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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT  
INTERNATIONAL DEVELOPMENT ASSOCIATION

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APPRAISAL OF THE 1970-1974  
TELECOMMUNICATIONS PROGRAM  
VENEZUELA

October 19, 1970

Public Utilities Projects Department

### CURRENCY EQUIVALENTS

US\$1.00	=	Bs4.50
US\$1 million	=	Bs4,500,000
Bs 1.00	=	US\$0.22
Bs 1 million	=	US\$222,222

### MEASURES EQUIVALENTS

khz.	=	kilohertz
mhz.	=	megahertz
1 Kilometer (km.)	=	0.621 statute mile

### LIST OF ABBREVIATIONS, ACRONYMS AND DEFINITIONS USED IN THE REPORT

APO	-	Australian Post Office (PTT)
CANTV	-	Compania Anonima Nacional Telefonos de Venezuela
Carrier	-	A system of providing a number of circuits (channels) through one transmission mode (radio, cable or wire)
CCITT	-	Comite Consultatif International Telegraphique et telephonique, Geneva (ITU)
CETT	-	Centro de Entrenamiento de Tecnicos de Telecomunicaciones (Training Center for Telecommunications Technicians)
Channel	-	One circuit of a carrier system carrying speech or telegraph signals
DEL	-	Direct Exchange Line (connected)
Erlang	-	Measure for telephone traffic density (one Erlang=60 minutes of occupation of a line or a circuit)
Eximbank	-	Export-Import Bank of United States of America
Fill	-	Utilization of available capacity
HF	-	High frequency radio 3,000-30,000 khz.
INTELSAT	-	International Telecommunications Satellite Consortium
ITU	-	International Telecommunication Union
LAV	-	Linea Aeropostal Venezolana
L. D.	-	Long Distance
Microwave	-	Radio systems working at frequencies above 300 mhz., but normally applied to systems working at frequencies above 1,000 mhz.
Multiplexing	-	Providing many Telecommunication channels through one transmission mode
PABX	-	Private automatic branch exchange
STD	-	Subscriber Trunk Dialing (direct long distance dialing)
Telex	-	Teleprinter exchange service providing direct connections for any subscriber to communicate with another one
Troposcatter	-	A system of radio communication using dispersed radio waves which are refracted by the troposphere
UHF	-	Ultra high frequency radio 300-3,000 mhz.
UNDP	-	United Nations Development Program
VHF	-	Very high frequency radio 30-300 mhz.

VENEZUELA

COMPANIA ANONIMA NACIONAL TELEFONOS DE VENEZUELA (CANTV)

APPRAISAL OF THE 1970-1974 TELECOMMUNICATIONS PROGRAM

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This report is based on the findings of a Bank mission of Messrs. F. Gheith, M.F. Kohler and H.B. Meier, who visited Venezuela in March/April 1970.

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VENEZUELA

COMPANIA ANONIMA NACIONAL TELEFONOS DE VENEZUELA (CANTV)

APPRAISAL OF THE 1970-1974 TELECOMMUNICATIONS PROGRAM

SUMMARY AND CONCLUSIONS

- i. This report appraises a Project which consists of the Five-Year Telecommunications Expansion Program of Compania Anonima Nacional Telefonos de Venezuela (CANTV) for the period 1970-1974. The Program requires a total investment of Bs 1.35 billion (US\$300 million). A Bank Loan of US\$35 million is proposed and would cover 26.3% of the direct foreign currency costs.
- ii. The existing telecommunications facilities are inadequate as indicated by the large number of pending applications for new subscriber connections, and the substantial unsatisfied demand for long distance calls. The 1970-1974 Program will alleviate the congestion and delays in national and international long distance traffic, and will meet part of the demand for telephone connections. It will provide for the addition of 347,000 lines of capacity to the local telephone exchanges, and for the expansion of the long distance network. It includes installation of an earth satellite station to meet the requirements of international traffic. The internal financial rate of return of the Program is estimated at 21%.
- iii. All equipment and materials would be procured under international competitive bidding, except for some switching equipment to be purchased from suppliers of existing equipment in Venezuela, and a portion of the cable requirements to be procured from domestic manufacturers; these two exceptions would not be financed by the Bank Loan. Domestic manufacturers would be allowed to participate in the bidding for the portion of cables to be procured internationally, with a 15% margin of preference or customs duties, whichever is lower.
- iv. The proposed Loan would be a follow-up to the first Bank lending operation in Venezuela's telecommunications sector. Loan No. 435-VE (US\$37 million) helped set up the basic long distance microwave network, improve international connections and extend local service. Project execution has been satisfactory, but, due to delays caused by some late equipment deliveries and by building redesigns following the 1967 earthquake, the March 31, 1969, closing date of the Loan was postponed twice: first, to June 30, 1970 and then to October 31, 1970. The Project has been completed by the closing date.
- v. CANTV, the proposed borrower, has been strengthened as an institution during the execution of the first Project. To prepare for the large expansion, the Company has undertaken to hire management consultants to adapt its organizational structure to present and future needs.

vi. CANTV's financial position is generally satisfactory. It has managed to convert a deficit financial situation to one of acceptable profitability in the past few years, and during 1970-1974 expects to provide about one-third of its requirements of funds through internal cash generation; the return on net fixed assets would increase from 8.6% in 1970 to 14.4% in 1974. CANTV's liquidity is not fully satisfactory on account of significant receivables, outstanding mainly from Government agencies. CANTV has agreed to undertake satisfactory arrangements for the collection of present and future receivables.

vii. The Project forms a suitable basis for a Loan of US\$35 million for a term of 16 years, including a grace period of 5 years.

VENEZUELA

COMPANIA ANONIMA NACIONAL TELEFONOS DE VENEZUELA (CANTV)

APPRAISAL OF THE 1970-1974 TELECOMMUNICATIONS PROGRAM

1. INTRODUCTION

1.01 The Government of Venezuela has requested Bank assistance in financing the Five-Year Telecommunications Expansion Program covering the period 1970-1974. The Program is aimed at meeting part of the demand for telecommunications services during this period and provides for doubling of the number of telephone connections and expanding the long distance facilities to handle the expected increases in traffic. The cost of this Program is estimated at Bs 1.35 billion (US\$300 million). It would be carried out by Compania Anonima Nacional Telefonos de Venezuela (CANTV) the wholly Government owned utility that provides the country's public telephone and telex services.

1.02 The Government enquired into the possibility of Bank financing for the proposed Project in September 1969. A formal request for a Loan of about US\$40 million was received along with the expansion plan at the end of February 1970. Between March 21 and April 20, an appraisal mission comprised of Messrs. F. Gheith, M.F. Kohler and H.B. Meier visited Venezuela to evaluate the Project and identify items suitable for Bank financing.

1.03 This would be the second telecommunications Project financed by the Bank in Venezuela. The first, financed by Loan No. 435-VE of December 13, 1965, helped to establish a basic high-quality long distance network between the main cities, improve international connections, and expand local service. Project execution has been satisfactory, although there have been some delays due to late equipment deliveries and the need to redesign the CANTV administration building in Caracas following the 1967 earthquake. The Loan closing date was therefore postponed from March 31, 1969, to June 30, 1970; another postponement of four months to October 31, 1970, was agreed to later.

## 2. THE ECONOMY AND THE SECTOR

### A. Economy

2.01 Venezuela's economy is characterized by its dependency on oil, which accounts for 93% of exports, 67% of fiscal revenues and 19% of GDP. The labor force employed in agriculture decreased from 44% of the total labor force in 1950 to 29% in 1969. The highly capital-intensive oil sector employs less than 1.5% of the labor force; manufacturing has absorbed 16%, the service sector 48% (including Government, commerce, transport, etc.) and construction 6%. Most economic activity is concentrated in an around Caracas and in the region between Caracas and Maracaibo.

2.02 There has been extensive migration from rural to urban areas, reducing the percentage of Venezuela's population living in rural areas from 46% in 1950 to about 25% in 1969 and requiring large expenditures on public services for the immigrants to the cities. To improve employment opportunities for these people and to strengthen the economy's long term growth potential, Venezuela has made the diversification of its petroleum-based economy a fundamental principle of economic policy, in which the improvement of telecommunications facilities plays an important role.

### B. The Telecommunications Sector

2.03 Telecommunications are under the control of the Ministry of Communications, which is the regulatory agency. CANTV provides all public telephone services. Telegraph service for the public is provided by two entities. A Department of the Ministry of Communications provides national and international telegraph service; Linea Aeropostal Venezolana (LAV), a Government-owned domestic airline, provides under a provisional arrangement international telegraph service which was previously being furnished by a private company, All America Cables and Radio, Inc. When the license granted to All America Cables expired in December 1969, its staff refused to become employees of either the Ministry or CANTV and were temporarily attached to LAV, where they are continuing to provide the same service. Proposals on the future organization of the telegraph service are presently under discussion.

2.04 The existing telecommunications facilities in Venezuela (see paragraphs 3.18 to 3.25) are inadequate quantitatively and qualitatively in meeting the demand for telecommunications. Venezuela's density of telephones--3.76 phones per 100 inhabitants--is low in comparison with other countries with similar GNP per capita (see paragraph 5.05).

2.05 Partly because of this situation, a number of enterprises and Government agencies own and operate their own radio circuits. The improvement of national communications as a result of the proposed 1970-1974 Expansion Program is expected to result in the closing down of many of these high-cost private telephone facilities.



### 3. THE BORROWER

#### A. Organization and Management

3.01 CANTV, the proposed borrower is fully Government-owned and provides telephone and telex services under the Telecommunications Law of July 1, 1965, as amended, and statutes dated July 19, 1968; it is subject to the Corporation Law but is tax exempt. The members of the Board of Directors, including the President and the General Manager, are appointed for staggered terms by the Minister of Communications in his capacity as shareholder. The entity has good management: the President and General Manager are qualified executives, and the other management positions are likewise held by competent personnel. Even so, because of the size of expansion to be undertaken in the 1970-1974 period, it has been agreed that the Bank will be consulted before there are new appointments to the positions of President and General Manager.

3.02 The enterprise has a good record of achievement in the past few years. During the period of the first Bank Loan, some organizational improvements were undertaken. Further organizational restructuring and procedural changes are now planned to enable CANTV to handle the large expansion of the system. Emphasis would be placed on regional decentralization and on improvements in the collection system, project planning and execution, and compilation of data on personnel, stores, costs and traffic.

3.03 CANTV signed a contract on February 6, 1970, with the domestic consulting firm of Asesores Empresariales (AESAs) to analyze organizational problems of the Metropolitan Zone, which accounts for over half of the Company's assets. While designing an organizational structure for the zone, AESA has also made proposals concerning the collection system, personnel administration and stores.

3.04 For its overall reorganization, CANTV is hiring an international management consulting firm. A contract with one of the two firms, Peat, Marwick, Mitchell & Co. or Booz, Allen & Hamilton, will be concluded in November 1970, based on the agreed terms of reference. The consultants will submit periodic progress reports to the Bank.

3.05 Also, a two-year technical assistance program has been prepared in Caracas by a representative of the Australian Post Office (APO) to provide consulting services, mainly in the field of local network planning, and to offer Venezuelan engineers fellowships for training periods of at least three months in Australia. An agreement on this assistance is expected to be concluded by December 1970.

B. Staff and Training

3.06 Under the first Loan, CANTV agreed to reduce its staff from 19.1 persons per 1,000 telephones to 17.2 by 1969. The present level is 18.3 persons per 1,000 telephones. The reason for this shortfall in performance was due to difficulties in absorbing and putting to effective use all the persons transferred during 1967-1968 from the Ministry of Communications to CANTV along with the transfer of services previously rendered by the Ministry. CANTV has been able up to now to retrain and absorb about half of the persons transferred. This process has proven to be more complex and slower than anticipated. The difficulties have arisen due to the fact that most of the manual exchanges transferred have since been converted to automatic working to improve the quality of service. CANTV has still now about 600 persons on its payroll who are redundant. The efficient utilization of staff is important in view of the high average emoluments per employee in CANTV which are now about Bs24,000 (US\$5,300) as compared with an average of Bs12,400 (US\$2,750) for the manufacturing industry excluding the petroleum sector. The large expansion during 1970-1974 will permit CANTV to lower the level of staffing considerably. Management agreed to accomplish this by retraining personnel and introducing a careful control on hiring new staff (see paragraph 6.11 and Annex 7).

3.07 Training facilities for telecommunications staff have been expanded considerably in the past few years. The Training Center for Telecommunications Technicians, which began operations in 1964 with UNDP financing and ITU as executing agency, is working satisfactorily and graduating about 40 technicians per year. Besides the full courses for technicians, the curriculum includes short courses for in-service technical training.

3.08 For the Project period 1970-1974, a major expansion of the Training Center is planned with similar UNDP arrangements. This includes an increase in the number of subjects offered, particularly for apprentices and in-service staff. The Center will be transferred from the Ministry of Communications to CANTV. This move will allow the Company to shape the training to its needs more effectively. The expected output of the Training Center from 1970 to 1974 is shown in the following table:

	<u>Number of Trainees</u>					
	1970	1971	1972	1973	1974	1970-1974
High level technicians	40	45	45	45	45	220
Medium level technicians	-	20	20	20	20	80
Apprentices	-	290	310	340	390	1,330
In-service training	200	640	800	960	960	3,560
Total	240	995	1,175	1,365	1,415	5,190

C. Accounting and Audit

3.09 While its accounting system is in line with generally accepted commercial practices, CANTV is planning to improve it so as to make it a more effective tool for management control. The management consultants (see paragraph 3.04) will therefore assist CANTV in introducing departmentalized cost accounting and to computerize most of the data compilation. This will make available more promptly to management the essential data needed for decision-making.

3.10 In addition to the Company's own internal audit and the external audit by Price, Waterhouse & Co., CANTV's accounts are being reviewed by the legally required Comisario on behalf of the stockholders and by Venezuela's Auditor General on behalf of the Government. There is considerable overlap in the work performed by these auditors and a systematic exchange of information between them, along with better coordination of their duties, would eliminate duplication of effort, curtail auditing costs and reduce interference with CANTV's administrative process. Proposals for coordinating their functions will be prepared by the management consultants (paragraph 3.04). For the duration of the proposed Loan, CANTV has agreed to retain an independent auditor satisfactory to the Bank.

D. Past Financial Performance

3.11 Audited income statements for the fiscal years 1967 through 1969 are shown in Annex 2. CANTV's operating results have improved considerably in the past five years, as indicated by the rate of return:

	1965	1966	1967	1968	1969
Rate of return on average net fixed assets in service (%)	2.8	4.3	6.1	8.2	8.6

The increases are due mainly to rapidly increasing revenues following construction of the high quality long distance network and introduction of subscriber **trunk** dialing (STD) and the increase in the number of subscribers under the first Bank Loan. While revenues increased by 138% during the past five years, operating expenses increased by 112%. The operating ratio, although decreasing steadily, is still high:

	1965	1966	1967	1968	1969
Operating ratio (%)	93	90	87	83	82

3.12 The debt service coverage by internal cash generation dropped from 3.1 times in 1967 to 2.3 times in 1969. The debt/equity ratio has changed from 17:83 at year end 1967 to 29:71 in 1969. The proportion of long-term debt at year end 1969 is still low for two reasons: CANTV's rate of expansion in the past was modest and the financing of this expansion was carried out with a relatively small amount of debt and a rather large amount of interest and dividend free contributions from Government and assets transferred from the Ministry of Communications, totalling Bsl03.9 million (US\$23.1 million).

3.13 Audited balance sheets for the fiscal years 1967 through 1969 are shown in Annex 3. A summary of the December 31, 1969 financial position is given below:

	Million Bs
<u>ASSETS</u>	
Fixed assets:	
Net fixed assets in operation	680.1
Other fixed assets (mainly work in progress)	<u>205.9</u>
Total fixed assets	<u>886.0</u>
Cash	19.5
Other current assets	115.0
Past due accounts receivable (net)	34.1
Investments and other non-current assets	<u>20.6</u>
Total assets	<u><u>1,075.2</u></u>
<u>LIABILITIES</u>	
Share capital and surplus	682.7
Long term debt	241.0
Other non-current liabilities	57.4
Current Liabilities	<u>94.1</u>
Total liabilities	<u><u>1,075.2</u></u>

3.14 CANTV's financial position at December 31, 1969 is generally satisfactory except for its liquidity. The cash liquidity indicating the Company's immediate ability to meet the current operating cash outflows is insufficient, essentially because of an unsatisfactory collection performance which shows an average outstanding period for current accounts of about 80 days as against an average of 50 days which would be normal on the basis of the allowed payment terms. The liquidity could

also be substantially improved by the collection of past due accounts from various federal, state and municipal governments. Accumulated gradually over the past few years, these receivables amounted to Bs 34.1 million (US\$7.6 million) as of December 31, 1969 (net after Bs 4.2 million, US\$0.9 million, bad debts allowance of 11% of the gross amount of past due accounts). Specific arrangements for the collection of these past due accounts following a defined timetable have been agreed to during negotiation (paragraph 6.08).

#### E. Tariffs

3.15 Annex 5 summarizes CANTV's tariffs presently in effect. Installation charges and non-refundable subscription rights which make up the initial cost for new telephone subscribers are rather high averaging Bs 500-700 (US\$111-156). Such rights are levied only in a relatively few countries, but provide CANTV the necessary resources to expand telephone service; they can be paid in installments over a period of 10 months. Monthly rental and local call charges are in line with those in other similar countries. Long distance tariffs are on the high side, particularly for intermediate and long distances.

3.16 Tariffs for domestic telex service were fixed in 1969 -- before the full national telex service was introduced -- at about 50% of corresponding domestic long distance telephone tariffs, which is in line with CCITT recommendations and justified, in view of the much lower capital investment per telex circuit.

3.17 Tariff changes must be approved by the Minister of Communications, who reviews proposed changes with the Council of Ministers before approving them. The latest tariff change became effective in June 1967, when domestic subscriber trunk dialing was introduced. The tariffs are generally adequate to provide CANTV with the necessary revenues to produce an acceptable rate of return. Internal cash generation amounted to 46% of the funds applied for expansion during the 1967-1969 period. CANTV does not contemplate tariff changes for 1970-1974, nor have any been assumed in the financial projections. On this basis, self-financing in the 1970-1974 period would amount to about 38%, which is reasonable, considering the increased pace of expansion. However a subscribers' guarantee deposit will be introduced before the date of effectiveness of the proposed loan (paragraph 6.05).

#### F. Existing Telecommunications Facilities

3.18 Telecommunication services in Venezuela are lagging behind demand. A large number of applicants are waiting for new telephone connections (see paragraph 5.04) and due to congestion a large portion of long distance calls is either not completed or subject to delays.

##### a. Local Service

3.19 At the end of 1969, CANTV had 76 automatic exchanges with a total capacity of 331,820 lines, and 107 manual exchanges with a total capacity of

10,615 lines. The total number of connected direct exchange lines (DEL) was 248,166; there were 371,710 telephones, of which 65% were in Caracas (see Annex 8).

3.20 Automatic exchanges in Venezuela comprise seven different types of switching systems, putting extra demands on staff training. In Caracas, where there are five switching systems, difficulties are experienced in inter-working between the different systems and from congestion due to the lack of sufficient quantities of interconnecting junction circuits between exchanges. The number and duration of faults in the distribution network of Caracas are also above the average, due to lack of trained maintenance staff which is lagging behind the rapid growth of the Caracas network and poor installation of cables. The present Project is aimed at correcting these technical difficulties of the system.

b. Long Distance Service

3.21 Venezuela has basically two long distance networks --one to the west of Caracas and one to the east. In addition, CANTV rents circuits from the Creole Oil Company on its route (300-channel capacity) to the Maracaibo area for handling traffic to various towns in that area. CANTV has reached an agreement with Creole to acquire this route in 1974, after which Creole will rent its requirements from CANTV.

3.22 The western network consists primarily of a microwave system of 960 channels constructed under the first Loan. The eastern region is served by a basic UHF system of 72 channels. This is being replaced by a new microwave system of 960 channels which is expected to be commissioned by the end of 1970. These networks interconnect 29 switching centers and provide for subscriber dialing of long distance traffic between these centers. Smaller towns are connected by small coaxial cables, VHF circuits and open wire routes with and without carrier systems. Details of these systems are given in Annexes 9 and 13.

3.23 With the introduction of STD service at the end of 1967, traffic on the western network increased by 350%, as compared with the 175% forecast at the time of the previous appraisal in 1965. CANTV augmented the amount of equipment and other facilities, but even so only 30% of the traffic originating during the peak hour can be completed; 35% of the peak hour traffic is not completed because of the shortage of long distance channels, and the balance for other reasons (mostly insufficient junctions between the local and long distance exchanges).

c. Telex Service

3.24 Local telex service, which started in Venezuela in 1962 on a small scale, experienced a sizeable extension in 1966 and a full national telex service network was established toward the end of 1969. By the end of that

year, CANTV had 13 telex exchanges with a total capacity of 1,640 lines, of which 620 were in Caracas with 455 connected subscribers; installation of the remaining capacity of 1,020 lines in the other cities was not completed until October 1969 and 228 were connected at the year's end. International telex service became available in 1967.

d. International Service

3.25 By the end of 1969, Venezuela's international telephone connections totalled 84 circuits: 46 submarine cable circuits to the United States (including circuits to Mexico and Europe via the USA), 6 circuits to Caribbean countries, 22 circuits to Colombia and Curaçao via UHF radio systems, and 10 HF radio circuits to other Latin American countries and to Italy and Spain. The transmission via submarine cable is of high quality, but the capacity of the cable is inadequate as shown by the fact that in 1969 only 50-70% of telephone calls during the peak hour were completed. The submarine cable, UHF and HF lines also provide telex circuits for international working.

#### 4. THE PROJECT

##### a. Description

4.01 The Project is CANTV's Five-Year Telecommunications Program, covering the period 1970-1974, and consists of the following main physical items:

- a. Installation of about 347,000 lines of local exchange equipment and cable network and associated facilities to provide an increase of about 269,000 connected direct exchange lines (DEL's).
- b. Installation of new microwave links and provision of multiplexing equipment for 6,000 channels on existing and new links.
- c. Installation of a satellite ground terminal station and associated facilities.
- d. Installation of about 1,300 telex sets.

A brief description of these items is given below and details are given in Annex 9. In addition the Project includes the retention of management consultants (paragraph 3.04).

##### b. Local Service

4.02 During the Project period, CANTV would increase the capacity of exchanges, existing and new ones, by about 347,000 lines (100% increase). Part of the expansion would be achieved by installation of 191 transportable exchanges with unit capacities of 20 to 200 lines (total capacity 9,940 lines) for smaller localities. CANTV would also lay additional cables and the associated facilities required to provide for 269,000 new direct connected exchange lines (DEL's) during the Project period. The size of the local service expansion in this Program, arrived at after discussions with the bank is the most realistic that can be executed with the physical and financial resources available to CANTV, at this stage. This will cover only 65% of the demand for new subscriber connections as estimated by CANTV.

##### c. Long Distance Service

4.03 For long distance service, new microwave, coaxial cable, VHF links and multiplexing equipment for 6,000 channels would be provided, interconnecting the main switching centers and local exchanges to cope with presently unsatisfied demand and to meet an expected growth of traffic of 15% annually over the next few years. The capacities of the switching centers would be increased correspondingly.



D. International Service

4.04 A satellite ground terminal station is being installed to provide initially 30 new circuits; 5 to the US, 2 to Canada, 4 to Italy, 4 to Germany, 2 to Spain and 13 to Latin American countries. These capacities can be increased as rapidly as needed, by leasing more channels from INTELSAT's space station since the initial equipment in the terminal station can meet expansion needs up to 300 circuits. This system will also provide telex circuits. The satellite ground terminal station has been put into service in November 1970.

e. Telex Service

4.05 Total telex exchange capacities would be increased from 1,640 lines in 1969 to 2,740 in 1974; connected teleprinter machines are expected to increase from 683 to about 2,000.

f. Cost of the Program

4.06 The costs of the five-year telecommunications Program, totalling about Bs 1.35 billion (US\$300.3 million), are detailed in Annex 9, Table 1, and summarized below:

		(in million Bolivares)			(in million US\$)			
		Local	Foreign	Total	Local	Foreign	Total	%
1.	Local service	643.5	378.1	1,021.6	143.0	84.0	227.0	75.6
2.	Long distance (national)	104.7	169.4	274.1	23.3	37.6	60.9	20.3
3.	International service (including investment in Intelsat)	2.7	39.3	42.0	0.6	8.7	9.3	3.1
4.	Telex	2.1	8.8	10.9	0.5	2.0	2.5	0.8
5.	Consultants*	-	2.8	2.8	-	0.6	0.6	0.2
Total		758.0	598.4	1,351.4	167.4	132.9	300.3	100.0

4.07 The above estimates are based on recent cost experience to which has been added a contingency provision of about 7.5%. The costs of telephone switching equipment constituting 28% of item 1, and of the earth satellite

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\* Refer to paragraph 3.04

station constituting most of item 3, are based on actual contracts. The cable costs, which form 24% of item 1 above, are based on recent purchases; copper prices and the cost of cables have since come down and are expected to remain below the estimated costs. The long distance equipment prices in item 2 are also showing a decreasing trend. The estimates thus include a built-in margin for possible price increases; the contingency provisions are intended for unforeseen design and engineering modifications. The total cost provisions are reasonable and adequate.

g. Items Proposed for IBRD Financing

4.08 The table below sets out the foreign exchange cost of the items identified for financing by the proposed Bank Loan (Annex 9, Table 1)

	Bs Million	US\$ Million
	<u>          </u>	<u>          </u>
1. <u>Local Service</u>		
a. Local and junction cables and related accessories	66.2	14.7
b. Transportable exchanges for providing telephone service to small locali- ties	7.2	1.6
c. Telephone sets	12.5	2.8
2. <u>Long Distance Service</u>		
d. Western network extension and provision of 6,000 additional channels	35.6	7.9
e. Microwave link, Barquisimeto - Coro	5.4	1.2
f. Coaxial cable Maracay - Valencia	2.2	0.5
g. Overhead carrier routes (rural)	14.0	3.1
h. Connection Venezuela - Colom- bia	1.8	0.4
3. <u>Consultants</u>	1.3	0.3
4. <u>Unallocated</u>	<u>11.3</u>	<u>2.5</u>
	<u>157.5</u>	<u>35.0</u>

#### h. Project Execution

4.09 Execution schedules for the main items of the Project are shown in Annex 12. The engineering of the long distance system has been carried out by CANTV satisfactorily. For the local networks CANTV is obtaining the services of an Australian team (paragraph 3.05).

4.10 For all long distance equipment and for local and trunk automatic exchanges--except transportable and mobile exchanges-- CANTV will provide the installation work force, supervised by suppliers' engineers who will be responsible for the overall installation and performance. The mobile and transportable exchanges will be installed by CANTV. The commissioning of cables for local distribution comprises civil engineering works such as laying conduits and building manholes together with the laying and jointing of cables. The civil works will be handled by local contractors while the laying and jointing of cables will be handled partly by CANTV with its own personnel and partly through contractors. The execution time tables are reasonable.

4.11 Formerly contractors were responsible for the supply of conduits, manhole accessories and other items, and were paid only on completion of the contract. Some of the contracts were large in size. Further, in many cases cable deliveries by CANTV for these works were often delayed, placing a large financial burden on the contractors which in turn limited their capacity to undertake more work. CANTV has taken a number of steps--prompt and frequent progress payments, properly defined contracts, and expeditious supply of cables and accessories to contractors--to overcome these difficulties. The volume of this Program would assure the contractors of the continuity of this type of work, and encourage them to employ more experienced personnel for better performance.

#### i. Procurement

4.12 Except for some cables and switching equipment, as explained below, all materials and equipment for the Project will be procured through international competitive bidding. The part of the cable requirements reserved for domestic manufacturers and the part of switching equipment to be procured from existing suppliers for standardization reasons would be financed from supplier credits or CANTV's own resources.

4.13 Cables. In the past all the cables for CANTV were purchased from domestic manufacturers in accordance with a law that requires Government agencies to purchase locally manufactured goods if their prices are less than 25% above those of imported goods.

4.14 To obtain benefits of lower prices, CANTV has secured Government approval to procure two-thirds (Bs160 million) of its total cable requirements under international competitive bidding. Local manufacturers will be permitted to participate in this bidding with a margin of preference of 15% on CIF prices or customs duties, whichever is lower. At present, nominal

protection is about 12% on the CIF prices. Bs66 million (US\$14.7 million) of the requirements would be financed by the Bank, the remainder from CANTV's own funds. There is a possibility that CANTV may procure part of its cable requirements under supplier credit arrangements if there is a shortfall of funds from the contemplated sources (paragraph 6.06).

4.15 The procurement for the above Bs160 million worth of cables will follow normal procedures except that in case where cables are to be financed under supplier credits, these will be bid for separately under credit terms.

4.16 The other third of the total cable requirements i.e. Bs80 million (US\$17.8 million) would be reserved to domestic manufacturers. This portion is somewhat larger than CANTV's average purchases over the past 5 years, and thus the rate of production of the domestic factories will not be reduced. The prices obtained from international competitive bidding will enable CANTV in the future to obtain prices from domestic manufacturers of not more than 25% above those from foreign suppliers.

4.17 The Government has agreed to the proposed arrangements for the procurement of cables and the issuance of import licenses, as needed.

4.18 Switching Equipment. As mentioned in paragraph 4.02, during the Project period CANTV would increase the capacity of exchanges (existing and new) by some 347,000 lines. Approximately 10,000 lines of these would be procured through international competitive bidding and represent the only portion financed by the proposed loan.

4.19 The balance of the requirements--about 337,000 lines-- is being procured as set out below and is being financed by supplier credits or with CANTV's own financing. To expand some of the existing exchanges to their full capacity, CANTV after negotiation had placed orders for 50,000 lines with manufacturers of the type of equipment currently in these exchanges. In addition CANTV placed an order in July 1970, for 121,500 lines on the lowest bidder following international competitive bidding and retained an option to place an order for a further 60,000 lines. CANTV sought with this supplier to get additional supplies required for the Program, but the supplier expressed inability to deliver additional quantities during this period, and has agreed that the option could be used for installations in 1975 and beyond. Following this CANTV negotiated and placed an order with the second lowest bidder in the international bidding for a further 162,000 lines with a discount of 11% from the original bid prices.

4.20 The switching equipment for the long distance network would mostly be additions to existing exchanges procured under Loan No. 435-VE under international bidding. The equipment would be procured from the same suppliers on the basis of previous prices and on terms obtained under international competitive bidding, but would be financed outside the Bank Loan.

j. Disbursement

4.21 The proposed Bank Loan would be disbursed against CIF costs of imported equipment and material and the foreign currency cost of the consultant services (Annex 10).

4.22 The portion of the cable purchases reserved for local procurement is somewhat larger than CANTV's purchases over the past few years. It is therefore doubtful if the local industry will be able to bid on the supplies to be purchased under international bidding. If a domestic manufacturer would be the evaluated lowest bidder after international tendering, only the estimated foreign exchange cost of about 40% would be disbursed. However, since the total foreign exchange cost of the cables to be procured is in excess of the proposed allocation under the Loan, it is expected that the entire amount will be disbursed for the CIF costs of imported goods.

4.23 After consultation with the Bank, any unused balance of the Loan should be used for purchasing additional goods, similar to those already procured under the Loan, which are part of the 1970-1974 Program.

## 5. JUSTIFICATION

5.01 The principal economic issues in telecommunications projects are (1) whether the projects' component parts are in line with the actual priorities, and (2) whether the least-cost design is chosen to meet given volume requirements and standards of service.

5.02 The Project aims at improving the unsatisfactory local and long distance services for existing subscribers, taking into account the growth of traffic generation by existing and new subscribers. After meeting the needs of achieving a higher quality service -- obviously a matter of first priority -- the remaining available physical and financial resources are used for new subscriber connections. It is expected that about 65% of the anticipated demand for subscriber connections, as estimated by CANTV (paragraph 5.04), will be met during the Project period by the addition of 269,000 connections to the existing 248,000, giving a total of 517,000 connections in 1974. This works out to a growth rate of about 10% per year. The high initial charges levied at the time of telephone connection (paragraph 3.15) have the effect of allocating the connections primarily to business users.

### a) Demand for Services

5.03 The facilities required to meet the demand for these telecommunication services with a good standard of service are set out in paragraphs 5.04-5.08 below, which are followed by paragraphs 5.09-5.11 below showing that the least-cost solution has been adopted.

5.04 Local Network Facilities. During the first Program period (1966-1969), the annual growth rate of connected DEL's progressed from 7% in 1966 to 11% in 1969 following the availability of facilities for new connections provided under the Program. Despite this growth, the registered waiting lists for new connections increased from 49,000 applications by the end of 1968 to 76,000 by the end of 1969, indicating that the growth of demand is significantly higher than the 11% actual growth of connected lines achieved in 1969. The number of waiting applications does not cover hidden demand nor new areas of service. CANTV estimates that actual unsatisfied demand is considerably higher and that total demand amounts to 824,000 by 1974 (Annex 11, page 1).

5.05 In the table below, the telephone densities of Venezuela and its capital city are compared with a few countries and their capitals having a similar GNP per capita.

	GNP per capita (1968) US\$	Number of Telephones per 100 population	Capital	Number of Telephones per 100 population
Venezuela	950	3.76	Caracas	10.7
Argentina	820	6.72	Buenos Aires	22.3
Greece	740	8.63	Athens	21.3
Spain	730	11.44	Madrid	27.1
Uruguay	520	7.23	Montevideo	12.5

The densities in Venezuela and Caracas lag considerably behind those in the other countries and capitals, which further supports CANTV's estimate of substantial unsatisfied demand.

5.06 Long distance facilities. The forecast of long distance traffic in the first Project (1966-1969) was for an increase of 175%. With the introduction of STD service starting in late 1967, the actual increase was 350%. CANTV augmented the amount of equipment and other facilities, but even so they are inadequate as explained in paragraph 3.23 and Annex 8, page 3. The planned expansions in the long distance and local network aim at correcting these deficiencies and at meeting an estimated 15% annual growth of traffic.

5.07 The main additions to the long distance network expand connections from Caracas to the west -- where most of the economic activity of the country is concentrated along with the oil production center (Maracaibo) and regional trade centers (Merida, San Cristobal) -- and to the industrial towns of the interior (Maracay, Valencia, Barquisimeto). Improvement of this network will play an important role in developing regional centers and promoting internal trade. The need for improvement is evident from the many private radio telephone routes and connections still in existence (paragraph 2.05).

5.08 International service. The construction of the satellite station under the Project is aimed at meeting the requirements of high-quality telephone and telex circuits to destinations in Europe and North and South America. Some of these destinations are now served by a submarine cable to the USA whose capacity is inadequate to meet future traffic needs (paragraph 3.25 and Annex 9, page 4). The traffic to existing destinations has been growing at 20% annually after an initial spurt of 400% from 1967 to 1968 upon the commissioning of high-quality circuits on the submarine cable. The establishment of reliable high-quality international telephone and telex service will especially benefit the export sector.

b) Least-Cost Solution

5.09 Selecting the least-cost design to meet given requirements involves (a) making the correct technological choices when the system's basic structure is being laid down in the early years, and (b) following an "optimizing" path with respect to the design and timing of the derivative subsequent investments as the system expands. The earlier choice of a microwave system for the national long distance network was clearly more economical than the alternative of a coaxial cable system. Given that, the main arterial routes (including buildings and masts) connecting the important cities are already in existence, hence the expansion of this microwave system is now the most feasible solution for expansion of long distance facilities.

5.10 Another important decision is on the details of expansion, relative to size and timing, of local exchange systems within the overall Program. CANTV has handled this well after a detailed exchange-by-exchange analysis of the spare capacity and growth of demand for each exchange.

5.11 As far as international service is concerned, the opening of communications via satellite not only will provide direct connections to destinations in Europe and Latin America, but will also provide CANTV with diversification and flexibility in adding circuits and direct service to new destinations as required. The alternative of adding a submarine cable to meet the requirements would be more expensive as compared with providing the services through satellite systems.

c) Internal Financial Rate of Return

5.12 The internal financial return of the Program is estimated to be 21% (see Annex 11, page 2) at current tariffs; it gives a minimum measure of the Program's substantial benefits, considering that the expansion and improvement of telecommunications will help promote business, transportation and other economic activities as well as diversify the Venezuelan economy. The rate of return was determined by equalizing the present values of expenditures and the incremental operating cash flows attributable to the Program.



## 6. FUTURE FINANCES

### A. Financing Plan

6.01 Statements showing forecast sources and applications of funds for the 1970-1974 Program are given in Annex 4. Total fund requirements for 1970-1974 amount to Bs 1,517.2 million, as detailed below and include increases in cash to provide CANTV with an acceptable degree of cash liquidity.

<u>Requirements of Funds</u>	<u>Million Bs</u>	<u>Million US\$</u>	<u>%</u>
1970-1974 Program <u>1/</u>	1,325.3	294.5	87.4
Expenditures for subsequent Program	25.0	5.6	1.6
Remainder of program under Loan No. 435-VE	24.2	5.4	1.6
Investment in INTELSAT share capital	15.0	3.3	1.0
Increase in working capital (net)	<u>127.7</u>	<u>28.4</u>	<u>8.4</u>
Total	<u>1,517.2</u>	<u>337.2</u>	<u>100.0</u>
<u>Sources of Funds</u>			
Internal cash generation	1,146.9	254.9	
Less: debt service	<u>(575.2)</u>	<u>(127.8)</u>	
Net internal cash generation	571.7	127.1	37.7
Disbursements against			
- Loan No. 435-VE	24.2	5.6	1.6
- Proposed IBRD Loan <u>2/</u>	152.5	33.8	10.1
Debenture bonds	220.0	48.8	14.6
Subscribers' deposits	135.0	30.0	8.9
Medium and Long-term supplier credits	269.2	59.8	17.7
Long-term bank credits	110.5	24.5	7.2
Collection of past due Government accounts	<u>34.1</u>	<u>7.6</u>	<u>2.2</u>
Total	<u>1,517.2</u>	<u>337.2</u>	<u>100.0</u>

6.02 Internal cash generation is expected to finance slightly more than one third of total requirements; this is based on CANTV's financial projections which do not assume any payment of dividends. The financial forecast envisages an improved staff utilization (see paragraph 6.11). Failure to reduce the staffing ratio, or to control average expenses per employee as expected, would

1/ Net after deduction of Bs 11.0 million (US\$2.4 million) advance payments made before December 31, 1969, in respect of the 1970-1974 Program.  
2/ Bs 5 million retention payments will be disbursed in 1975.

require that tariffs be raised if CANTV is to meet its financial targets (Annex 7) or that additional outside financing be secured to balance the 1970-1974 financing plan.

6.03 The proposed US\$35 million Bank Loan would be for a period of 16 years including a 5-year grace period. For the financial projections an interest rate of 7 $\frac{1}{2}$ % has been assumed.

6.04 The debenture bonds, amounting to Bs 220 million (US\$48.8 million) and to be guaranteed by the Venezuelan Government, will be placed on the domestic market during 1971-1974 in equal annual issues. On the basis of CANTV's past experience with bond issues, these debentures will be designed to yield about 9% per year with a repayment period of 10 years, including a 3-year grace period.

6.05 The 1970-1974 financing plan contains Bs 135.0 million (US\$30.0 million) which CANTV has undertaken to raise by levying a Bs 1,000 (US\$222) guarantee deposit from existing and new commercial and industrial subscribers. This deposit is refundable to the subscriber at termination of the service (except if terminated because of payment default) and will bear interest at 6% per annum. The borrower has undertaken to have the start of the levy of this deposit implemented before the date of effectiveness of the proposed Loan.

6.06 The financing plan provides for Bs 269.2 (US\$59.8 million) in medium and long-term supplier credits, which have already been contracted. For these credits the forecast assumes repayment over 5 years after a 2-year grace period and an effective total cost of 10%. CANTV proposes to cover any shortfall in funds from the contemplated sources by obtaining supplier credits from the tendering of cables (paragraph 4.14).

6.07 The financing plan includes long-term loans and credits from foreign banks totalling Bs 110.5 million (US\$24.5 million). CANTV has concluded an agreement with the U.S. Export-Import Bank for a credit of Bs 18.8 million (US\$4.2 million), at 6% interest and repayable semi-annually over 8 years beginning in May 1972, to finance U.S. goods and services for construction of the earth satellite station. In addition, CANTV has received from the Chase Manhattan Overseas Banking Corporation, a credit of Bs 45 million (US\$10 million) that bears interest at 1 $\frac{1}{2}$ % above the London 6-month average Euro-dollar rate and is repayable through May 31, 1977 beginning in August 1972; annual interest of 11 $\frac{1}{2}$ % for 1970 to 1971 and 10 $\frac{1}{2}$ % thereafter was assumed in the forecast. A further credit of Bs 46.7 million (US\$10.3 million) was secured from a group of US banks led by Manufacturers Hanover Trust Company. This credit is repayable semi-annually over 6 $\frac{1}{2}$  years beginning in June 1972; its interest is also based on the London Euro-dollar rate and was assumed to be 11 $\frac{1}{2}$ % for 1971 and 1972 and 10 $\frac{1}{2}$ % thereafter.

6.08 The plan envisages that Bs 34.1 million (US\$7.6 million) in past due Government accounts will be settled. Arrangements to collect Bs 2.5 million (US\$.6 million) from state governments in 1970 have already been made. Agreement

was reached during negotiations that CANTV will complete as a condition of effectiveness the necessary steps to enable collection of accounts from Federal Ministries, autonomous institutes and state enterprises in due course through 1972 (estimated amount involved Bs19 million, US\$4.2 million). CANTV has also undertaken to arrange that settlement will be finalized during the execution period in respect of the remainder of Bs12.6 million (US\$2.9 million) representing outstandings from municipalities and other government entities. The accounts not considered collectible are covered by the allowance for bad debts (see paragraph 3.14). CANTV's approach to maintain in future the collection of government and private subscriber accounts on a current basis is described in Annex 6.

#### B. Future Operating Results

6.09 Forecast income statements for the 1970-1974 period and an outline of the assumptions are given in Annex 2. CANTV's financial prospects are satisfactory. No tariff changes would be required on this basis during the period. Net operating income is expected to increase from Bs54.5 million (US\$12.1 million) in 1969 to Bs223.4 million (US\$49.6 million) in 1974, and the rate of return on average net plant in service from 8.6% in 1969 to 14.4% in 1974. The operating ratio would improve from 82 in 1969 to 71 in 1974. In order to assure that CANTV would generate the funds required to complete the financing plan and to provide the funds for future expansion, CANTV has agreed not to reduce the present tariffs without the Bank's approval. A rate of return covenant of 11% has been agreed to become effective with the year 1973 until which time the 8% of return prescribed under Loan 435-VE will be continued.

6.10 The forecast increases in revenues are attributable largely to the quantitative increase in the number of telephones and to the increased use of long distance facilities resulting from the improvements expected in the quality of service. The revenues per telephone connection (DEL) increase from Bs1,239 (US\$275) per telephone in 1969 to Bs1,488 (US\$331) in 1974 and are conservative.

6.11 The forecast of expenses envisages that average expenses per employee will increase 10% in 1972 when the collective labor contract will be renegotiated and 3% in 1971, 1973 and 1974 and that the ratio of staff per 1,000 telephones would decrease from the present 18.3 persons per 1,000 telephones to 15 by the end of 1974. Since expenditures on personnel constitute a sizeable part of total expenditures, assurances were obtained during negotiations from CANTV on a progressive reduction of the annual staffing levels, to ensure that total personnel costs will not exceed the amounts projected. A financing gap would result, if staffing levels or average expenses per employee exceed the forecast. This is discussed in Annex 7.

#### C. Forecast Financial Position

6.12 CANTV's financial position, as shown in the forecast balance sheets in Annex 3, is expected to remain sound. Since the entity will finance about 51% of its 1970-1974 fund requirements by medium and long term borrowings, the debt/equity ratio will increase from the present 29:71 to 40:60 in 1972; it will decrease to 36:64 by the end of the Program

period in 1974. Assuming a slower system expansion and that the increased internal cash generation is reached in 1975 and 1976 as forecast, the debt/equity ratio would further improve to 22:78 by 1976. These ratios are reasonable, which is attributable to the fact that 8.9% of the 1970-1974 expansion are financed by the subscribers' deposit (paragraph 6.05) for which no repayments are forecast for the 1971-1974 period.

6.13 Based on the circumstances prevailing in 1965, the debt service test prescribed in Loan 435-VE required a two times coverage of debt service requirements by net revenues. While this was somewhat conservative, the requirements were appropriate with a new borrower. At present, CANTV is taking up a relatively large expansion program which involves some reliance on medium term supplier credits (see paragraph 6.06). The debt service burden has increased though still reasonable as discussed in paragraph 6.12 above. To avoid requiring Bank agreement frequently, it has been agreed that during the construction period all debt incurred will be for purposes of the project only and thereafter debt service coverage will be reduced to a more realistic level 1.5 times instead of the two times coverage in Loan 435-VE.

6.14 Under Loan No. 435-VE, a minimum depreciation of 4% is required. Based on a review by CANTV of the economic life of its various types of fixed assets, the company has made provision for depreciation averaging about 5% on average gross plant in service in 1968 and 1969. This rate has been used in the forecast. Agreement has been reached during negotiations on the composite depreciation rate to be used, which should be 5% or such other rate as agreed to by the Bank from time to time.

## 7. AGREEMENTS AND RECOMMENDATIONS

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

- (a) Government will consult the Bank before making any new appointments to the position of President and General Manager of CANTV (paragraph 3.01).
- (b) The appointment of management consultants will be made in consultation with the Bank (paragraph 3.04).
- (c) Employment of personnel will be carefully controlled so as to progressively reduce the ratio of staff per 1,000 telephones to 15 by 1974 (paragraphs 3.06 and 6.11).
- (d) Costs and tariffs will be maintained at levels that will achieve a rate of return of at least 11% on average net plant in service beginning with the year 1973; until then the 8% rate of return prescribed under Loan No. 435-VE will continue (paragraph 6.09).
- (e) No debt will be incurred during the construction of the project except for purposes of the project, and thereafter, unless net revenues are 1.5 times the debt service requirements.
- (f) Annual depreciation will be charged at a rate of 5% on the gross value of plant in service.

7.02 The following conditions have to be met before the loan becomes effective:

- (a) Satisfactory steps shall have been completed by CANTV for recovery of outstanding accounts from governmental entities, and contractual arrangements made for ensuring prompt settlement of charges for services in future (paragraph 6.08).
- (b) The levy of subscribers' guarantee deposits shall have been effected (paragraph 6.05).

7.03 The proposed project forms a suitable basis for a Bank Loan of US\$35 million for a term of 16 years, including a 5-year grace period.

October 19, 1970

VENEZUELACOMPANIA ANONIMA NACIONAL TELEFONOS DE VENEZUELA (CANTV)Basic Statistical DataDecember 31, 1969

1. Number of automatic exchanges in service		76
2. Number of manual exchanges in service		107
3. Number of exchange lines in service-automatic		241,335
4. Number of exchange lines in service-manual		6,831
5. Number of extension telephones in service:		
(a) Automatic		121,336
(b) Manual		2,208
6. Number of circuits and circuit kilometers in service of each of the following:		
	<u>CIRCUITS</u>	<u>CIRC/KM</u>
(a) Microwave	1,062	310,371
(b) Radio - Ultra high-frequency	382	82,552
(c) Radio - Very high-frequency	36	5,965
(d) Radio - high-frequency	16	69,850
(e) Submarine cable	52	159,200
(f) Voice frequency cable	251	4,267
(g) Carrier on open wire	449	28,167
(h) Physical circuits on open wire	419	17,817
7. Number of telex exchanges in service		13
8. Number of lines telex equipment in service		1,640
9. Number of teleprinters in service		622
Remote Telex Subscribers		61

August 11, 1970

VENEZUELA

COMPANIA ANONIMA NACIONAL TELEFONOS DE VENEZUELA (CANTV)

Actual and Forecast  
Income Statements 1967 - 1976

(In million of Bolivares)

Years ending December 31:	Actual					Forecast				
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
<b>Revenues</b>										
Rent and local service	100.4	108.5	118.9	133.5	153.2	178.3	208.1	240.9	270.5	298.2
National long-distance service	81.1	98.9	122.7	147.1	180.5	222.8	275.6	338.3	403.4	470.3
International long-distance service	12.9	15.9	23.1	29.3	37.0	47.4	59.7	74.7	90.7	107.8
Telex	3.9	5.3	6.8	16.9	25.6	32.9	37.9	41.5	46.1	51.8
Subscription rights	9.0	10.2	12.6	16.0	20.4	26.2	29.0	31.9	23.9	26.3
Other operating revenues	14.3	19.5	23.6	26.2	28.2	31.8	33.9	36.2	36.2	39.8
Total revenues	221.6	258.3	307.7	369.0	444.9	539.4	644.2	763.5	870.8	994.2
<b>Operating expenses</b>										
Personnel expenses	117.8	126.6	148.8	163.4	185.4	229.7	265.4	304.4	366.5	407.0
Other operating expenses	40.0	46.3	58.8	77.9	88.4	98.3	108.8	124.1	140.5	169.7
Depreciation	34.4	40.7	45.6	57.1	71.0	84.3	97.4	111.6	125.8	138.9
Total operating expenses	192.2	213.6	253.2	298.4	344.8	412.3	471.6	540.1	632.8	715.6
Net operating income	29.4	44.7	54.5	70.6	100.1	127.1	172.6	223.4	238.0	278.6
Miscellaneous income	.7	2.2	2.9	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Income available for fixed charges	30.1	46.9	57.4	72.1	101.6	128.6	174.1	224.9	239.5	280.1
<b>Fixed charges</b>										
Interest expense incurred	5.5	8.2	20.8	24.6	38.6	48.5	55.9	62.8	62.5	59.4
Less: charged to construction	2.9	4.7	10.7	-	-	-	-	-	-	-
Net interest charged to operations	2.6	3.5	10.1	24.6	38.6	48.5	55.9	62.8	62.5	59.4
Net income	27.5	43.4	47.3	47.5	63.0	80.1	118.2	162.1	177.0	220.7
Average net fixed assets in operation	484.2	544.7	632.0	792.4	1,005.8	1,193.7	1,365.0	1,546.2	1,710.9	1,841.3
Rate of return (net operating income to average net fixed assets)	6.1%	8.2%	8.6%	8.9%	10.0%	10.6%	12.6%	14.4%	13.9%	15.1%
Operating ratio (% operating expenses of total revenues)	87	83	82	81	78	76	73	71	73	72
Number of D.E.L's installed ('000)	207	224	248	282	326	382	445	513	564	621
Average revenue per D.E.L. Bs.	1,070	1,151	1,239	1,306	1,364	1,411	1,449	1,488	1,543	1,602

August 11, 1970

VENEZUELA

COMPANIA ANONIMA NACIONAL TELEFONOS DE VENEZUELA (CANTV)

Notes on the Income Statements

1. Revenues

i) Rent and Local Service/National Long-Distance Service

The break-down of past revenues into "Rent and Local Service" and "National Long Distance Service" is estimated, because no separate statistics are available for revenues from automatic subscriber trunk dialing (STD) and from local traffic in excess of the basic free pulses. The subscriber increases as outlined in Annex 9, page 1, were used for the forecasts, which do not assume any tariff adjustments during 1970-1976:

- Average rent and local service revenue per subscriber was forecast throughout at the 1969 level of Bs 503 per annum.
- Average National long distance revenue per subscriber was forecast to increase 10% during 1970, 7% in 1971 and 6% per annum thereafter, the last representing the mean growth rate experienced during 1966-1969. The 1970 rate of increase is higher than that of 1971-1974 because 24 exchange areas will get access to STD this year. The comparative rates of increase have been 12.8% for 1968 and 12.5% for 1969 when STD was introduced between the exchange areas comprising all key cities.

ii) International Long Distance Service

The forecast of international long distance revenues per subscriber assumes increases of 10% per annum for 1970-1972 and subsequently 8% per annum. These increases are conservative considering the 1966-1969 increase of 29.6% per annum and the expansion of international service after commissioning of the earth satellite ground station in early 1972.

iii) Telex

Telex revenues were projected at a 6% annual increase of the average revenues per telex subscriber. Telex service has been rendered by CANTV on a national scale since 1969, and nearly half of the subscribers at December 31, 1969 were not connected until late 1969. This projection is conservatively based on the experience in other countries.

iv) Subscription Rights Revenues

Revenues from subscription rights were forecast at Bs 466.66 average per new subscriber on the basis of 2 new residential subscribers (Bs 400 subscription right) for each new commercial subscriber (Bs 600 subscription right).



v) Other Operating Revenues

"Other operating revenues" comprise revenues from coin boxes; installations, repairs, maintenance and moving; leased circuits and channels; and net revenues from advertisements in the telephone directory. The forecasts of these various items are based on their past development and on the new subscriber installations.

2. Operating Expenses

1) Personnel Expenses

Considering management's aim to keep labor costs under better control, the forecast of personnel expenses is based on an average annual 3% increase per employee for merit raises and for changes in the mix of the labor force except in 1972 and 1975 when raises of 10% are assumed to result from contract renegotiations.

ii) Other Operating Expenses

"Other operating expenses" contain office expenses, rent, vehicle expenses and miscellaneous expenses forecast at annual rates of increase between 8% and 18%, extrapolating past experience, plus future annual operating expenses of the communications school, consultants and the monthly installments to the Creole Petroleum Company in connection with the microwave route Caracas-Maracaibo.

iii) Depreciation

Depreciation was forecast at 5% of average gross fixed assets in service, extending past practice since actual depreciation was about 5% in 1968 and 1969.

3. Interest Expense

CANTV expects to charge all future interest expense directly to income. This is a change from the past practice to capitalize those portions of interest expense incurred on behalf of particular construction projects.

The interest expense was forecast at effective debt costs per existing agreements and contracts and for future financing at the rates shown below:

IBRD Proposed Loan	$\frac{\%}{7\frac{1}{2}}$
Long-term supplier credits	10
U. S. Export-Import Bank	6
Chase Manhattan Bank )	11 1/2 1970 & 1971
Manufacturers Hanover )	
Trust Co. )	10 1/2 thereafter
Debenture bonds	9
Subscribers' Deposits	6

August 11, 1970

## VENEZUELA

## COMPANIA ANONIMA NACIONAL TELEFONOS DE VENEZUELA (CANTV)

Actual and Forecast  
Balance Sheets 1967 - 1976

(In million of Bolivares)

Years ending December 31:	Actual			Forecast						
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
<b>ASSETS</b>										
<b>Fixed Assets</b>										
Fixed assets in operation	748.9	867.8	1,001.0	1,282.7	1,555.8	1,813.8	2,080.2	2,385.2	2,647.0	2,910.7
Less: Allowance for depreciation	243.4	284.0	320.9	378.0	449.0	533.3	630.7	742.3	868.1	1,007.0
Net fixed assets in operation	505.5	583.8	680.1	904.7	1,106.8	1,280.5	1,449.5	1,642.9	1,778.9	1,903.7
Work in progress	128.2	188.2	188.0	157.8	152.0	141.9	177.6	189.3	186.0	167.0
Other fixed assets	35.4	22.6	17.9	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Total net fixed assets	699.1	794.6	886.0	1,077.5	1,273.8	1,437.4	1,642.1	1,847.2	1,959.9	2,085.7
<b>Current Assets</b>										
Cash and banks	7.8	5.8	19.5	6.7	45.2	70.0	64.4	76.5	83.7	93.5
Accounts receivable	51.1	59.3	67.8	61.0	63.7	74.9	89.5	108.0	106.9	124.3
Inventories and other curr. assets	49.1	46.9	47.2	52.8	58.2	63.2	68.6	74.4	79.2	84.4
Total current assets	108.0	112.0	134.5	120.5	167.1	208.1	222.5	258.9	271.8	302.2
<b>Other Assets</b>										
Accounts rec. outst. in excess of 1 year 1/	14.6	26.3	34.1	31.6	26.6	11.6	2.6	-	-	-
Investments and advances	.9	-	11.0	20.3	16.7	11.6	14.8	15.0	15.0	15.0
Other non-curr. assets	3.3	5.4	9.6	7.9	7.6	10.3	11.2	10.6	9.1	7.6
Total Assets	795.9	938.3	1,075.2	1,257.8	1,492.0	1,679.0	1,893.2	2,131.7	2,255.8	2,410.5
<b>LIABILITIES</b>										
<b>Equity</b>										
Common stock	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0
Preferred stock redeemed	(6.9)	-	-	-	-	-	-	-	-	-
Capital surplus	15.8	15.8	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9
Earned surplus & reserves	72.4	110.2	162.9	210.4	273.1	353.5	471.7	633.8	810.8	1,031.5
Government contributions	67.2	99.3	103.9	103.9	103.9	103.9	103.9	103.9	103.9	103.9
Total equity	548.5	625.3	682.7	730.2	793.2	873.3	991.5	1,153.6	1,330.6	1,551.3
Subscribers' Deposits	-	-	-	-	75.0	90.0	110.0	135.0	153.0	172.0
<b>Long-term Liabilities</b>										
Loans, bonds, notes and accounts payable	101.1	163.7	241.0	391.7	458.9	521.2	572.3	602.9	508.2	416.6
Accrued taxes	7.3	7.3	-	-	-	-	-	-	-	-
Provision for employees' termination & benefits (long-term portion only)	48.2	48.0	52.4	56.1	60.2	65.2	70.7	76.6	83.1	90.1
Total long-term liabilities	156.6	219.0	293.4	447.8	519.1	586.4	643.0	679.5	591.3	506.7
<b>Current Liabilities</b>										
Notes & accts. pay. and current maturities	70.7	72.0	61.9	49.2	70.3	91.1	108.1	121.2	141.5	139.9
Accrued interest and other expense	6.4	6.7	11.4	12.6	14.1	15.1	15.5	15.6	15.4	15.1
Due to employees	11.0	11.6	20.8	11.5	12.0	12.5	13.0	13.5	14.0	14.5
Total current liabilities	88.1	90.3	94.1	73.3	96.4	118.7	136.6	150.3	170.9	169.5
Deferred income (mainly subscr. rights)	2.7	3.7	5.0	6.5	8.3	10.6	12.1	13.3	10.0	11.0
Total Liabilities	795.9	938.3	1,075.2	1,257.8	1,492.0	1,679.0	1,893.2	2,131.7	2,255.8	2,410.5
<b>Debt/equity ratio (excl. government contributions and "Other" long-term liabilities)</b>										
	17:83	24:76	29:71	38:62	40:60	40:60	39:61	36:64	29:71	22:78
<b>Current ratio</b>										
	1.2:1	1.2:1	1.4:1	1.6:1	1.7:1	1.8:1	1.6:1	1.7:1	1.6:1	1.8:1

1/

After deduction of allowance for bad debts.

VENEZUELA

COMPANIA ANONIMA NACIONAL TELEFONOS DE VENEZUELA (CANTV)

Notes on the Balance Sheets

1. The additions to fixed assets during 1970-1974 are as shown in Annex 9, Table 1. The 1975 and 1976 expenditures were estimated at 10% of gross fixed assets in service at the preceding year-end, in accordance with the forecast increase in subscribers in 1975 and 1976.
2. Work in progress has been forecast to represent about 35% of the sum of the annual capital expenditures and the balance of work in progress brought forward from the prior year. In 1974 it includes Bs 25 million expenditures in respect of the subsequent expansion program.
3. The net amount of non-current receivables as at December 31, 1969 is forecast to be settled by collection of Bs 2.5 million in 1970 from the states governments, by Bs 19.0 million in 1971 and 1972 from the federal agencies, and Bs 12.6 million remainder from municipalities during 1973 and 1974.
4. The forecast for cash holdings was made in line with the requirements for a reasonable liquidity, the cash balances for December 31, 1970-1974 improving from 2.5% to 15.5% of forecast operating cash outflows of the subsequent year.
5. Accounts receivable-current at December 31, 1969, represent somewhat more than two months' prior billings. Forecasts were set at 60 days of prior sales for 1970, 52.5 days for 1971, 50 days for 1972-1974, and 45 days thereafter, considering the payment terms of 30 days by personal collection and 45 days for payment by mail and a better future enforcement of such terms as a result of a reorganization of the collection system.
6. Inventories were increased by 2% of the annual capital expenditures.
7. Investments and advances contain the gradual investment of Bs 15 million in the share capital of INTELSAT, and also reflect advances to suppliers for equipment acquisitions.
8. Government contributions comprise the interest-free non-repayable contributions from the Government budget and the value of assets transferred in 1968 from the Ministry of Communications.
9. The long-term provision for employees' termination and benefits represents the future obligations toward employees for pensions, severance and length of service pay.
10. Accrued interest expense and deferred income have been forecast to reflect the change in volume of interest expense and subscription rights revenues, respectively.

September 30, 1970

## VENEZUELA

## COMPANIA ANONIMA NACIONAL TELEFONOS DE VENEZUELA (CANV)

Actual and Forecast Sources and Applications of  
Funds Statements 1967 - 1976

(In million of Bolivares)

Years ending December 31:	Actual			Forecast						
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
<b>Sources of Funds</b>										
Net income before interest expense	27.0 <sup>1/</sup>	41.3 <sup>1/</sup>	55.5 <sup>1/</sup>	72.1	101.6	128.6	174.1	224.9	239.5	280.1
Depreciation	34.4	40.7	45.6	57.1	71.0	84.3	97.4	111.6	125.8	138.9
Increase provision for staff term. & bad debts	5.4	2.3	3.9	3.7	4.1	5.0	5.5	5.9	6.5	7.0
Total internal cash generation	66.8	84.3	105.0	132.9	176.7	217.9	277.0	342.4	371.8	426.0
Share capital portions paid by Government	13.5	6.9	-	-	-	-	-	-	-	-
Government contributions	18.7	32.1	4.6	-	-	-	-	-	-	-
Borrowings: IERD 435-VE	36.1	42.9	22.8	24.2	-	-	-	-	-	-
IERD proposed loan	-	-	-	-	11.7	45.9	56.2	38.7	5.0	-
Loans from foreign banks	-	-	-	102.8	7.7	-	-	-	-	-
Debenture bonds	-	25.0	55.0	-	55.0	55.0	55.0	55.0	-	-
Suppliers' long-term credits	15.1	33.3	25.9	59.5	60.1	49.5	45.0	55.1	38.8	45.3
Subscribers' deposits	-	-	-	-	75.0	15.0	20.0	25.0	18.0	19.0
Accruals & Miscellaneous liabilities	1.5	(3.1)	2.2	(8.1)	(8.4)	1.5	.9	.6	.3	.2
Deferred income & other non-curr. liabilities	(.2)	1.0	(6.0)	1.5	1.8	2.3	1.5	1.2	(3.3)	1.0
Non-current receivables	(4.1)	(14.2)	(8.3)	2.5	5.0	15.0	9.0	2.6	-	-
Total sources	147.4	208.2	201.2	315.3	384.6	402.1	464.6	520.6	430.6	491.5
<b>Applications of Funds</b>										
Construction program	114.5	166.1	128.3	251.5	267.3	247.9	302.1	316.7 <sup>4/</sup>	238.5	264.7
Investment INTELSAT	-	-	-	2.8	2.9	3.0	3.1	3.2	-	-
Receivables - current	14.7	8.2	8.5	(6.8)	2.7	11.2	14.6	18.5	.9	15.4
Inventories	10.4	(2.2)	.3	5.6	5.4	5.0	5.4	5.8	4.8	5.2
Other curr. & non-curr. assets	(.3)	1.2	15.2	1.9	(6.6)	(5.6)	1.0	(3.6)	(1.5)	(1.5)
Debt Service:										
Interest: IERD 435-VE	)	)	)	8.6	8.1	7.5	6.9	6.2	5.6	5.0
IERD proposed loan	)	)	)	-	.4	2.6	6.2	9.7	11.1	11.2
Loans from foreign banks	) 2.6 <sup>2/</sup>	) 3.5 <sup>2/</sup>	) 10.1 <sup>2/</sup>	4.8	12.3	11.7	10.6	8.8	6.8	4.6
Debenture bonds	)	)	)	5.6	8.1	12.9	17.2	21.4	20.	19.1
Suppliers' long-term credits	)	)	)	5.6	8.5	9.0	9.0	9.5	9.7	9.3
Subscribers' deposits	)	)	)	-	1.2	4.8	6.0	7.2	9.0	10.2
Total interest	2.6	3.5	10.1	24.6	38.6	48.5	55.9	62.8	62.5	59.4
Amortization: IERD 435-VE	-	-	4.7	9.8	10.4	11.0	11.6	12.2	12.8	13.6
IERD proposed loan	-	-	-	-	-	-	-	-	-	9.8
Loans from foreign banks	7.5	2.2	5.3	1.4	1.4	6.8	18.5	20.2	22.2	24.4
Debenture bonds	-	-	-	-	-	7.0	11.0	11.5	19.4	27.3
Suppliers' long-term credits	8.4	31.2	15.1	37.3	24.0	42.5	47.0	61.2	63.8	53.4
Total amortization	15.9	33.4	25.1	48.5	35.8	67.3	88.1	105.1	118.2	138.5
Total debt service	18.5	36.9	35.2	73.1	74.4	115.8	144.0	167.9	180.7	197.9
Change in cash position	(10.4)	(2.0)	13.7	(12.8)	38.5	24.8	(5.6)	12.1	7.2	9.8
Total applications	147.4	208.2	201.2	315.3	384.6	402.1	464.6	520.6	430.6	491.5
Debt service coverage	3.1 <sup>3/</sup>	2.0 <sup>3/</sup>	2.3 <sup>3/</sup>	1.8	2.4	1.9	1.9	2.0	2.1	2.1

<sup>1/</sup> Net of prior year adjustments debited to earned surplus.<sup>2/</sup> Net after capitalized interest.<sup>3/</sup> Debt service inclusive capitalized interest.<sup>4/</sup> Including Bs25 million expenditures referring to subsequent expansion program.

VENEZUELA

COMPANIA ANONIMA NACIONAL TELEFONOS DE VENEZUELA (CANTV)

Representative Tariffs as of December 31, 1969

1. Telephone

a. Subscription right	Bs
i. Residential subscribers	400
ii. Non-residential subscribers	600
b. Installation charge	
i. Main telephone	50-125
ii. Extension	25-50
c. Line rent per month	
i. Residential subscribers	
- Localities with exchanges of 5,000 exchange lines and more	24 (including 180 free pulses)*
- Localities with exchanges of less than 5,000 exchange lines	20 (including 150 free pulses)*
- Extension phone	5
ii. Non-residential subscribers	
- Localities with exchanges of 5,000 exchange lines and more	36 (including 240 free pulses)*
Extension phone	12
- Localities with exchanges of less than 5,000 exchange lines	25 (including 160 free pulses)*
Extension phone	10
d. Call charges	
i. Local calls (unlimited time)	0.125 (1 pulse* for automatic service)

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\* One pulse is a basic metering unit for each local call in automatic working; for long distance calls, pulses are charged according to duration and distance. One pulse is charged at Bs 0.125.

ii. Long distance (per 3-minute duration)

<u>Distance (kms)</u>	<u>Manual (in Bs) <sup>1/</sup></u>	<u>STD Pulse* metered (in Bs) <sup>2/</sup></u>
Up to 40	.75	.50
41- 90	2.75	2.25
91-170	4.25	3.00
171-300	6.00	4.50
301-500	7.50	5.63
501 upwards	8.95	7.50

2. Telex

	<u>Bs</u>
a. Refundable Deposit	1,200
b. Installation charge (according to actual circumstances)	about 150
c. Monthly rent (apparatus is bought by subscribers from outside sales organization)	none
d. Local charge (per 3-minute duration)	
Normal <sup>3/</sup>	1.00
Reduced	.75
e. Domestic long-distance (per 3-minute duration)	

<u>Distance (kms)</u>	<u>Normal (in Bs) <sup>3/</sup></u>	<u>Reduced (in Bs)</u>
up to 150	1.00	.95
151 - 400	1.50	1.00
401 - 700	3.00	2.00
701 upwards	4.50	3.00

<sup>1/</sup> 22-33% lower from 7 p.m. - 7 a.m. workdays and

<sup>2/</sup> 20-50% Saturdays from 12 noon and Sundays and holidays.

<sup>3/</sup> Workdays 7 a.m. - 7 p.m.  
 Saturdays 7 a.m. - noon.

\* Refer to page 1 of this Annex for explanation

August 11, 1970

VENEZUELA

COMPANIA ANONIMA NACIONAL TELEFONOS DE VENEZUELA (CANTV)

Collection Procedures and Settlement of  
Long Outstanding Accounts

The December 31, 1969, balance sheet contains an amount of Bs 34.1 million (net after Bs 4.2 allowance for bad debts) accounts receivable outstanding in excess of one year from various federal, state and municipal governments. Moreover, current accounts receivable amounting to Bs 67.8 million represent an average outstanding period of about 80 days, which is excessive considering the allowed payment terms of 30 days for personal collection and 45 days for payment by mail.

CANTV's approach to settle the long outstanding Government accounts, to collect future bills on a current basis, and to remedy the major weaknesses in the collection of private subscriber accounts are summarized as follows.

A. Government Accounts

1. A payment of Bs 2.5 million for the settlement of long outstanding accounts from various state governments is scheduled for this year. Bs 19.0 million is expected to be collected from the various Federal agencies in 1971 and 1972. The remainder of Bs 12.6 million represents outstandings from municipalities and other government entities for which settlement will be finalized during the execution period. For this purpose CANTV has undertaken to send statements of account to the agencies concerned before the date of effectiveness of the proposed loan so that they can provide for payment of old debts by inclusion of a special item in their future budgets. Some Government accounts are not expected to be collected in full, but the bad debts allowance will be sufficient to cover the uncollectible items.

2. To avoid a similar accumulation of unpaid accounts in the future, CANTV has agreed to make arrangements for a payment routine to be imposed on all federal agencies similar to the one now in force for the Ministry of Finance. Under its arrangement with the Ministry of Finance, CANTV receives at month-end a remittance covering 75% of the average monthly cost of the Ministry's use of its telephones in the prior year. Final settlement is made at year-end payable within 30 days of issuance of the total year statement.

3. For each state and municipality, CANTV will seek to obtain similar contractual arrangements.

B. Private Subscriber Accounts

4. The present weaknesses in the collection system for private subscriber accounts will be analyzed and improvements suggested, as part of the AESA management consultant study now going on for Caracas.

5. Because of the absence of an efficient mail service, the collection of private accounts has been and still is heavily dependent upon CANTV's own collection staff. Only 25,000 of the 140,000 private subscriber accounts in Caracas are handled by mail. CANTV's subscribers have the option of paying their bills at the payment office of their particular central exchange. Payment terms in case of personal collection are 30 days; in case of payment by mail, 45 days.
6. Up to October 1, 1970 the collectors have been full-time employees of CANTV. In addition to the basic monthly salary of Bs 425, they earned a 2% commission on the amounts collected. Their total remuneration ranged between Bs 3,000 and 7,000 per month. To make the collection process more efficient and less costly, CANTV has been able to put all collectors on a flat "per bill" collection fee and allocating the zones in a more appropriate way.
7. The average collection period of private subscriber accounts has been in excess of the allowed payment terms. This is partly because some collectors have concentrated in the past on large, heavy-commission accounts to the neglect of smaller accounts, and partly because the preparation of disconnection lists for unpaid accounts, which should normally be made during the first five days of the month following the one in which the bills were distributed, has been delayed in the past due to administrative deficiencies. Reduction of the lag in disconnections will result from the improved processing of collections.
8. Other shortcomings prevail in Caracas since CANTV's relatively few CANTV payment offices are open only on workdays and during business hours and since subscribers have to use the payment office of their particular exchange when paying personally. The opening of payment offices on a trial basis during off hours proved very successful, but CANTV had to abandon this alternative because the collective labor contract does not allow personnel to work overtime on a long-term basis. The most likely way to improve the situation is by expanding the number of payment offices (two were added recently in Caracas, with two more soon to be added) and after the redesign of the computer system for collections, by allowing subscribers to pay at the payment office of their choice.
9. CANTV's plans for improving collection include making arrangements-- similar to those of La Electricidad de Caracas C.A. --for the payment of telephone bills at drugstores and banks as well as in CANTV offices. The Company will also promote more vigorously the payment-by-mail method. For the interior of the country, the possibility of combining CANTV payment offices with those of the electric utilities is being looked into as still another low-cost means of improving or setting up collection service.

September 30, 1970



VENEZUELA

COMPANIA ANONIMA NACIONAL TELEFONOS DE VENEZUELA (CANTV)

LABOR PRODUCTIVITY AND COSTS

CANTV's staff productivity is relatively low, due to over-staffing and high unit labor costs.

A. Levels of Staffing

In comparison with other similar telephone administrations, CANTV is over-staffed considering that 97.3% of its connected DEL's are automatic (1969), most of its plant new, that it does not provide telegraph service and that a large portion of the construction work is executed by contractors. Inadequate personnel utilization was noted in the 1965 Appraisal Report (Loan 435-VE). At that time the Company had a staff ratio of about 19.1 persons per 1,000 telephones, and although the labor-intensive installation of many new exchanges and long distance routes was planned, the Bank felt that the ratio should come down to 17.2 by the end of 1968. At the end of 1969, however, the ratio had come down to 18.3 only. Considering that the 1970-1974 Project basically calls for only an extension of existing facilities, and also considering that during this period part of the national long distance operators will become available to fulfill other functions, CANTV agreed to reduce the staff ratio to 15 per 1,000 telephones.

<u>Year-end</u>	<u>Number of Employees</u>	<u>Telephones in Service</u> ( '000)	<u>Number of Employees per 1,000 Telephones</u>
1965	5,420	283	19.1
1966	5,952	309	19.3
1967	6,555	327	20.3
1968	6,475	346	18.7
1969	6,796	372	18.3
1970	7,310	425	17.2
1971	8,232	490	16.8
1972	9,315	575	16.2
1973	10,374	665	15.6
1974	11,550	770	15.0

As shown in the above table, CANTV can almost double the number of its staff during the project period and the ratio will still decline. The table includes only permanently employed staff. Temporary fixed-term persons, who in 1969 totalled an average of 740, are not included in the calculation; the financial forecast assumes that their percentage share of total staff will remain unchanged.

Despite difficulties in comparing staff ratios between various telecommunication administrations (because of differences in type of work, educational background, caliber of personnel, etc.) and ignoring line, cable and conduit craftsmen, the adjusted CANTV December 31, 1969, ratio of about 17.4 employees per 1,000 telephones compares with roughly 9.1 for the Bell System in the United States, 10.4 for Germany (some personnel for construction work included) and 4.2 for Switzerland (all telephone connections done by outsiders). CANTV's average wage costs per employee are roughly comparable with costs in those countries. On the other hand, there are many countries with higher relative levels of staff but also considerably lower levels of compensation.

The ratio of 15 persons per 1,000 telephones by 1974 can be attained by increasing the staff efficiency to bring it in line with the pay level. Policies destined to improve personnel utilization should comprise the definition of work standards, the reorganization of work-gangs, the introduction of a wage incentive system, and more contracting out of installation and construction work (possibly even telephone connections) to sub-contractors.

#### B. Labor Costs

CANTV's unit labor costs are not accompanied by high personnel productivity. Average salary and wage costs per employee have shown annual increases between 4% and 6% for years without collective labor contract negotiations. The latest three-year labor contract (signed on December 22, 1969, and effective retroactively to April 1, 1969), brought salary/wage increases and additional fringe benefits representing a 15.5% rise in average employee compensation. Average costs per employee have gone up by 40% between 1964 and 1969. With approximately Bs 24,000 total compensation in 1969, CANTV's employees are among the best-paid personnel in Venezuela after those in the petroleum industry. Management is of the opinion that the Company's viability could be endangered if future average labor cost increases per employee cannot be kept below 10% for years with contract renegotiations and 3% for the other years, unless compensated by tariff increases. It aims to remain within these limits, and they have therefore been built into the forecasts.

#### C. Sensitivity Analysis

The following highlights the sensitivity of the projected 1970-1974 income and cash flows to unfavorable changes in labor costs and levels of staffing, and indicates that control of labor efficiency and labor costs merits close attention:

	If annual labor cost per employee increases by 2% <u>1/</u> and 5% <u>2/</u> more than forecast,	If annual labor cost increases by 2%/5% more and if staff levels are 5% higher than forecast,
it would result in a reduction/shortfall of total 1970-1974:	(million of Bolivares)	
Net operating income	99.4	162.6
Net cash flows <u>3/</u>	131.1	214.2

Unless tariffs are adjusted, the rate of return, the debt/equity ratio and the debt service coverage would be less favorable than forecast. For example, the rate of return would be below the proposed covenant limit in 1974 and the debt service coverage below 1.5 in 1972.

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1/ Years without collective labor contract negotiations.

2/ Years with collective labor contract negotiations.

3/ Considering incremental labor costs for CANTV's capitalized own construction and the depreciation thereon as well as interest expense to finance the shortfall in cash flows.

VENEZUELA

COMPANIA ANONIMA NACIONAL TELEFONOS DE VENEZUELA (CANTV)

EXISTING TELECOMMUNICATIONS FACILITIES

A. Local Service

1. At the end of 1969, Venezuela had a total of 371,710 telephones. Of these, 65% were in Caracas. A large number of the smaller towns and communities do not have telephone service.

Local Telephone Service Related to  
Distribution of Population (1969)

<u>Population</u>	<u>Communities</u>			<u>Auto Exchanges</u>	<u>Manual Exchanges</u>
	<u>Total</u>	<u>With Service</u>	<u>Without Service</u>		
More than 1,000,000	1	1	-	28	4
500,000 - 999,999	1	1	-	2	-
100,000 - 499,999	7	7	-	11	-
30,000 - 99,999	21	21	-	19	2
10,000 - 29,999	52	38	14	15	23
Less than 10,000	966	79	887	1	78
Total	<u>1,048</u>	<u>147</u>	<u>901</u>	<u>76</u>	<u>107</u>

2. The increase in telephone connections from 1965 to the end of 1969 is shown in the following table:

<u>Year</u>	<u>Total of Capacity Exchanges</u>	<u>Connected direct lines DEL</u>	<u>Extensions</u>	<u>Total Telephones</u>	<u>DEL Increase %</u>	<u>Tel. per 100 pop.</u>
1965	238,945	178,345	104,213	282,558	-	3.24
1966	251,675	191,836	117,062	308,898	7	3.42
1967	272,260	207,084	119,954	327,038	8	3.49
1968	278,080	224,256	121,448	345,704	6	3.59
1969	342,435	248,166	123,544	371,710	11	3.76

3. There has been a large unsatisfied demand for telephone connections. The registered waiting list, which usually represents only a fraction of the total demand, shows by the end of 1969, 42,000 applications for direct exchange lines in Caracas and 34,000 in the rest of the country. With the exception of some special cases, waiting time for telephone connections has varied between two to five years.

4. The following table summarizes the existing situation at the end of 1969:

	<u>No. of Exchanges</u>		<u>Total Capacity</u>		<u>Connected</u>	<u>Total</u>
	<u>Auto</u>	<u>Manual</u>	<u>Auto</u>	<u>Manual</u>	<u>Subscribers</u>	
					<u>DEL</u>	<u>Telephones</u>
Caracas	24	-	204,350	-	152,999 )	243,722
Caracas suburbs	5	4	7,600	410	6,248 )	
Rest of the country	<u>47</u>	<u>103</u>	<u>119,870</u>	<u>10,205</u>	<u>88,919</u>	<u>127,988</u>
Total	<u>76</u>	<u>107</u>	<u>331,820</u>	<u>10,615</u>	<u>248,166</u>	<u>371,710</u>
			<u>342,435</u>			

5. CANTV has a multiplicity of types of automatic switching equipment in operation -- five types in Caracas and seven in all of Venezuela.

6. The various types of exchanges and their capacities in Venezuela, as of December 1969, are shown below:

<u>Automatic</u>	<u>No. of Exchanges</u>	<u>Total Capacity</u>
ATE-Strowger	12	59,650
ATE-5005	2	13,500
Siemens-EMD	8	104,000
Ericsson-ARF	9	51,000
Ericsson-AGF	27	51,500
Albis	11	44,500
Hitachi (Mobile)	7	7,400
PABX (Ericsson)	1	270
		<u>331,820</u>

This has led to problems in training and staffing as well as to operational problems to provide satisfactory service. CANTV has decided to standardize on modern crossbar systems for all new installations. To further improve interworking in the Caracas area and to provide for increased traffic, CANTV is installing two modern tandem exchanges more suited to handle the interworking between the existing systems.

B. Long Distance Service

Routes

7. The main long distance routes in Venezuela are shown in Map 1. These consist of:

- a. A main microwave artery - Western Network - connecting the principal cities in Venezuela to the west of Caracas for telephone and television relay. This was financed by Bank Loan No. 435-VE.
- b. A microwave route (300 channels) between Caracas and Maracaibo, owned by the CREOLE Petroleum Co. CANTV now rents some circuits to serve various towns on this route. According to an agreement reached between CREOLE and CANTV, CANTV will buy this route in 1974.
- c. A microwave artery - Eastern Network - connecting the principal cities to the east of Caracas is now being provided; a contract for this equipment was awarded in 1969 and the system is expected to be commissioned in 1971. This system will replace a 72-channel VHF system now in operation in the area.

8. The details of these routes, the number of circuits provided in the various sections and the details of the switching centers are given in the Charts 1 & 2 of Annex 13.

Circuits

9. There were at the end of 1969 a total of 2,699 circuits in operation in all of Venezuela. This includes not only the circuits provided on the main routes referred to above, but also those provided by cables and open wire lines to the smaller centers.

Exchanges

10. Subscriber trunk dialing (STD) is in operation between the principal cities of Venezuela. The automatic switching center exchanges providing this service and the capacity of these exchanges as they existed in 1969 are included in the information given on page 3 of Annex 9.

Quality of Service

11. The service provided to the public is not satisfactory. Even though the maintenance and operation of the long distance routes is satisfactory, there is acute congestion at various sections of the routes due to the heavy upsurge (about 350%) in traffic that followed the introduction of STD. At present only 30% of traffic originating during the busy hour is completed. Half of the failures are due to the shortage of long distance circuits, while the rest is due to congestions in junctions interconnecting with the local systems. The expansion program is aimed at eliminating the bottlenecks.

C. Telex

12. Telex service started in Venezuela in 1962 on a small scale of 90 subscribers connected to a telex exchange of 100 lines capacity. In 1969 CANTV had 683 subscribers connected to telex exchanges in 13 towns with a total capacity of 1,640 distributed, as shown below:

Telex Service at December 1969

<u>Telex Exchanges</u>	<u>Capacity</u>	<u>Connected Subscribers</u>
<u>Metropolitan Zone</u>		
<u>Caracas</u>		
National center	300	154
Mederero	300	290
Maiquetia	<u>20</u>	<u>11</u>
Sub-total	<u>620</u>	<u>455</u>
<u>Rest of the Country</u>		
Maracaibo	300	68
Punto Fijo	40	10
San Cristobal	100	18
Maracay	100	14
Valencia	100	51
Puerto Cabello	40	12
Barquisimeto	100	18
Puerto Ordaz	100	13
Ciudad Bolivar	40	11
Puerto la Cruz	<u>100</u>	<u>13</u>
Sub-total	<u>1,020</u>	<u>228</u>
Grand Total	<u>1,640</u>	<u>683</u> <sup>1/</sup>

13. CANTV provides the telex exchanges and lines to subscribers' premises. The supply, installation and maintenance of teleprinter machines are provided by local companies that are directly responsible to subscribers. National telex traffic is increasing at a rate of 40% per year, while international traffic is increasing at 30% per year.

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<sup>1/</sup> Made up of 622 ordinary subscribers and 61 remote subscribers situated outside the telex exchange local area.

D. International Service

14. Venezuela's existing (1969) international connections for telephone services are as follows:

Connections to:

U.S.A. - Europe and Central America included	46	Submarine Cable
Puerto Rico and Virgin Islands	4	Submarine Cable
Dominican Republic	2	Submarine Cable
Colombia	19	UHF radio
Curacao	2	UHF radio
Aruba	1	UHF radio
Panama	1	HF radio
Argentina	1	HF radio
Ecuador and Peru	1	HF radio
Trinidad	2	HF radio
Italy	2	HF radio
Spain	2	HF radio
Brazil	<u>1</u>	HF radio
Total	<u>84</u>	

15. Before 1966, all international circuits were handled by high frequency routes. In August 1966, a submarine cable was commissioned linking Venezuela with St. Thomas Island in the Caribbean and Florida in the U.S.A.. Telephone and telex traffic is directed to the U.S.A. and, by extensions through their systems via St. Thomas Island and the U.S.A., to a number of Caribbean locations, Mexico and Europe. Communications to Colombia and some other neighboring countries were extended by use of UHF.

16. Improvements in the quality of service upon commissioning of these routes resulted in a high upsurge of traffic - over 400% - to these destinations in the year following their use, and traffic has been increasing by about 20% a year thereafter. Due to this heavy unexpected increase, there is some congestion during the busy hour with an average delay of 18 minutes for calls to the U.S.A. and of 27 minutes for calls to Europe. The establishment of a satellite ground station in November 1970 will give relief and will be the mode utilized to meet future demand.

August 11, 1970



VENEZUELA

COMPANIA ANONIMA NACIONAL TELEFONOS DE VENEZUELA (CANTV)

TELECOMMUNICATIONS PROGRAM

(1970-1974)

The details of the CANTV 1970-1974 Program are given below:

A. Local Service

The expansion of local services is expected to achieve the following targets:

	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
Total exchange capacities	342,435	382,235	440,635	515,435	593,335	689,565
Connected direct lines (DEL)	248,166	286,674	330,414	386,583	448,768	517,171
Total telephones	371,710	425,000	490,000	575,000	665,000	770,000
% increase	11	11	15	17	16	15
Tel/100 pop.	3.8	4.1	4.5	5.2	5.8	6.4

Out of the planned expansion of capacity by 347,130 lines, CANTV has already entered into contracts for the purchase of 333,500 lines comprising the following:

Contracted:

a) Extensions to existing exchanges contracted in 1969	25,000
b) Mobile Exchanges contracted in 1969	25,000
c) Contract concluded in 1970 after competitive bidding	121,500
d) Contract concluded in 1970 after negotiations based on previous international competitive bidding mentioned in (c) above	<u>162,000</u>
Total	<u>333,500</u>

Cable networks to meet the targets for additional connections will be taken up during this period. A part of the cables will be procured from domestic manufacturers and the rest under international competitive bidding with a preference for domestic suppliers. The details of this procurement are discussed in paragraphs 4.13 - 4.17.

Some 240,000 telephone sets for the expansion Program are going to be financed by the proposed Loan under international competitive bidding. The balance of requirements has been contracted for in 1969.

B. Long Distance Service

Long Distance Routes

The routes included in the 1970-1974 Program are shown in the Map and in Charts 1 & 2 of Annex 13.

With respect to the Eastern Network, no new routes are being added except for the completion of the 960-channel microwave system (Japanese) already in hand.

The Western Network is being strengthened considerably by two 1,800-channel capacity microwave links from Caracas to Altamira (2 bearers) and Altamira to Barquisimeto (one bearer). The existing 960-channel capacity microwave equipment for Caracas to Altamira (one bearer) will be shifted to augment the Barquisimeto to Escuque section. The Northwestern system is also to be augmented and two alternatives are under consideration, the first to install a system between Caracas to Mirimire (through Pt. Cabello) and the second to erect a new route from Barquisimeto to Curimagua. A decision on this will be taken after a study to be performed and completed during the Project period. A number of spur routes are also being provided, including a short interconnection of the Merida-San Cristobal link with the Colombian long distance network across the border. Spur routes in the immediate vicinity of Caracas are included.

A microwave system to the south from San Juan to Calabozo-San Fernando is likewise included.

All the systems would be procured by international competitive bidding and financed by the proposed Loan.

The execution schedules for these routes are given in the Chart at Annex 12.

Circuits

Multiplexing equipment is being added to the existing routes and to the new routes being established in the 1970-1974 Project, providing for a total of 6,000 additional channels to meet the estimated requirements.

	<u>Existing 1970</u>	<u>Required in 1975</u>	<u>Additions Required</u>
Number of channels between STD switching centers	1,512	4,372	2,860
Number of channels from STD switching centers to local exchanges	1,048	3,332	2,284
Number of channels to small local areas	<u>39</u>	<u>705</u>	<u>666</u>
Total	<u>2,599</u>	<u>8,409</u>	<u>5,810</u>

Long distance switching systems

These installations are being financed by CANTV outside the Bank Loan.

Costs

The costs--local, foreign and total--of the long distance Project itemized and annually, are given in Table I, item 2 of this Annex.

Automatic Switching Centers

A total of 16,140 additional lines is included in the Program for expansion of existing and provision of new automatic switching centers. Details are given below:

Switching Center	Existing lines		New Lines				Total
	1969	1970	1971	1972	1973	1974	
1. Acarigua	-	300	-	200	-	-	500
2. Anaco	160	-	-	-	-	-	160
3. Barquisimeto	400	400	-	600	-	-	1,400
4. Cabimas	-	240	-	-	80	-	320
5. Caracas - C.N.	2,600	1,400	1,500	1,400	-	-	6,900
6. Carupano	-	-	160	-	80	-	240
7. Tacarigua	-	-	80	-	80	-	160
8. Ciudad Bolivar	-	200	-	400	-	-	600
9. Coro	160	-	-	160	-	-	320
10. Cumana	240	-	-	160	-	-	400
11. El Tigre	320	-	-	160	-	-	480
12. Guarenas	-	-	80	-	80	-	160
13. Los Teques	160	-	160	-	-	-	320
14. Maiquetia	500	-	400	-	200	-	1,100
15. Maracaibo	400	-	600	-	500	-	1,500
16. Maracay	400	600	-	400	-	-	1,400
17. Maturin	-	160	-	240	-	-	400
18. Merida	240	-	400	-	-	-	640
19. Ocumare del Tuy	-	-	160	-	80	-	240
20. Porlamar	-	-	240	-	160	-	400
21. Pto. Cabello	160	-	240	-	-	-	400
22. Pto. La Cruz	300	300	-	200	-	-	800
23. Pto. Ordaz	200	-	400	-	400	-	1,000
24. Punto Fijo	-	320	-	-	-	-	320
25. San Cristobal	200	-	400	-	-	-	600
26. S. J. Moros	160	-	160	-	-	-	320
27. Valencia	400	600	-	600	-	-	1,600
28. Valera	320 <sup>1/</sup>	600	-	-	200	-	700
29. V. Pascua	80	-	-	80	-	-	160
Total lines installed by 1974							23,540
Less: total existing lines							<u>7,400</u>
Total lines to be installed during 1970-1974							<u>16,140</u>

<sup>1/</sup> Will be transferred to another exchange

C. Telex Service

CANTV has included in the Program the extension of total telex exchange capacities from 1,640 lines to 2,740, while the number of connected teleprinter machines will be increased from 683 to 2,018, as shown in the tables, below:

	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
Total capacity of exchanges (lines)	320	1,640	1,740	1,940	2,140	2,340	2,740
Connected subscribers ordinary	285	622	1,322	1,322	1,522	1,572	1,622
remote (far from the ordinary exchange boundary)	-	61	138	222	300	348	396

D. International Service

By Nov. 1970, a satellite ground station has been taken into operation in Camatagua, about 70 miles south of Caracas. The station will work with the INTELSAT Atlantic satellite and provide circuits to a number of countries in North and South America and Europe. Initially the following telephone circuits are being provided:

Venezuela to--

United States	5
Canada	2
Italy	4
Germany	4
Spain	2
Latin American countries	<u>13</u>
Total	<u>30</u>

Additional circuits as well as new destinations can be added as required. The ground station at Camatagua will be connected to Caracas by a microwave link of 960-channel ultimate capacity. The requirements of telex circuits will also be provided through the satellite system. The international exchange in Caracas is being augmented to meet the increased requirements.

The costs of establishing satellite communication facilities are shown in Table I, item 3 in this Annex. Item 3.2, shown as "INTELSAT" in this table, represents the share capital to be contributed by CANTV to INTELSAT for participating in the INTELSAT World wide Satellite Communication System.

August 11, 1970

VENEZUELA

COMPANIA ANONIMA NACIONAL TELEFONOS DE VENEZUELA (CANTV)

Telecommunications Program (1970 - 1974)

(In thousands of Bolivares)

	TOTAL COSTS																				
	1970			1971			1972			1973			1974			1970			1974		
	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total			
<b>1. LOCAL SERVICE</b>	180,473	29,898	149,371	125,388	67,081	192,469	116,610	76,182	192,792	132,817	87,687	240,504	148,175	97,306	245,481	643,463	378,154	1,021,617			
<b>1.1 Internal Plant</b>																					
1.1.1 Main Exchanges & related Equipment	16,401	19,367	35,768	4,958	17,287	22,245	7,473	28,286	35,759	9,824	41,035	50,854	21,330	46,263	67,593	59,986	152,233	212,219			
1.1.2 Mobile Exchange - Contracted for	-	2,967	2,967	-	9,272	9,272	-	1,484	1,484	-	-	-	-	-	-	-	13,723	13,723			
1.1.3 Mobile Exchanges - Additional	-	-	-	-	-	-	-	2,162	2,162	-	3,743	3,743	-	6,130	6,130	-	12,035	12,035			
1.1.4 Transportable Exchanges - Rural	-	-	-	-	-	-	1,431	3,823	5,254	721	1,214	1,935	1,336	2,663	3,999	3,488	7,700	11,188 *			
<b>1.2 External Plant</b>																					
1.2.1 Cables	10,000	-	10,000	16,500	33,500	50,000	16,800	33,200	50,000	18,300	56,700	75,000	18,400	36,600	55,000	80,000	160,000	240,000 *			
1.2.2 Conduits, Accessories and Cable Laying	65,725	-	65,725	72,919	-	72,919	60,708	-	60,708	67,915	-	67,915	63,472	-	63,472	330,739	-	330,739			
<b>1.3 Buildings</b>																					
1.3.1 Administrative Buildings	1,238	-	1,238	6,874	1,000	7,874	7,548	2,000	9,548	5,825	1,000	6,825	-	-	-	21,485	4,000	25,485			
1.3.2 Other Buildings - (Exchanges & Transmission)	17,392	-	17,392	21,267	-	21,267	20,700	-	20,700	27,459	-	27,459	39,670	-	39,670	126,488	-	126,488			
<b>1.4 Land</b>	8,288	-	8,288	2,870	-	2,870	1,950	-	1,950	2,773	-	2,773	3,967	-	3,967	19,848	-	19,848			
<b>1.5 Subscriber Apparatus</b>																					
1.5.1 Coin Boxes - (Siemens)	1,429	814	2,243	-	-	-	-	-	-	-	-	-	-	-	-	1,429	814	2,243			
1.5.2 Telephone sets - (Citea-ITT)	-	6,620	6,620	-	4,852	4,852	-	1,227	1,227	-	-	-	-	-	-	-	12,699	12,699			
1.5.3 240,000 new telephone sets	-	-	-	-	-	-	-	4,000	4,000	-	4,000	4,000	-	5,650	5,650	-	13,650	13,650 *			
1.5.4 2,000 Coin Boxes (Urban)	-	130	130	-	1,170	1,170	-	-	-	-	-	-	-	-	-	-	1,300	1,300			
<b>2. LONG DISTANCE - NATIONAL</b>	19,422	41,053	60,475	31,765	30,818	62,583	18,234	30,180	48,414	20,691	37,898	58,582	14,575	29,426	44,001	104,687	169,375	274,062			
<b>2.1 Long Distance Connections</b>																					
2.1.1 Eastern Network	5,260	12,750	18,010	1,031	4,611	5,642	-	-	-	-	-	-	-	-	-	6,291	17,361	23,652			
2.1.2 Switching Extensions LME	2,414	5,000	7,414	1,199	664	1,863	-	-	-	-	-	-	-	-	-	3,613	5,664	9,277			
2.1.3 Switching Extensions ITT	8,360	8,419	17,279	6,668	4,967	11,635	-	-	-	-	-	-	-	-	-	15,528	13,386	28,914			
* 2.1.4 Western Network Extension and Provision of 6,000 Additional Channels	-	-	-	-	-	-	4,326	11,960	16,286	5,117	14,230	19,347	2,975	12,080	15,055	12,418	38,270	50,688 *			
* 2.1.5 M.W. link Parquisimeto-Coro	-	-	-	-	-	-	1,454	960	2,414	2,136	4,840	6,976	-	-	-	3,590	5,800	9,390 *			
* 2.1.6 Coaxial Cable Maracay-Valencia	-	-	-	-	-	-	377	620	997	541	1,528	2,069	-	212	212	918	2,360	3,278 *			
* 2.1.7 O.H. Carrier Routes-Rural Areas	-	-	-	-	-	-	6,486	4,640	11,126	7,350	5,300	12,650	5,253	5,134	10,387	19,089	15,074	34,163 *			
2.1.8 Other Long Distance Equipment - Contracted for	2,888	14,384	17,772	15,230	14,576	29,806	-	-	-	-	-	-	-	-	-	18,118	29,460	47,578			
2.1.9 Switching Equipment - Additional	-	-	-	7,637	6,000	13,637	5,591	12,000	17,591	5,547	12,000	17,547	6,347	12,000	18,347	25,122	42,000	67,122			
<b>3. INTERNATIONAL SERVICE</b>	557	15,930	16,487	1,044	11,100	12,144	1,111	5,400	6,511	-	3,635	3,635	-	3,200	3,200	2,712	39,265	41,977			
<b>3.1 International Connections</b>																					
* 3.1.1 Connection Venezuela - Colombia	-	-	-	-	200	-	587	1,400	1,987	-	535	535	-	-	-	587	1,925	2,522 *			
3.1.2 Connection Venezuela - Curacao	-	-	-	1,044	-	1,244	-	-	-	-	-	-	-	-	-	1,044	200	1,244			
3.1.3 Satellite Earth Station	-	12,000	12,000	-	8,000	8,000	-	-	-	-	-	-	-	-	-	-	20,000	20,000			
3.1.4 Other International Connections	-	190	190	-	-	-	-	-	-	-	-	-	-	-	-	-	190	190			
<b>3.2 INTELSAT</b>	-	2,800	2,800	-	2,900	2,900	-	3,000	3,000	-	3,100	3,100	-	3,200	3,200	-	15,000	15,000			
<b>3.3 International Switching</b>	557	940	1,497	-	-	-	524	1,000	1,524	-	-	-	-	-	-	1,081	1,940	3,021			
<b>4. TELEX SERVICE</b>	-	2,790	2,790	636	1,400	2,036	699	2,000	2,699	416	1,400	1,816	317	1,200	1,517	2,068	8,790	10,858			
<b>4.1 New Telex Exchanges</b>	-	2,790	2,790	-	-	-	-	-	-	-	-	-	-	-	-	-	2,790	2,790			
<b>4.2 Extension of Existing Telex Exchanges</b>	-	-	-	636	1,400	2,036	699	2,000	2,699	416	1,400	1,816	317	1,200	1,517	2,068	6,000	8,068			
<b>* 5. CONSULTANTS</b>	-	-	-	-	1,000	1,000	-	500	500	-	672	672	-	672	672	-	2,844	2,844 *			
<b>GRAND TOTAL</b>	140,452	89,671	230,123	158,833	111,399	270,232	136,654	114,262	250,916	153,924	151,292	305,216	163,067	131,804	294,871	752,930	598,428	1,351,358			

\* Items financed by IBRD Loan.

Note: Contingencies of about 7.5% are included in the cost of each item.

Table 1.1

VENEZUELACOMPANIA ANONIMA NACIONAL TELEFONOS DE VENEZUELA (CANTV)Estimated Schedule of Disbursements of Proposed IBRD Loan

(In Million of Bolivares &amp; US\$)

		<u>Disbursements</u>		<u>Undisbursed Loan Balance</u>	
		<u>Bs</u>	<u>US\$</u>	<u>Bs</u>	<u>US\$</u>
1970	4th quarter	-	-	157.5	35.0
1971	1st quarter	-	-	157.5	35.0
	2nd quarter	1.4	.3	156.1	34.7
	3rd quarter	4.3	1.0	151.8	33.7
	4th quarter	6.0	1.3	145.8	32.4
1972	1st quarter	9.4	2.1	136.4	30.3
	2nd quarter	9.5	2.1	126.9	28.2
	3rd quarter	13.5	3.0	113.4	25.2
	4th quarter	13.5	3.0	99.9	22.2
1973	1st quarter	14.1	3.1	85.8	19.1
	2nd quarter	14.0	3.1	71.8	16.0
	3rd quarter	14.1	3.2	57.7	12.8
	4th quarter	14.0	3.1	43.7	9.7
1974	1st quarter	9.6	2.1	34.1	7.6
	2nd quarter	9.7	2.2	24.4	5.4
	3rd quarter	9.7	2.1	14.7	3.3
	4th quarter	9.7	2.2	5.0	1.1
1975	1st quarter	1.6	.3	3.4	.8
	2nd quarter	1.7	.4	1.7	.4
	3rd quarter	1.7	.4	-	-
	4th quarter	-	-	-	-

Assumptions:

- Loan will become effective in last quarter of 1970
- Closing date December 31, 1975
- Disbursements in 1975 represent retention payments
- Direct payments to contractors
- 1971 and 1972 disbursements based on estimated timing of contracting suppliers and of equipment deliveries, linear distribution of quarterly disbursements 1973 and 1974.

September 29, 1970

VENEZUELA

COMPANIA ANONIMA NACIONAL TELEFONOS DE VENEZUELA (CANTV)

JUSTIFICATION

A. Estimate of Telephone Demand

Since a large part of the less developed areas in Venezuela has no public telephone service and because waiting lists of applicants for telephone service are only kept in places which are presently serviced or where expansions are planned fairly soon, CANTV has attempted to assess the total present and future telephone demand in Venezuela by use of an econometric model.

Six factors were considered therefor: (a) Towns grouped according to size into 4 classes; (b) Extrapolated population figures; (c) Number of persons per household; (d) Distribution of monthly income in 7 income brackets; (e) Coefficients of interest for telephone connections of the various income brackets, and (f) Ratio of residential to total subscribers.

The resulting overall demand coefficients and the calculated demand for 1970 and 1974 are as follows:

	Coefficients of Potential Subscribers per 100 inhabitants	December 31, 1969 Actual Number of Subscribers	Calculated Demand	
			1970	1974
Caracas Metropolitan Zone	14.440	159,200	314,100	398,300
Large Urban areas	8.870	89,000	361,800	439,300
Small Urban areas	4.930			
Concentrated Rural areas	1.002			
Total		<u>248,200</u>	<u>657,900</u>	<u>824,600</u>

B. Internal Financial Rate of Return of the 1970-1974 Program

The internal financial rate of return of 21.22% determined on Page 2 of this Annex is the discount rate which equalizes the present values of incremental operating cash flows attributable to the Program and the expenditures, both at 1970 price levels. The incremental cash flows were determined by difference from the two streams of net operating cash flows (net operating income before depreciation), considered for the average lifetime of the equipment provided by the Program; those with Program execution by using the relevant figures shown on the forecast income statements for 1970-1974 and allowing a 6% growth p.a. of long distance and telex revenues for 1975 and 1976 only and those without Program execution, by using the 1969 actual net operating cash flows allowing a 6% growth p.a. of long distance and telex revenues for 1970 and 1971 only.

Internal Financial Rate of Return of the 1970-1974 Program

( In Million of Bolivares)

<u>Year</u>	<u>Capital Expenditures, Working Capital Increases and INTELSAT Investment</u>	<u>Net Operating Cash Flows <u>1/</u> With 1970-1974 Program</u> (A)	<u>Net Operating Cash Flows <u>1/</u> Without 1970-1974 Program</u> (B)	<u>Incremental Cash Flows of 1970-1974 Program</u> (A) - (B)
1970	257	128	89	39
1971	298	177	108	69
1972	277	238	108	130
1973	303	308	108	200
1974	330	386	108	278
1975	-	353	108	245
1976	-	403	108	295
1977	-	403	108	295
1978	-	403	108	295
1979	-	403	108	295
1980	-	403	108	295
1981	-	403	108	295
1982	-	403	108	295
1983	-	403	108	295
1984	-	403	108	295
1985	-	403	108	295
1986	-	403	108	295
1987	-	403	108	295
1988	-	403	108	295
1989	-	403	108	295
<u>Internal Financial Rate of Return</u>				<u>21.22%</u>

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1/ Net operating income before deduction of depreciation expense.

August 11, 1970



# VENEZUELA CANTV PROJECT 1970-1974

**SCHEDULE FOR  
AUTOMATIC EXCHANGE EQUIPMENT**

	1970	1971	1972	1973	1974
1. SPECIFICATIONS	[Bar from start of 1970 to start of 1971]				
2. BIDDING AND CONTRACTING	[Bar from start of 1970 to start of 1971]				
3. BUILDING	[Bar from start of 1970 to start of 1972]				
4. RECEPTION OF EQUIPMENT	[Bar from start of 1971 to start of 1973]				
5. INSTALLATION	[Bar from start of 1971 to start of 1974]				
6. TESTING AND COMMISSIONING	[Bar from start of 1972 to start of 1974]				

**SCHEDULE FOR LOCAL EXCHANGES  
(SMALL TOWNS)  
MOBILE & TRANSPORTABLE TYPES**

	1970	1971	1972	1973	1974
1. SPECIFICATIONS	[Bar from start of 1971 to start of 1972]				
2. BIDDING AND CONTRACTING	[Bar from start of 1971 to start of 1972]				
3. BUILDING	[Bar from start of 1972 to start of 1973]				
4. RECEPTION OF EQUIPMENT	[Bar from start of 1972 to start of 1973]				
5. INSTALLATION	[Bar from start of 1972 to start of 1974]				
6. TESTING AND COMMISSIONING	[Bar from start of 1973 to start of 1974]				

**SCHEDULE FOR EXTERNAL PLANTS (LOCAL)**

	1970	1971	1972	1973	1974
1. SPECIFICATIONS	[Bar from start of 1970 to start of 1971]				
2. BIDDING AND CONTRACTING	[Bar from start of 1971 to start of 1972]				
3. BUILDING	[Bar from start of 1972 to start of 1973]				
4. RECEPTION OF EQUIPMENT	[Bar from start of 1972 to start of 1974]				
5. INSTALLATION	[Bar from start of 1972 to start of 1974]				
6. TESTING AND COMMISSIONING	[Bar from start of 1973 to start of 1974]				

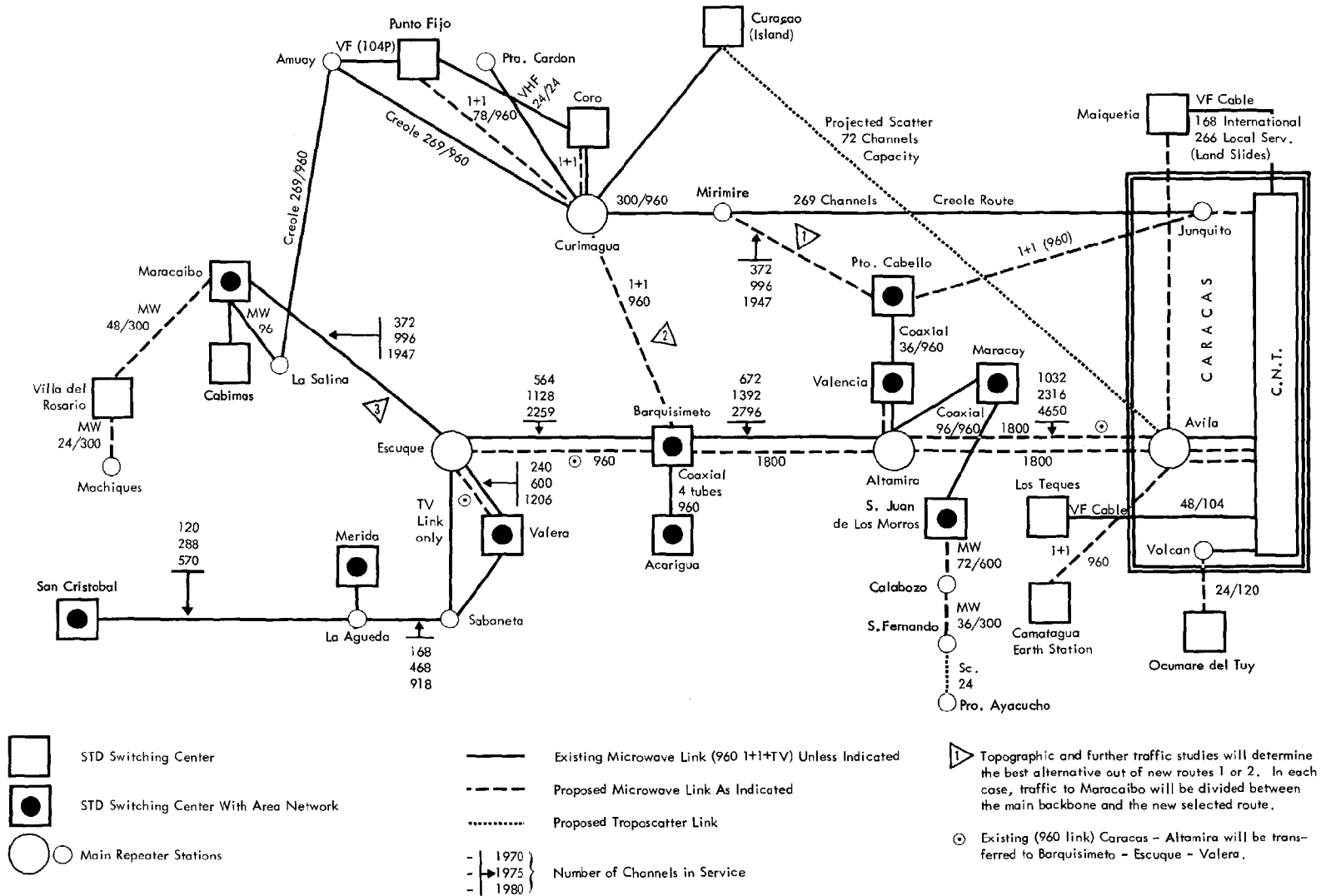
**SCHEDULE FOR LONG DISTANCE EQUIPMENT**

	1970	1971	1972	1973	1974
1. SPECIFICATIONS	[Bar from start of 1970 to start of 1971]				
2. BIDDING AND CONTRACTING	[Bar from start of 1970 to start of 1971]				
3. BUILDING	[Bar from start of 1970 to start of 1972]				
4. RECEPTION OF EQUIPMENT	[Bar from start of 1972 to start of 1973]				
5. INSTALLATION	[Bar from start of 1972 to start of 1974]				
6. TESTING AND COMMISSIONING	[Bar from start of 1972 to start of 1974]				

# WESTERN NETWORK

## VENEZUELA

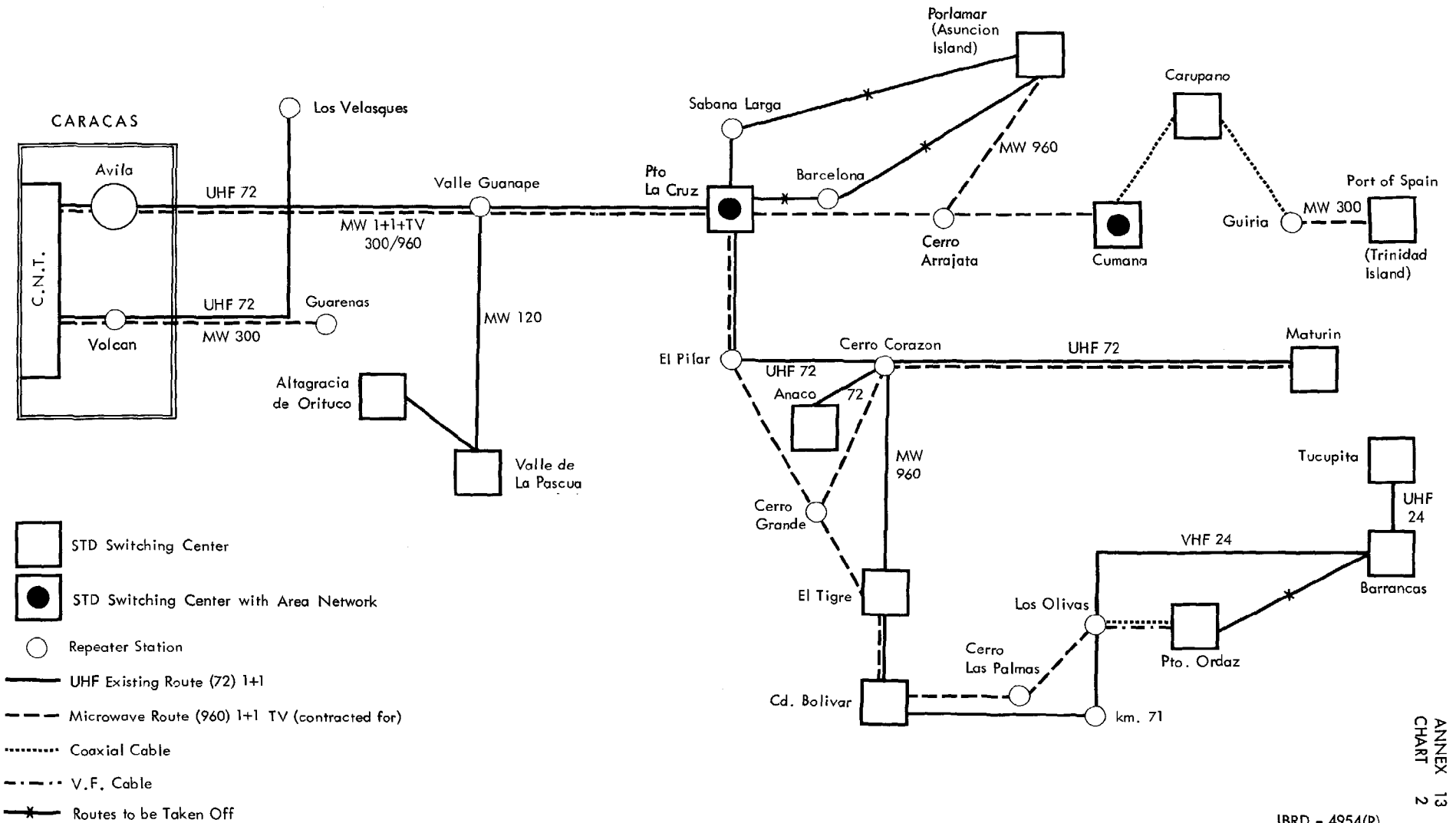
MAIN LONG DISTANCE NETWORK  
PROJECT 1970 - 1974



# EASTERN NETWORK

## VENEZUELA CANTV

MAIN LONG DISTANCE NETWORK  
PROJECT 1970 - 1974



VENEZUELA  
**COMPANIA ANONIMA NACIONAL TELEFONOS De VENEZUELA (CANTV)**  
**MAIN LONG DISTANCE NETWORK**  
 1970-1974

