommunications planning, e.g. interest rate, foreign exchange rate, depreciation rates, maintenance and operating expenses, effects of devaluation, etc.
- G. Establish internal audit routines to ensure adherence to proposed operating methods and procedures for effective internal control.

- H. Advise on systems and procedures and data processing -
  - 1. work simplification techniques,
  - 2. scheduling and dispatching work loads,
  - 3. work standards and performance measurements,
  - 4. staff orientation and training,
  - 5. review operation to determine the applications that should be placed on the computer.
- I. Set up cost accounting procedures including a system of work orders for properly allocating cost of construction programs.
- J. Advise on the preparation of a physical inventory of fixed assets using the latest techniques and information, the methods of appraising and determining the current values of fixed assets, the appropriate depreciation assumed to have accumulated and appropriate annual depreciation rates base on the lives of the various assets.
- K. Advise on the establishment of depreciation schedules.
- L. Develop procedures to enable continuing property records to be maintained.
- M. Advise on tariffs including tariff structure and levels.
- N. Examine procurement procedures and recommend on any adjustments which may be necessary to ensure efficient operation of the stores and procurement department.
- O. Advise on the transfer of the staff to the corporation, salaries and fringe benefits, productivity, proposals for improvements including disposal of surplus personnel, authorities for appointments, promotions, disposals, etc.
- P. Advise on the development of manufacturing facilities for switching and transmission equipment and cables.
- Q. Advise on procedures for collecting and collating technical statistics for the services provided and their performance.
- R. Coordination with other agencies and services in order to ensure maximum efficiency in the provision and use of telecommunications facilities.
- \*S. Advise on a pension plan covering the PERUMTEL staff.
- \*T. Advise on insurance practices that may prudently be adopted by PERUMTEL to protect it against risk from loss/damage to its plant.

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\*Items subsequently added.

The team of consultants might consist of:

- a. a team leader who will work also with the chief executive of the organization and be capable of planning the organization.
- b. a senior accountant capable of reorganizing the accounting system following modern commercial practices.
- c. an accountant with telephone traffic and tariff experience to review and recommend a realistic tariff structure at appropriate level.
- d. a systems and procedures specialist who is capable of instituting systems and procedures including any for data processing throughout the organization.

Selection and appointment of consultants will, it is anticipated, commence in \_\_\_\_\_ and it is hoped that the consultants' survey will be commenced by \_\_\_\_\_.

The consultants' recommendations on which the reorganization will be based should be submitted by \_\_\_\_\_ in order that implementing action can commence in \_\_\_\_\_. The new accounting system should be brought into operation with effect from \_\_\_\_\_.

To facilitate the introduction and operation of the new organization, Government intends to apply for assistance from the Colombo Plan in the provision of three experts, one to advise on financial operations, the second, business office and organizational procedures, and the third, telephone operating procedures, rates and tariffs.

It is hoped that these three experts will be available by \_\_\_\_\_. Further training of existing Indonesian accounts staff in modern accounting principles will be necessary and is being arranged.

Government also hopes to obtain continuing assistance from the Australian Government through the provision of an engineering design and construction coordinating team of experts.

It is envisaged that the experts provided under the Colombo Plan, as well as the key PERUMTEL staff members who will eventually operate the new system, will work very closely with the management consultants.

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Note: These draft terms of reference were discussed and agreed with the Director General. This however does not preclude possible later changes.

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

Job Description

Financial Officer/Adviser

A qualified officer is required for a period of about three years to assist management in the setting up and operation of the financial department with a view to financial control of the undertaking in accordance with modern financial principles.

The officer should be a chartered accountant or university graduate with a management or accounting degree. He should have served 5-10 years as a senior financial officer covering broad financial experience in a public utility enterprise - preferably a telecommunications authority of reasonable size.

He would be required to cooperate closely with management consultants being employed to advise on the setting up of modern accounting and management practices and to assist in training the staff of PERUMTEL in the use and operation of the proposed systems and procedures.

Up to and inclusive the accounts of 1971, he would be required to audit PERUMTEL's financial statements and operations and to indicate deficiencies.

He must assist in the close coordination of work as between departments and other advisory experts so as to ensure the necessary exchange of information between departments with a view to improving their operational efficiency.

Following completion of the work of the management consultants, he would be required to supervise the financial operations and train PERUMTEL staff with a view to their assumption of full control as soon as possible.

During this period of service he would be required to advise and assist with all aspects of the financial organization including:

1. accounting operations involving billing, collections, accounts receivable/payable, purchasing, inventory control;
2. management information system;
3. budgetary procedures including performance budgeting;
4. internal audit and control;
5. systems and procedures;
6. cost accounting/work order system;
7. depreciation schedules;
8. forecasts including cash flow;
9. asset evaluation.

(Note: This job description was discussed and agreed with the Director General. This however does not preclude possible later changes.)

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

JOB DESCRIPTION

Operations and Traffic Procedures Adviser

Candidates should have at least five years experience in a senior position in a telephone operating administration or company dealing with traffic engineering and operating procedures. It is desirable that they should hold an engineering degree.

Following appointment the candidate would initially cooperate with management consultants and the Operations Director in redesigning and modernizing the telecommunications traffic section in order to fully meet the requirements of efficient commercial operation.

He will subsequently work with the Operations Director in the introduction and operation of the new procedures. He will be responsible for the setting up of modern telephone directory and information sections and will cooperate with the administrative section in the introduction of improved and more profitable arrangements for the production of the telephone directories on a commercial basis.

He will be responsible for the introduction of adequate non-engineering statistical records relating to the operation of the various telecommunications services and in conjunction with the Business Adviser for the development of procedures for the preparation of forecasts of likely demand and growth trends.

He will examine the procedures (including preparation of traffic records and forecasts) for coordination with the Development and Construction Director in connection with development of the network in order to ensure maximum efficiency in planning new development.

He will review telephone operating methods and modernize procedures for calculation of operating staff requirements and will cooperate with the Personnel Section in preparing the appropriate establishments. He will review subscribers' complaint procedures and advise as necessary on their improvement and modernization.

The appointment will be for a period of three years during which Indonesian personnel should be fully trained to continue and further develop the procedures established.

Note: This job description was discussed and agreed with the Director General. This however does not preclude possible later changes.

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

JOB DESCRIPTION

Organization, Administration and Personnel Adviser

Candidates should have a good knowledge of commercial and business procedures and should preferably have worked in a telephone operating administration or company. They should also hold a degree in Business Administration or be a Chartered Secretary or equivalent.

Following appointment the Adviser would initially cooperate with management consultants and the Administrative and Personnel Director in redesigning and modernizing the secretarial, administrative and business office organizations in order to fully meet the requirements of commercial operation. He will subsequently, and in his secretarial administrative function, work with the Administrative and Personnel Director in the introduction and operation of new procedures related to the administrative matters involved in the organization of the Perum and in the handling of staff records and procedures.

He will be responsible to the Administrative and Personnel Director and will cooperate with the Regional Directors in the setting up and operation of business offices at appropriate locations. These will handle all applications for service, prepare waiting lists, apply priorities, issue service provision orders, and deal with subsequent inquiries made by subscribers.

He will cooperate with the Financial Adviser and Finance Section in redesigning collection procedures and procedures for handling overdue accounts.

He will be responsible for the introduction of any additional statistical records required for efficient operation of the Administrative, Business Office and Personnel Sections.

He will cooperate with the Operations Department and particularly the Operations Adviser in setting up and/or modernizing procedures for the preparation of forecasts of likely demands for service and growth trends.

The appointment will be for a period of three years during which time the Indonesian personnel should be fully trained to continue and develop the procedure established.

(Note: This job description was discussed and agreed with the Director General. This however does not preclude possible later changes.)

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

1. <u>Telephones - Local</u>	<u>Summary of Tariffs</u>	<u>-----in Rupiah-----</u>	
		<u>Main Subscriber</u>	<u>Extension per 100 m</u>
(a) <u>Installation fees:</u>			
<u>Local exchange area</u>			
	Djakarta	130,000	12,500
	Bandung	60,000	12,500
	Other cities	23,500 to 15,830	1,600 to 475
<u>Beyond exchange area</u>			
	Djakarta - up to 10 km	per 100 m 12,500	12,500
	- 10-20 km	--ditto-- 1,500	1,500
	- more than 20 km	" 4,000	4,000
	Bandung - up to 10 km	" 10,000	10,000
	- 10-20 km	" 1,500	1,500
	- more than 20 km	" 4,000	4,000
	Other - up to 10 km	" 4,200	4,200
	cities - 10-20 km	" 5,880	5,880
	- more than 20 km	" 9,100	9,100
(b) <u>Monthly charges</u>			
	<u>Local exchange area</u>	<u>Main Subscriber</u>	<u>Extension Line</u> <u>Additional 100 m</u>
	Automatic	280	21
	Manual - 500 LU and more	560	21
	- less than 500 LU	350	21
	<u>Beyond exchange area</u>	<u>--Additional 100 m--</u>	
	Automatic	31.50	31.50
	Manual - all	31.50	31.50
(c) <u>Call charges</u>			
	Local, per call: Rp 10		

2. Telephones - Long distance (Manual)

<u>Unit</u>	<u>Zone</u>	<u>Distance</u>	<u>Rate - Ordinary</u>
First 3 minutes	0	0-15 km	30
Additional minute	I	15-100 "	84
One-third tariff	II	100-300 "	168
	III	300-500 "	252
	IV	500-750 "	336
	V	750 " & over	420

Urgent rate: three times the ordinary rate  
 Long distance (STD): Rp 10 per pulse  
 Djakarta-Bandung - three second pulse

3. Telegraphs

-----in Rupiah-----

(a) <u>Inland</u>	<u>Ordinary</u>	<u>Express</u>
First 10 words	25	50
Each additional word	2.50	5
Press, per word	0.50	1.50

(b) Telex

Teleprinter machines in most cases have to be provided by the subscribers.

Installation fees for new subscriber: same as telephone in appropriate class

Monthly charges

- (a) Main subscriber lines (extension lines), private connection including routine service Rp 1,750
- (b) Rental for PERUMTEL's teleprinter machine and accessories (complete) Rp 2,450

Call charges - One pulse: Rp 14

<u>Telex zone</u>	<u>Distance</u>	<u>Pulse period</u>
I	00-50 km	108 seconds
II	50-300 "	30 "
III	300-750 "	20 "
IV	750 " & more	10 "

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

Pro Forma Balance Sheets: 1968-1973  
(Rp Million)

As of December 31:	ESTIMATED		FORECAST			
	1968	1969	1970	1971	1972	1973
<b>ASSETS</b>						
<b>Fixed Assets</b>						
Plant in service	18,256	19,202	21,814	27,878	33,735	38,658
Less: depreciation reserve	8,248	8,239	8,253	8,452	8,884	9,651
Net plant in service	10,008	10,963	13,561	19,426	24,851	29,007
Plant under construction	554	1,258	2,415	4,738	4,643	3,977
<u>Total net fixed assets</u>	<u>10,562</u>	<u>12,221</u>	<u>15,976</u>	<u>24,164</u>	<u>29,494</u>	<u>32,984</u>
<b>Current Assets</b>						
Cash	240	300	623	496	513	1,543
Subscriber accounts receivable	2,256	3,482	1,421	1,454	1,448	1,506
Inventories	1,236	1,282	1,461	1,885	2,300	2,645
Total current assets	3,732	5,064	3,505	3,835	4,261	5,694
Less: current liabilities	1,775	2,062	2,152	2,397	2,598	2,829
<u>Net current assets</u>	<u>1,957</u>	<u>3,002</u>	<u>1,353</u>	<u>1,438</u>	<u>1,663</u>	<u>2,865</u>
<b><u>TOTAL ASSETS</u></b>	<b><u>12,519</u></b>	<b><u>15,223</u></b>	<b><u>17,329</u></b>	<b><u>25,602</u></b>	<b><u>31,157</u></b>	<b><u>35,849</u></b>
<b>LIABILITIES</b>						
<b>Equity</b>						
Government investment	10,062	10,660	8,599	8,599	8,599	8,599
Subscribers' capital contributions	200	421	882	1,609	2,459	3,692
Retained earnings	464	1,108	995 <sup>1/</sup>	1,260	1,600	1,774
<u>Total equity</u>	<u>10,726</u>	<u>12,189</u>	<u>10,476</u>	<u>11,468</u>	<u>12,658</u>	<u>14,065</u>
<b>Long-term debt</b>						
Project aid loans	1,793	3,034	6,165 <sup>1/</sup>	8,671	11,853	14,945
Government loans - IDA	-	-	688	3,463	4,646	4,839
- Other	-	-	-	2,000	2,000	2,000
<u>Total long-term debt</u>	<u>1,793</u>	<u>3,034</u>	<u>6,853</u>	<u>14,134</u>	<u>18,499</u>	<u>21,784</u>
<b><u>TOTAL LIABILITIES</u></b>	<b><u>12,519</u></b>	<b><u>15,223</u></b>	<b><u>17,329</u></b>	<b><u>25,602</u></b>	<b><u>31,157</u></b>	<b><u>35,849</u></b>
Debt/Equity Ratio	14/86	20/80	40/60	55/45	59/41	61/39

<sup>1/</sup> Reflects exchange reform (see footnote 1 of page 19).

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

Notes and Assumptions on the Pro Forma Balance Sheet

Plant in Service and Depreciation

PERUMTEL does not maintain a fixed asset register and does not know the value of its fixed assets, nor do its records allow the value to be ascertained. The present value of gross plant in service as of December 31, 1968, is estimated at Rp 18.3 billion (US\$48.3 million). Any difference between this estimate and the actual value will become relatively insignificant in the course of the program, as net plant in service is expected to triple by 1973. The depreciation reserve at the end of 1968 is estimated at Rp 8.2 billion (US\$21.8 million) taking into account the number of exchange lines, as well as other major categories of plant, and the age, type and condition of the plant. The estimated depreciation reserve is high--about 45% of gross plant in service--and is realistic considering the age of the fixed assets and the fact that relatively little plant has been added over the last ten years. Depreciation reserve beginning with 1969 is based on depreciation calculated at a composite rate of 5% on average gross plant in service taking into account estimated annual plant retirement. This valuation is tentative; the consultants will review PERUMTEL's fixed assets and formally establish their value.

Plant under Construction

It is assumed that the amount of plant under construction each year will be 40% of the sum of the construction program of the current year plus plant under construction of the previous year.

Cash

Cash is assumed to be about one month's cash operating expenses.

Subscriber Accounts Receivable

Considering that Government rarely pays its telecommunications bills and that some 30% of total subscribers are Government, it is assumed for the years 1968 and 1969 that 75% of Government billings remain unpaid and also 21% of the non-Government billings. The forecast assumes that, beginning with fiscal year ending December 31, 1970, Government will maintain its accounts current, until 1973 never more than three months owing, and thereafter two months, from the time billing is completed; and non-Government subscribers will also owe the equivalent of two months' billings, but gradually will improve in each of the succeeding years. It is further

assumed for purposes of this report that estimated Government accounts overdue as of December 31, 1970, in the amount of Rp 2.1 billion (US\$5.6 million) are written off and charged against Government investment under equity.

### Inventories

Inventories in 1968 and 1969 are assumed to amount to Rp 6,520 (US\$17) per telephone, and, beginning with 1970, to increase proportionately to gross plant in service.

### Current liabilities

Current liabilities are assumed to be Rp 1.8 billion in 1968 and Rp 2.1 billion in 1969 related to the accounts receivable now overdue and the estimated value of inventories. From 1970 onward, they are assumed to be between 55% and 65% of current assets.

### Equity

In establishing PERUMTEL's pro forma equity as of December 31, 1968, the retained earnings are taken as the amount of profit transferred to retained earnings in 1968. Subscribers' capital contributions represent installation charges in excess of the estimated cost of connecting a subscriber, which is shown as revenue in the income statement. Government investment serves as the balancing figure between the amount of total assets, net of current liabilities, and the sum of long-term debt, subscribers' capital contributions and retained earnings. From 1968 on, subscribers' capital contributions and retained earnings reflect the estimated installation charges accruing to subscribers' capital contributions and net profit transferred to retained earnings.

### Long-term debt

Long-term debt as of December 31, 1968, consists of project aid foreign exchange from Australia, Japan, the Netherlands and West Germany. In actual fact, this long-term debt has been made available and serviced by Government and is considered as Government equity by PERUMTEL pending further study by the consultants. For this report, this foreign exchange is shown as long-term debt and being serviced on terms similar to a Bank loan, which are 7% per annum, a term of 20 years, including a four-year grace period.

May 25, 1970

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

Pro Forma Statements of Income: 1968-1973  
(Rp Million)

Year ending December 31:	ESTIMATED		FORECAST			
	1968	1969	1970	1971	1972	1973
<b>REVENUES</b>						
<u>Telephone</u>						
Rental and local calls	1,578	2,250	2,350	2,564	2,828	3,185
Trunk and STD	1,458	1,935	1,968	2,209	2,582	3,065
International calls	50	65	7	3	3	3
Installation charges <sup>1/</sup>	9	14	21	27	36	46
Total telephone revenues	<u>3,095</u>	<u>4,264</u>	<u>4,346</u>	<u>4,803</u>	<u>5,449</u>	<u>6,229</u>
Telegraph and telex	2,041	2,242	2,421	2,615	2,824	3,050
Additional revenue - assumed tariff increase and TV & PW <sup>2/</sup>	-	-	-	1,238	3,028	4,863
<b>TOTAL REVENUES</b>	<u>5,136</u>	<u>6,506</u>	<u>6,767</u>	<u>8,656</u>	<u>11,301</u>	<u>14,212</u>
<b>EXPENSES</b>						
Staff expenses	1,545	2,250	2,925	3,803	4,944	6,427
Maintenance and other costs of operation	1,460	1,536	1,754	2,260	2,753	3,168
Depreciation	900	936	1,025	1,242	1,540	1,810
<b>TOTAL EXPENSES</b>	<u>3,905</u>	<u>4,722</u>	<u>5,704</u>	<u>7,305</u>	<u>9,237</u>	<u>11,405</u>
NET OPERATING INCOME - before interest	1,231	1,784	1,063	1,351	2,064	2,807
Less: interest - Project aid loans	70	174	346	524	728	957
- Government loans - IDA	-	-	41	226	477	567
- Other	-	-	-	120	240	240
<b>Net Profit</b>	<u>1,161</u>	<u>1,610</u>	<u>676</u>	<u>481</u>	<u>619</u>	<u>1,043</u>
Government tax <sup>3/</sup>	697	966	304	216	279	469
Dividend payment	-	-	-	-	-	400
Balance transferred to retained earnings	<u>464</u>	<u>644</u>	<u>372</u>	<u>265</u>	<u>340</u>	<u>174</u>
Average net plant in service	9,597	10,486	12,262	16,494	22,139	26,929
Rate of return <sup>4/</sup>	12.8%	17.0%	8.7%	8.2%	9.3%	10.4%
Operating ratio <sup>5/</sup>	76%	73%	84%	84%	82%	80%

<sup>1/</sup> Only the portion of charges to cover installation cost of telephones is shown as revenue; remaining portion is credited to "subscribers' capital contributions".

<sup>2/</sup> Television (TV) and private wire (PW) revenue is assumed in 1973 to be Rp 200 million.

<sup>3/</sup> Profit tax paid to Government - 60% in 1968 and 1969 and 45% beginning with 1970.

<sup>4/</sup> Ratio of net operating income before interest to average net plant in service.

<sup>5/</sup> Ratio of total operating expenses to total operating revenues.

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

Notes and Assumptions on the Pro Forma Statement of Income

Revenues

Additional revenue from assumed tariff increases is shown to accrue beginning during 1971.

In considering the present revenue position, it is of interest to note that the Djakarta area provides about 50% of total telephone revenues. In forecasting likely revenues, details were obtained of present revenues for Djakarta subscribers as a whole and individual exchanges with a breakdown between rental, installation, local trunk, and international categories. Information was also obtained regarding present STD traffic levels and revenues per subscriber for the Djakarta-Bandung route and the overall revenue figures for the Indonesian telephone network as a whole, together with the tariffs applied in the various areas. From these figures, it was possible to analyze existing revenue per subscriber per month into the following main three groups:

	<u>Djakarta</u> <u>subscribers</u>	<u>Other automatic</u> <u>subscribers</u>	<u>Manual</u> <u>subscribers</u>
	----- Rupiah -----		
Rental and local calls	3,703	1,177	652
Long distance	1,760	848	848
Total	5,463	2,025	1,500

Revenues for international calls have not been included as it was separately calculated that, up to December 1974, there will be an accrued deficiency on IT&T's profit entitlement under the agreement (see Annex 1), and no revenues will therefore accrue to PERUMTEL during the forecast period in respect of the satellite international service. Certain very limited revenues will be obtained from the remaining HF and VHF services and these have been included.

Table 1 of this annex was prepared showing actual connections and conversions, anticipated under the program and divided into the various installation charge and revenue groups as listed above. From this forecast, revenues from rentals and local calls at existing rates were computed. Sums accruing in respect of installation and conversion charges were also computed from this schedule. In the case of the long distance revenue calculation, and based on experience in other developing countries, together with the information available for the Djakarta route, an initial

originated traffic figure per subscriber per annum of three erlang (180 minutes of trunk call time), increasing by 15% per annum, was used. Applying the present pattern of traffic in the various distance/rate categories gives an expected average monthly STD revenue per subscriber for 1970 of Rp 1,793. However, for conversion of existing subscribers, there would be a reduction, again based on distance/rate categories, of Rp 587 in respect of calls previously obtained via the operator.

Forecast long distance revenues were based on these figures as related to the program for extension of new STD service to existing subscribers, and the provision of additional subscribers under the program. No increases in charges for long distance service have been allowed for as the present urgent rate, which is being applied to this service, is already fairly high as related to rates in other countries.

Telegraph and telex revenues are assumed to increase at an annual rate of 8% allowing for the likely diversion of telegraph traffic due to expansion of STD services.

Installation charges have been forecast on the basis of the estimated number of telephones to be installed during the year with the charge assumed at Rp 2,000 per connection.

#### Expenses

Staff expense figures for 1969 provided by PERUMTEL were accepted even though they were on the high side in comparison to telecommunications operations in other developing countries, which is due to PERUMTEL's lack of automatization. Staff expenses are assumed to increase by 30% each year beginning with 1970 in order to provide for higher wages and a pension plan.

Maintenance expense has been taken as 8% of gross plant in service in the previous year. Normally, maintenance for a telecommunications operation will vary between 5% and 7% of gross plant in service; however, due to PERUMTEL's situation where the majority of plant is old and more maintenance is required, 8% is assumed.

Depreciation expense is assumed at a composite rate of 5% on annual average gross plant in service; this is normal.

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

Analysis of Additional Subscriber Connections and Installation Fees Collected - 1970-1973

Available	Exchange	Total capacity provided	Taken up by manual subscriber conversions	Net capacity available for new subscribers	Subscribers Added and Converted - 1970						Subscribers Added and Converted - 1971						Subscribers Added and Converted - 1972						Subscribers Added and Converted - 1973						
					Installation Groups			Revenue Groups			Installation Groups			Revenue Groups			Installation Groups			Revenue Groups			Installation Groups			Revenue Groups			
					1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
I																													
Automatic																													
1970	Gambir (DJK)	3,000	-	3,000	900	-	-	900*	-	-	900	-	-	900*	-	-	600	-	-	600*	-	-	600	-	-	600*	-	-	
	Djakarta Kota (DJK)	4,000	-	4,000	1,200	-	-	1,200*	-	-	1,200	-	-	1,200*	-	-	800	-	-	800*	-	-	400	-	-	400*	-	-	
	Djatinegara (DJK)	1,000	-	1,000	400	-	-	400*	-	-	200	-	-	200*	-	-	200	-	-	200*	-	-	200	-	-	200*	-	-	
	Jogjakarta	3,000	1,700	1,300	-	-	400	-	2,100 (1,700)	-	-	260	-	260*	-	-	-	-	260	-	260*	-	-	260	-	260*	-	-	
	Tjirson	3,000	-	3,000	-	-	900	-	900	-	-	700	-	700*	-	-	-	-	680	-	680*	-	-	580	-	580*	-	-	
	Bandjarmasin	3,000	1,400	1,600	-	-	500	-	1,900 (1,400)	-	-	400	-	400*	-	-	-	-	400	-	400*	-	-	320	-	320*	-	-	
	Miscellaneous	600	-	600	600	-	-	600*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	<b>Total</b>	<b>17,600</b>	<b>3,100</b>	<b>14,500</b>	<b>3,100</b>	<b>-</b>	<b>1,800</b>	<b>3,100</b>	<b>4,900 (3,100)</b>	<b>-</b>	<b>-</b>	<b>14,500</b>	<b>-</b>	<b>14,500</b>	<b>-</b>	<b>-</b>	<b>2,970</b>	<b>-</b>	<b>2,970</b>	<b>9,880</b>	<b>-</b>	<b>-</b>	<b>17,740</b>	<b>-</b>	<b>17,740</b>	<b>-</b>	<b>-</b>		
1971	Pasar Minggu (DJK)	900	-	900	370	-	-	370*	-	-	300	-	-	300*	-	-	270	-	-	270*	-	-	190	-	-	180*	-	-	
	Slipi (DJK)	1,000	-	1,000	300	-	-	300*	-	-	300	-	-	300*	-	-	300	-	-	300*	-	-	200	-	-	200*	-	-	
	Semarang	8,000	3,300	4,700	-	-	1,400	-	4,700 (3,300)	-	-	1,540	-	1,540*	-	-	-	-	1,540	-	1,540*	-	-	940	-	940*	-	-	
	Surabaya Sp	1,000	360	640	-	-	200	-	560 (360)	-	-	340	-	340*	-	-	-	-	340	-	340*	-	-	130	-	130*	-	-	
	Bandung S	2,000	-	2,000	-	-	600	-	600*	-	-	700	-	700*	-	-	-	-	700	-	700*	-	-	400	-	400*	-	-	
	Ujambi	1,000	800	200	-	-	60	-	860 (800)	-	-	40	-	40*	-	-	-	-	40	-	40*	-	-	40	-	40*	-	-	
	Medan	4,000	-	4,000	1,200	-	-	1,200*	-	-	920	-	-	920*	-	-	-	-	920	-	920*	-	-	800	-	800*	-	-	
	<b>Total</b>	<b>17,900</b>	<b>4,460</b>	<b>13,440</b>	<b>4,170</b>	<b>2,200</b>	<b>1,420</b>	<b>2,970</b>	<b>9,880 (4,460)</b>	<b>-</b>	<b>-</b>	<b>14,170</b>	<b>2,200</b>	<b>14,170</b>	<b>9,880</b>	<b>-</b>	<b>-</b>	<b>14,170</b>	<b>2,200</b>	<b>14,170</b>	<b>9,880</b>	<b>-</b>	<b>-</b>	<b>14,170</b>	<b>2,200</b>	<b>14,170</b>	<b>9,880</b>	<b>-</b>	
1972	Magelang	1,000	-	1,000	-	-	-	-	-	-	-	-	300	-	300*	-	-	-	300	-	300*	-	-	200	-	200*	-	-	
	Malang	4,000	-	4,000	-	-	-	-	-	-	-	-	1,200	-	1,200*	-	-	-	1,200	-	1,200*	-	-	800	-	800*	-	-	
	Bandung T	2,000	1,500	500	-	-	-	-	-	-	-	-	150	-	1,650 (1,500)	-	-	-	150	-	1,650*	-	-	100	-	100*	-	-	
	Tandjekarang	1,000	-	1,000	-	-	-	-	-	-	-	-	300	-	300*	-	-	-	300	-	300*	-	-	200	-	200*	-	-	
	Melawan	1,000	340	660	-	-	-	-	-	-	-	-	190	-	530 (340)	-	-	-	190	-	530*	-	-	130	-	130*	-	-	
	Banda Atjeh	2,000	260	1,740	-	-	-	-	-	-	-	-	520	-	780 (260)	-	-	-	520	-	780*	-	-	350	-	350*	-	-	
	Menad	2,600	1,000	1,600	-	-	-	-	-	-	-	-	480	-	1,480 (1,000)	-	-	-	480	-	1,480*	-	-	320	-	320*	-	-	
	Surabaya U	8,000	5,200	2,800	-	-	-	-	-	-	-	-	1,420	-	6,620 (5,200)	-	-	-	1,420	-	6,620*	-	-	1,000	-	1,000*	-	-	
	<b>Total</b>	<b>21,600</b>	<b>8,300</b>	<b>13,300</b>	<b>3,280</b>	<b>5,350</b>	<b>2,980</b>	<b>2,170</b>	<b>17,740 (8,300)</b>	<b>-</b>	<b>-</b>	<b>14,170</b>	<b>5,350</b>	<b>14,170</b>	<b>17,740</b>	<b>-</b>	<b>-</b>	<b>14,170</b>	<b>5,350</b>	<b>14,170</b>	<b>17,740</b>	<b>-</b>	<b>-</b>	<b>14,170</b>	<b>5,350</b>	<b>14,170</b>	<b>17,740</b>	<b>-</b>	
1973	Kebajoran (DJK)	3,000	-	3,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	-	-	900*	-	-	
	Tandjungpriok (DJK)	2,000	-	2,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	-	-	600*	-	-	
	Tebet (DJK)	4,000	-	4,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,200	-	-	1,200*	-	-	
	Tjandi	2,000	1,000	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	-	-	1,300* (1,000)	-	-	
	Selo	2,000	-	2,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	-	-	600*	-	-	
	Tjempakputih (DJK)	4,000	-	4,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,200	-	-	1,200*	-	-	
	Djember	3,000	1,000	2,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	-	-	1,600* (1,000)	-	-
	Bandung T	2,000	-	2,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	-	-	700*	-	-	
	Djambi	1,000	-	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	-	300*	-	-	
	Pakanbaru	2,000	1,000	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	470	-	1,470 (1,000)	-	-	
	Pontianak	2,600	1,000	1,600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	480	-	1,480 (1,000)	-	-	
	<b>Total</b>	<b>27,600</b>	<b>4,000</b>	<b>23,600</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>6,410</b>	<b>4,270</b>	<b>4,620</b>	<b>5,480</b>	<b>14,020 (3,500)</b>		
II																													
Manual																													
1973	Salatiga	340	-	340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Bondowoso	310	-	310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Lumajang	360	-	360	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Kupang	520	-	520	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	<b>Total</b>	<b>1,530</b>	<b>-</b>	<b>1,530</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	

Notes: 1. Figures have been rounded up or down to nearest unit of ten.  
2. \* indicates LTD facilities are available.

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

Pro Forma Statements of Sources and Applications of Funds: 1970-1973  
(Rp Million)

Year ending December 31:	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>Total</u>
<u>SOURCES OF FUNDS</u>					
<u>Internal cash generation</u>					
Net operating income before interest	1,063	1,351	2,064	2,807	7,285
Depreciation	<u>1,025</u>	<u>1,242</u>	<u>1,540</u>	<u>1,810</u>	<u>5,617</u>
<u>Total internal cash generation</u>	<u>2,088</u>	<u>2,593</u>	<u>3,604</u>	<u>4,617</u>	<u>12,902</u>
Borrowings - Project aid loans <sup>1/</sup>	2,646	2,506	3,255	3,221	11,628
- Government funds - IDA <sup>2/</sup>	688	2,775	1,183	193	4,839
- Other <sup>2/</sup>	-	2,000	-	-	2,000
Installation charges	<u>461</u>	<u>727</u>	<u>850</u>	<u>1,233</u>	<u>3,271</u>
<u>TOTAL SOURCES OF FUNDS</u>	<u>5,883</u>	<u>10,601</u>	<u>8,892</u>	<u>9,264</u>	<u>34,640</u>
<u>APPLICATION OF FUNDS</u>					
Construction program	4,780	9,430	6,870	5,300	26,380
<u>Debt service</u>					
Interest - Project aid loans	346	524	728	957	2,555
- Government loans - IDA	41	226	477	567	1,311
- Other	-	120	240	240	600
Amortization - Project aid loans	-	-	73	129	202
- Government loans - IDA	-	-	-	-	-
- Other	-	-	-	-	-
<u>Total debt service</u>	<u>387</u>	<u>870</u>	<u>1,518</u>	<u>1,893</u>	<u>4,668</u>
Government tax	304	216	279	469	1,268
Dividends	-	-	-	400	400
Increase in working capital other than cash	<u>89</u>	<u>212</u>	<u>208</u>	<u>172</u>	<u>681</u>
<u>TOTAL APPLICATION OF FUNDS</u>	<u>5,560</u>	<u>10,728</u>	<u>8,875</u>	<u>8,234</u>	<u>33,397</u>
Cash surplus (or deficiency)	323	(127)	17	1,030	1,243
Cash at beginning of period	300	623	496	513	300
Cash at end of period	623	496	513	1,543	1,543
Times debt service covered by internal cash generation	5.4	3.0	2.4	2.4	

<sup>1/</sup> Debt incurred is assumed to be serviced on terms similar to present Bank loans, i.e., 7% per annum for 20 years including a grace period of 4 years.

<sup>2/</sup> Loans are assumed to be serviced at 12% per annum for 20 years including a grace period of 4 years.

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

Telephone Density Comparisons

Indonesia and Adjoining Countries

<u>Country</u>	<u>Telephone Density Per 100 Population</u>
Indonesia	0.15
Malaysia	1.42
Philippines	0.59
Singapore	5.37
Thailand	0.30

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

Basic Data as at December 1969  
and for 1969-1973 Development Program

1. Plant and Facilities in Service

Number of telephones of all kinds	196,661
Number of main subscribers lines	136,761
Percentage of automatic lines	48%
Number of manual exchanges	501
Total capacity of manual exchanges	96,975
Number of automatic exchanges	25
Total capacity of automatic exchanges	79,300
Number of long distance circuits (line, carrier, VHF & microwave)	1,203
Total mileage of long distance circuits	
- radio telephone	100,500 ch/km
- open wire carrier	112,760 "
- microwave	34,080 "
- VHF	12,003 "
Total number of HF radio stations (PERUMTEL)	162
" " " " " " (private)	530
Number of telegraph offices	720
Number of countries with which telephone service directly operates	15
Number of countries with which telegraph service directly operates	11

2. Staff

Total staff	21,365
Telephone staff, estimated	16,365
Telegraph staff, estimated	5,000
Number of staff per 1,000 telephones	86

3. Proposed Expansion during 1969-1973 Program

Proposed yearly growth during program (DEL's)		5.3%
Proposed increase in telephone lines		40,299
"        "        " automatic telephone lines		59,659
Proposed total increase in stations		64,999
Proposed increase in number of long distance circuits		991
Telephone and telegraph network construction costs	Million US\$	73.65
Telephone network construction costs (including long distance)	" "	70.67
Telephone network construction costs (excluding long distance)	" "	36.95
Cost per telephone line added excluding long distance		US\$ 917*

\* This compares with a CCITT average for ten administrations of \$830. The figure in Indonesia is high due to the major conversion program.

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

Number of Exchanges Line Units

Main Subscriber Lines and Extension Lines in the Various Islands of Indonesia

as on December 31st, 1968.

Telecom District	A U T O M A T I C				C . B .				L . B .				T O T A L			
	Exch.	L.U.	DEL	E.L.	Exch.	L.U.	DEL	E.L.	Exch.	L.U.	DEL	E.L.	Exch.	L.U.	DEL	E.L.
I - Java	6	29,000	25,688	8,274	-	-	-	-	12	1,460	952	384	18	30,460	26,640	18,658
II - Java	2	4,000	3,765	891	10	10,440	7,748	5,228	73	8,205	5,513	1,837	85	22,645	17,026	7,956
III - Java	3	9,000	7,056	1,631	14	18,150	14,663	6,298	81	9,084	6,280	2,163	98	36,234	27,999	10,092
VIII - Java	3	8,500	7,204	6,337	6	4,460	3,085	820	70	9,390	6,158	2,371	79	22,350	16,447	9,528
TOTAL													280	111,689	88,112	36,234
IV - Sumatra	2	4,000	3,520	2,225	-	-	-	-	30	5,375	4,071	1,249	32	9,375	7,591	3,474
V - Sumatra	2	4,000	2,698	414	-	-	-	-	28	4,249	2,674	568	30	8,249	5,372	982
VI - Sumatra	2	6,600	6,587	5,426	4	1,460	929	391	65	8,190	5,895	2,560	71	16,250	13,411	8,377
TOTAL													133	33,874	26,374	12,833
VII - Sulawesi	2	6,000	4,643	1,888	2	1,920	1,521	357	37	4,290	2,555	317	40	12,210	8,719	2,562
IX - Kalimantan	-	-	-	-	1	640	105	37	20	5,243	3,789	1,375	21	5,883	3,894	1,412
X - Nusatenggara	1	1,600	1,337	354	-	-	-	-	32	4,910	2,875	590	33	6,510	4,212	944
XI - Maluku	1	1,600	713	96	-	-	-	-	5	730	437	177	6	2,330	1,150	273
XII - West Irian	-	-	-	-	-	-	-	-	11	2,300	1,968	955	11	2,300	1,968	955
TOTAL	23	74,300	63,211	27,536	37	37,070	28,051	13,131	464	63,426	43,167	14,546	524	174,796	134,429	55,213

Note:- C.B. = Central battery; L. B. = Local battery.

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

Growth in Exchange Capacity, Connected Subscribers & Stations, & Likely Growth in Exchange Capacity

Year	Available exchange capacity			Increase over previous year - %	Connected subscribers			Increase over previous year - %	Exchange fill - %	Number of extensions	Total stations
	Manual	Automatic	Total		Manual	Automatic	Total				
December:											
1963	81,179	32,807	113,986	-	-	-	-	-	-	-	-
1964	84,926	48,400	133,326	17.0	-	-	-	-	-	-	-
1965	90,207	48,430	138,637	4.0	-	45,697	-	-	-	-	-
1966	96,067	63,700	159,767	15.2	-	54,871	-	-	-	-	-
1967	97,512	68,700	166,212	4.0	72,040	57,924	129,964	-	-	55,403	185,367
1968	100,496	74,300	174,796	5.4	71,218	63,211	134,429	3.4	77	55,213	189,642
1969	96,975	79,300	176,275	0.81	71,200	65,561	136,761	1.7	78	59,900	196,661
1970	93,475	96,900	190,375	8.0	68,100	73,560	141,660	3.6	74	65,300	206,960
1971	88,475	114,800	203,275	6.8	63,640	85,810	149,450	5.5	74	71,200	220,650
1972	79,975	136,400	216,375	6.4	55,340	105,720	161,060	7.8	74	77,600	238,660
1973	77,505	164,000	241,505	11.6	51,840	125,220	177,060	9.9	74	84,600	261,660

Notes:-

1. Assuming 78% exchange fill from 1963-1966 when number of connected subscribers was not available, the average subscriber growth 1963-1969 has been 8.9%, say 9% per annum.
2. Average subscriber growth 1968-1973 based on PERUMTEL's program of development is 5.3% per annum.

**INDONESIA**  
**PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)**  
 Summary of Annual Program Costs 1969 - 1973

Rp. - in 1,000 million Rupiah  
 US.\$ - in million US. Dollars

No.	Item	1969			1970				1971				1972				1973					Total					
		Nat'l Budget	Project Aid '68	Total	Nat'l Budget	Project Aid '69	World Bank	Total	Nat'l Budget	Project Aid '70	World Bank	Add. Rp. for W.B. request	Total	Nat'l Budget	Project Aid '71	World Bank	Add. Rp. for W.B. request	Total	Nat'l Budget	Project Aid '72	World Bank	Add. Rp. for W.B. request	Retention World Bank	Total	Rp.	\$	
		Rp.	\$	Rp.	Rp.	\$	\$	Rp.	Rp.	\$	\$	Rp.	Rp.	Rp.	\$	\$	Rp.	Rp.	Rp.	\$	\$	Rp.	\$	Rp.	Rp.	\$	
I.	Construction of local telephone exchange including the switching part for inter-local connection.																										
1.	Construction/Extension of automatic telephone exchange	0.70	3.20	1.71	0.28	4.50	0.07	2.01	0.72	4.50	0.60	0.24	2.89	0.81	6.10	-	0.19	3.31	0.82	-	7.06	-	0.03	3.50	13.42	25.96	
2.	Extension of existing CB/LB manual exchange and changeover of LB to CB exchanges.	-	-	-	-	-	-	-	-	-	-	-	-	0.08	0.16	-	-	0.14	0.08	-	0.16	-	-	0.14	0.26	0.32	
II.	Construction of long distance transmission over line, HF, VHF/UFV and Microwaves.																										
1.	Carrier connection on lines or VHF/UFV radio link.	0.30	-	0.30	0.08	-	-	0.08	0.40	0.93	-	-	0.76	0.03	0.90	-	-	0.37	0.09	-	0.10	-	-	0.13	1.64	1.93	
2.	HF radio circuits	0.30	-	0.30	0.12	1.00	-	0.12	0.07	0.60	-	-	0.29	0.07	1.05	-	-	0.47	0.12	-	0.10	-	-	0.15	1.70	2.75	
3.	Tropo-Scatter-Link Surabaya-Semarang	-	-	-	0.01	0.10	0.15	0.10	-	-	1.27	0.12	0.60	-	-	0.08	0.03	0.06	-	-	-	-	-	-	0.76	1.60	
4.	Microwave Java - Bali	0.47	2.40	1.25	0.44	1.40	-	0.97	0.10	-	-	-	0.10	0.05	-	-	-	0.05	-	-	-	-	-	-	2.37	3.80	
5.	Microwave Trans Sumatra a. Survey b. Execution	0.08	0.35	0.19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.10 <sup>5)</sup>	-	-	0.19	0.35	
6.	Eastern System (Bantenggara) to Sulawesi	-	-	-	-	-	0.85	0.79	-	-	4.70	1.38	3.16	-	-	2.50	0.32	1.26	0.01	-	0.70 <sup>6)</sup>	-	-	0.21	5.42	8.60	
III.	Construction of telegraph office including telex																										
1.	Extension/Upgrading of telegraph transmission.	-	-	-	0.01	-	0.05	0.03	0.14	0.60	0.17	0.11	0.54	0.09	0.40	0.25	0.03	0.37	0.06	-	0.30	-	0.03	0.19	1.13	1.80	
2.	Extension/Upgrading of telex transmission.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3.	Upgrading of Morse connection.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.	Upgrading/Extension of printer connection on line.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5.	Rehabilitation of telegraph-offices	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6.	Upgrading of Surabaya Telegraph office with message switching centre.)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
IV.	Construction of buildings/offices for operation and maintenance purposes																										
1.	Buildings/Office.	0.05	-	0.05	0.02	-	-	0.02	0.21	-	-	-	0.21	0.21	-	-	-	0.21	0.12	-	-	-	-	0.12	0.61	-	
2.	Cars/Automobiles for operation/maintenance.	-	-	-	-	-	-	-	0.25	-	-	-	0.25	0.25	-	-	-	0.25	0.25	-	-	-	-	0.25	0.75	-	
3.	Equipments/spare parts for maintenance.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
V.	Training facilities for training and upgrading of PW.Telekomunikasi, technicians and engineers.																										
1.	Building/Office/Classroom	-	-	-	-	-	-	-	0.20	-	-	-	0.20	0.15	-	-	-	0.15	0.15	-	-	-	-	0.15	0.50	-	
2.	Training equipment	-	-	-	-	-	-	-	0.17	-	-	-	0.17	0.10	-	-	-	0.10	0.10	-	-	-	-	0.10	0.37	-	
3.	Training of trainees in foreign country.	-	-	-	-	-	-	-	0.02	-	-	-	0.02	0.02	-	-	-	0.02	0.02	-	-	-	-	0.02	0.06	-	
4.	Local training cost	0.01	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	-	
VI.	Consulting services.	-	-	-	0.02	-	0.60	0.25	0.01	-	0.20	-	0.09	-	-	-	-	-	-	-	-	-	-	-	-	0.34	0.80
VII.	Contingencies	-	-	-	-	-	0.10	0.04	-	-	0.40	-	0.15	-	-	0.30	-	0.11	-	-	-	-	-	-	-	0.30	0.80
NOTES:	1 US\$ = Rp 226 in 1969	1.91	5.85	3.81 <sup>3)</sup>	1.45	7.00	1.82	4.78 <sup>3)</sup>	2.29	6.63	7.34	1.85	7.43 <sup>3)</sup>	1.86	8.61	3.13	0.57	6.87 <sup>3)</sup>	1.89	-	8.52 <sup>7)</sup>	4 <sup>1)</sup>	0.51	5.30 <sup>3)</sup>	30.19 <sup>3)</sup>	49.41	
	1 US\$ = Rp 378 in 1970-1973																										

1) This list shows available Rp from the National Budget.  
 2) Costs are based on price level April '69 and based on Government's fiscal year but in practice would apply to PERUMTEL's fiscal year.  
 3) Included counter value of the US\$  
 4) Included in National Budget  
 5) Spur routes and further development  
 6) Including further developments on Java-Bali  
 7) A second World Bank Loan is anticipated in 1973.

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

Detailed Provisions Covered in the Project

A. Automatic Exchanges - Local

1971 - Laying, jointing and terminating local distribution cables and interoffice cables in the Djakarta local area.

B. Long Distance Microwave System

1. Buildings - access roads

1970 - Djakarta - Palembang - 11 units  
Palembang- Djambi - 9 units

1971 - Djambi - Padang - 7 units  
Padang - Medan - 15 units

2. Equipment Installations

First half 1972 - Djakarta - Palembang - 14 stations

Second half 1972 - Palembang - Djambi - 10 stations  
Djambi - Padang - 8 stations  
Padang - Medan - 19 stations

Commissioning successively from July 1972 to June 1973.

C. Long Distance Tropo Scatter System

1. Buildings and Roads

1970 - Surabaya - Islands - Bandjarmasin

2. Equipment Installation

1971/72 - Commencement late 1971, installation  
commissioning mid 1972

D. Multiplexing Equipment for the following sections:

Djakarta - Palembang - Microwave super group and channelling equipment  
Palembang- Djambi - -do-  
Djambi - Padang - -do-  
Padang-Medan - -do-  
Surabaya -Bandjarmasin - VHF scatter group and channelling equipment

E. Telegraphs and Telex

1. Equipment Installation

1971 - Medan exchange - 100 lines  
Den Pasar exchange - 20 lines

1972 - Palembang exchange - 20 lines  
Bandjarmasin exchange - 20 lines

2. Circuits through V.F.T. Systems

a) Increase on Microwave

1971 - Djakarta - Den Pasar - 3 nos.  
1972 - Djakarta - Palembang - 6 nos.  
1973 - Djakarta - Medan - 12 nos.  
Medan - Padang - 9 nos.

b) Increase on Tropo Scatter

1972 - Surabaya - Bandjarmasin- 4 nos.

F. Trunk Switching Centers

1. Buildings

1971 - Medan  
Palembang

2. Equipment Installation and Commissioning

1972 - Palembang  
Djakarta

1973 Medan  
Padang

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

Summary of Annual Disbursements for the Project and Program

Rp 326: \$1 in 1969  
Rp 378: \$1 in 1970-73

Year	Provisions covered by Credit			Additional provisions necessary for Project			Total Project			Additions for Program			Total Program		
	1/ \$ M	Rp B	Total Rp B	\$ M	Rp B	Total Rp B	\$ M	Rp B	Total Rp B	\$ M	Rp B	Total Rp B	\$ M	Rp B	Total Rp B
1969	-	-	-	-	-	-	-	-	-	5.85	1.91	3.81	5.85	1.91	3.81
1970	1.82	0.58	1.27	0.10	0.02	0.06	1.92	0.60	1.33	6.90	0.85	3.45	8.82	1.45	4.78
1971	7.34	1.85	4.63	1.20	0.21	0.66	8.54	2.06	5.29	5.43	2.08	4.14	13.97	4.14	9.43
1972	3.13	0.57	1.75	-	-	-	3.13	0.57	1.75	8.61	1.86	5.12	11.74	2.43	6.87
1973	0.51	-	0.19	-	-	-	0.51	-	0.19	8.52	1.89	5.11	9.03	1.89	5.30
<u>Totals:</u>	<u>12.80</u>	<u>3.00</u>	<u>7.84</u>	<u>1.30</u>	<u>0.23</u>	<u>0.72</u>	<u>14.10</u>	<u>3.23</u>	<u>8.56</u>	<u>35.31</u>	<u>8.59</u>	<u>21.63</u>	<u>49.41</u>	<u>11.82</u>	<u>30.19</u>
<u>Total 1970-1972 (including the retention payments of \$510,000)</u>												<u>35.04</u>	<u>8.02</u>	<u>21.27</u>	

1/ M: Million; B: Billion.

The proposed three-year project (1970-1972) forms part of PERUMTEL's on-going Five-Year Development Program (1969-1973). The program's cost is estimated at US\$81.5 million, including a foreign exchange component of US\$49.4 million. The estimated cost of the proposed project amounts to US\$22.6 million and includes a foreign exchange expenditure of US\$14.1 million, of which the Association would provide US\$12.8 million. The cost of the works to be constructed during the project period, as part of the Development Program, would amount to US\$56.3 million, including a foreign exchange component of US\$35 million.

INDONESIA

PERUSAHAAN UMUM TELEKOMUNIKASI (PERUMTEL)

Incremental Financial Rate of Return

1. Capital Cost of Project

The capital cost of the project has been taken from the investment schedule shown in Annex 20, including the provisions for contingencies, but excluding those for consultants. Initial provisions of multiplexing equipment will take care of estimated requirements for five years after completion, i.e., until 1978. Further provisions of multiplexing and switching equipment will be necessary in 1978 and 1983/84 at an estimated cost of \$750,000 in 1978 and \$900,000 in 1984 (see Table, para. 4).

2. Operating Expenses Attributable to Project

On PERUMTEL's present plant, operating costs amount to about 19% of assets at cost. The proposed project will eliminate items of plant on which maintenance costs are now heavy, and we estimate that the net effect, that is the incremental increase in operating costs due to the project less the operating savings made by the project on the old equipment, will be an increase in operating costs amounting to 7% of the capital value of the project. Operating costs exclude depreciation and income tax.

3. Revenues Attributable to Project

Taking into account the anticipated growth in telephone and telex subscribers and making an assessment of the upsurge in calling rates which the project will make possible, it is estimated that the revenues will increase in line with the following table.

<u>Year</u>	<u>Sumatra</u> <u>link</u>	<u>Kalimantan</u>	<u>Private</u> <u>wire</u>	<u>Cable</u>	<u>TV</u>	<u>Telex</u>	<u>Total</u>	<u>Rupiah</u> <u>Billion</u>
			US\$ thousands					
1971	-	-	-	338	-	36	374	0.141
1972	286	89	-	802	-	72	1,249	0.472
1973	572	178	300	1,052	300	90	2,492	0.942
1974	1,450	228	600	625	600	90	3,593	1.358
1975	1,803	277	660	625	600	90	4,055	1.533
1976	2,215	342	726	625	600	90	4,598	1.738
1977	2,688	413	798	625	600	90	5,214	1.971
1978	3,228	499	878	625	600	90	5,920	2.238
1979	3,854	592	966	625	600	90	6,727	2.543
1980	4,465	685	1,063	625	600	90	7,528	2.846
1981	4,910	757	1,169	625	600	90	8,151	3.081
1982	5,406	837	1,286	625	600	90	8,844	3.343
1983	5,953	917	1,415	625	600	90	9,600	3.629
1984	6,551	1,006	1,556	625	600	90	10,428	3.942
1985	7,212	1,104	1,712	625	600	90	11,343	4.288
1986	7,937	1,210	1,883	625	600	90	12,345	4.666
1987	8,726	1,335	2,071	625	600	90	13,447	5.083
1988	9,604	1,469	2,278	625	600	90	14,666	5.544
1989	10,570	1,620	2,506	625	600	90	16,011	6.052

4. The following table presents the cash flow attributable to the project for 20 years including the three-year construction period. A residual value has been given to major items of plant with assumed longer economic lives.

<u>No.</u>	<u>Year</u>	<u>Capital Investment</u>	<u>Residual Value</u>	<u>Revenue Attributable to Project</u> Rp Billion	<u>Additional Operating Expenses</u>	<u>Net Flow</u>
1	1970	1.080	-	-	-	-1.080
2	1971	5.200	-	0.141	0.110	-5.169
3	1972	1.750	-	0.472	0.281	-1.559
4	1973	0.190	-	0.942	0.575	0.177
5	1974	-	-	1.358	0.575	0.783
6	1975	-	-	1.533	0.575	0.958
7	1976	-	-	1.738	0.575	1.163
8	1977	-	-	1.971	0.575	1.396
9	1978	-	-	2.238	0.575	1.663
10	1979	0.208	-	2.543	0.590	1.745
11	1980	-	-	2.846	0.590	2.256
12	1981	-	-	3.081	0.590	2.491
13	1982	-	-	3.343	0.590	2.753
14	1983	-	-	3.629	0.590	3.039
15	1984	0.250	-	3.942	0.607	3.085
16	1985	-	-	4.288	0.607	3.681
17	1986	-	-	4.666	0.607	4.059
18	1987	-	-	5.083	0.607	4.476
19	1988	-	-	5.544	0.607	4.937
20	1989	-	2.000	6.052	0.607	7.445

The calculations based on the above figures show that the increased revenue and receipts from the 1970-1973 project would yield an incremental financial rate of return of about 16.8% at current price levels. A combination of circumstances whereby capital costs were 10% higher and revenues 10% lower would give a rate of return of about 13.9%. The reverse combination whereby capital costs were 10% lower and revenues were 10% higher would give a rate of return of about 19.8%. These ranges of 10% in the main variables seem reasonable to cater for, and thus a likely range in the incremental financial rate of return would be 13.9%-19.8%.

May 27, 1970

