社会開発協力部報告書

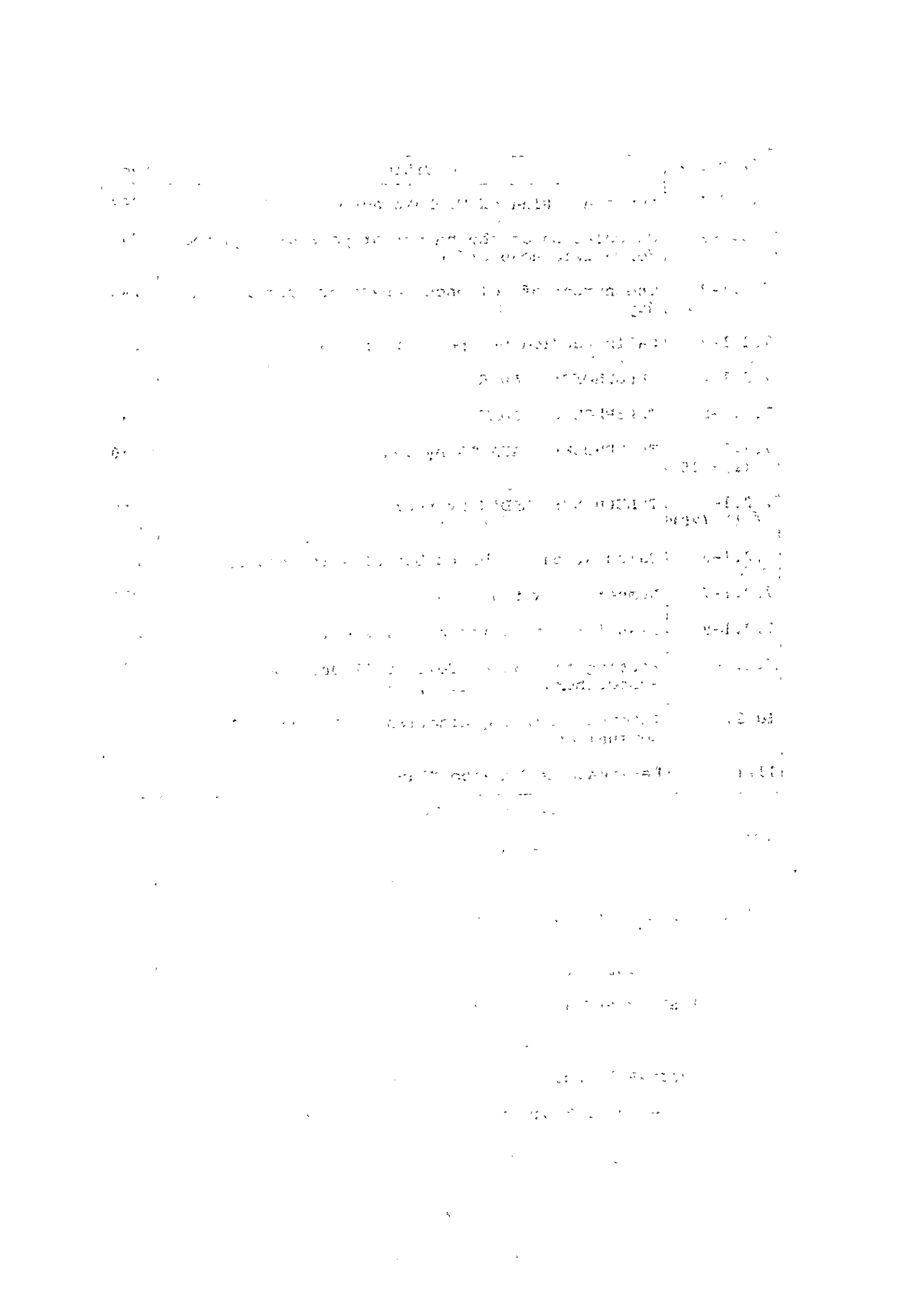
APPENDIX

REPORT ON THE LONG TERM DEVELOPMENT PROGRAMS OF THE INTERNATIONAL TELECOMMUNICATIONS FOR THE REPUBLIC OF INDONESIA

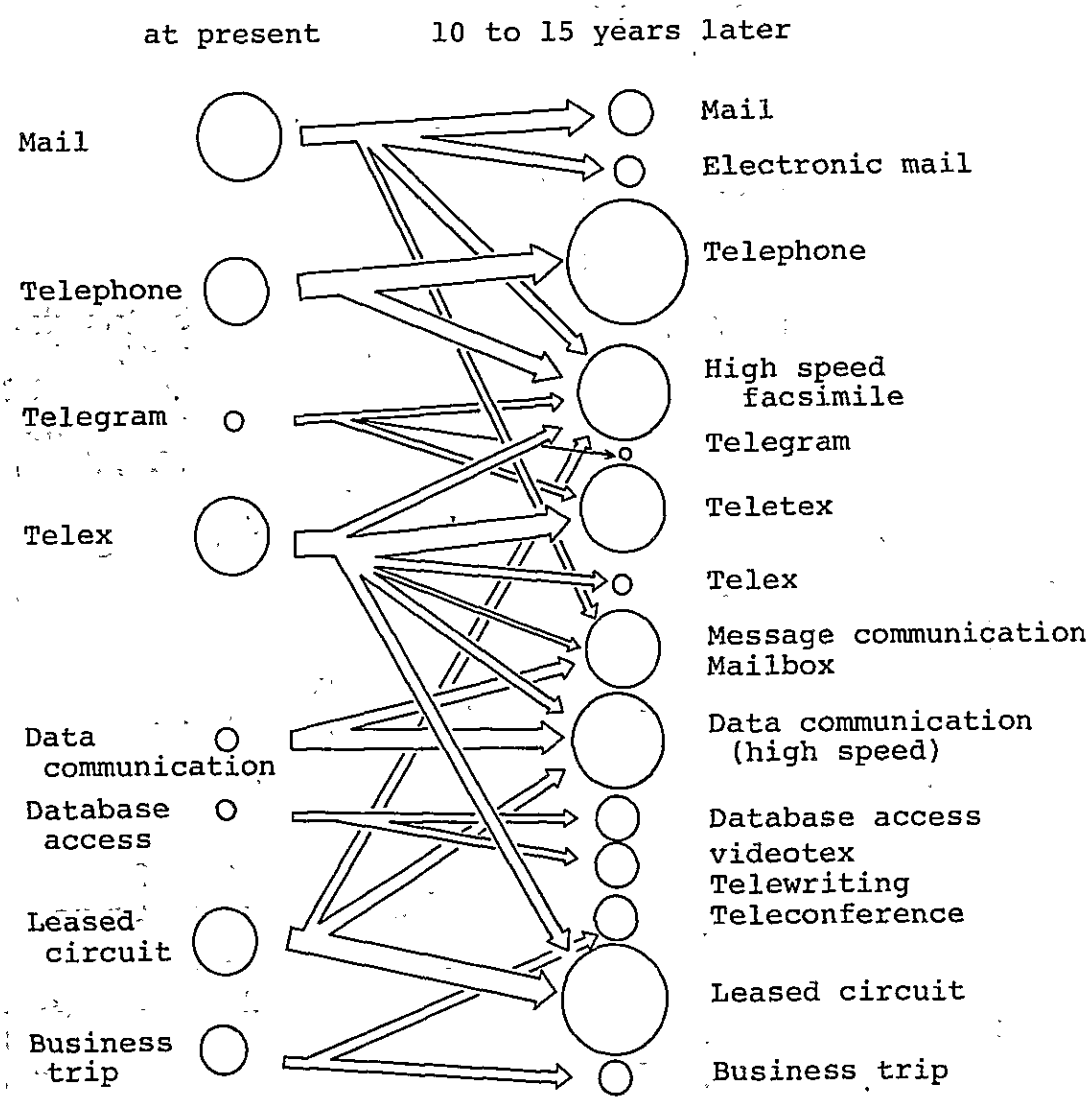
JUNE, 1983

JAPAN INTERNATIONAL COOPERATION AGENCY

CONTENTS

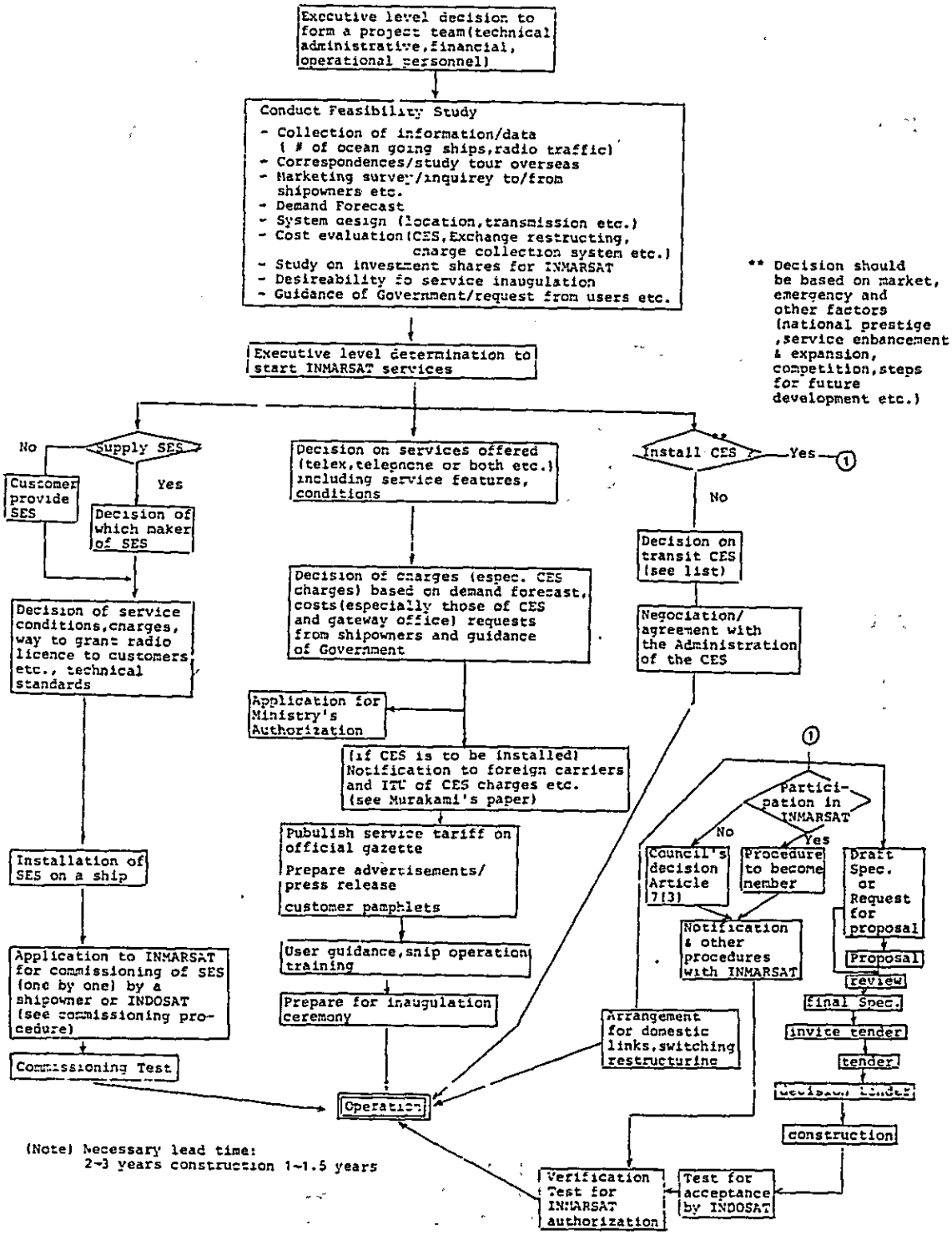


Transition of International Telecommunication Services



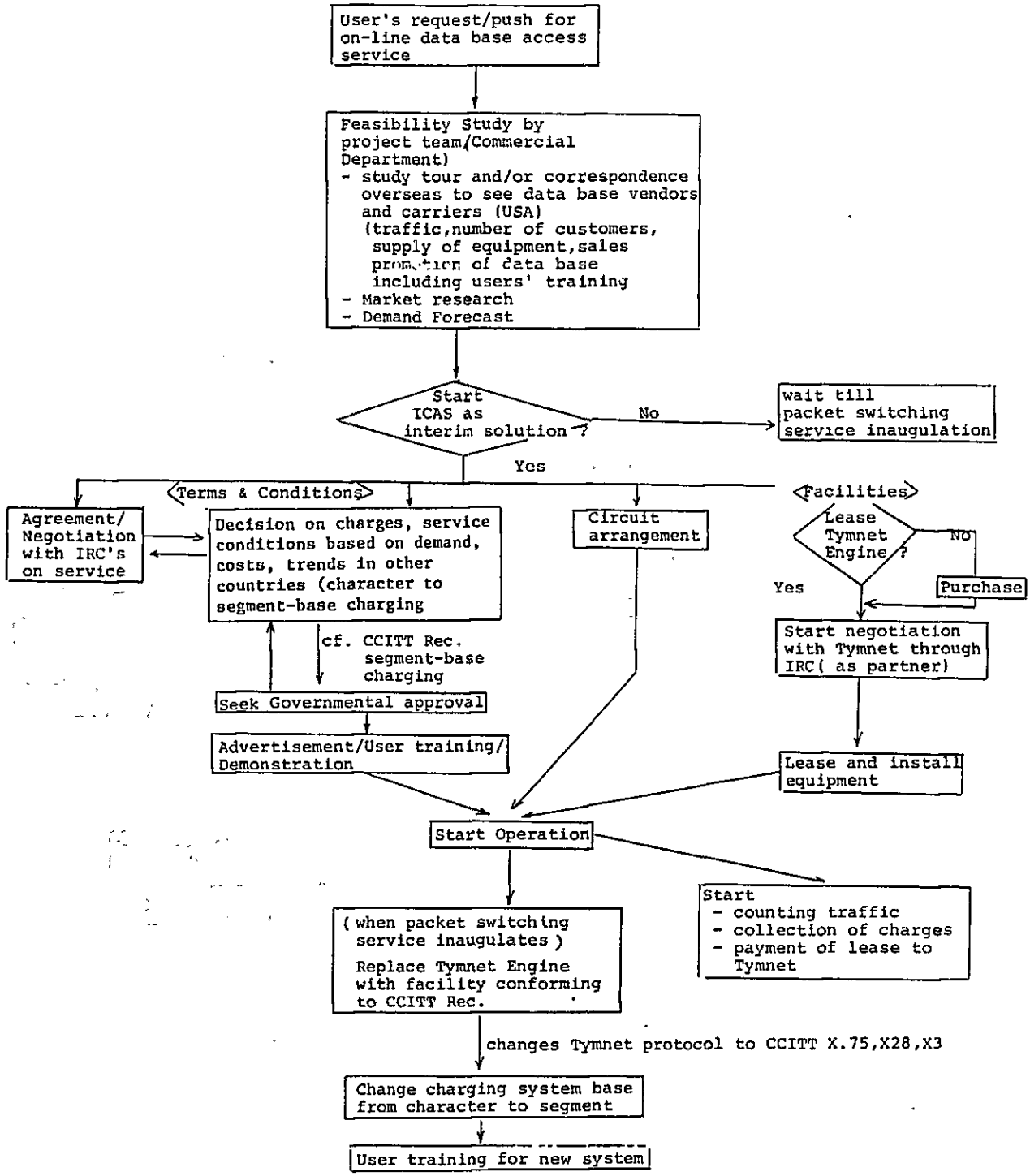
Source: Institute for Future Technology
"Study on Future Form of International Non-voice Telecommunications Services"

Flow of INMARSAT Service Inaugulation Procedure (Sample)

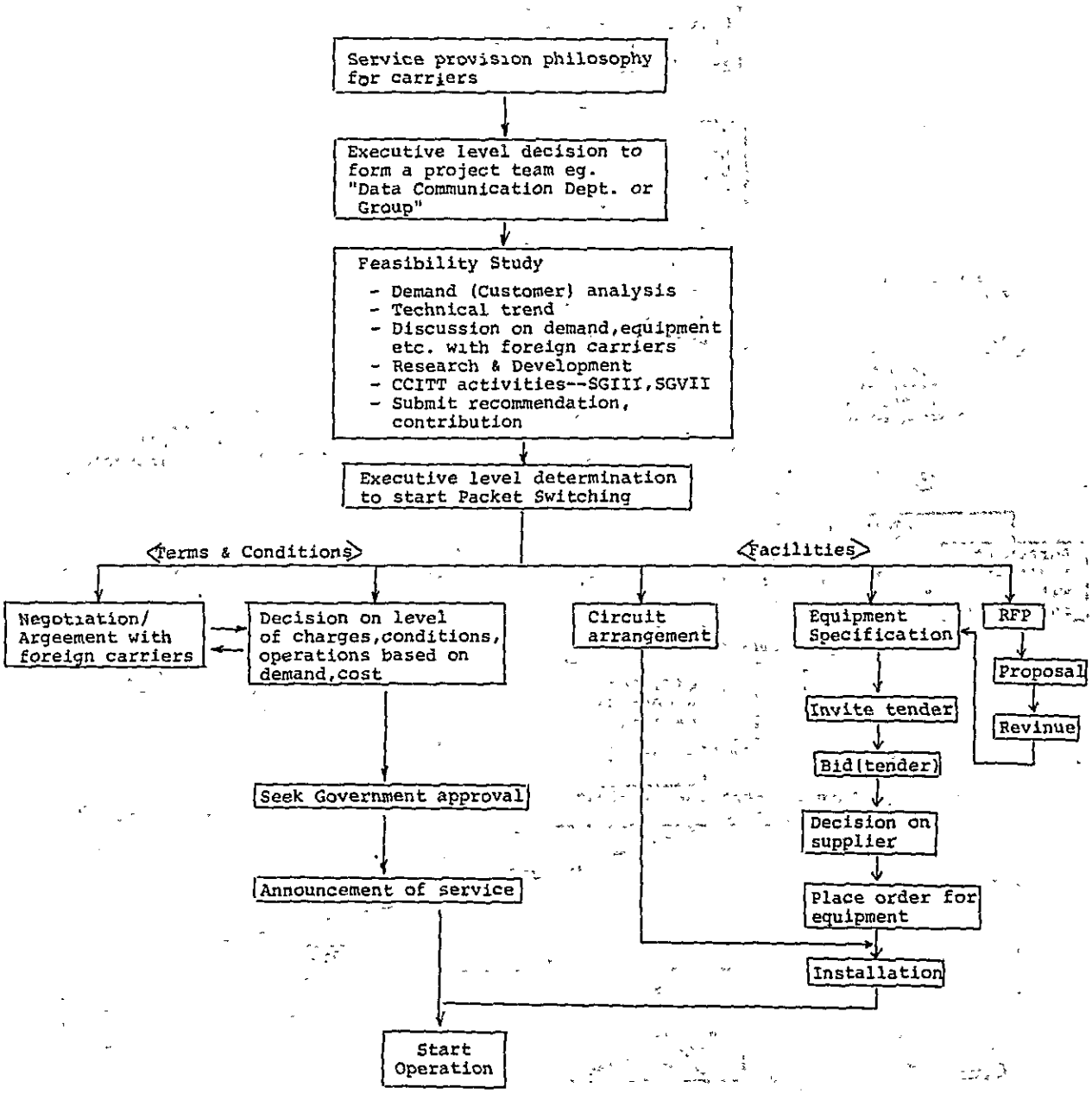


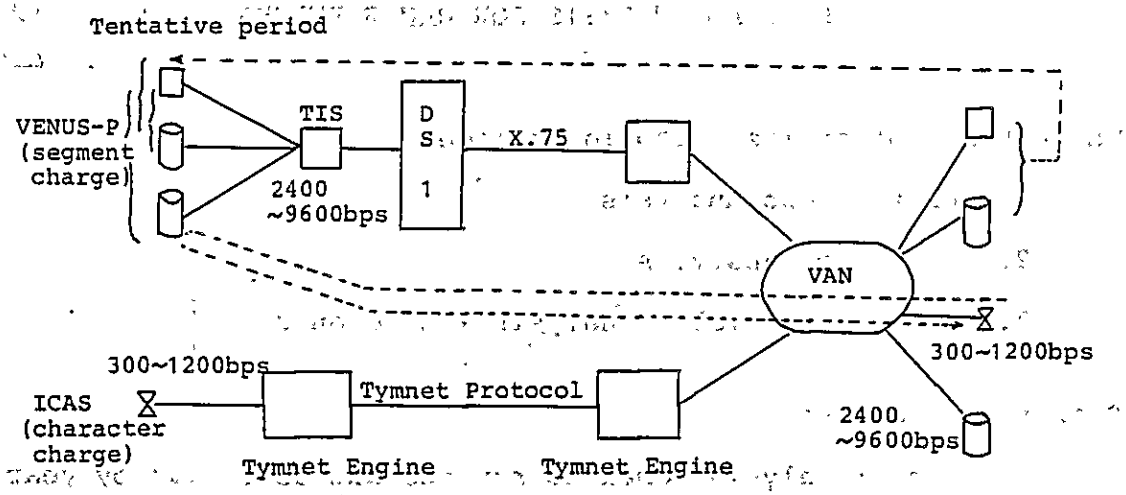
(Note) Necessary lead time:
2~3 years construction 1~1.5 years

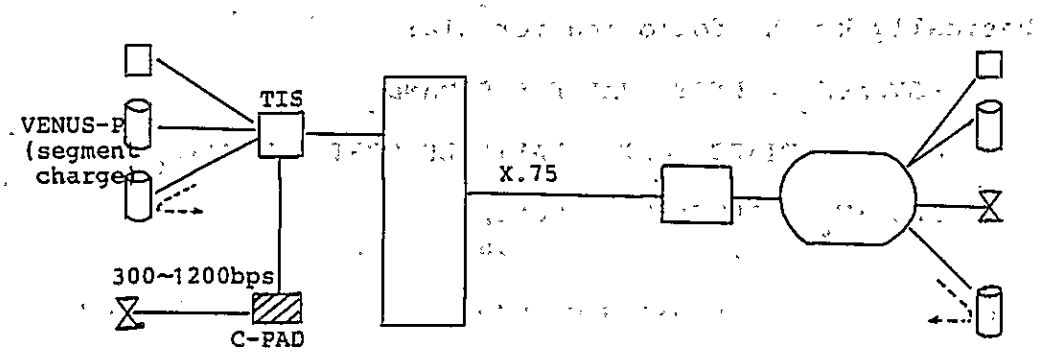
Flow of ICAS Inaugulation Procedure (Sample)



Flow of Packet Switching Service Inaugulation Procedure (Sample)

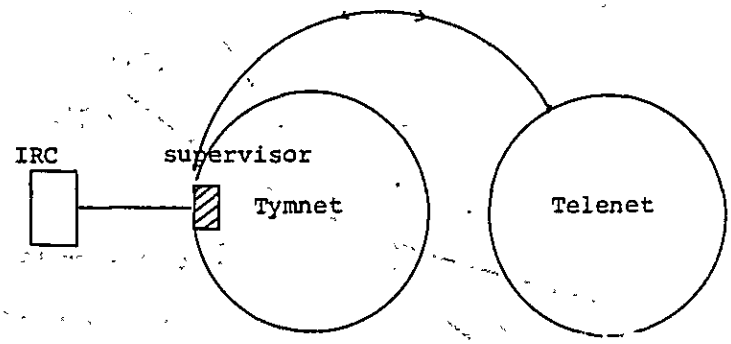






TIS: Terminal Interface Subsystem

C-PAD: Character Packet Assembly & Disassembly



FINANCIAL ANALYSIS FOR NEW SERVICES

Three kinds of analysis should be made:

1. Profit/Loss Analysis
2. Cash flow analysis
3. Net present value analysis (based on 2.)

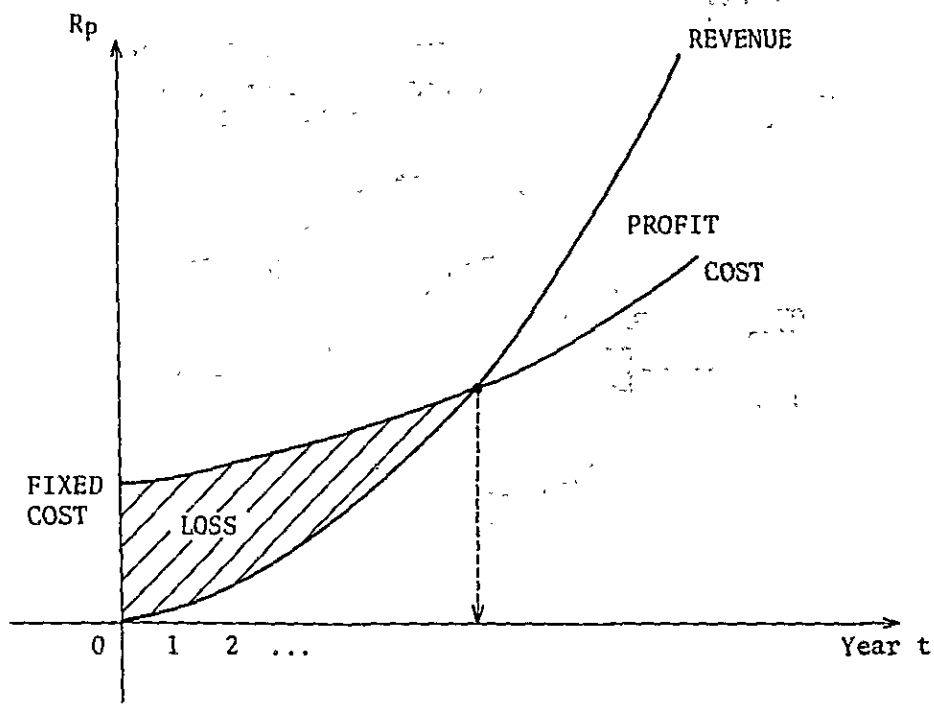
Profit/loss analysis

This analysis compares revenue and cost year by year. Revenue and costs of a service of the year t are determined basically by the following formula:

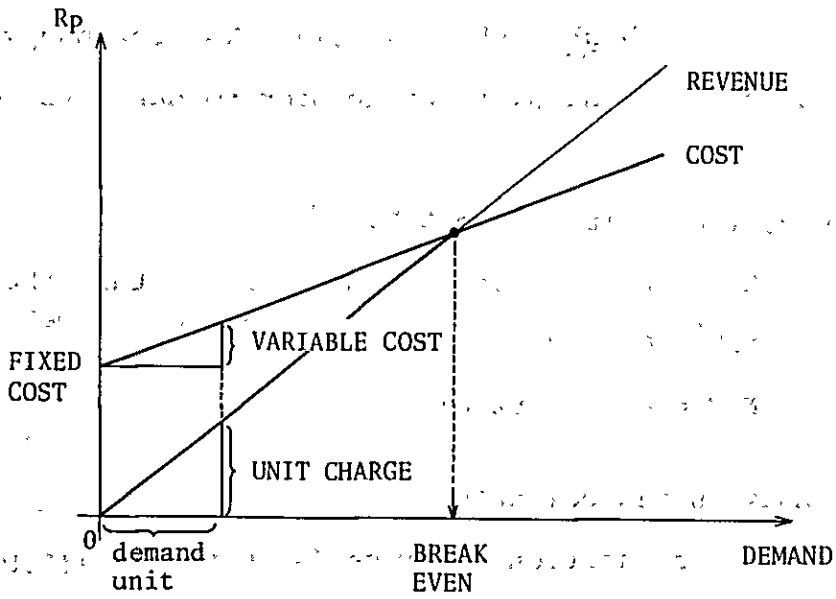
$$REVENUE_t = UNIT\ CHARGE * DEMAND_t$$

$$COST_t = FIXED\ COST + VARIABLE\ COST * DEMAND_t$$

$$PROFIT_t = REVENUE_t - COST_t$$



This analysis is based on "break even" analysis (for a certain year).



Cash flow analysis

This analysis compare cash base income and expenditure year by year. The difference between this and the above analysis is basically as follows:

$$INCOME_t \text{ (cash base)} = REVENUE_t + LOAN_t \text{ (in case the project is financed by loan)}$$

$$EXPENDITURE_t (\text{ " }) = COST_t + INVESTMENT_t - DEPRECIATION_t + LOAN\ REPAYMENT_t$$

$$NET\ CASH_t = INCOME_t - EXPENDITURE_t$$

Net present value analysis

This analysis used the above result, and first obtain the following:

$$NPV\ (\text{Net Present Value}) = \sum_{t=1}^{a} \frac{NET\ CASH_t}{(1+r)^t}$$

In the above formula, a is the project life span and r is cash flow deflator. r differs from project to project. For the one with high risk, r is big. For the one with low risk, on the other hand, r gets closer to bank interest rate.

Then, you evaluate the NPV.

NPV > 0	It is recommendable to take the project.
NPV < 0	" not " "
NPV = 0	neutral

Additional analysis and comments

1. Demand is a function of price (=tariff), while price should take demand into consideration. (problem of price elasticity of demand)
2. Ralation to or impact on existing services should also be considered. Introduction of new service may increase or decrease the total company revenue. (problem of cross elasticity of demand)

(Reference)

Brealey and Myers, "Principles of Corporate Finance"
McGraw-Hill 1981

Appendix 2.4-2

Price Elasticity of Demand and its Measurement

Demand for international telecommunications might be, in general, considered to be explained as:

$$Y = f(I,P,X,T,S \ . \ . \ .)$$

Where:

Y = demand for international telecommunications

I = national income

P = price

X = trade

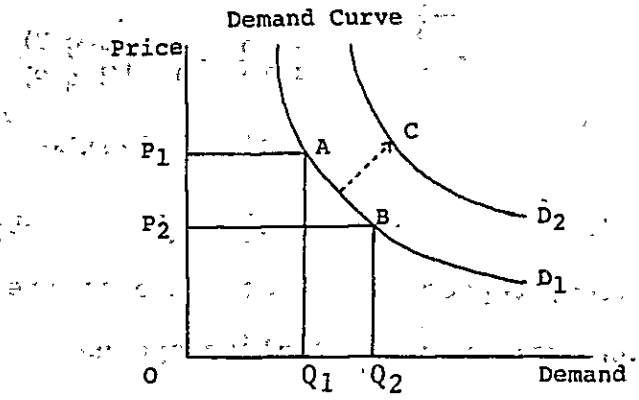
T = travel

S = service quality

In other words, demand is a function of these factors. When these factors change, demand should also change.

Naturally, a positive relationship can be expected between demand and each of these variables with the exception of price. When price moves in one direction, demand should moves along the demand curve in the other derection.

Technically, change in demand is either a movement along, or shift in, the demand curve. The figure below demonstrates these two effects.



A price reduction would cause a movement along the D_1 demand curve from A to B. Other influences than price upon demand such as an increase in national income would cause the demand curve to shift up to the right, i.e., D_1 to D_2, thus the demand would move to point C.

At present, econometrics (or regression) technique based on least square method is popular among model builders in international telecommunications carriers. In general, regression models obtained in this technique might be presented as:

$$\text{Log } Y = B_0 + B_1 * \log I - B_2 * \log P + B_3 * D + \ldots$$

Where:

Y = international telephone traffic to (and from) Indonesia

I = national income (or GDP)

P = average price per minute

D = automatic operation ratio expressed in %

The first practical use of this model would be the contribution to tariff studies because it would give the approximation of demand elasticities. In economics, the price elasticity of demand is expressed as follows:

$$\text{price elasticity of demand} = \frac{\% \text{ change in demand}}{\% \text{ change in price}} \quad \text{or} \quad \frac{\%\Delta Y}{\%\Delta P}$$

Since:

$$\left.\frac{\%\Delta Y}{\%\Delta P}\right|_{\text{cet. par.}} = \left.\frac{\frac{dY}{Y}}{\frac{dP}{P}}\right|_{\text{cet.par.}} = \left.\frac{\partial(\log Y)}{\partial(\log P)}\right|_{\text{cet. par.}}$$

the regression coefficient of the price variable, $-B_2$ in the above log linear case, represents an estimate of the price elasticity of demand for international telephone.

The value of the demand elasticity obtained like this is very important from the revenue point of view. Because the value shows possible result in revenue of a price change. In the above example, reduction of price (P_1 to P_2) would mean demand increace (Q_1 to Q_2) with the other variables being constant. This also means the revenue change (P_1AQ_1O to P_2BQ_2O) because revenue is price times quantity, or demand. However, revenue does not always increase. If the absolute value of elasticity is bigger than one, the resultant revenue would be bigger than before (in this case, demand is called "price elastic"). On the other hand, if the absolute value is smaller than one, it would be larger than before (in this case, demand is called "price in elastic").

The above model is also useful for forecasting purposes. After obtaining forecasted values for the independent variables, I,P,D etc. in the above case, you will insert them into the model, and the result will be the forecasted demand for the service. In the process of writing this master plan, this technique was attempted to be applied, but failed because of shortage in data. It is recommended therefore that in the future, after enough quality data is accumulated, P.T. INDOSAT should try to use this technique.

(Reference)

Pindyck and Rubinfeld, "Econometric Models and Economic Forecasts", McGraw-Hill 1976

Craver, "An Estimate of the Price Elasticity of Demand for International Telecommunications" Telecommunications Journal Vol. 43, No.11 Nov. 1976

Yatrakis, "Determinants of the Demand for International Telecommunications" Telecommunications Journal Vol.39, No.12 Dec. 1972

Projection of Population and GDP of Indonesia

Year	Population million	G D P Real (1973) billion R_p	G D P per capita Real (1973)		G D P Billion US$
			R_p	US$(=$R_p$415)	
1975	133.81	7630.8	57027	137.4	18.39
76	136.21	8156.3	59880	144.3	19.65
77	138.94	8870.9	63847	153.8	21.38
78	141.74	9483.3	66906	161.2	22.85
79	144.58	9989.8	69095	166.5	24.07
80	147.49	10953.9	74269	179.0	26.39
81	150.46			189.7	28.54
82	153.47			201.0	30.85
83	156.54			213.2	33.37
84	159.67			226.0	36.09
85	162.88			239.5	39.01
86	166.14			253.9	42.18
87	(169.32)			269.1	45.56
88	(172.53)			285.3	49.22
89	175.85			302.4	53.18
90					
91					
92					
93					
94	193.21			404.7	78.19
95					
96					
97					
98					
99	211.23			541.6	114.40
2000	218.09			574.1	125.21

International Telecommunications Traffic in Asean Countries
(Source: ITU "Yearbook of Common Carrier Telecommunications Statistics" 1980)

Telephone

10^3 calls

Year		1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	average growth(%)
Indonesia		216	331	258	320	414	629	774	946	1,094	1,354	22.6
Malaysia	calls	606.8	697.9	1007.4	1337.6	1629.1	1925.7	2350.9	3996.8	4845.9	6203.4	-
	mini/call**	10.3	10.5	10.4	10.1	10.1	10.3	10.1	9.7	9.5	9.0	-
	minutes	59	66	97	132	161	187	233	412	510	689	31.4
Singapore		350	430	580	720	840	1,080	1,300	1,760	2,490	3,530	29.3
Philippines		312	411	512	707	810	912	1,110	1,307	1,707	2,105	23.6
Thailand *		186	275	343	384	425	419	503	586	722	873	18.7

(Note)*The figures for Thailand from '71 to 79: ITU "Common Carrier Telecommunications Statistics" 1979.
" " for '80 : " " 1980
**Average minutes per call is those of Japan-Malaysia traffic.

Telex

10^3 calls

Year		1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	average growth(%)
Indonesia		125	186	276	369	540	667	992	1,284	1,673	2,191	37.5
Malaysia		190	283	479	866	1,352	1,930	2,237	2,867	3,745	4,637	42.6
Singapore	calls	1,110	1,765	2,823	3,941	5,258	6,776	8,016	10,259	14,146	19,194	-
	mini/call**	5.1	4.1	3.7	3.1	2.8	2.7	2.7	2.7	2.9	2.8	-
	minutes	218	430	763	1,271	1,878	2,510	2,969	3,800	4,878	6,855	46.7
Phillippines	calls	1,377	1,787	2,059	2,406	2,891	3,232	3,810	4,690	6,101	7,372	-
	mini/call**	2.7	2.5	2.6	2.6	2.6	2.5	2.5	2.4	2.4	2.4	-
	minutes	510	715	792	925	1,112	1,293	1,524	1,954	2,542	3,072	22.1
Thailand	calls	358	485	699	915	1,139	1,394	1,790	2,324	2,987	3,784*	-
	mini/call**	5.5	5.3	5.3	4.5	3.4	3.1	2.9	2.9	2.5	2.5	-
	minutes	65	92	132	203	335	450	617	801	1,195	1,514	41.9

(Note)*The figures for Thailand for 1980 is estimated from the average growth for the past 5 years.
**Average minutes per call is those of Japan-the corresponding countries traffic.

International Telephone Traffic Indonesia—World

year	calls			minutes		
	outgoing	incoming	total	outgoing	incoming	total
1969	53, 413	55, 593	109, 006	319, 585	319, 585	639, 170
1970	76, 184	79, 294	155, 478	546, 940	546, 940	1, 093, 880
1971	113, 045	117, 659	230, 704	846, 326	846, 326	1, 692. 652
1972	176, 035	183, 220	359, 255	1, 351, 111	1, 351, 111	2, 702, 222
1973	256, 861	267, 345	524, 206	1, 885, 159	1, 885, 159	3, 770, 318
1974	273, 426	284, 586	558, 012	2, 302, 055	2, 302, 055	4, 604, 110
1975	374, 459	389, 743	764, 202	3, 195, 400	3, 195, 400	6, 390, 800
1976	545, 666	567, 938	1, 113, 604	4, 031, 089	3, 831, 731	7, 862, 820
1977	677, 820	705, 486	1, 383, 306	5, 426, 757	4, 079, 559	9, 506, 316
1978	836, 946	871, 107	1, 708, 053	6, 531, 245	4, 897, 954	11, 429, 199
1979	1, 094, 435	842, 532	1, 936, 967	7, 451, 014	6, 265, 263	13, 716, 277
1980	1, 174, 522	1, 287. 036	2, 461, 558	9, 050, 900	9, 367. 739	18, 418, 639
1981	1, 795, 393	2, 139, 283	3, 934, 676	12, 715, 980	14, 422, 902	27, 138, 882
1982				18, 218, 124	21. 826, 978	40, 045, 102

Incoming traffics are based on estimated IN/OUT ratio.

Appendix 3.2.1-2(1)

International Telephone by Country

INDOSAT data, June 1982

Country	Calls	% share	minutes	% share
Algeria	7	0.004	49	0.004
Egypt	79	0.044	521	0.043
Ethiopia	2	0.001	7	0.001
Keniya	28	0.015	237	0.019
Liberia	2	0.001	6	0.-
Libya	3	0.002	14	0.001
Madagascar	3	0.002	10	0.001
Malawi	1	0.001	11	0.001
Nigeria	32	0.018	299	0.024
Senegal	1	0.001	3	0.-
Seychelles	1	0.001	13	0.001
Sudan	1	0.001	6	0.-
Tanzania	6	0.003	86	0.007
Zambia	3	0.002	26	0.002
Zanbabwe	1	0.001	8	0.001
South Africa	16	0.009	35	0.003
Argentine	20	0.011	202	0.017
Bolivia	7	0.004	38	0.003
Brazil	46	0.025	527	0.043
Chile	7	0.004	66	0.005
Colombia	3	0.002	17	0.001
Ecuador	2	0.001	25	0.002
Guiana, French	1	0.001	6	0.-

Appendix 3.2.1-2(2)

Country	Calls	% share	minutes	% share
Guatemala	1	0.001	10	0.001
Guyana	2	0.001	18	0.001
Mexico	54	0.030	483	0.039
Netherland Antilles	1	0.001	8	0.001
Panama	9	0.005	56	0.005
Paraguay	1	0.001	13	0.001
Peru	10	0.006	95	0.008
Venezuela	10	0.006	98	0.008
Australia	5,086	2.806	40,058	3.273
Bahrain	21	0.012	265	0.022
Bangladesh	14	0.008	93	0.008
Brunei	43	0.024	305	0.025
Bruma	24	0.013	145	0.012
Fiji	12	0.007	125	0.010
French Polynesia	3	0.002	13	0.001
Hongkong	16,249	8.964	94,944	7.757
India	886	0.489	6,925	0.566
Iran	18	0.010	176	0.014
Iraq	15	0.008	94	0.008
Japan	18,407	10.154	164,296	13.42
Jordan	1	0.001	3	0.
Korea, R.	2,121	1.170	16,527	1.350
Kuwait	54	0.030	438	0.036
Macao	41	0.023	258	0.021
Malaysia	3,911	2.157	26,587	2.172

Appendix 3.2.1-2(3)

Country	Calls	% share	minutes	% share
Maldives	1	0.001	15	0.001
New Caledonia	16	0.009	98	0.008
New Zealand	282	0.156	3,143	0.257
Oman	2	0.001	8	0.001
Pakistan	75	0.041	706	0.058
Papua New Gunea	83	0.046	812	0.066
Philippines	2,416	1.333	19,375	1.583
Qatar	2	0.001	6	0.-
Saudi Arabia	1,983	1.094	12,146	0.992
Singapore	86,672	47.81	446,656	36.49
Solomon Islands	4	0.002	82	0.007
Srilanka	88	0.049	584	0.048
Syrian Arab	7	0.004	46	0.004
Thailand	1,608	0.887	10,808	0.883
U.A.E.	176	0.097	1,299	0.106
Vanuatn	3	0.002	26	0.002
Western Samon	2	0.001	26	0.002
Yemen arab rep	8	0.004	41	0.003
Taiwan	7,417	4.092	49,101	4.012
Austria	283	0.156	1,723	0.141
Belgium	469	0.259	4,510	0.368
Bulgaria	8	0.004	42	0.003
Cyprus	1	0.001	3	0.-
Czechoslovak	17	0.009	80	0.007
Denmark	196	0.108	2,180	0.178
Finland	50	0.028	430	0.035

Appendix 3.2.1-2(4)

Country	Calls	% share	minutes	% share
France	2,106	1.162	20,279	1.657
D.D.R.	3	0.002	22	0.002
F.R.D.	4,750	2.620	41,144	3.362
Gibraltar	1	0.001	3	0.-
Greece	221	0.122	1,894	0.155
Hangarian	18	0.010	132	0.011
Iceland	1	0.001	1	0.-
Ireland	16	0.009	83	0.007
Israel	1	0.001	3	0.-
Italy	639	0.353	5,140	0.420
Luxembourg	11	0.006	74	0.006
Malta	5	0.003	24	0.002
Netherlands	5,072	2.798	42,108	3.440
Norway	163	0.090	1,838	0.150
Portugal	6	0.003	70	0.006
Roumania	10	0.006	78	0.006
Spain	293	0.162	2,567	0.210
Sweden	241	0.133	2,261	0.185
Switzerland	651	0.359	5,605	0.458
Turkey	16	0.009	172	0.014
U.S.S.R.	33	0.018	90	0.007
United Kingdom	4,035	2.226	42,980	3.512
Yugoslavia	39	0.022	335	0.027
Canada	956	0.527	9,756	0.797
U.S.A.	12,486	6.888	136,253	11.13
Alaska	12	0.007	95	0.008

Appendix 3.2.1-2(5)

Country	Calls	% share	minutes	% share
Hawaii	323	0.178	2,503	0.205
Guam	12	0.007	26	0.002
Bahamas	20	0.011	217	0.018
Total	181,275	100.0-	1,223,944	100.0-

Appendix 3.2.1-3(1)

International Telephone by Country and by Circuit

INDOSAT data, Dec. 14~18, 1982

Country	circuit	minutes	%
Algeria	E	-	100
	HOL	0	0
	total	0	100
Egypt	G	29	100
	total	29	100
Keniya	I	34	100
	Aus	0	0
	total	34	100
Libiya	E	-	100
	total	-	100
Nigeria	G	-	0
	I	44	100
	F	0	0
	total	44	100
Tanzania	Aus	0	100
	I	0	0
	total	0	100
Zambia	G	-	100
	I	0	0
	total	0	100
South Africa	D	50	100
	I	0	0
	total	50	100
Argentine	F	16	66.7
	USA	8	33.3
	total	24	100
Bolivia	USA	-	100
	total	-	100
Brazil	USA	71	100
	J	0	0
	total	71	100
Chile	I	26	100
	total	26	100

Appendix 3.2.1-3(2)

Country	circuit	minutes	%
Mexico	USA	21	100
	E	0	0
	total	21	100
Netherland	HOL	6,234	100
	total	6,234	100
Panama	G	-	100
	E	0	0
	total	0	100
Peru	I	26	100
	total	26	100
Venezuela	I	14	100
	total	14	100
Australia	Aus	10,141	100
	total	10,141	100
Bahrain	G	48	100
	total	48	100
Bangladesh	J	11	100
	HK	0	0
	total	11	100
Brunei	HK	9	100
	MAL	0	0
	total	9	100
Buruma	J	21	100
	HK	0	0
	total	21	100
Fiji	Aus	-	100
	total	-	100
Hong Kong	HK	18,311	95
	Aus	106	5
	total	18,417	100
India	HK	767	100
	MAL	0	0
	total	767	100
Iran	G	12	100
	I	0	0
	total	12	100

Appendix 3.2.1-3(3)

Country	circuit	minutes	%
Iraq	I	7	100
	G	0	0
	total	7	100
Japan	J	33,660	97.9
	I	724	2.1
	total	34,384	100
Korea	KOR	2,284	75.3
	J	749	24.7
	total	3,033	100
Kuwait	I	23	25
	E	69	75
	total	92	100
Macao	HK	76	100
	total	76	100
Malaysia	MAL	3,057	65.4
	Aus	1,618	34.6
	total	4,675	100
New Calednia	Aus	20	100
	total	20	100
New Zealand	Aus	744	100
	total	744	100
Pakistan	G	82	100
	SPR	0	0
	HK	0	0
	total	82	100
Papua New Gunea	Aus	113	100
	total	113	100
Philippine	P	3,590	99
	J	37	1
	total	3,627	100
Saudi Arabia	As	1,333	78.5
	G	320	18.8
	I	45	2.7
	total	1,698	100

Appendix 3.2.1-3(4)

Country	circuit	minutes	%
Singapore	SPR	77,518	99.8
	Aus	184	0.2
	total	77,702	100
Srilanka	HK	57	100
	J	0	0
	total	57	100
Syrian Arab	F	-	100
	total	-	100
Thailand	TAA	1,320	83.6
	J	259	16.4
	total	1,579	100
U.A.E.	HK	170	100
	G	0	0
	total	170	100
Yemen Arab	G	-	100
	I	0	-
	total	-	100
Taiwan	TAI	7,095	98
	J	141	2
	total	7,236	100
Austria	HOL	204	100
	total	204	100
Bulguria	HOL	-	100
	total	-	100
Czechoslovak	HOL	24	100
	total	24	100
Denmark	NOR	301	81.1
	HOL	70	18.9
	total	371	100
Finland	NOR	2	10
	HOL	20	90
	total	22	100
France	F	3,196	88.1
	HOL	431	11.9
	total	3,627	100

Appendix 3.2.1-3(5)

Country	circuit	minutes	%
Greece	HOL	469	100
	total	469	100
Hungary	HOL	15	100
	total	15	100
Ireland	HOL	12	100
	G	0	0
	total	12	100
Italy	I	948	89.2
	F	115	10.8
	total	1,063	100
Luxembourg	G	29	100
	total	29	100
Norway	NOR	402	100
	HOL	0	0
	total	402	100
Portogal	E	-	100
	total	-	100
Roumania	F	2	100
	HOL	0	0
	total	2	100
Spain	E	507	100
	total	507	100
Sweden	NOR	327	91.8
	HOL	29	8.2
	total	356	100
Switzerland	swi	921	94.6
	HOL	53	5.4
	total	974	100
Turky	E	19	100
	D	0	0
	total	19	100
U.K.	G	5,654	86.9
	Aus	851	13.1
	total	6,505	100

Appendix 3.2.1-3(6)

Country	circuit	minutes	%
W. Germany	D	5,516	82.9
	F	1,204	17.9
	total	6,720	100
Yugoslavia	HOL	36	100
	I	0	0
	total	36	100
Canada	CAN	1,377	100
	total	1,377	100
U.S.A.	USA	23,668	100
	J	0	0
	total	23,668	100
Alaska	USA	20	100
	total	20	100
Hawaii	HAW	797	100
	USA	0	0
	J	0	0
	total	797	100
Guam	HAW	-	100
	USA	0	0
	J	0	0
	total	0	100
Bahama	USA	-	100
	total	-	100

% Share
minutes

International Telephone by WITEL(OUT+IN)

shares based on PERUMTEL statistics

Witel	76	77	78	79	80
Witel I		4. 98	5 56	4. 45	3. 70
〃 II		0. 90	1. 19	1. 50	1. 92
〃 III		1. 68	1. 31	0 96	1. 28
〃 IV		80. 07	80. 21	82. 19	83. 86
〃 V		2. 74	2. 61	2. 61	2. 29
〃 VI		1. 46	1. 68	1. 35	1. 23
〃 VII		4. 53	3. 92	3. 16	2. 73
〃 VIII		1. 44	1. 52	1. 60	1. 36
〃 IX		0. 92	0. 93	1. 08	0. 90
〃 X		0. 79	0. 61	0. 63	0. 42
〃 XI		0. 13	0. 14	0. 16	0. 12
〃 XII		0. 36	0. 32	0. 31	0. 19
Grand Total	7, 862. 820	9, 506. 316	11, 429, 199	13, 716. 277	18, 418, 639

International Telex Traffic Indonesia — World

year	calls			minutes		
	outgoing	incoming	total	outgoing	incoming	total
1969	25, 733	25, 733	51, 466	256, 776	256, 776	513, 552
1970	68, 259	68, 259	136, 518	414, 957	414, 957	829, 914
1971	124, 827	124, 827	249, 654	647, 520	647, 520	1, 295, 040
1972	185, 650	185, 650	371, 300	920, 588	920, 588	1, 841, 176
1973	276, 408	276, 408	552, 816	1, 403, 250	1, 403, 250	2, 806, 500
1974	368, 752	368, 752	737, 504	1, 863, 465	1, 863, 465	3, 726, 930
1975	563, 394	563, 394	1, 126, 788	2, 908, 733	2, 908, 733	5, 817, 466
1976	662, 959	662, 959	1, 325, 918	3, 379, 475	3, 379, 475	6, 758, 950
1977	992, 221	992, 221	1, 984, 442	3, 884, 996	3, 884, 996	7, 769, 992
1978	1, 273, 654	1, 273, 654	2, 547, 308	4, 510, 949	4, 510, 949	9, 021, 898
1979	1, 673, 110	1, 673, 110	3, 346, 220	5, 507, 959	5, 507, 959	11, 015, 918
1980	2, 190, 481	2, 190, 481	4, 380, 962	6, 942, 317	6, 942, 317	3, 884, 634
1981	2, 735, 679	2, 330, 393	5, 066, 072	8, 639, 026	7. 954, 656	16. 593, 682
1982				10, 458 586	9, 925, 070	20, 383, 656

OUT
IN
TOTAL

[ ]:estimated data

International Telex by Country

minutes

Country	76	77	78	79	80
Algeria	49	138	58	201	754
	[49]	26	190	336	744
	98	164	248	537	1, 498
Egypt	64	124	1, 711	3, 824	5, 038
	219	374	1, 359	[3, 824]	[5, 038]
	283	498	3, 070	[7, 648]	[10, 076]
Ethiopia	[544]	14	2, 638	3, 768	7, 648
	544	2, 014	1, 813	1, 867	1, 883
	1, 088	2, 028	4, 451	5, 635	9, 531
Kenya	3	34	952	1, 549	1, 691
	[3]	[34]	[952]	[1, 549]	1, 698
	[6]	[68]	[1, 904]	[3, 098]	3, 389
Nigeria	15	150	339	451	576
	[15]	82	[339]	[451]	576]
	30	232	[678]	[902]	[1, 152]
Tunisia	[14]	11	204	627	1, 266
	14	90	296	711	1, 352
	[28]	101	500	1, 338	2, 618
South Africa	108	1, 662	1, 017	1, 043	1, 340
	418	798	1, 035	858	1, 257
	526	2, 460	2, 052	1, 901	2, 597
Argentine	216	120	934	1, 479	1, 429
	304	241	479	[802]	1, 124
	520	361	1, 413	[2, 281]	2, 553
Brazil	572	1, 434	1, 718	3, 620	5, 310
	1, 481	1, 830	2, 115	4, 175	5, 434
	2, 053	3, 264	3, 833	7, 795	10, 744

Data Source : ITU, "Table of International Telex Relations and Traffic", 1976 ~ 1980

International Telex by Country

minutes

Country	76	77	78	79	80
Chili	〔54〕	〔257〕	1, 231	1, 292	310
	54	257	1, 315	887	〔310〕
	〔108〕	〔514〕	2, 546	2, 179	〔620〕
Colombia	35	9	316	627	232
	65	85	77	160	169
	100	94	393	787	401
Cuba	—	—	1	411	459
	—	—	〔1〕	〔411〕	〔459〕
	—	—	〔2〕	〔822〕	〔918〕
Mexico	418	510	1, 682	2, 805	3, 221
	955	1, 567	1, 430	7, 384	7, 521
	1, 373	2, 077	3, 112	10, 189	10, 742
Panama	79	144	584	515	672
	〔79〕	〔144〕	160	99	434
	〔158〕	〔288〕	744	614	1, 106
Peru	44	18	112	129	504
	213	133	177	208	360
	257	151	289	337	864
Puerto Rico	444	558	1, 006	1, 111	1, 589
	1, 353	1, 283	1, 708	1, 076	1, 131
	1, 797	1, 841	2, 714	2, 187	2, 720
Venezuela	108	408	255	383	506
	〔108〕	588	〔255〕	291	732
	〔216〕	996	〔310〕	674	1, 238
Afganistan	〔386〕	〔497〕	2, 571	3, 508	561
	386	497	〔2, 571〕	〔3, 508〕	〔561〕
	〔772〕	〔994〕	〔5, 142〕	〔7, 016〕	〔1, 122〕
Australia	129, 726	155, 511	142, 217	197, 016	250, 326
	117, 221	137, 445	147, 585	182, 572	231, 818
	246, 947	292, 956	289, 802	379, 588	482, 144

Appendix 3・2・2－2(3)

International Telex by Country

minutes.

Country	76	77	78	79	80
Bahrain	278	(530)	782	1, 354	1, 654
	598	837	857	879	1, 041
	876	1. 367	1, 639	2, 233	2, 695
Brunei	59	66	47	984	602
	423	(445)	466	565	978
	482	(511)	513	1, 549	1, 580
Burma	72	(69)	66	1, 071	837
	470	786	(66)	(1, 071)	(837)
	542	(855)	132	(2, 142)	(1, 674)
China	—	—	2, 813	1, 608	334
	—	—	0	63	493
	—	—	2, 813	1, 671	827
Korea D.P.R. (North)	—	—	544	2, 785	1, 535
	—	—	(544)	(2, 785)	(1, 535)
	—	—	(1, 088)	(5. 570)	(3, 070)
Fiji	22	6	355	241	458
	141	(261)	380	316	456
	163	(267)	735	557	914
Hong Kong	203, 625	259, 009	273, 785	381, 503	513, 395
	191, 619	237, 426	289. 487	335, 182	486, 663
	395. 244	496, 435	563, 272	716, 685	1, 000, 058
India	18, 429	17, 874	33, 807	49, 478	55, 187
	(18, 429)	18, 704	32, 952	44, 072	(55. 187)
	(36, 858)	36, 578	66, 759	93, 550	(110, 374)
Iran	5, 632	4, 872	4, 989	2, 629	4, 247
	(5. 632)	(4, 872)	(4, 989)	(2, 629)	4, 225
	(11, 264)	(9, 744)	(9, 978)	(5. 258)	8, 472
Japan	502, 984	508, 789	596, 330	765, 684	(967, 029)
	483, 277	559, 138	680, 879	734, 134	924, 275
	986, 261	1, 067, 927	1, 277, 209	1, 499, 818	(1, 896, 304)

International Telex by Country

minutes.

Country	76	77	78	79	80
Jordan	25	109	561	978	2, 078
	83	44	698	1, 538	1, 457
	108	153	1, 259	2, 516	3, 535
Korea Rep. (South)	40, 190	38, 614	49, 101	77, 402	103, 975
	39, 620	37, 044	[56, 937]	76, 829	102, 017
	79, 810	75, 658	[106, 038]	154, 231	205, 992
Kuwait	669	2, 826	4, 394	7, 007	9, 792
	[669]	[2, 826]	4, 094	5, 473	5, 787
	[1, 338]	[5, 652]	8, 488	12, 480	15, 579
Macao	—	—	22	716	226
	—	—	[22]	[716]	[226]
	—	—	[44]	[1, 432]	[452]
Malaysia	44, 743	45, 907	51, 783	83, 462	108, 893
	46, 690	54, 928	[60, 899]	66, 869	109, 471
	91, 433	100, 835	112, 682	150, 331	218, 364
Nepal	18	6	69	1, 011	745
	[18]	[6]	[69]	[1, 011]	[745]
	[36]	[12]	[138]	[2, 022]	[1, 490]
New Caledonia	43	210	240	343	616
	206	435	509	545	802
	249	645	749	888	1, 418
New Zealand	6, 470	7, 542	11, 773	19, 444	26, 421
	7, 364	10, 147	14, 267	19, 742	24, 941
	13, 834	17, 689	26, 040	39, 186	51, 362
Oman	16	[95]	173	610	279
	[16]	97	129	286	558
	[32]	[192]	302	896	834
Pakistan	1, 869	3, 841	5, 839	8, 141	7, 427
	[1, 869]	[3, 841]	[5, 839]	[8, 141]	[7, 427]
	[3, 738]	[7, 682]	[11, 678]	[16, 282]	[14, 854]

International Telex by Country

Appendix 3・2・2－2(5)

minutes

Country	76	77	78	79	80
Papua New Guinea	655	672	3, 117	4, 358	8, 384
	〔3, 042〕	4, 468	5, 894	7, 741	9, 823
	〔3, 697〕	5, 140	9, 011	12, 099	18, 207
Philippines	49, 347	54, 975	62, 107	21, 633	94, 935
	〔49, 347〕	48, 157	62, 820	67, 211	82, 894
	〔98, 694〕	103, 132	124, 927	88, 844	177, 829
Quatar	25	18	39	366	273
	196	298	582	〔595〕	607
	221	316	621	〔961〕	880
Saudi Arabia	2, 085	5, 428	15, 985	36, 575	39, 305
	〔2, 085〕	〔5, 428〕	〔15, 985〕	〔36, 575〕	〔39, 305〕
	〔4, 170〕	〔10, 856〕	〔31, 970〕	〔73, 150〕	〔78, 610〕
Singapore	813, 543	811, 460	1, 029, 800	1. 342, 823	1, 837, 429
	593, 553	661, 898	846, 210	1, 057, 994	1, 513, 540
	1, 407, 096	1. 473, 358	1, 876, 010	2, 400, 817	3, 350, 969
Sri Lanka	4, 873	7, 383	6, 985	11, 403	15, 861
	4, 718	8, 346	〔6, 985〕	〔11, 403〕	9, 421
	9, 591	15, 729	〔13, 970〕	〔22, 806〕	25, 282
Syrian Arab	—	282	348	852	499
	—	124	727	743	1, 061
	—	406	1, 075	1, 595	1, 560
Thailand	23, 072	28, 430	32, 210	58, 849	69, 711
	17, 660	22, 667	37, 209	32, 989	48, 244
	40, 732	51, 097	69, 419	91, 838	117, 955
U. A. E.	834	1, 277	2, 227	8, 712	12, 647
	〔 834〕	〔1, 277〕	〔2, 227〕	〔8, 712〕	9, 733
	〔 1, 668〕	〔2, 554〕	〔4, 454〕	〔17, 424〕	22, 380
Yemen	〔9〕	〔6〕	507	245	318
	9	〔6〕	3	〔16〕	29
	〔18〕	〔12〕	510	〔261〕	347

International Telex by Country

Appendix 3・2・2－2(6)

minutes

Country	76	77	78	79	80
Yemen Arab	[14]	[32]	[110]	133	583
	14	32	110	175	650
	[28]	[64]	[220]	308	1, 233
Taiwan	40, 574	52, 007	79, 501	97, 219	[136, 469]
	[40, 574]	[52, 007]	[79, 501]	[97, 219]	[136, 469]
	[81, 148]	[104, 014]	[159, 002]	[194, 438]	[272, 938]
Austria	6, 745	5, 565	7, 427	11, 722	18, 404
	6, 034	7, 990	10, 201	11, 246	14, 319
	12, 779	13, 555	17, 628	22, 968	32, 723
Belgium	29, 519	31, 686	32, 162	48, 461	52, 823
	22, 304	28, 785	35, 774	42, 942	46, 387
	51, 823	60, 471	67, 936	91, 403	99, 210
Bulgaria	40	576	445	538	718
	374	376	288	379	362
	414	950	733	917	1, 080
Czechoslovak	306	522	955	1, 395	2, 282
	63	[338]	[613]	889	1, 875
	369	[860]	[1, 568]	2, 284	4, 157
Denmark	6, 870	6, 983	5, 851	19, 277	21, 740
	8, 274	11, 639	14, 172	20, 808	23, 441
	15, 144	18, 622	20, 023	40, 085	45, 181
Finland	772	912	2, 978	6, 578	6, 421
	1, 084	1, 981	4, 687	5, 193	5, 424
	1, 856	2, 893	7, 665	11, 771	11, 845
France	105, 651	157, 520	150, 099	178, 396	193, 477
	124, 560	145, 569	168, 720	189, 825	244, 943
	230, 211	303, 089	318, 819	368, 221	438, 420
F. R. D	189, 048	227, 157	250, 023	[250, 000]	397, 705
	185, 832	206, 707	245, 638	290, 808	388, 512
	374, 880	433, 864	495, 661	[540, 808]	786, 217

Appendix 3・2・2－2(7)

International Telex by Country

minutes.

Country	76	77	78	79	80
Greece	3, 564	4, 894	6, 762	7, 785	7, 595
	3, 528	5, 741	7, 548	9, 197	9, 677
	7, 092	10, 635	14, 310	16, 982	17, 272
Hungary	234	504	1, 534	2, 757	4, 584
	658	723	1, 254	3, 300	5, 547
	892	1, 227	2, 788	6, 057	10, 131
Iceland	6	48	98	325	248
	4	9	157	75	42
	10	57	255	400	290
Ireland	91	470	539	1, 011	1, 448
	335	477	888	834	2, 077
	426	947	1, 427	1, 845	3, 525
Italy	37, 950	36. 607	49, 394	64, 533	86, 004
	36, 951	42, 816	58, 435	74, 365	99, 334
	74, 901	79, 423	107, 829	138, 898	185. 338
Luxembourg	1, 628	3, 015	948	1, 541	2, 064
	1, 805	1, 641	1, 328	1, 578	2, 241
	3, 433	4, 656	2, 276	3, 119	4, 305
Netherlands	118, 455	142, 062	172, 047	235. 870	287, 685
	127, 522	136, 056	175. 247	183, 444	245. 853
	245. 977	278, 118	347, 294	419, 314	533, 538
Norway	15. 085	14, 052	9, 481	11, 797	14, 000
	12, 494	14, 192	13, 984	10, 159	15. 812
	27, 579	28, 244	23, 465	21, 956	29, 812
Portugal	66	243	96	545	745
	195	274	381	671	1, 111
	261	517	477	1, 216	1, 856
Roumania	678	300	1, 081	3, 813	2, 581
	209	(300)	(1, 081)	(3, 813)	8, 139
	887	(600)	(2, 162)	(7, 626)	10, 720

International Telex by Country

minutes.

Country	76	77	78	79	80
Spain	4, 499	5, 958	8, 404	11, 465	18, 518
	7, 809	8, 078	9, 931	11, 384	19, 194
	12, 308	14, 036	18, 335	22, 849	37, 712
Sweden	9, 922	10, 763	8, 449	20, 661	25, 755
	9, 011	10, 734	14, 959	19, 083	27, 585
	18, 933	21, 497	23, 408	39, 744	53, 340
Switzerland	29, 349	34, 431	40, 002	52, 699	74, 513
	29, 070	30, 025	37, 102	43, 446	53, 343
	58, 419	64, 456	77, 104	96, 145	127, 856
Turkey	24	1, 836	455	3, 137	9, 584
	1, 764	3, 174	6, 857	7, 201	9, 776
	1, 788	5, 010	7, 312	10, 338	19, 360
U. S. S. R.	25	6	1, 742	1, 586	1, 806
	887	874	1, 700	[2, 359]	3, 018
	912	880	3, 442	[3, 945]	4, 824
United Kingdom	133, 692	187, 452	217, 396	321, 847	416, 030
	202, 285	243, 084	355, 189	514, 350	654, 594
	335, 977	430, 536	572, 585	836, 197	1, 070, 624
Yugoslavia	839	926	4, 427	5, 167	5, 195
	[839]	105	[4, 427]	[5, 167]	9, 592
	[1, 678]	1, 031	[8, 854]	[10, 334]	14, 787
Canada	20, 747	28, 917	26, 817	43, 261	42, 149
	24, 716	25, 269	28, 005	38, 246	44, 735
	45, 463	54, 186	54, 822	81, 507	86, 884
U. S. A.	848, 027	541, 260	250, 681	753, 389	776, 193
	505, 119	553, 943	528, 938	597, 281	745, 692
	1, 353, 146	1, 095, 203	779, 619	1, 350, 670	1, 521, 885
Hawaii	2, 484	4, 668	2, 580	4, 103	5, 110
	3, 860	3, 131	3, 604	4, 348	5, 895
	6, 344	7, 799	6, 184	8, 451	11, 005

International Telex by Country

minutes.

Country	76	77	78	79	80
Guam	478	300	400	333	395
	307	414	334	365	357
	785	714	734	698	752
Bahamas	66	[68]	69	55	318
	[66]	146	105	84	[318]
	[132]	[214]	174	139	[636]
Bermuda	116	948	2, 142	2, 046	1, 187
	735	664	3, 163	2, 461	1, 687
	851	1, 612	5, 305	4, 507	2, 874
Sub Total	6, 411, 361	6, 833, 869	7, 796, 142	10, 210, 760	13, 322, 230
Remaining Traffic	347, 589	936, 123	1, 225, 756	805, 158	562, 404
Grand Total	6, 758, 950	7, 769, 992	9, 021, 898	11, 015, 918	13, 884, 634

Appendix 3.2.2-3(1)

Telex Outgoing Traffic by Country and by Circuit

Copy from: ITU, "Table of International Telex Relations and Traffic (Position on 31 December 1980)"

INDONESIE-INDONESIA-INDONESIA

Renseignements fournis par / Information supplied by/ Datos facilitados por :

Perum Telekomunikasi Headquarters - Bandung

Nombre de lignes d'abonné au 31 décembre 1980
Number of subscriber lines on 31 December 1980
Número de líneas de abonado en 31 de diciembre de 1980 : 4 743

1	2	3	4	5	6	7	8	9	10	11
Afghanistan	Tr	Roma							S	561
Alaska	Tr	New York (ITTCOM) (90%)								
		New York (WUI)							A	32
Algérie	Tr	Roma (99%)								
		Paris							A	754
ALLEMAGNE (Rép. féd. d')	D	--(99%)	0	0	11	0	0	0	A	
	Tr	Roma								
		New York (ITTCOM)							A	397 705
Angola	Tr	Roma (99%)								
		Bern							A	32
Arabie Saoudite	Tr	Paris								
		Roma (98%)								
		New York (ITTCOM)							A	39 305
Argentine	Tr	New York (ITTCOM)							A	1 429
AUSTRALIE	D	--(98%)	0	0	6	0	0	2	A	
	Tr	Singapore								
		New York (ITTCOM)							A	250 326
AUTRICHE	D	--(99%)	0	0	1	0	0	0	A	
	Tr	Paris								
		New York (ITTCOM)							A	18 404
Bahamas	Tr	New York (ITTCOM) (99%)								
		New York (WUI)							A	318
Bahrein	Tr	Roma (98%)								
		Bern							A	1 654
Bangladesh	Tr	Hongkong							S	69
Barbade	Tr	New York (RCA)								

Appendix 3.2.2-3(2)

1	2	3	4	5	6	7	8	9	10	11
		New York (ITTCOM) (57%)							A	35
Belgique	Tr	Bern								
		Paris (35%)								
		New York (ITTCOM) (44%)							A	52 823
Bénin	Tr	New York (WUI)							A	14
Bermudes	Tr	New York (RCA)							A	1 187
Birmanie	Tr	Hongkong (91%)								
		New York (RCA)							A	837
Bolivie	Tr	New York (RCA)							S	192
Botswana	Tr	Roma							A	19
Brésil	Tr	New York (ITTCOM)								
		Roma (98%)							A	5 310
Brunéi	Tr	Singapore								
		Hongkong (91%)							A	602
Bulgarie	Tr	Bern								
		Paris (54%)								
		New York (ITTCOM) (31%)							A	718
Cameroun	Tr	Paris							A	121
Canada	Tr	New York (RCA) (68%)								
		New York (WUI)								
		New York (ITTCOM) (28%)							A	42 149
Cayman (Iles)	Tr	New York (RCA) (60%)								
		New York (ITTCOM)							A	156
Chili	Tr	New York (ITTCOM) (98%)								
		New York (WUI)							A	310
Chine										
via Beijing	Tr	Roma							A	334
VIA TAIBEIXIAN	D	--(99%)	0	0	5	0	0	0	A	
	Tr	Singapore								
		New York (ITTCOM)							A	136 469
Chypre	Tr	Roma (49%)								
		Bern								
		New York (ITTCOM) (50*)							A	181
Colombie	Tr	New York (RCA)							A	232
Congo	Tr	Roma							A	4
Cook (Iles)	Tr	New York (RCA)							S	4
Corée (Rép. de)	Tr	Bern								

Appendix 3.2.2-3(3)

1	2	3	4	5	6	7	8	9	10	11
		Roma (98%)							A	103 975
Costa Rica	Tr	New York (ITTCOM)							A	23
Cote d'Ivoire	Tr	Roma (95%)								
		New York (ITTCOM)							A	129
Cuba	Tr	Roma							A	459
Danemark	Tr	Paris								
		Roma (98%)								
		New York (ITTCOM)							A	21 740
Dominique (Iles du Vent)	Tr	New York (RCA)								
		New York (ITTCOM) (80%)							A	25
Egypte	Tr	New York (WUI)								
		Roma (51%)								
		New York (ITTCOM) (47%)							A	5 038
El Salvador	Tr	New York (ITTCOM)							A	3
Emirats Arabes Unis: Abu Dhabi	Tr	Bern								
		Roma (88%)							A	8 447
Dubai	Tr	Bern (76%)								
		Roma							A	4 156
Sharjah	Tr	Roma							A	44
Equateur	Tr	Roma (97%)								
		New York (ITTCOM)							A	89
Espagne	Tr	Bern (71%)								
		Paris								
		New York (ITTCOM)							A	18 518
ETATS-UNIS (Continental)	D	-- (95%)	0	0	0	0	0	78	A	
	Tr	Roma								
		Sydney								
		Singapore							A	776 193
Ethiopie	Tr	Roma (99%)								
		New York (WUI)							A	7 648
Fidji	Tr	New York (ITTCOM) (96%)								
		New York (RCA)							A	458
Finlande	Tr	Bern (30%)								
		Paris								
		New York (ITTCOM) (43%)							A	6 421

Appendix 3.2.2-3(4)

1	2	3	4	5	6	7	8	9	10	11
FRANCE (Métropole)	D	-- (99%)	0	0	8	0	0	0	A	
	Tr	Roma								
		New York (ITTCOM)							A	193 477
Gabon	Tr	Paris							A	47
Ghana	Tr	New York (RCA)							S	6
Gibraltar	Tr	New York (RCA)							S	2
Grèce	Tr	Paris (55%)								
		Roma								
		New York (ITTCOM)							A	7 595
Groenland	Tr	New York (RCA)							S	2
Guam	Tr	New York (RCA)							A	395
Guatemala	Tr	New York (RCA)							A	218
Guinée	Tr	New York (RCA)							S	4
Haïti	Tr	New York (ITTCOM)							A	48
Hawai	Tr	New York (RCA) (44%)								
		New York (ITTCOM) (31%)								
		New York (WUI)							A	5 110
Honduras	Tr	New York (ITTCOM)							A	14
HONGKONG	D	-- (94%)	0	0	14	0	0	0	A	
	Tr	Singapore								
		New York (ITTCOM)							A	513 395
Hongrie	Tr	Bern								
		Paris (51%)								
		New York (ITTCOM)							A	4 584
Inde	Tr	Roma (89%)								
		Singapore							A	55 187
Iran	Tr	Bern								
		Roma (65%)								
		New York (ITTCOM)							A	4 247
Iraq	Tr	Paris								
		Roma (98%)								
		New York (ITTCOM)							A	13 947
Irlande	Tr	Bern (35%)								
		Paris								
		New York (ITTCOM) (37%)							A	1 448
Islande	Tr	Roma							A	248
Israël	Tr	New York (WUI)								

Appendix 3.2.2-3(5)

1	2	3	4	5	6	7	8	9	10	11
		Roma (90%)							A	94
ITALIE	D	-- (98%)	0	0	0	0	0	16	A	
	Tr	Paris								
		New York (ITTCOM)							A	86 004
Jamaique	Tr	New York (WUI) (84%)								
		New York (ITTCOM)							A	107
JAPON	D	-- (78%)	9	0	3	0	0	0	A	
	Tr	Singapore								
		New York (ITTCOM)							A	117 029
Jordanie	Tr	New York (WUI)								
		Roma (99%)							A	2 078
Kenya	Tr	New York (RCA)							A	1 691
Koweït	Tr	Paris								
		Roma (99%)							A	9 792
Lao (R.D.P.)	Tr	Hongkong							S	9
Lesotho	Tr	Roma (87%)								
		New York (WUI)							A	23
Liban	Tr	Paris								
		Roma (97%)							A	830
Libéria	Tr	Roma							A	82
Libye	Tr	Roma							A	101
Luxembourg	Tr	Bern								
		Paris								
		New York (WUI) (57%)							A	2 064
Macau	Tr	Hongkong							S	226
MALAISIE	D	-- (98%)	0	0	3	0	0	0	A	
	Tr	Hongkong							A	108 893
Malawi	Tr	Roma (92%)								
		Bern							A	337
Maldives	Tr	New York (RCA)								
		Roma (87%)							A	33
Mali	Tr	Paris							A	2
Malte	Tr	Roma							S	95
Mariannes	Tr	New York (RCA)							A	22
Maroc	Tr	Roma (99%)								
		New York (WUI)							A	224
Mexique	Tr	New York (RCA)								

Appendix 3.2.2-3(6)

1	2	3	4	5	6	7	8	9	10	11
		Roma (56%)								
		New York (ITTCOM) (41%)							A	3 321
Mozambique	Tr	Bern (81%)								
		New York (WUI)							A	16
Nauru	Tr	Sydney							A	25
Népal	Tr	New York (RCA)							S	745
Niger	Tr	Paris							A	8
Nigeria	Tr	New York (ITTCOM)								
		Roma (98%)							A	576
Norvège	Tr	Bern (31%)								
		Paris								
		New York (ITTCOM) (42%)							A	14 000
Nouvelle-Calédonie	Tr	Paris (99%)								
		Sydney							A	616
Nouvelle-Zélande	Tr	Sydney (97%)								
		Roma							A	26 421
Oman	Tr	New York (RCA)							S	279
Ouganda	Tr	Roma (92%)								
		Bern							A	25
Pakistan	Tr	New York (RCA)								
		Roma (58%)								
		New York (ITTCOM) (38%)							A	7 427
Panama	Tr	New York (RCA) (WUI)								
		New York (ITTCOM) (51%)							A	672
Papua-Nouvelle-Guinée	Tr	Sydney							A	8 384
Paraguay	Tr	Roma (78%)								
		New York (ITTCOM)							A	27
PAYS-BAS	D	-- (99%)	0	0	9	0	0	0	A	
	Tr	Roma							A	287 685
Pérou	Tr	Roma								
		New York (ITTCOM) (55%)							A	504
PHILIPPINES	D	-- (72%)	0	0	6	6	0	0	A	
	Tr	New York (RCA, ITTCOM)								
		Roma								
		Hongkong (23%)								
		Bern								94 935

1	2	3	4	5	6	7	8	9	10	11
Pologne	Tr	Bern								
		Roma (98%)							A	3 631
Polynésie francaise	Tr	Paris							A	74
Porto-Rico	Tr	New York (ITTCOM) (48%)								
		New York (RCA) (48%)								
		New York (WUI)							A	1 589
Portugal	Tr	Paris								
		Roma (99%)							A	745
Qatar	Tr	Bern							A	273
Rép. Dém. Allemande	Tr	Bern (30%)								
		Paris								
		New York (ITTCOM) (44%)							A	5 346
Rép. Pop. Dém. de Corée	Tr	Hongkong								
		Roma (51%)							A	1 535
Roumanie	Tr	Paris								
		Roma (98%)							A	2 581
ROYAUME-UNI	D	-- (72%)	0	0	0	0	0	10	A	
	Tr	Roma								
		Paris							A	416 030
Salomon (Iles)	Tr	Sydney							A	36
Samoa occidental	Tr	New York (RCA)							S	86
Sénégal	Tr	Roma							A	94
Seychelles	Tr	New York (RCA)								
		Roma (63%)							A	30
Sierra Leone	Tr	New York (RCA)							S	2
SINGAPOUR	D	-- (87%)	7	0	15	0	0	0	A	
	Tr	Hongkong							A	1 837 429
Somalie	Tr	Roma							A	50
Soudan	Tr	Rome (97%)								
		New York (WUI)							A	359
Sri Lanka	Tr	Roma (90%)								
		Singapore							A	15 861
Sudafricaine (Rép.)	Tr	New York (RCA)								
		Roma (99%)							A	1 340

Appendix 3.2.2-3(8)

1	2	3	4	5	6	7	8	9	10	11
Suède	Tr	Bern								
		Paris (79%)							A	25 755
SUISSE	D	-- (99%)	0	0	2	0	0	4	A	
	Tr	Paris								
		New York (ITTCOM)							A	74 513
Suriname	Tr	New York (RCA) (81%)								
		Roma							A	300
Swaziland	Tr	Roma (67%)								
		New York (WUI)							A	61
Syrie	Tr	Paris								
		Roma (99%)							A	499
Tanzanie	Tr	Roma								
		New York (ITTCOM) (53%)							A	149
Tchécoslovaquie	Tr	Bern								
		Paris								
		New York (ITTCOM) (79%)							A	2 282
THAILANDE	D	-- (28%)	0	0	0	0	0	6	A	
	Tr	Singapore (47%)								
		New York (RCA)							A	69 711
Togo	Tr	Paris							A	2
Tonga	Tr	Roma							A	2
Trinité et Tobago	Tr	New York (WUI) (75%)								
		Roma							A	116
Tunisie	Tr	New York (WUI)								
		Roma (99%)							A	1 266
Turquie	Tr	Paris								
		Roma (99%)								
		New York (ITTCOM)							A	9 584
U.R.S.S.	Tr	New York (WUI)								
		New York (ITTCOM) (50%)							A	1 806
Uruguay	Tr	Roma (64%)								
		New York (ITTCOM)							A	112
Vanuatu	Tr	Sydney							A	170
Venezuela	Tr	Roma (55%)								
		New York (ITTCOM) (43%)								
		New York (RCA)							A	506

Appendix 3.2.2-3(9)

1	2	3	4	5	6	7	8	9	10	11
Vierges (Iles)(U (USA)	Tr	New York (ITTCOM)							A	348
Yémen (R.A.) (Sanaa)	Tr	Roma							A	583
Yémen (R.D.P. du)(Aden)	Tr	Hongkong							A	318
Yougoslavie	Tr	Roma (98%)								
		Paris								
		New York (ITTCOM)							A	5 195
Zaïre	Tr	Roma							A	221
Zambie	Tr	Roma							A	70

ANNEX

(to Recommendation F.95)

Year.....[4]

List of international telex relations and outgoing traffic for Switzerland and the Principality of Liechtenstein[1,2]

Number of subscriber lines on 31 December .....[4]

Relation to[3]	Routing		Number of circuits[9,10]						Operating Mode for outgoing calls[11]	Annual outgoing traffic in chargeable minutes
	Direct or Transit[7]	Transit network or international transit exchange	Outgoing only			Bothway				
			Cable	Radio	Satellite	Cable	Radio	Satellite		
1	2	3	4	5	6	7	8	9	10	11
Abu Dhabi	Tr	Bahrain	-	-	-	-	-	-	S	7635
Alaska	Tr	Newyork	-	-	-	-	-	-	S	165
Algeria	D	Forf.	7	-	-	-	-	-	A	85171
Austria	D	-	39	-	-	-	-	-	A	1781670
Bangladesh	D	Forf.	-	-	-	-	-	1	M	7119
Belgium	D	Forf.	41	-	-	-	-	-	A	2051921
Canada	D	Forf.	6	-	11	4	-	5	A	234674
Finland	D	Forf.	12	-	-	-	-	-	A	368539
Senegal	Tr	Paris	-	-	-	-	-	-	S	20881
Czechoslovakia	D	Forf.	11	-	-	-	-	-	A	234563
Tunisie	D	Forf.	5	-	-	-	-	-	A	58721
Zaire	Tr	Brussels	-	-	-	-	-	-	S/M	23442

[1] The list should be prepared by and for every country (in the sense of a geographical entity) that provides outgoing international telex traffic.

[2] If there are several telex networks in one country, a single list should be prepared for that country. Similarly, in column 1, such a country should be described under a single relation and the traffic figures and number of circuits should be given as global figures.

[3] Lines on which calls are paid (i.e. excluding service and gentex connections) and which have access to the international telex network, whether by direct connection or through translation equipment.

[4] Statistical year.

[5] The relations should be listed in French alphabetical order (reference should be made to the List of Addresses issued by the General Secretariat).

[6] Both primary and secondary (but not emergency) routes should be shown where appropriate.

[7] For direct circuits, insert D in this column, otherwise insert Tr.

[8] If direct circuits (D), show the transit countries taking part in the distribution of telex charges in the relation, use the telex network identification codes of the networks concerned, but if they are telex circuits charged on a lump sum basis, insert Forf. For transit relations (Tr) show only the location of the first international transit centre traversed after leaving the origin country and, where more than one network operates in that transit location, the particular network should be adding its telex network identification code in brackets.

[9] Mention the number only in respect of a direct relation (i.e. without switching in any other countries that may be crossed).

[10] In the Cable column, indicate the number of circuits set up on cables, overhead lines, radio relay links, etc., i.e. by any means other than HF radio or satellite. In the Radio column, indicate the number of circuits making use of an HF radio path.

[11] Show the operating mode for all relations in the outgoing country by one of the following abbreviations:

A - Automatic - subscribers can select subscribers in the other country directly.

S - Semi-automatic - the operator selects subscribers in the destination country manually.

M - Manual - intervention by at least two operators is required.

% Share
minutes.

International Telex by WITEL(OUT+IN)

Shares based on PERUMTEL statiotics

Witel	76	77	78	79	80
Witel Ⅰ		0 01	4. 15	3. 86	4. 44
		777	374, 409	425, 215	616, 478
〃 Ⅱ		0. 04	0 48	0. 70	0. 80
		3, 108	43, 305	77, 112	111, 077
〃 Ⅲ		0. 07	0. 95	1. 2	1. 22
		5, 439	85, 708	132, 191	169, 392
〃 Ⅳ		98. 98	87. 09	86. 42	84. 17
		7, 690, 738	7, 857, 171	9, 519, 956	11, 686, 696
〃 Ⅴ		0. 06	1. 12	1. 17	1. 51
		4, 662	101, 045	128, 886	209, 658
〃 Ⅵ		0. 16	0. 48	0 93	0. 91
		12, 432	43, 305	102, 448	126. 350
〃 Ⅶ		0. 56	4. 81	4. 0	4. 24
		43, 512	433, 953	440, 637	588, 708
〃 Ⅷ		0. 08	0. 51	0. 91	1. 07
		6, 216	46, 012	100, 245	148, 566
〃 Ⅸ		—	0. 12	0. 26	0. 94
		—	10, 826	28, 641	130, 516
〃 Ⅹ		0. 04	0. 23	0. 48	0. 53
		3, 108	20, 751	52, 876	73, 589
〃 Ⅺ		—	0. 06	0. 07	0. 11
		—	5, 413	7, 711	15, 273
〃 Ⅻ		—	—	—	0. 06
		—	—	—	8, 331
Grand Total					

International Telegram Traffic Indonesia — World

year	messages			words		
	outgoing	incoming	total	outgoing	incoming	total
1969	389, 389	560, 340	949, 729			
1970	390, 843	562, 433	953, 276			
1971	379, 177	545, 645	924, 822			
1972	411, 356	591, 951	1, 003, 307			
1973	488, 325	702, 712	1, 191, 037			
1974	493, 747	710, 514	1, 204, 261			
1975	471, 812	678, 949	1, 150, 761			
1976	400, 259	575, 982	976, 241			
1977	351, 330	505, 572	856, 902	11, 529, 424	16, 591, 122	28, 120, 546
1978	307, 631	442, 689	750, 320	9, 682, 358	13, 933, 149	23, 615, 507
1979	267, 716	385, 250	652, 966	7, 930, 253	11, 411, 827	19, 342, 080
1980	231, 603	333, 282	564, 885	6, 790, 380	9, 771, 522	16, 561, 902
1981	205, 893	296, 285	502, 178	5, 455, 861	9, 133, 011	14, 588, 872
1982				4, 503, 295	9, 505, 918	14, 009, 213

International Leased Circuits Indonesia — World

year	Telegraph-type						AVD	total
	50 1/4B	50 1/2B	50 B	75 B	200 B	sub total		
1969						14	—	14
1970						21	—	21
1971						26	—	26
1972						27	—	27
1973						31	—	31
1974						39	—	39
1975						53	—	53
1976						61	—	61
1977						72	—	72
1978						75	1	76
1979						[94]	1	95
1980						[106]	3	109
1981	[29]	[27]	[44]	[18]	—	[118]	14	130
1982	30	27	51	19	—	127	15	142
						141	29	

TV Transmission Traffic Indonesia－World

year				minutes		
	outgoing	incoming	total	outgoing	incoming	total
1969						
1970						
1971						
1972						
1973						
1974						
1975	2	4	6	113	417	530
1976	17	8	25	1, 177	866	2, 043
1977	4	15	19	56	1, 397	1, 453
1978	—	19	19	—	1, 607	1, 607
1979	21	17	38	696	1, 018	1, 714
1980	30	19	49	1, 427	2, 318	4, 741
1981	38	7	45	2, 063	902	2, 965
1982			55			3, 119

Recommended Compilation of Telephone, Telex, Telegram Statistical Data

* Telephone traffic by country, circuit, class (auto/station/person) minutes/calls, out/in/total and month/year

" by domestic area, gateway

" by effective/ineffective

* Telex traffic by the above classifications ("class" is not necessary)

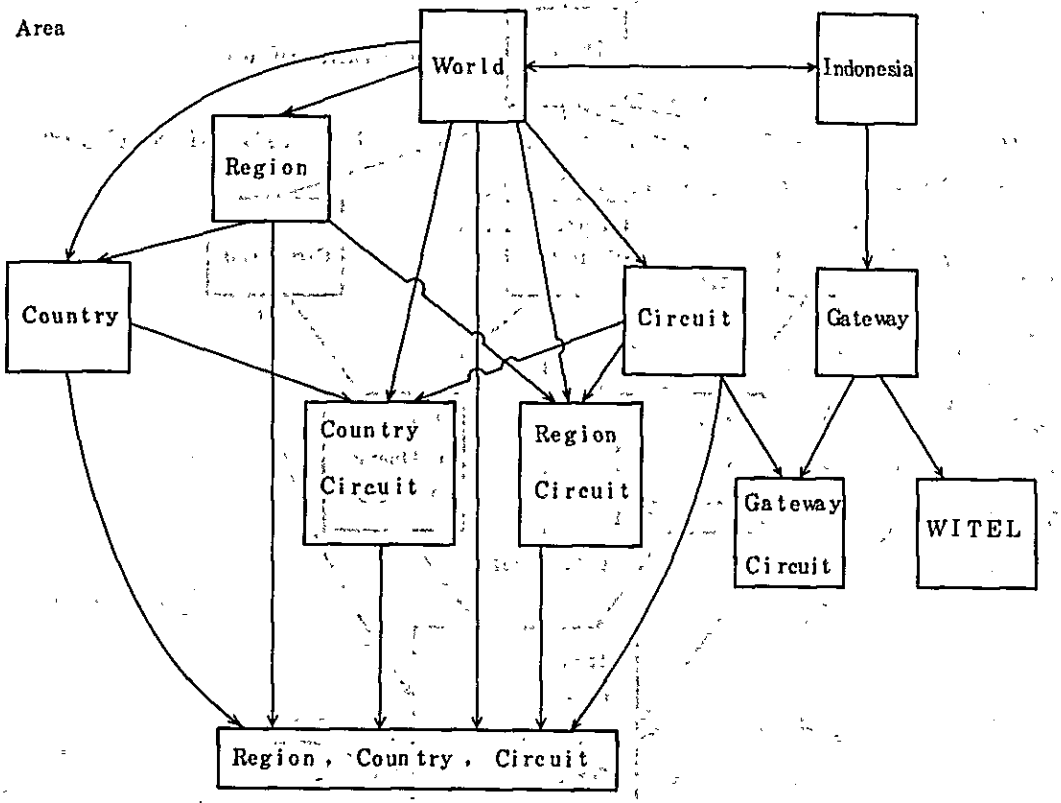
* Telegram traffic by the above classification ("words/messages" instead of "minutes/calls", class is "(Urgent, Ordinary, LT etc.)")

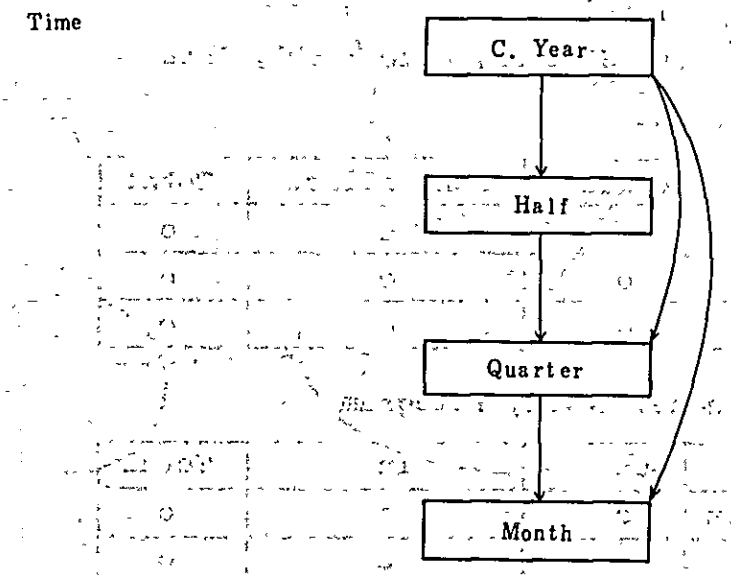
other important data:

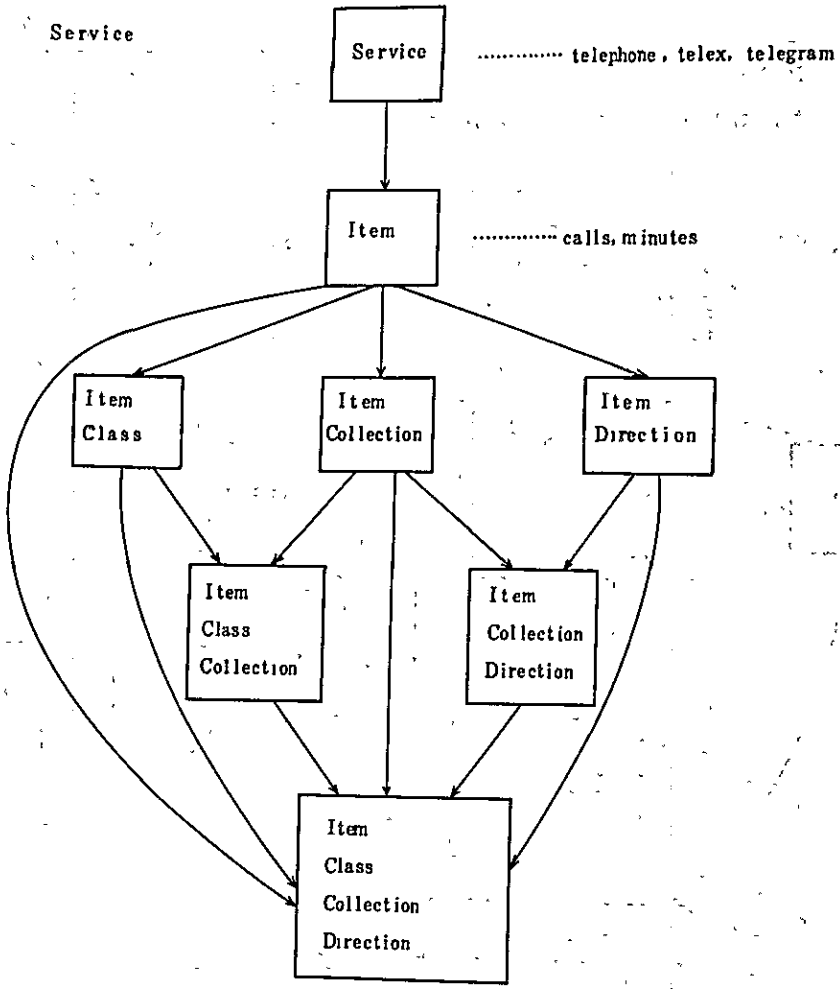
* Traffic profile

* Number of telephone/telex subscribus

Network Structure of International Telecommunications Traffic Database







Class: Telegram Urgent, Ordinary, ETA, GVT, LT, LTF, UPS, PRS, Total

Telephone Person, Station, Auto (ISD), Total

Collection : for Telephone

	Collect	non-collect	Total
full	o	o	o
reduce	o	o	o
total	o	o	o

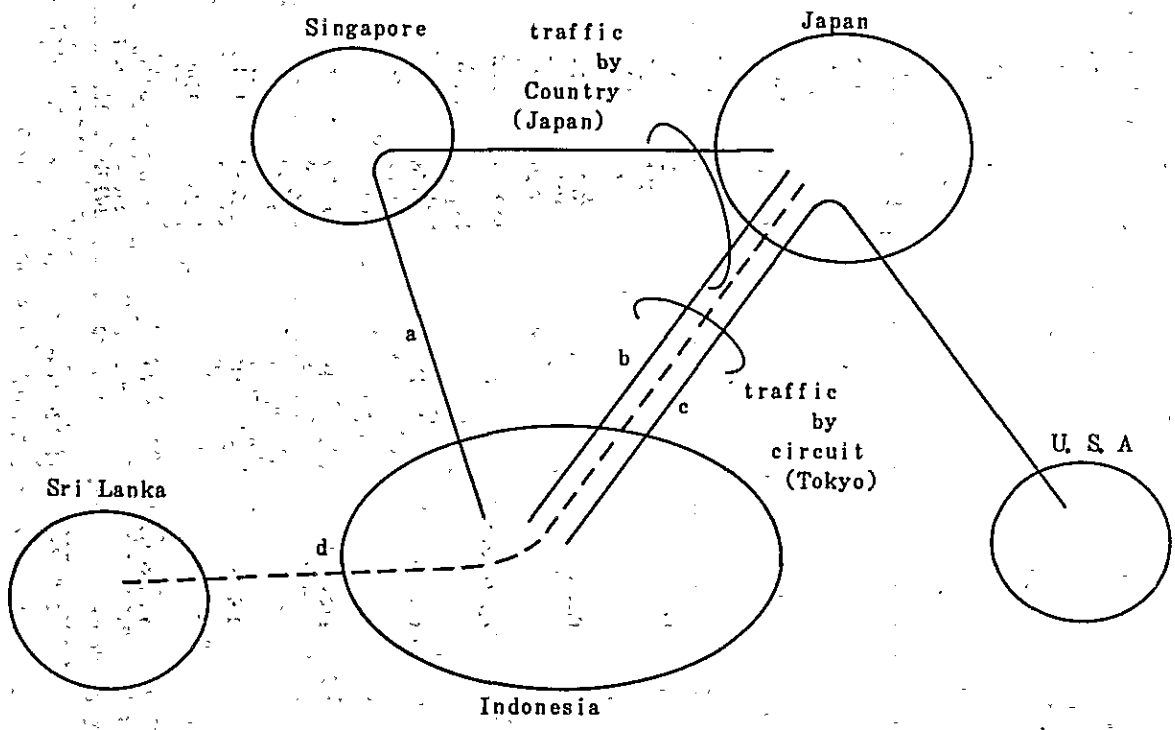
Direction : for Telephone, Telex, Telegram

	out	in	Total
non transit	o	o	o
transit	o	o	o
total	o	o	o

Definition of Terms used in This Master Plan

Traffic by Country : traffic which are totalized for each terminating country.
(eg. traffic to Japan in this sense is the sum of a and b. in the diagram bellow)

Traffic by Circuit : traffics which are totalized for each circuit irrespective of their termination.
(eg. traffic through Japan (or Tokyo) circuit is the sum of b. c and d in the diagram bellow. In reality however, d (transit traffic through Indonesia) is not considered in this master plan because of shortage of the data)



Recommended Compilation of Traffics

Sample: Telephone Total Traffic by Country and by Circuit (non-transit)

(TF-H)

Region	Country	CCT	Calls			Minutes			Minutes/call		
			OUT	IN	Total	OUT	IN	Total	OUT	IN	Total
ASIA	AFGHANISTAN	MCW		16	16		167	167		10.44	10.44
		PS	7		7	64		64	9.14		9.14
		*	7	16	23	64	167	231	9.14	10.44	10.04
	BAHRAIN	HK	1111	22	1133	8984	315	9299	8.09	14.32	8.21
		LN	21		21	134		134	6.38		6.38
		*	1132	22	1154	9118	315	9433	8.05	14.32	8.17
	BANGLADESH	DAC	453	457	910	5700	4615	10315	12.58	10.10	11.34
		*	453	457	910	5700	4615	10315	12.58	10.10	11.34
	BRUNEI	HK	119	1186	1305	1348	11521	12869	11.33	9.71	9.86
		KLP	6		6	93		93	15.50		15.50
		LN		19	19		132	132		6.95	6.95
		*	125	1205	1330	1441	11653	13094	11.53	9.67	9.85
	BURMA	HK	1	15	16	19	116	135	19.00	7.73	8.44
		RAN	357	555	912	3389	4812	8201	9.49	8.67	8.99
		*	358	570	928	3408	4928	8336	9.52	8.65	8.98
	CHINA	PEK	6785	9918	16703	66757	92850	159607	9.84	9.36	9.56
		SH	3934	7209	11143	45150	68218	113368	11.48	9.46	10.17
		*	10719	17127	27846	111907	161068	272975	10.44	9.40	9.80
	CHRISTMAS IS	SY		1	1		10	10		10.00	10.00
		*		1	1		10	10		10.00	10.00
	CYPRUS	LN	78		78	426		426	5.46		5.46
		OAK	2		2	29		29	14.50		14.50
		*	80		80	455		455	5.69		5.69
	HONGKONG	HK	98879	106977	205856	548063	612182	1160245	5.54	5.72	5.64
		TAI	10		10	83		83	8.30		8.30
		*	98889	106977	205866	548146	612182	1160328	5.54	5.72	5.64
	INDIA	BMB	2852	1905	4757	33372	14588	47960	11.70	7.66	10.08
		SY	7	1	8	142	29	171	20.29	29.00	21.38
		*	2859	1906	4765	33514	14617	48131	11.72	7.67	10.10
	INDONESIA	DJ	16907	16927	33834	159249	153486	312735	9.42	9.07	9.24
		ROM	263	50	313	2160	322	2482	8.21	6.44	7.93
		*	17170	16977	34147	161409	153808	315217	9.40	9.06	9.23
	IRAN	OAK	10		10	98		98	9.80		9.80
		ROM	2		2	7		7	3.50		3.50

Recommended Compilation of Traffics

Sample: Telephone Total Traffic by Country and by Circuit (Transit Calls)

(TF-1)

Region	Origin Country	KDD out cct	KDD in cct	Termination Country	Calls OUT	Calls IN	Minutes OUT	Minutes IN
ASIA	BANGLADESH	DAC	BGK	THAILAND	2	2	7	7
		DAC	CR	EGYPT	1	1	6	6
		DAC	FFT	GERMANY-W	3	3	15	15
		DAC	KWT	KUWAIT	95	95	852	852
		DAC	MLA	PHILIPPINES	5	5	42	42
		DAC	PS	FRANCE	1	1	14	14
		DAC	RAN	BURMA	13	13	157	157
		DAC	ROM	ITALY	1	1	8	8
		DAC	SL	KOREAN REP	1	1	4	4
		DAC	THN	IRAN	1	1	15	15
				*	123	123	1120	1120
	CHINA	PEK	AGA	GUAM	1	1	7	7
		PEK	BD	IRAQ	4	4	29	29
		PEK	BGK	THAILAND	77	77	390	390
		PEK	FFT	GERMANY-W	9	9	85	85
		PEK	KLP	MALAYSIA	1	1	20	20
		PEK	KWT	KUWAIT	7	7	70	70
		PEK	LN	UNITED KINGDOM	3	3	56	56
		PEK	MEX	MEXICO	76	76	566	566
		PEK	MLA	PHILIPPINES	19	19	101	101
		PEK	OAK	USA	1	1	14	14
		PEK	RAN	BURMA	5	5	18	18
		PEK	ROM	ITALY	70	70	433	433
		PEK	SPR	SINGAPORE	13	13	68	68
		PEK	THN	IRAN	12	12	89	89
		PEK	VCR	CANADA	5	5	73	73
		PEK	ZUR	CHILE	1	1	8	8
		PEK	ZUR	COLOMBIA	2	2	15	15
		PEK	ZUR	SWITZERLAND	11	11	74	74
				*	317	317	2116	2116
	HONGKONG	HK	AGA	GUAM	13	13	115	115
		HK	BEY	LEBANON	1	1	5	5
		HK	SL	KOREAN REP	2299	2299	13247	13247
				*	2313	2313	13367	13367
	INDONESIA	DJ	AGA	GUAM	16	16	171	171
		DJ	BGK	THAILAND	200	200	1454	1454
		DJ	CBO	SRI LANKA	3	3	46	46
		DJ	DAC	BANGLADESH	12	12	100	100
		DJ	MLA	PHILIPPINES	209	209	1862	1862
		DJ	RAN	BURMA	11	11	96	96
		DJ	SL	KOREAN REP	1127	1127	9710	9710
		DJ	TAI	TAIWAN	275	275	1555	1555
				*	1853	1853	14994	14994

Recommended Compilation of Traffics

Sample: Telephone Automatic Calls by Country and by Circuit

(TF-J)

Region	Country	CCT	Calls			Minutes			Minutes/Call		
			OUT	IN	Total	OUT	IN	Total	OUT	IN	Total
ASIA	BAHRAIN	HK	418		418	2881		2881	6.89		6.89
		LN	11		11	62		62	5.64		5.64
		*	429		429	2943		2943	6.86		6.86
	CYPRUS	LN	16		16	54		54	3.38		3.38
		*	16		16	54		54	3.38		3.38
	HONGKONG	HK	55537	86678	142215	219068	447418	666486	3.94	5.16	4.69
		*	55537	86678	142215	219068	447418	666486	3.94	5.16	4.69
	INDONESIA	DJ	5337	4147	9484	32143	23280	55423	6.02	5.61	5.84
		ROM	102		102	492		492	4.86		4.82
		*	5439	4147	9586	32635	23280	55915	6.00	5.61	5.83
	IRAN	THN	843	3360	4203	6417	32269	38686	7.61	9.60	9.20
		*	843	3360	4203	6417	32269	38686	7.61	9.60	9.20
	ISRAEL	FFT	437		437	2420		2420	5.54		5.54
		*	437		437	2420		2420	5.54		5.54
	KOREAN REP	SL	71239		71239	310346		310346	4.36		4.36
		*	71239		71239	310346		310346	4.36		4.36
	KUWAIT	KWT	2326	6004	830	14519	57180	71699	6.24	9.52	8.61
		LN		393	393		4038	4038		10.27	10.27
		*	2326	6397	8723	14519	61218	75737	6.24	9.57	8.68
	MALAYSIA MALAYSIA	KLP	3906	867	4773	19811	6257	26068	5.07	7.22	5.46
		*	3906	867	4773	19811	6257	26068	5.07	7.22	5.46
	MALAYSIA	**	3906	867	4773	19811	6257	26068	5.07	7.22	5.46
	PHILIPPINES	MLA	5443		5443	29715		29715	5.46		5.46
		*	5443		5443	29715		29715	5.46		5.46
	QATAR	HK	109		109	600		600	5.50		5.50
		LN	2		2	8		8	4.00		4.00
		*	111		111	608		608	5.48		5.48
	SAUDI ARABIA	RYD	1676		1676	13570		13570	8.10		8.10
		*	1676		1676	13570		13570	8.10		8.10
	SINGAPORE	SPR	19471	26430	45901	102260	148458	250718	5.25	5.62	5.46
		**	19471	26430	45901	102260	148458	250718	5.25	5.62	5.46

Recommended Compilation of Traffics

Sample: Telephone Collect Calls by Country and by Circuit

(TK-K)

Region	Country	CCT	Calls			Minutes			Minutes/call		
			OUT	IN	Total	OUT	IN	Total	OUT	IN	Total
ASIA	BAHRAIN	HK	18	22	40	270	315	585	15.00	14.32	14.63
		*	18	22	40	270	315	585	15.00	14.32	14.63
	BANGLADESH	DAC	42	11	53	475	184	659	11.31	16.73	12.43
		*	42	11	53	475	184	659	11.31	16.73	12.43
	BRUNEI	HK	2	10	12	29	144	173	14.50	14.40	14.42
		KLP	1		1	13		13	13.00		13.00
		*	3	10	13	42	144	186	14.00	14.40	14.31
	CHINA	PEK	118	4628	4746	1336	46179	47515	11.32	9.98	10.01
		SH	55	3817	3872	622	41103	41725	11.31	10.77	10.78
		*	173	8445	8618	1958	87282	89240	11.32	10.34	10.36
	HONGKONG	HK	8322	4345	12667	71815	32317	104132	8.63	7.44	8.22
		TAI	2		2	27		27	13.50		13.50
		*	8324	4345	12669	71842	32317	104159	8.63	7.44	8.22
	INDIA	BMB		228	228		3100	3100		13.60	13.60
		SY		1	1		29	29		29.00	29.00
		*		229	229		3129	3129		13.65	13.66
	INDONESIA	DJ	6	2215	2221	61	24709	24770	10.17	11.16	11.15
		*	6	2215	2221	61	24709	24770	10.17	11.16	11.15
	ISRAEL	FFT	103	73	176	918	558	1476	8.91	7.64	8.39
		OAK		2	2		23	23		11.50	11.50
		ZUR		11	11		137	137		12.45	12.45
		*	103	86	189	918	718	1636	8.91	8.35	8.65
	KOREAN REP	SL	16308	33702	50010	113118	214848	327966	6.94	6.37	6.56
		*	16308	33702	50010	113118	214848	327966	6.94	6.37	6.56
	KUWAIT	KWT	119	4	123	1571	53	1624	13.20	13.25	13.20
		*	119	4	123	1571	53	1624	13.20	13.25	13.20
	MALAYSIA MALAYSIA	HK	46	128	174	542	1485	2027	11.78	11.60	11.65
		KLP	523	1329	1852	6308	13469	19777	12.06	10.13	10.68
		*	569	1457	2026	6850	14954	21804	12.04	10.26	10.76
	MALAYSIA	**	569	1457	2026	6850	14954	21804	12.04	10.26	10.76
	MALDIVES	HK		1	1		3	3		3.00	3.00
		*		1	1		3	3		3.00	3.00

Recommended Compilation of Traffic
Sample: Telephone Station calls by Country and by Circuit

(TF-L)

Region	Country	CCT	Calls			Minutes			Minutes/Call		
			OUT	IN	Total	OUT	IN	Total	OUT	IN	Total
ASIA	BAHRAIN	HK	460		460	3636		3636	7.90		7.90
		IN	6		6	41		41	6.83		6.83
		*	466		466	3677		3677	7.89		7.89
	CYPRUS	LN	32		32	194		194	6.06		6.06
		*	32		32	194		194	6.06		6.06
	HONGKONG	HK	18102	6664	24766	119564	56876	176440	6.61	8.53	7.12
		TAI	5		5	37		37	7.40		7.40
		*	18107	6664	24771	119601	56876	176477	6.61	8.53	7.12
	INDONESIA	DJ	3545	1741	5286	32135	15646	47781	9.06	8.99	9.04
		ROM	37		37	315		315	8.51		8.51
		*	3582	1741	5323	32450	15646	48096	9.06	8.99	9.04
	IRAN	OAK	4		4	20		20	5.00		5.00
		ROM	1		1	3		1	3.00		3.00
		THN	859	103	962	9858	930	10788	11.48	9.03	11.21
		*	864	103	967	9881	930	10811	11.44	9.03	11.18
	IRAQ	BD	576		576	12233		12233	21.24		21.24
		*	576		576	12233		12233	21.24		21.24
	ISRAEL	FFT	404		404	2385		2385	5.90		5.90
		ZUR		8	8		49	49		6.13	6.13
		*	404	8	412	2385	49	2434	5.90	6.13	5.91
	JORDAN	AMN	64		64	779		779	12.17		12.17
		PS	3		3	34		34	11.33		11.33
		ROM	56		56	756		756	13.50		13.50
		*	123		123	1569		1569	12.76		12.76
	KOREAN REP	SL	97257	29586	126843	590220	171951	762171	6.07	5.81	6.01
		*	97257	29586	126843	590220	171951	762171	6.07	5.81	6.01
	KUWAIT	KWT	905	100	1005	9618	932	10550	10.63	9.32	10.50
		LN	4	11	15	26	167	193	6.50	15.18	12.87
		ROM	1		1	23		23	23.00		23.00
		*	910	111	1021	9667	1099	10766	10.62	9.90	10.54
	MALAYSIA										
	MALAYSIA	HK	314		314	2574		2574	8.20		8.20
		KLP	2281	2030	4311	18812	11529	30341	8.25	5.68	7.04
		SY		1	1		3	3		3.00	3.00
		*	2595	2031	4626	21386	11532	32918	8.24	5.68	7.12
	MALAYSIA	**	2595	2031	4626	21386	11532	32918	8.24	5.68	7.12

Recommended Compilation of Traffics
Sample: Telex Total Traffic by Country and by Circuit (non-transit)

(TX-H)

Region	Country	CCT	Calls			Minutes			Minutes/call		
			OUT	IN	Total	OUT	IN	Total	OUT	IN	Total
ASIA	AFGHANISTAN	FFT	58	342	400	238	1450	1688	4.10	4.24	4.22
		ROM	129	124	253	473	459	932	3.67	3.70	3.68
		WIN	10		10	55		55	5.50		5.50
		*	197	466	663	766	1909	2675	3.89	4.10	4.03
	BAHRAIN	BRN		8	8		19	19		2.38	2.38
		HK	4502		4502	13155		13155	2.92		2.92
		*	4502	8	4510	13155	19	13174	2.92	2.38	2.92
	BANGLADESH	BRN		1	1		3	3		3.00	3.00
		O-DAC	2028	1615	3643	6415	4699	11114	3.16	2.91	3.05
		*	2028	1616	3644	6415	4702	11117	3.16	2.91	3.05
	BRUNEI	HK	793		793	2833		2833	3.57		3.57
		KLP	7		7	18		18	2.58		2.57
		LDN		2	2		4	4		2.00	2.00
		*	800	2	802	2851	4	2855	3.56	2.00	3.56
	BURMA	RAN	3161	1377	4538	13281	3655	16936	4.20	2.65	3.73
		*	3161	1377	4538	13281	3655	16936	4.20	2.65	3.73
	CHINA	HK	15	20	35	67	103	170	4.47	5.15	4.86
		PEK	12874	10129	23003	41538	34061	75599	3.23	3.36	3.29
		ROM	5	18	23	25	98	123	5.00	5.44	5.35
		SH	3211	1490	4701	12853	6438	19291	4.00	4.32	4.10
		*	16105	11657	27762	54483	40700	95183	3.38	3.49	3.43
	CYPRUS	ATN	1740		1740	3650		3650	2.10		2.10
		ITT		95	95		251	251		2.64	2.64
		RCA		2	2		13	13		6.50	6.50
		ROM	1	1684	1685	12	3505	3517	12.00	2.08	2.09
		*	1741	1781	3522	3662	3769	7431	2.10	2.12	2.11
	HONGKONG	HK	128582	170017	298599	285581	351706	637287	2.22	2.07	2.13
		*	128582	170017	298599	285581	351706	637287	2.22	2.07	2.13
	INDIA	BMB	23000	23451	46451	68267	76758	145025	2.97	3.27	3.12
		HK	2		2	6		6	3.00		3.00
		*	23002	23451	46453	68273	76758	145031	2.97	3.27	3.12
	INDONESIA	DJ	32002	31465	63467	90127	101545	191672	2.82	3.23	3.02
		HK	1		1	3		3	3.00		3.00
		*	32003	31465	63468	90130	101545	191675	2.82	3.23	3.02
	IRAN	BRN		10	10		33	33		3.30	3.30

Recommended Compilation of Traffics

Sample: Telex Traffic by Country and by Circuit (transit calls)

(TX-I)

Region	Originating Country	KDD out cct	KDD in cct	Terminating Country	Calls OUT	Calls IN	Minutes OUT	Minutes IN
ASIA	INDIA	BMB	SL	KOREAN REP	114	114	415	415
				*	114	114	415	415
	IRAN	THN	CBO	SRI LANKA	371	371	1611	1611
		THN	KLJ	MALAYA	169	169	586	586
		THN	LDN	UNITED KINGDOM	1	1	5	5
		THN	M-RCA	PHILIPPINES	3	3	10	10
		THN	MEX	MEXICO	115	115	565	565
		THN	NBI	KENYA	118	118	456	456
		THN	PEK	CHINA	30	30	105	105
		THN	SL	KOREAN REP	5758	5758	20330	20330
		THN	TAI	TAIWAN	1	1	19	19
				*	6566	6566	23687	23687
	KOREAN DEM	PEK	DJ	INDONESIA	58	58	213	213
		PEK	LIS	PORTUGAL	4	4	12	12
		PEK	NBI	KENYA	1	1	5	5
		PEK	OSL	NORWAY	3	3	9	9
		PEK	ROM	TANZANIA	16	16	61	61
		PEK	ROM	UGANDA	1	1	3	3
		PEK	THN	IRAN	135	135	554	554
				*	218	218	857	857
	KOREAN REP	SL	BGK	THAILAND	1	1	3	3
		SL	BRN	SWITZERLAND	5	5	15	15
		SL	BSM	NETHERLANDS	6	6	19	19
		SL	BX	BELGIUM	5	5	19	19
		SL	FFT	GERMANY-W	580	580	1643	1643
		SL	HSK	FINLAND	1	1	3	3
		SL	KAR	PAKISTAN	1	1	2	2
		SL	MAD	SPAIN	1	1	3	3
		SL	OSL	NORWAY	5	5	15	15
		SL	PRH	CZECHOSLOVAKIA	7	7	22	22
		SL	PS	ANDORRA	5	5	15	15
		SL	PS	FRANCE	5	5	15	15
		SL	RAN	BURMA	39	39	131	131
		SL	ROM	ITALY	178	178	399	399
				*	839	839	2304	2304
	KUWAIT	KWT	BD	IRAQ	1	1	3	3
		KWT	BGK	THAILAND	1006	1006	2358	2358
		KWT	BMB	INDIA	82	82	357	357
		KWT	DJ	INDONESIA	221	221	689	689
		KWT	HK	HONGKONG	1	1	3	3
		KWT	M-ITT	PHILIPPINES	573	573	1493	1493

Recommended Compilation of Traffics

Sample: Telegram Total Traffic by Country and by Circuit (non-transit) (TG-H)

Region	Country	CCT	Messages			Words			Words/message		
			OUT	IN	Total	OUT	IN	Total	OUT	IN	Total
ASIA	AFGHANISTAN	HAM	389	90	479	12206	1066	13272	31.38	11.84	27.71
		*	389	90	479	12206	1066	13272	31.38	11.84	27.71
	BAHRAIN	HK	774	1440	2214	26765	27671	54436	34.58	19.22	24.59
		*	774	1440	2214	26765	27671	54436	34.58	19.22	24.59
	BANGLADESH	BRN		1	1		68	68		68.00	68.00
		DAC	2421	2596	5017	110898	111910	222808	45.81	43.11	44.41
		GPO		3	3		147	147		49.00	49.00
		HAM		2	2		90	90		45.00	45.00
		HK		1	1		32	32		32.00	32.00
		*	2421	2603	5024	110898	112247	223145	45.81	43.12	44.42
	BHUTAN . SIKKIM	BMB	15		15	725		725	48.33		48.33
		*	15		15	725		725	48.33		48.33
	BRUNEI	HK		88	88		3322	3322		37.75	37.75
		SPR	64		64	3593		3593	56.14		56.14
		*	64	88	152	3593	3322	6915	56.14	37.75	45.49
	BURMA	RAN	582	418	1000	31610	16568	48178	54.31	39.64	48.18
		*	582	418	1000	31610	16568	48178	54.31	39.64	48.18
	CAMBODIA	HK	22	37	59	902	1053	1955	41.00	28.46	33.14
		*	22	37	59	902	1053	1955	41.00	28.46	33.14
	CHINA	PEK	3210	7429	10639	128130	212051	340181	39.92	28.54	31.97
		SH	18018	9930	27948	798071	227550	1025621	44.29	22.92	36.70
		*	21228	17359	38587	926201	439601	1365802	43.63	25.32	35.40
	COCOS KEELING	SPR	1		1	22		22	22.00		22.00
		*	1		1	22		22	22.00		22.00
	CYPRUS	GPO	110		110	3382		3382	30.75		30.75
		HAM		1	1		13	13		13.00	13.00
		ROM		52	52		936	936		18.00	18.00
		*	110	53	163	3382	949	4331	30.75	17.91	26.57
	HONGKONG	HK	5988	4221	10209	165517	144497	310014	27.64	34.23	30.37
		*	5988	4221	10209	165517	144497	310014	27.64	34.23	30.37
	INDIA	BMB	5707	5976	11683	284328	262006	546334	49.82	43.84	46.76
		GPO		9	9		232	232		25.78	25.78
		HAM		1	1		98	98		98.00	98.00
		HK		1	1		39	39		39.00	39.00
		*	5707	5987	11694	284328	262375	546703	49.82	43.82	46.75

Recommended Compilation of Traffics

Sample: Telegram Traffic by Country and by Circuit (transit calls)

(TG-I)

Region	Originating Country	KDD out CCT	KDD in CCT	Terminating Country		Messages OUT	Messages IN	Words OUT	Words IN
ASIA	BAHRAIN		KAT	NEPAL			2		118
					*		2		118
	BANGLADESH		KAT	NEPAL			7		1946
			SL	KOREAN REP			3		128
					*		10		2074
	BRUNEI		KAT	NEPAL			8		256
					*		8		256
	BURMA		KAT	NEPAL			4		73
					*		4		73
	CHINA		DJ	INDONESIA			1		26
			GPO	UNITED KINGDOM			1		18
			HK	HONGKONG			1		30
			JDH	SAUDI ARABIA			1		117
			KAT	NEPAL			63		1249
					*		67		1440
	HONGKONG		KAT	NEPAL			66		3887
			WUI	USA			3		112
		HK	VTN	LAOS		1	1	66	66
					*	1	70	66	4065
	INDIA		BEY	JORDAN			1		22
			HAM	GERMANY-W			6		206
			JDH	SAUDI ARABIA			3		63
			KAT	NEPAL			1		21
			RCA	USA			1		55
			THN	IRAN			2		105
					*		14		472
	INDONESIA	AMS	KAT	NEPAL		10	18	561	820
		ROM		NEPAL		2		24	
					*	12	18	585	820
	IRAN	HAM	KAT	NEPAL		28	28	1736	1688
		WIN		NEPAL		1		31	
					*	29	28	1767	1688
	IRAQ	ROM	KAT	NEPAL		2	3	233	265
					*	2	3	233	265
	ISRAEL	ROM	KAT	NEPAL		17	18	453	475
					*	17	18	453	475

Recommended Compilation of Traffic

Sample: Telephone Calls by Circuit and by Gateway
Calls Non-transit Out; December 1982

No.	Circuit	Tokyo	Osaka	Naha	ISD	This month total
1	Manila	20,485 (7,187)	7,990	715	13,582	42,772
2	Seoul	96,472 (34,869)	70,787	378	117,188	284,825
3	Taipei	97,545 (33,977)	41,421	3,382	84,593	226,941
4	Peking	7,830 (7,830)		14		7,844
5	Shanghai	4,236 (4,236)		12		4,248
6	Kwangchow					
7	Hongkong	33,415 (11,452)	11,850	360	92,277	137,002
8	Saigon					
9	Pnompenh					
10	Bangkok	9,163 (3,197)	3,362	54	5,821	18,400
11	Kualalumpur	6,975 (2,419)	2,272	12	6,917	16,176
12	Singapore	19,921 (6,713)	6,683	34	51,122	77,760
13	Jakarta	9,213 (3,214)	2,708	29	13,175	25,125
14	Rangoon	361 (122)	229		232	822
15	Columbo	832 (254)	313	3	980	2,128
16	Bombay	3,444 (1,172)	1,447	23		4,914
17	Karachi	1,254 (425)	495	10	1,739	3,498
18	Teheran	1,293 (441)	317	3	936	2,549
19	Kuwait	1,606 (551)	465	3	4,777	6,851
20	Beyrout	180 (62)	66			246

Recommended Compilation of Traffic
Sample: Telephone Complete (Effective) Calls by Circuit and by Class minute non-transit out

No.	Circuit	Operator	ISD	This month total (A)	Prev. month total (B)	A/B(%)
1	Manila	234,845	63,904.8	298,749.8	277,418.8	107.7
2	Seoul	1,069,586	483,669.5	1,553,255.5	1,510,822.0	102.8
3	Taipei	975,534	338,504.2	1,314,038.2	1,283,842.2	102.4
4	Peking	75,801		75,801.0	76,296.0	99.4
5	Shanhai	44,714		44,714.0	50,048.0	89.3
6	Kwangchow					
7	Hongkong	337,014	330,171.1	667,185.1	689,562.8	96.8
8	Saigon					
9	Pnompenh					
10	Bangkok	115,923	35,357.7	151,280.7	149,484.1	101.2
11	Kualalumpur	95,139	42,080.4	137,219.4	137,974.4	99.5
12	Singapore	225,289	194,387.9	419,676.9	418,275.4	100.3
13	Jakarta	119,722	73,308.8	193,030.8	204,732.8	94.3
14	Rangoon	5,396	1,175.5	6,571.5	6,384.7	102.9
15	Colombo	11,962	5,264.6	17,226.6	17,392.8	99.0
16	Bombay	52,621		52,621.0	61,113.0	86.1
17	Karachi	17,682	6,835.6	24,517.6	23,816.4	102.9
18	Teheran	18,997	7,237.5	26,234.5	24,277.3	108.1
19	Kuwait	20,170	23,904.9	44,074.9	48,639.0	90.6
20	Beyrout	2,548		2,548.0	591.0	431.1

Sample Format : Telephone / Telex Traffic Data

Tear	Category (Number ef)	Outgoing				Incoming			
		Effective		Ineffective		Eeffective		Ineffective	
		Auto	Semi Auto Man.	Auto	Semi Auto Man.	Auto	man.	Auto	man.
1972	Calls								
	Minutes								
1973	Calls								
	Minutes								
1974	Calls								
	Minutes								
1975	Calls								
	Minutes								
1976	Calls								
	Minutes								
1977	Calls								
	Minutes								
1978	Calls								
	Minutes								
1979	Calls								
	Minutes								
1980	Calls								
	Minutes								
1981	Calls								
	Minutes								

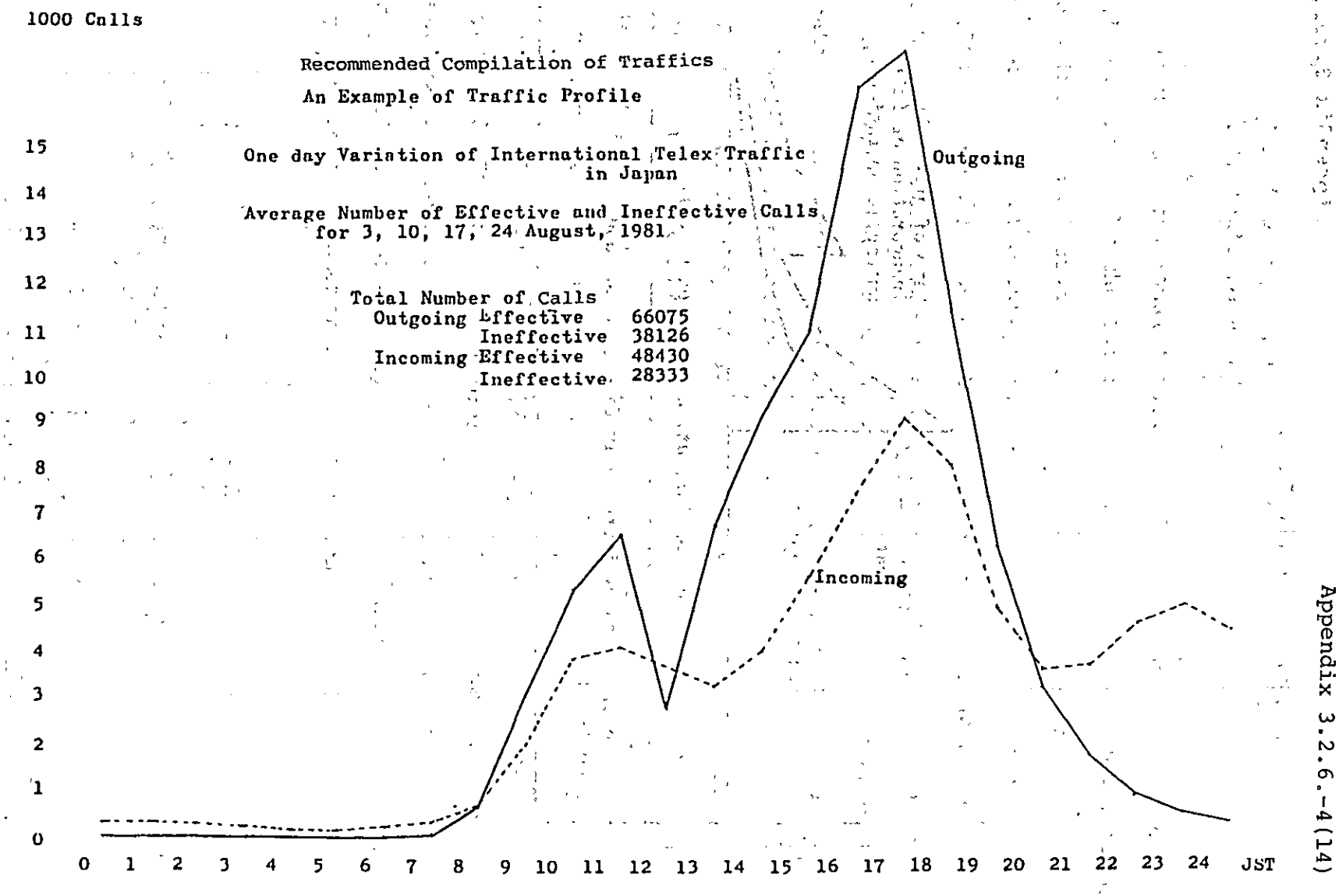
Recommended Compilation of Traffics

Sample Format:: Telephone / Telex Traffic Profile(Traffic Vaviation in a day)

Preferrably Average of Several Weekdays

Time	Outgoing		Incoming
	Auto	Man.	
00 ~ 01			
01 ~ 02			
02 ~ 03			
03 ~ 04			
04 ~ 05			
05 ~ 06			
06 ~ 07			
07 ~ 08			
08 ~ 09			
09 ~ 10			
10 ~ 11			
11 ~ 12			
12 ~ 13			
13 ~ 14			
14 ~ 15			
15 ~ 16			
16 ~ 17			
17 ~ 18			
18 ~ 19			
19 ~ 20			
20 ~ 21			
21 ~ 22			
22 ~ 23			
23 ~ 24			
Sub. Total			
Total			

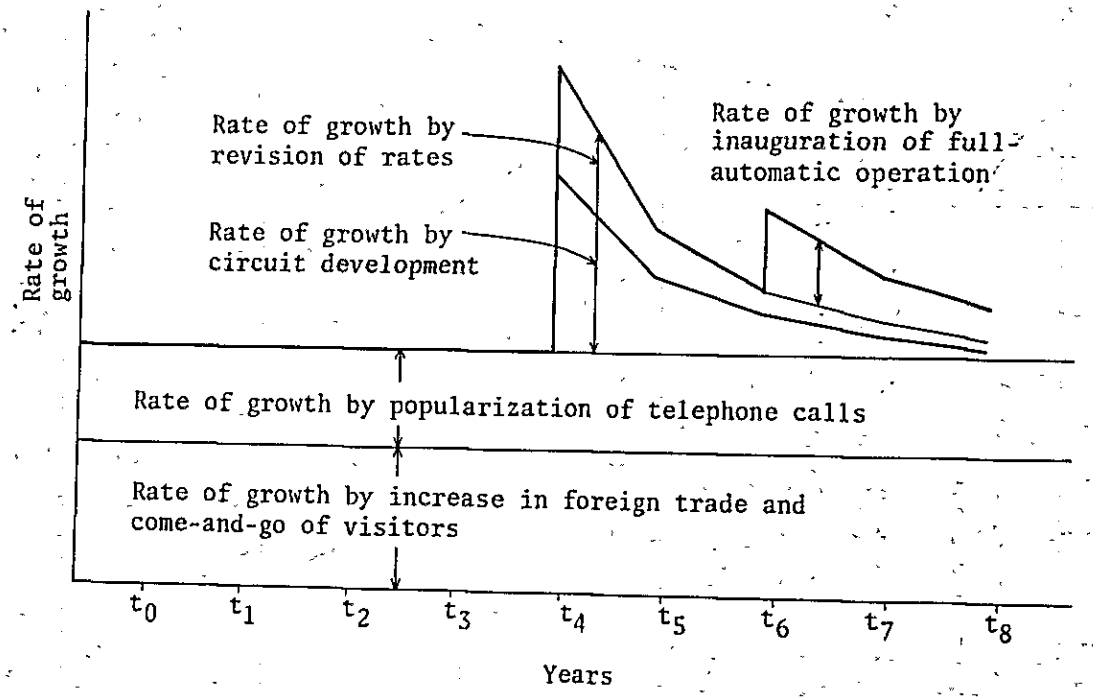
Number of Calls



Appendix 3.2.6.-4(14)

Appendix 3.3.1(1)

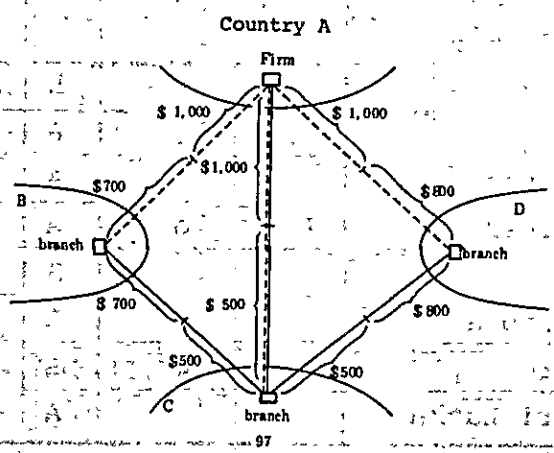
Super-imposing Growth Rates



Cost Consideration for Leased Circuits from Customer's Point of View

In the international leased circuit services, prices are unilaterally set by the two involved countries, with each setting the price for the service on its own side. Suppose in the example below that country A's carrier sets the price high ($1,100 per month), and country C's carrier low ($500 per month). And B and C set in between ($800 per month and $700 per month respectively). And assume that a firm having a head office in country A with branches in B, C, and D plans to have leased circuit network connecting these offices.

As a result of pricing consideration, the network, in this example, would probably be the one with three lines originating from country C, not from Country A, where the firm's head office locates. Because the costs for the former is lower ($4,000 = $500 x 3 + $700 + $800 + $1,000) than the latter ($5,000 = $1,000 x 3 + $500 + $700 + $800). As the number of countries involved increases, the cost differentiation will be more significant. Of course, the cost consideration is one of many factors for customer's network design.



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Existing and Planned Earth Stations in the World

	Country	Type of Earth Station o: in operation, planning year				
		Pacific		Indian		Atlantic
Asia	D. R. Afghanistan					
	S. Bahrain			A	o	o
	P. R. Bangladesh			A	o	
	Brunei			A B	83. 6 o	
	S. R. U. Burma			B	o	
	P. R. China	A	o	A	o	
	D. Kampuchea					
	R. Cyprus			B	82. 7	o
	Hong Kong	A	o	A	o	
	India			A	o	
	I. R. Iran			A	o	o
	R. Iraq			A	o	o
	S. Israel			B	83.12	o
	Japan	A	o	A	o	
	H. K. Jordan			A	o	o
	R. Korea	A	o	A	o	
	D.P.R. Korea					
	S. Kuwait			A	o	o
	P. D. R. Lao					
	R. Lebanon			A	o	81.12
	Macao					
	Malaysia	A	o	A	o	
	R. Maldives			B	o	
	Mongolian P. R.					
	K. Nepal			B	82. 3	
	S. Oman			A	o	
	I. R. Pakistan			A	o	
	R. Philippines	A	o	A	o	
	S. Qatar			A	o	83. 7
	K. Saudi Arabia			A	o	o
	R. Singapore	A	o	A	o	
	D. S. R. Sri Lanka			A	o	

	Country	Type of Earth Station o: in operation, planning year				
		Pacific		Indian		Atlantic
	Syrian Arab R.			A	o	
	Taiwan	A	o	A	o	
	K. Thailand	A	o	A	o	
	U. Arab Emirates			A	o	o
	S. R. Viet Nam					
	Yemen Arab R.			B	o	o
	P. D. R. Yemen			B	o	
North America	Alaska					
	Bermuda					83.12
	Canada	A	o			o
	U. Mexican S.					o
	U. S. A.	A	o			o
	Belize					
	R. Costa Rica					81.10
	R. EL. Salvador					o
	R. Guatemala					o
	R. Honduras					83. 3
	R. Nicaragua					o
	R. Panama					o
	American Virgin Is.					
	Antigua & Barbuda					
	C. Bahamas		-		-	-
	Barbados					o
	Cayman Is.					
	R. Cuba					o
	C. Dominica					
	Dominican R.					o
	Grenada					
	R. Haiti					o
	Jamaica					o
	Martinique					
	Netherlands Antilles					o
	Puerto Rico					

Appendix 4.3-1(3)

	Country	Type of Earth Station o: in operation, planning year				
		Pacific		Indian		Atlantic
South America	St. Kitts					
	Saint Lucia					
	St. Vicent					
	R. Trinidad, Tobago					o
	Guadeloupe					
	Argentine R.					o
	R. Bolivia					o
	F. R. Brazil					o
	R. Chile					o
	R. Colombia					o
	R. Ecuador					o
	C. R. Guyana					o
	R. Paraguay					o
	R. Peru					o
	R. Surinam					o
	O. R. Uruguay					o
	R. Venezuela		-		-	o
	Guiana					o
Europe	P. S. R. Albania					
	R. Austria			A	85. 7	o
	K. Belgium					o
	P. R. Bulgaria					
	Czechoslovakia S. R.					
	K. Denmark					o
	R. Finland					
	France			A	o	o
	German D. R.					
	F. R. Germany			A	o	o
	Gibraltar					
	Hellenic R.			A	o	o
	Hungary P. R.					
	R. Iceland					o
	Ireland					84. 1

	Country	Type of Earth Station o: in operation, planning year				
		Pacific		Indian		Atlantic
Europe	R. Italy			A	o	o
	G. D. Luxembourg					
	R. Malta					
	P. Monaco					
	K. Netherlands			A	o	o
	K. Norway					
	Poland P. R.					81.10
	Portuguese R.			A	83. 6	o
	S. R. Roumania			A	o	o
	Spain			A	o	o
	K. Sweden					o
	Switzerland C.			A	84. 6	o
	R. Turkey					o
	U. K.			A	o	o
	U. S. S. R.					
	Vatican C. S.					
	S. F. R. Yugoslavia			A	82. 3	o
	Andorra					
	Azores					o
Africa	D. P. R. Algeria			A	o	o
	P. R. Benin					82.12
	R. Botswana			B	o	
	R. Burundi					
	U. R. Cameroun					o
	R. Cape Verde					o
	Central African R.					83.12
	P. R. Congo					o
	R. Djibouti			B	o	
	A. R. Egypt			A	83. 7	o
	Ethiopia					o
	R. Gabon					o
	R. Gambia					o
	R. Ghana					

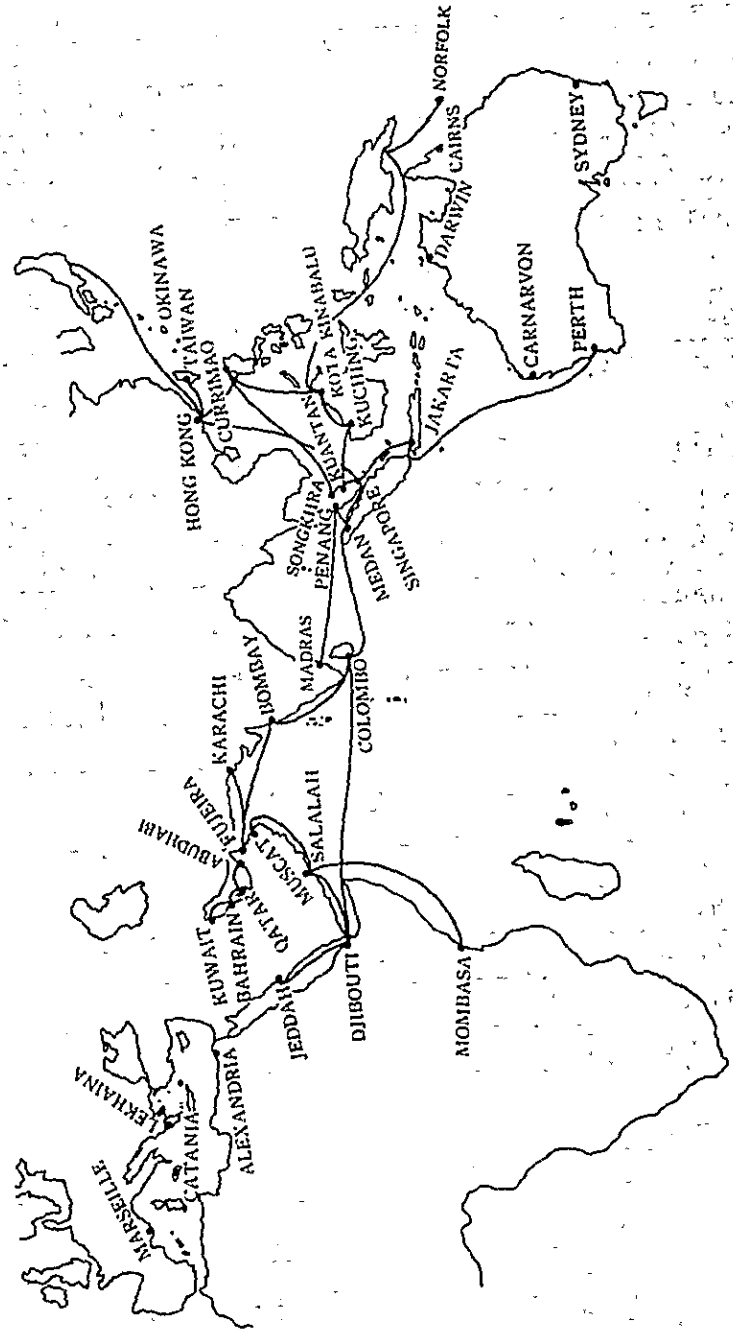
Appendix 4.3-1(5)

	Country	Type of Earth Station o: in operation, planning year				
		Pacific		Indian		Atlantic
Africa	P. R. R. Guinea					o
	R. Ivory Coast					o
	R. Kenya			A	o	o
	R. Liberia					o
	S. P. Libyan			A	o	o
	D. R. Madagascar			A	o	
	R. Malawi			B	o	
	R. Mali					81.12
	I. R. Mauritania					81.12
	Mauritius			B	o	
	K. Morocco					o
	P. R. Mozambique			B	81.12	o
	Namibia					
	R. Niger			B	o	o
	F. R. Nigeria			A	o	o
	Reunion					
	R. Rwanda			B	81.12	
	R. South Africa			A	o	o
	D. R. Sao Tome and Principe					o
	R. Senegal					o
	R. Seychelles			B	o	
	R. Sierra Leone					o
	Somali D. R.			B	o	
	D. R. Sudan					o
	K. Swaziland					
	U. R. Tanzania			B	o	83.12
	R. Togo					o
	R. Tunisia					81.12
	R. Uganda			B		o
	R. Upper Volta					o
	R. Zaire					o
	R. Zambia			A	o	
	Zimbabwe					

Appendix 4.3-1(6)

	Country	Type of Earth Station o: in operation, planning year				
		Pacific		Indian		Atlantic
	P. R. Angola			B	81.12	o
Oceania	American Samoa	B	o			
	Australia	A	o	A	o	
	Caroline Is.		-		-	-
	Cook Is.	B	o			
	Fiji	A	o			
	French Polynesia	B	o			
	Guam	A	o			
	Hawaii	A	o			
	Kiribati	B	o	B	81.12	
	Marshall Is.					
	R. Nauru	B	o			
	New Caledonia	A	o			
	New Zealand	A	o			
	Norfolk I.					
	I. S. Papua New Guinea	B	82.10			
	Saipan					
	Solomon Is.	B	o			
	K. Tonga	B	o			
	R. Vanuatu	B	o			
	Western Samoa	B	o			

Submarine Cables Plans in Indian Ocean
and Nearby Regions



(Note) Existing cables are excluded

Sample Work Sheet: NUMBER OF TELEPHONE CIRCUITS (ROUTE: HONG KONG)

ITEMS	1980	1981	1982	1983	1984	1985
Method of operation	A	A	A	A	A	A
Annual traffic volume in thousand calls	1,707	2,024	2,436	2,641	3,153	3,772
Traffic volume per average working day in calls	6,665	7,966	9,068	10,348	12,369	14,579
Composition of calls in %						
Person call	20.0	15.0	12.0	10.0	7.0	5.0
Station call	20.0	15.0	13.0	10.0	8.0	5.0
IDDD call	60.0	70.0	75.0	80.0	85.0	90.0
Handling time per call in minutes						
Person call	6.00	6.00	6.00	6.00	6.00	6.00
Station call	2.50	2.50	2.50	2.50	2.50	2.50
IDDD call	1.50	1.50	1.50	1.50	1.50	1.50
Average handling time per call	2.60	2.33	2.17	2.05	1.90	1.78
Average chargeable time per call in minutes	6.54	6.42	6.32	6.24	6.14	6.09
Average holding time per call in minutes	9.14	8.75	8.49	8.29	8.04	7.87
Concentration rate of busy hour in %	12.00	12.00	12.00	12.00	12.00	12.00
Number of calls in busy hour	799.8	955.9	1088.2	1241.8	1484.3	1749.5
Busy hour traffic in Erlangs	123.43	141.11	156.47	175.07	202.96	234.17
Number of circuits required	140	159	174	193	222	254
CCITT Recommendation applied	E520	E520	E520	E520	E520	E520
Quality of service applied	1/100	1/100	1/100	1/100	1/100	1/100
Traffic volume per circuit per day in calls	47.6	50.1	52.1	53.6	55.7	57.3

Sample Work Sheet: NUMBER OF TELEX CIRCUITS REQUIRED (ROUTE: HONG KONG)

ITEMS	1980	1981	1982	1983	1984	1985
Method of operation	A	A	A	A	A	A
Annual traffic volume in thousand calls	3,241	3,676	4,288	5,019	5,919	6,983
Traffic volume per average working day in calls	13,565	15,618	18,251	21,449	25,300	29,472
Average handling time per call in minutes	0.50	0.50	0.50	0.50	0.50	0.50
Average chargeable time per call in minutes	2.73	2.68	2.63	2.59	2.53	2.49
Average holding time per call in minutes	3.23	3.18	3.13	3.09	3.03	2.99
Concentration rate of busy hour in %	12.00	12.00	12.00	12.00	12.00	12.00
Number of calls in busy hour	1627.8	1874.2	2190.1	2573.9	3036.0	3536.6
Busy hour traffic in Erlangs	87.63	99.33	114.25	132.55	153.32	176.24
Number of circuits required	99	111	127	146	167	191
CCITT Recommendation applied	F64 B	F64 B	F64 B	F64 B	F64 B	F64 B
Loss probability applied	1/50	1/50	1/50	1/50	1/50	1/50
Traffic volume per circuit per day in calls	137.0	140.7	143.7	146.9	151.4	154.3

Sample Program in BASIC Language to Calculate Required Number of Circuits from Erlang Value and Loss Probability

```
 10: INPUT   "LOSS PROBABILITY"; P
 20: INPUT   "ERLANG VALUE";     E
 30: QB = 1
 40: N =  0
 50: TH = 1/P
 60: QA = QB
 70: N  = N + 1
 80: QB = N/E * QA + 1
 90: IF  QB < TH  THEN 60
100: X = N - 1 + (TH-QA)/(QB-QA)
110: PRINT "#OF CIRCUITS = "; INT (X) + 1
120: END
```

The lag vergion of Erlang B formula

$$P_n(E) = \frac{E * P_{n-1}(E)}{n + E * P_{n-1}(E)}, \quad P_o(E) = 2$$

Where:

$P_n(E)$: loss probability
E : offered traffic in erlangs
n : number of circuits

The above formula can be converted as:

$$Q(n) = \frac{n}{E} * Q(n-1) + 1$$

Where:

$$Q(n) = \frac{1}{P_n(E)}, \quad Q(o) = 1$$

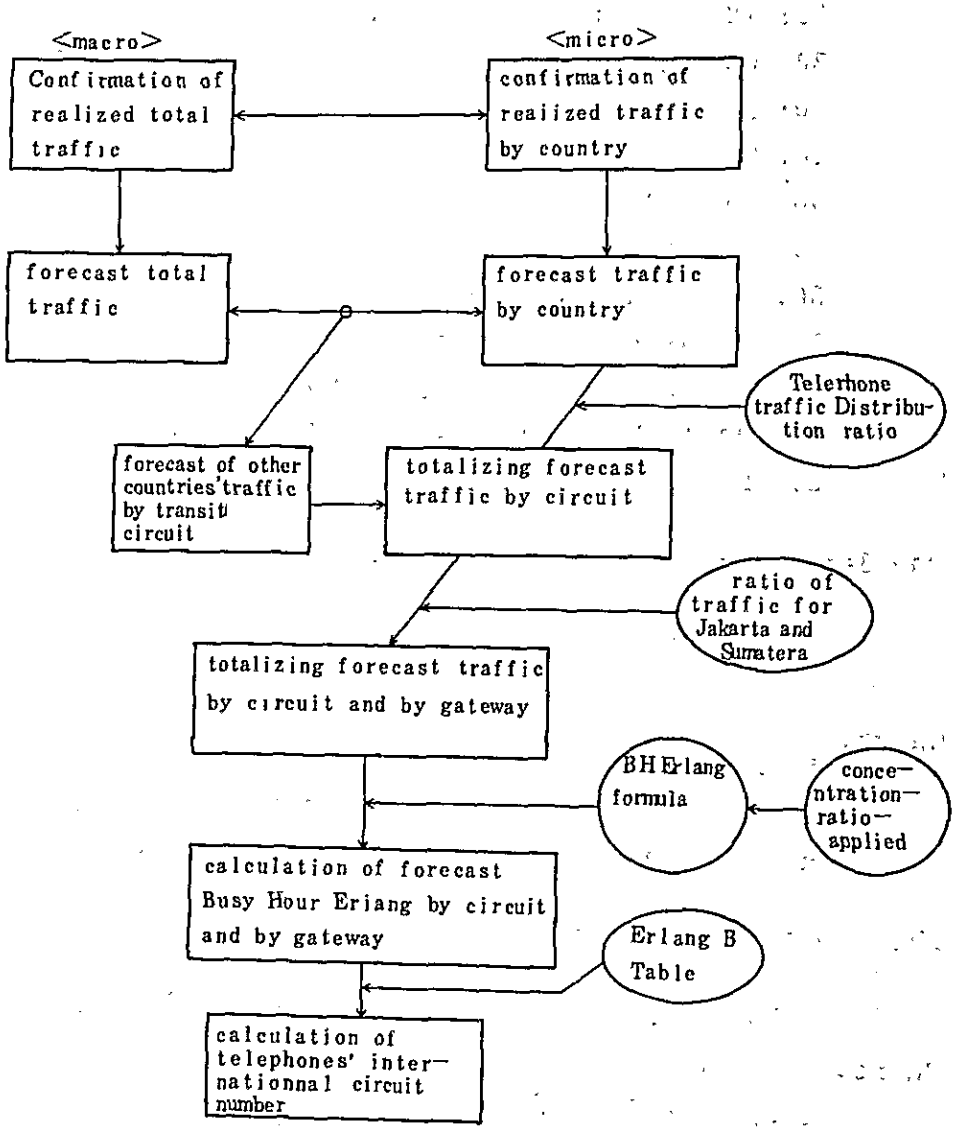
Since Q(n) increases as n increases, m satisfying the following

$$Q(m-1) < 1/P \leq Q(m)$$

will represent the required number of circuits.

Flowchart of Demand Forecast and International Circuit Arrangement

(International Telephone)



International Telephone Traffic Forecast
Indonesia - World
(Outgoing + Incoming)

Year	Calls (thousands)	Minutes (thousands)	Average Minutes per call
1983	7,301	53,295	7.30
1984	9,551	68,484	7.17
1985	12,673	86,427	6.82
1986	16,304	106,305	6.52
1987	20,921	130,968	6.26
1988	26,518	160,436	6.05
1989	33,175	195,731	5.90
1990	40,707	234,877	5.77
1994	72,701	387,498	5.33
1999	126,584	620,264	4.90
2000	138,511	667,623	4.82

(Note) This Table is the same as Table 3-1 in the text, page

Appendix 4 • 4 • 1 — 3 (1)

International Telephone Traffic by Country

1,000 minutes/year

Country	83	84	85	86	87	88	89	90	94	99	2000
Algeria	2.3	3.0	3.7	4.6	5.7	6.9	8.4	10 1	16.7	26.8	28 8
Egypt	23.4	30 1	38.0	46.7	57. 5	70 4	85 9	103 1	170.2	272.4	293.1
Kenya	10.7	13.7	17.4	21.3	26.3	32.2	39.3	47.2	77.8	124.6	134.0
Libya	0.5	0.6	0.8	1.0	1.2	1.5	1.8	2.2	3.6	5.8	6.3
Nigeria	13.6	17.5	22.1	27.1	33.4	40.9	50.8	59.9	98 9	158.3	170.4
Tanzania	3 7	4 8	6.0	7.4	9.1	11.1	13.6	16 3	26.9	43.1	46.3
Zambia	1.2	1.5	1.9	2.4	2.9	3.6	4.4	5 3	8.7	14 0	15.0
South Africa	1.4	1.8	2.3	2 8	3.4	4.2	5 1	6.2	10.2	16.3	17.5
Argentine	9.0	11.6	14 6	18.0	22.1	27.1	33.1	39.7	65.4	104.8	112.7
Bolivia	1.8	2 3	2 9	3.6	4 4	5.4	6 6	7.9	13.1	21.0	22.5
Brazil	23.7	30 5	38 4	47.3	58.2	71.3	87.1	104.4	172.3	275.9	296.8
Chile	2.9	3.7	4.7	5 8	7.1	8.7	10.7	12.8	21.1	33 8	36.3
Mexico	21.7	27.9	35 2	43 3	53 3	65 3	79.7	95.6	157.8	252.6	271.8
Panama	2.6	3.0	3.7	4.6	5.7	6.9	8.4	10:1	16.7	26.8	28.8
Peru	4.4	5 7	7.1	8.8	10 8	13.2	16.2	19.4	32.0	51.2	55 1
Venezuela	4.4	5.7	7.1	8.8	10.8	13.2	16.2	19.4	32.0	51.2	55.1

International Telephone Traffic by Country

Appendix 4・4・1－3(2)

1,000 minutes／year

Country	83	84	85	86	87	88	99	90	94	99	2000
Australia	1800.0	2313.0	2919.6	3591.0	4422 6	5418.0	6611.4	7932.6	13089.6	209556	225486
Bahrain	11.8	15.2	19.1	23.5	29.0	35.5	43.3	52 0	85.8	137.4	147.8
Bangladesh	4.0	5.1	6.5	8.0	9.8	12.0	14.7	17.6	29.1	46.6	50.1
Brunei	13.6	17.5	22.1	27.1	33 4	40.9	50.0	59.9	98.9	158 3	170.4
Burma	6.7	8.6	10.9	13.4	16.5	20 2	24.6	29.5	48.7	78.0	83.9
Fiji	5.5	7.1	8.9	11.0	13.5	16.6	20.2	24.2	40.0	64.0	68 9
Hongkong	3710.2	4767.6	6017.9	7401.8	9116.0	11167.7	13627.6	16350 9	26980 6	43194.1	46477.7
India	311.3	400.0	504.9	621.0	764.9	937.0	1143.4	1371.9	2263.8	3624.2	3899.7
Iran	7.8	10 0	12.7	15.6	19.2	23.5	28 6	34.4	56.7	90.8	97.7
Iraq	4.4	5.7	7.1	8.8	10.8	13.2	16 2	19.4	32.0	51.2	55.1
Japan	7993 2	10271 3	12965.0	15946.4	19639.3	24059 5	29359.0	35226.0	581266	93056.8	100130.8
Korea R.	742.7	954.4	1204.7	1481.7	1824.8	2235.5	2727.9	3273.1	5400.9	8646.5	9303.8
Kuwait	19.6	25.2	31.8	39.1	48.2	59.0	72.0	86.4	142.6	228.3	245.7
Macao	11.5	14.8	18 7	22.9	28.3	34.6	42.2	50.7	83.6	133.9	144.1
Malaysia	1194.7	1535.0	1937.8	2383.4	2935.4	3596.0	4388.1	5265.0	8687.9	139087	14966.0
New Caledonia	4.4	5.7	7.1	8.8	10.8	13.2	16.2	19.4	32.0	51.2	55.1

International Telephon Traffic by Country

1,000 minutes/year

Country	83	84	85	86	87	88	89	90	94	99	2000
New Zealand	141.2	181.4	229 0	281.7	346.9	425.0	518.6	622.3	1026.5	1643.9	1768.8
Pakistan	31.8	40 9	51.6	63 4	78 1	95 7	116.8	140.1	231.2	370.3	398.4
Papua New Guinea	36 4	46.8	59.0	72.6	89.4	109.6	133 7	160 4	264 7	423.8	456.0
Philippines	870 8	1119 0	1412.4	1737.2	2139.6	2621.1	3198 4	3837 6	6332.5	10137.9	10908 5
Saudi Arabia	545 8	701.4	885.3	1088.9	1341.0	1642.9	2004.7	2405 3	3969.1	6354.2	6837.2
Singapore	17497 1	22483 8	28380.3	34906 7	42990.4	52666 3	64266.8	77109 7	127238.9	203701.2	219186.2
Sri Lanka	26 3	33 8	42.7	52.5	64.6	79 2	96.6	115.9	191.3	306.2	329.5
Syrian Arab	2.0	2.6	3.2	4.0	4 9	6.0	7.3	8.8	14.5	23 3	25.1
Thailand	474.8	610 1	770.1	947.2	1166.6	1429.1	1743.9	2092.4	3452.7	5527.6	5947.8
U. A. E.	58.3	74.9	94 6	116.3	143.2	175.5	214.1	256.9	424.0	678 7	730.3
Yemen Arab	1.8	2.3	2 9	3 6	4.4	5 4	6.6	7.9	13.1	21.0	22.5
Taiwan	2206 7	2835.6	3579.3	4402.4	5421.9	6642.2	8105 2	9724.9	16047.1	25690.4	27643 3
Austria	77 3	99.3	125.4	154.2	189.9	232.7	283.9	340.7	562.1	899.9	968.3
Belgium	202.7	260.5	328.8	404.4	498.0	610.1	744.5	893.3	1474.0	2359.8	2539.2
Bulgaria	2 0	2.6	3.2	4 0	4.9	6.0	7.3	8.8	14 5	23.3	25.1
Czechoslovak	3.5	4 5	5.7	7.0	8.6	10.5	12.9	15.4	25.5	40 7	43.8

International Telephone Traffic by Country

Appendix 4 • 4 • 1 — 3 (4)

1, 000 minutes / year

Country	83	84	85	86	87	88	89	90	94	99	2000
Denmark	97. 9	125. 8	158. 8	195. 3	240. 5	294. 7	359. 6	431. 4	711. 9	1139. 8	1226 4
Finland	19. 4	24. 9	31. 5	38. 7	47. 7	58 4	71. 3	85 5	141. 1	225. 9	243. 0
France	911. 4	1171. 2	1478. 3	1818. 2	2239. 3	2743. 3	3347. 6	4016. 5	6627. 7	10610.5	11417.1
F. R. D	1848. 9	2375. 8	2998. 9	3688 6	4542. 8	5565. 2	6791. 0	8148. 1	13445 2	21524 9	23161 2
Greeca	85. 2	109. 5	138. 2	170. 0	209. 3	256. 5	312. 9	375. 5	619 6	991. 9	1067. 3
Hungaria	6. 0	7. 7	9. 7	12. 0	14 7	18. 1	22. 0	26. 4	43. 6	69 9	75 2
Ireland	3. 7	4. 8	6. 0	7. 4	9. 1	11. 1	13 6	16. 3	26. 9	43. 1	46. 3
Italy	231. 0	296. 8	374. 7	460. 8	567. 6	695. 3	848 5	1018 0	1679. 8	2689. 3	2893. 7
Luxembourg	3. 5	4. 5	5. 7	7. 0	8. 6	10. 5	12. 9	15. 4	25 5	40. 7	43 8
Netherlands	1892. 2	2431. 5	3069. 2	3774. 9	4649. 1	5695 5	6950. 1	8338. 9	13760.1	22029	23703 6
Norway	82. 6	106. 1	134. 0	164. 8	202. 9	248. 6	303. 4	364. 0	600 7	961. 6	1034 7
Portugal	3. 2	4. 1	5. 2	6. 4	7. 9	9. 6	11. 8	14. 1	23. 3	37. 3	40. 1
Roumania	3. 5	4. 5	5. 7	7. 0	8. 6	10. 5	12. 9	15. 4	25. 5	40. 7	43. 8
Spain	115. 3	148. 2	187. 0	230. 0	283. 3	347. 1	423. 5	508. 4	838. 5	1342. 3	1444. 4
Sweden	101. 7	130. 7	165. 0	202. 9	250 0	306. 1	373. 5	448. 2	739. 6	1184. 0	1274
Switzerland	251. 8	323. 6	408. 4	502. 3	618. 7	757. 9	924. 9	1110. 0	1831. 1	2931. 5	3154. 3

International Telephone Traffic by Country

1,000 minutes / year

Country	83	84	85	86	87	88	89	90	94	99	2000
Turkey	7.8	10.0	12.7	15 6	19.2	23.5	28.6	34.4	56.7	90 8	97. 7
U. S. S. R	4.0	5.1	6.5	8.0	9 8	12.0	14.7	17.6	29 1	46.6	51.1
United Kingdom	1931.4	2481 8	3132 7	3853.1	4745 4	5813.5	7094.0	8511.7	14045.1	22485.4	24194.6
Yugoslavia	15.0	19 3	24.3	29.9	36 9	45.2	55 1	66.1	109.1	174.6	187.9
Canada	438.3	563.2	710.9	874.4	1076.9	1319.3	1609.9	1931.6	3187.3	5102.7	5490.6
U. S. A	5332.9	6852.8	8650 0	10639.1	13102 9	16052 0	19587.7	23502.1	38780 8	62085.6	66805.2
Alaska	4.4	5 7	7.1	8.8	10 8	13.2	16.2	19 4	32.0	51.2	55.1
Hawaii	112.3	144.3	182.2	224.0	275 9	338.0	412.5	494.9	816 6	1307.4	1406.8
Guam	1.2	1.5	1.9	2 4	2.9	3 6	4.4	5.3	8.7	14.0	15.0
Bahamas	9.8	12.6	15 9	19.6	24.1	29.5	36.0	43.2	71.3	114 1	122.8
Total	51662	66386	83796	103066	126934	155503	189755	227674	375686	601449	647170
Other Countries	1633	2098	2631	3239	4034	4933	5976	7203	11812	188815	20453
Grand Total	53, 295	68, 484	86,427	106,305	130,968	160,436	195,731	234,877	387,498	620,264	667,623

Other Countries' Telephone Traffic by Transit Circuit

1000 minutes/year

Circuit	83	84	85	86	87	88	89	90	94	99	2000
Other Countries' Total Traffic	1,633	2,098	2,631	3,239	4,034	4,933	5,976	7,203	11,812	18,815	20,453
Via Kong Kong	49.0	62.9	78.9	97.2	121.0	148.0	179.3	216.1	354.4	564.5	613.6
Via Netherlands	94.7	121.7	152.6	187.9	234.0	286.1	346.6	417.8	685.1	1091.3	1186.3
Via Australia	233.5	300.0	376.2	463.2	576.9	705.4	854.6	1030.0	1689.1	2690.6	2924.8
Via Germany	115.9	149.0	186.8	230.0	286.4	350.2	424.3	511.4	838.7	1335.9	1452.2
Via United Kingdom	315.2	404.9	507.8	625.1	778.6	952.1	1153.4	1390.2	2279.7	3631.3	3947.4
Via France	321.7	413.3	518.3	638.1	794.7	971.8	1177.3	1419.0	2327.0	3706.6	4029.2
Via Italy	267.8	344.1	431.5	531.2	661.6	809.0	980.1	1181.3	1937.2	3085.7	3354.3
Via Spain	44.1	56.6	71.0	87.5	108.9	133.2	161.4	194.5	318.9	508.0	552.2
Via Hawaii	52.3	67.1	84.2	103.6	129.1	157.9	191.2	230.5	378.0	602.1	654.5
Via U.S.A.	138.8	178.3	223.6	275.3	342.9	419.3	508.0	612.3	1004.0	1599.3	1738.5

Appendix 4.4.1-4

Telephone Traffic Distribution Ratio

(D) : Direct Route

Country	Actural Ratio		Planned Ratio		Remarks
	1st Route	2nd Route	1st Route	2nd Route	
Algeria	E	HOL	E	HOL	
	100	0	100	0	
Egypt	G		G		*'85 ~ Egypt(D) 100
	100		100		
Kenya	I	AUS	I	AUS	*'88 ~ Kenya(D) 100
	100	0	100	0	
Libya	E		E		
	—		100		
Nigeria	I	G	I	G	*'87 ~ Nigeria(D) 100
	100		100	0	
Tanzania	AUS	I	AUS	I	*'99 ~ Tanzania(D) 100
	100	0	100	0	
Zambia	G	I	G	I	
	100	0	100	0	
South Africa	D	I	D	I	
	100	0	100	0	
Argentine	F	USA	F	USA	*'99 ~ Argentin(D) 100
	66.7	33.3	70	30	
Bolivia	USA		USA		
	100		100		
Brazil	USA	J	USA	I	*'88 ~ Brazil(D) 100
	100	0	100	0	
Chile	I		I		
	100		100		
Mexico	USA	E	USA	E	*'89 ~ Mexico(D) 100
	100	0	100	0	
Panama	G	E	G	E	
	100	0	100	0	
Peru	I		I		
	100		100		

(Note,) Actual Ratio is based on INDOSAT's data (Appendix 3 • 2 • 1—3)

Telephone Traffic Distribution Ratio

(D) : Direct Route

Country	Actural Ratio		Planned Ratio		Remarks
	1st Route	2nd Route	1st Route	2nd Route	
Venezuela	I		I		
	100		100		
Australia	AUS(D)	—	AUS(D)	—	
	100		100		
Bahrain	G		G		＊'88 ～ Bahrain(D) 100
	100		100		
Bangladesh	J	HK	J	HK	＊'99 ～ Bangladesh 100 (D)
	100	0	100	0	
Brunei	HK	MAL	HK	MAL	＊'87 ～ Brunei(D) 100
	100	0	100	0	
Burma	J	HK	J	HK	＊'94 ～ Burma(D) 100
	100	0	100	0	
Fiji	AUS		AUS		＊'94 ～ Fiji (D) 100
	—		100		
Hong Kong	HK(D)	AUS	HK(D)	AUS	
	94.2	5.76	95	5	
India	HK	MAL	HK	MAL	＊'85 ～ India (D) 100
	100	0	100	0	
Iran	G	I	G	I	＊'90 ～ Iran (D) 100
	100	0	100	0	
Iraq	I	G	I	G	＊'94 ～ Iraq (D) 100
	100	0	100	0	
Japan	J(D)	Itary	J(D)	I	
	97.9	2.11	98	2	
Korea R	KOR(D)	J	KOR(D)	J	
	75.3	24.7	95	5	
Kuwait	I	E	I	E	＊85 ～ Kuwait (D) 100
	25	75	25	75	
Macao	HK		HK		
	100		100		

Telephone Traffic Distribution Ratio

(D) : Direct Route

Country	Actural Ratio			Planned Ratio		Remarks
	1st Route	2nd Route		1st Route	2nd Route	
Malaysia	MAL (D)	AUS		MAL (D)	AUS	
	65.39	34.61		95	5	
New Caledonia	AUS			AUS		* '94 ~ New Caledonia 100 (D)
	100			100		
New Zealand	AUS			AUS		* '85 ~ New Zealand(D) 100
	100			100		
Pakistan	G	SPR		G	SPR	* '85 ~ Pakistan(D) 100
	100	0		100	0	
Papua New Guinea	AUS			AUS		* '85 ~ P.N.G(D) 100
	100			100		
Philippines	Phil (D)	J		Phil (D)	J	
	99.0	1.0		99	1	
Saudi Arabia	Saudi Arabia	U.K.	I	Saudi Arabia	UK	
	78.5 (D)	18.8	2.7	95 (D)	5	
Singapore	SPR (D)	AUS		SPR (D)	AUS	
	99.77	023		100	0	
Sri Lanka	HK	J		HK	J	* 85 ~ Sri Lanka (D) 100
	100	0		100	0	
Syrian Arab	F			F		
	—			100		
Thailand	THAI (D)	J		THAI (D)	J	
	83.6	16.4		95	5	
U.A.E	HK	G		HK	G	* '85 ~ U.A.E. (D) 100
	100	0		100		
Yemen Arab	G	I		G	I	
	100	0		100	0	
Taiwan	TAI (D)	J		TAI (D)	J	
	98.05	1.95		99	1	
Austria	HOL			HOL		* '85 ~ Austria(D) 100
	100			100		

Telephone Traffic Distribution Ratio

Appendix 4・4・1－5(4)

(D) : Direct Route

Country	Actural Ratio		Planned Ratio		Remarks
	1st Route	2nd Route	1st Route	2nd Route	
Belgium	Belgium(D)		Belgium(D)		
	100		100		
Bulgaria	HOL		HOL		
	100		100		
Czechoslovak	HOL		HOL		
	100		100		
Denmark	NOR	HOL	NOR	HOL	＊'85～ Denmark(D) 100
	81.1	18.9	95	5	
Finland	Nolway	Netherlands	NOR	HOL	＊'89～ Finland(D) 100
	9.1	90.9	10	90	
France	F (D)	HOL	F (D)	HOL	
	88.1	11.9	95	5	
F.R.D.	FRD(D)	F	FRD(D)	F	
	82.9	17.9	95	5	
Greece	HOL		HOL		＊'85～ Greece(D) 100
	100		100		
Hungary	HOL		HOL		＊2000～ Hungary 100
	100		100		
Ireland	HOL	G	HOL	G	
	100	0	100	0	
Italy	I (D)	F	I (D)	F	
	89.2	10.8	95	5	
Luxembourg	G		G		
	100		100		
Netherlands	HOL	F	HOL	F	
	100	0	100	0	
Norway	NOR(D)	HOL	NOR(D)	HOL	
	100	0	100	0	
Portugal	E		E		
	100		100		

Telephone Traffic Distribution Ratio

(D) : Direct Route

Country	Actural Ratio		Planned Ratio		Remarks
	1st Route	2nd Route	1st Route	2nd Route	
Roumania	F	HOL	F	HOL	
	100	0	100	0	
Spain	E (D)		E (D)		
	100		100		
Sweden	NOR	HOL	NOR	HOL	＊'85～ Sweden (D) 100
	91.8	8.2	92	8	
Switzerland	SWI (D)	HOL	SWI (D)	HOL	
	94.6	5.4	95	5	
Turkey	E	D	E	D	＊'99～ Turkey(D) 100
	100	0	100	0	
U. S. S. R	D		D		＊'99～ USSR(D) 100
	—		100		
United Kingdom	UK (D)	AUS	UK (D)	AUS	
	86.9	13.1	95	5	
Yugoslavia	HOL	I	HOL	I	＊'87～ Yugoslavia 100 (D)
	100	0	100	0	
Canada	CAN (D)		CAN (D)		
	100		100		
U. S. A	U. S. A. (D)	J	U. S. A. (D)	J	
	100	0	100	0	
Alaska	U. S. A.		U. S. A.		
	100		100		
Hawaii	HAW (D)	U. S. A.	HAW (D)	U. S. A.	
	100	0	100	0	
Guam	HWI	U. S. A.	HAW	U. S. A.	
	100	0	100	0	
Bahamas	U. S. A.		U. S. A		
	100		100		

International Telephone Traffic by Circuit

	1983	1984	1985	1986	1987	1988	1989	1990	1994	1999	2000	NOTE
SPAIN	1879	241. 4	304. 3	374. 4	462. 3	566. 0	689. 5	828. 2	1364. 6	2182. 2	2353. 8	
U K	2233. 9	2870. 1	3529. 9	4342. 2	5356. 5	6524. 8	7953. 6	9515. 0	15686. 5	25094. 9	27042. 4	
ITALY	692. 5	889. 8	1120. 2	1378. 3	1671. 5	2013. 8	2450. 6	2945. 5	4816. 3	7694. 0	8312. 4	
AUSTRALIA	2566. 5	3298. 1	3872. 2	4763. 4	5872. 8	7193. 2	8771. 5	10528. 8	17291. 3	27625. 5	29755. 8	
W. G.	1905. 1	2448. 0	3088. 9	3799. 4	4682. 4	5735. 4	6995. 8	8396. 2	13849. 4	22118. 6	23814. 3	
FRANCE	1303. 2	1674. 7	2110. 4	2596. 4	3206. 5	3926. 5	4782. 7	5744. 6	9465. 4	15061. 3	16247. 7	
USA	5535. 8	7113. 6	8977. 5	11042. 4	13603. 2	16592. 8	20164. 4	24196. 8	39920. 8	63871. 2	68744. 1	
JAPAN	7935. 6	10197. 4	12871. 7	15831. 8	19497. 9	23886. 4	29147. 8	34972. 5	57659. 6	92262. 7	99276. 3	
HKG	3994. 7	5133. 1	5836. 7	7178. 9	8809. 5	10791. 9	13167. 7	15800. 2	26069. 6	41732. 8	44911. 5	
NETHERL.	2265. 3	2910. 9	3393. 4	4173. 9	5106. 2	6255. 0	7566. 1	9079. 9	14978. 6	23974. 4	25733. 7	
NORWAY	274. 1	352. 3	137. 2	168 7	207. 7	254. 4	303. 4	364. 0	600. 7	961. 6	1034. 7	
HAWAII	165. 8	212. 9	268. 3	330. 0	407. 9	499. 5	608. 1	730. 7	1203. 3	1923. 5	2076. 3	
KOREA. R	705. 6	906. 7	1144. 5	1407. 6	1733. 6	2123. 7	2591. 5	3109. 4	5130. 9	8214. 2	8838. 6	
MALAYSIA	1134. 9	1458. 4	1840. 9	2264. 2	2788. 6	3416. 2	4168. 7	5001. 8	8253. 5	13213. 3	14217. 7	
PHILIPPINES	862. 1	1107. 8	1398. 3	1719. 8	2118. 2	2594. 9	3166. 4	3799. 2.	6269. 1	10036. 5	10799. 4	
S. ARABIA	518. 5	666. 3	841. 6	1034. 5	1273. 9	1560. 8	1904. 5	2285. 0	3370. 6	6036. 5	6495. 3	
SIUGAPORE	17497. 1	22483. 8	28380. 3	34906. 7	42990. 4	52666. 3	64266. 8	77109. 7	127238. 9	20371. 2	219186. 2	
THAILAND	451. 1	579. 6	731. 6	899. 8	1108. 3	1357. 6	1656. 7	1987. 8	3280. 1	5251. 2	5650. 4	

	1983	1984	1985	1986	1987	1988	1989	1990	1994	1999	2000	NOTE
TAIWAN	2184. 6	2807. 2	3543. 5	4358. 4	5367. 7	6575. 8	8024. 1	9627. 7	15886. 6	25433. 5	27366. 9	
BELGIUM	202. 7	260. 5	328. 8	404. 4	498. 0	610. 1	744. 5	893. 3	1474. 0	2359. 8	2539. 2	
SWISS	239. 2	307. 4	388. 0	477. 2	587. 8	720. 0	878. 7	1054. 5	1739. 5	2784. 9	2996. 6	
CANADA	438. 3	563. 2	710. 9	874. 4	1076. 9	1319. 3	1609. 9	1931. 6	3187. 3	5102. 7	5490. 6	
EGYPT			38. 0	46. 7	57. 5	70. 4	85. 9	103. 1	170. 2	272. 4	293. 1	
KENYA						32. 2	39. 3	47. 2	77. 8	124. 6	134. 0	
NIGERIA					33. 4	40. 9	50. 0	59. 9	98. 9	158. 3	170. 4	
TANZANIA										43. 1	46. 3	
ARGENTINA										104. 8	112. 7	
BRAZIL						71. 3	87. 1	104. 4	172. 3	275. 9	296. 8	
MEXICO							79. 7	95. 6	157. 8	252. 6	271. 8	
BAHRAIN						35. 5	43. 3	52 0	85. 8	137. 4	147. 8	
BANGLADASH										46. 6	50. 1	
BRUNEI					33. 4	40. 9	50. 0	59. 9	98. 9	158. 3	170. 4	
BURMA									48. 7	78. 0	83. 9	
FIJI									40. 0	64. 0	68. 9	
INDIA			504. 9	621. 0	764. 9	937. 0	1143. 4	1371. 9	2263. 8	3624. 2	3899. 7	
IRAN								34. 4	56. 7	90. 8	97. 7	

	1983	1984	1985	1986	1987	1988	1989	1990	1994	1999	2000	NOTE
IRAQ									32. 0	51. 2	55. 1	
N. CALEDONIA									32. 0	51. 2	55. 1	
N. ZEALAND			229. 0	281. 7	346. 9	425. 0	518. 6	622. 3	1026. 8	1643. 9	1768. 8	
PAKISTAN			51. 6	63. 4	78. 1	95. 7	116. 8	140. 1	231. 2	370. 2	398. 4	
P. N. GUINEA			59. 0	72. 6	89. 4	109. 6	133. 7	160. 4	264. 7	423. 8	456. 0	
SRILANKA			42. 7	52. 5	64. 6	79. 2	96. 6	115. 9	191. 3	306. 2	329. 5	
U A E			94. 6	116. 3	143. 2	175. 5	214. 1	256. 9	424. 0	678. 7	730. 3	
AUSTRIA			125. 4	154. 2	189. 9	232. 7	283. 9	340. 7	562. 1	899. 9	968. 3	
DENMARK			158. 8	195. 3	240. 5	294. 7	359. 6	431. 4	711. 9	1139. 8	1226. 4	
FINLAND							71. 3	85. 5	141. 1	225. 9	243. 0	
GREECE			138. 2	170. 0	209. 3	256. 5	312. 9	375. 5	619. 6	991. 9	1067. 3	
HUNGARIA											75. 2	
SWEDEN			165 0	202. 9	250. 0	306. 1	373. 5	448. 2	739. 6	1184. 0	1274. 0	
TURKEY										90. 8	97. 7	
USSR										46. 6	51. 1	
YUGOSLAVIA					36. 9	45. 2	55. 1	66. 1	109. 1	174 6	187. 9	

Telephone Traffic by Country and by gateway

Upper : Busy Hour Erlang
Lower: Annual Paid Minutes (thousands)

Circuit	Gateway	1983	1984	1985	1986	1987	1988	1989	1990	1991	1999	2000
Spain	Indonesia	2.41	3.07	3.82	4.71	5 78	7.06	8.54	10.08	16.24	25.52	27 49
	total	187 9	241 4	304.3	374.4	462.3	566	689.5	828.2	1364.6	2182.2	2353 8
	Jakarta						6 11	7.3	8.54	13.44	20 47	21.92
							492.4	593	704	1132.6	1756.7	1883
	Medan						0.96	1.24	1 54	2.8	5.04	5.57
							73 6	96.5	124.2	232	425 5	470 8
U.K.	Indonesia	24.88	31.2	38.38	47 28	57.92	70.58	85.16	100 33	161 81	254.17	273 68
	total	2233 9	2370 1	3529.9	4342.2	5356.5	6524.8	7953 6	9515	15686 5	25094 9	27042 4
	Jakarta			34.33	41.82	50 65	61.02	72 77	85.01	133 88	203 95	218.24
				3176.9	3864.6	4713 7	5676.6	6840.1	3087.7	13019.8	20201.4	21633 9
	Medan			4 05	5.46	7.27	9.56	12.39	15.32	27.94	50.22	55.45
				353	477 6	642.8	818.2	1113.5	1427.3	2666 7	4893.5	5408 5
Italy	Indonesia	8.9	11 31	14.05	17.16	20.73	25.11	30.35	35 84	57.33	90.04	97 07
	total	692.5	889.8	1120.2	1378.3	1671.5	2013.8	2450.6	2945.5	4816 3	7694	8312.8
	Jakarta			12 57	15 17	18 13	21.71	25.91	30.37	47 43	72.25	77.41
				1008 2	1226 7	1470.9	1752	2107.5	2503 7	3997.5	6193.7	6650.2
	Medan			1.48	1 98	2.6	3 4	4.42	5.47	9.9	17.79	19.67
				112	151.6	200.6	261.8	343.1	441.8	818 8	1500.3	1662.6
Australia	Indonesia	21.99	26.89	32.38	39.89	49	59 87	72 38	85 4	137.21	215.18	231.65
	total	2566.5	3298 1	3872.2	4763 4	5872.8	7193.2	8771.5	10528.8	17291.3	27625.5	29755.3
	Jakarta					42.85	51.76	61.85	72 36	113.52	172.66	184.72
						5168.1	6258.1	7543.5	8949.5	14351.8	22238.5	23804.2
	Medan					6.15	8.11	10.53	13 04	23 69	42 52	46.93
						704.7	935.1	1228	1579.3	2939.5	5387	5951.1

Circuit	Gateway	1983	1984	1985	1986	1987	1988	1989	1990	1994	1999	2000
West-germany	Indonesia	19.59	24.92	31	38.17	46.88	57.29	69.26	81.72	131.87	206.7	222.48
	total	1905.1	2448	3088.9	3799.4	4682.4	5735.4	6995 8	8396.2	13849.4	22118.6	23814.7
	Jakarta			27.73	33.76	41	49.53	59.19	69.25	109.11	165.86	177.41
				2780	3381.5	4120.5	4989.8	6016.4	7136.8	11495	17805.5	19051.8
	Medan			3 27	4.41	5 88	7.76	10.07	12.48	22.77	40.84	45 07
				308.9	417.9	561.9	745.6	979.4	1259.4	2354.4	4313 1	4762.9
Swiss	Indonesia	3 07	3.91	4.87	5.99	7.36	8.99	10.87	12.83	20.7	32.52	34.99
	total	239.2	307.4	388	477.2	587.8	720	878.7	1054.5	1739 5	2784.9	2996.6
	Jakarta					6.43	7.77	9.29	10.87	17 13	26.09	27.9
						517.3	626.4	755.7	896 3	1443 8	2241.8	2397.3
	Medan					0.92	1.22	1.58	1.96	3.57	6.43	7.09
						70.5	93.6	123	158.2	295.7	543.1	599.3
Canada	Indonesia	5.63	7.17	8.92	10.98	13 48	16.48	19.92	23.5	37.94	59.59	64.12
	total	438.3	563.2	710.9	874.4	1076.9	1319.3	1609.9	1931.6	3187.3	5102 7	5490.6
	Jakarta											
	Medan											
Malaysia	Indonesia	9.72	12.37	15.39	18.95	23 27	28 44	34.39	40.57	65.49	102.87	110.68
	total	1134.9	1458.4	1840 9	2264.2	2788.6	3416.2	4168.7	5001.8	8253.5	13213 3	14217 7
	Jakarta		11.19	13.77	16.76	20.35	24.69	29.39	34.38	54 19	82 54	88 26
			1327.1	1656.8	2015.1	2454	2972.1	3585 1	4251.5	6850.4	10636.7	11374 2
	Medan		1.18	1.62	2.19	2.92	3.85	5	6 19	11.31	20.33	22 42
			131.3	184.1	249.1	334.6	444.1	583 6	750.3	1403.1	2576.6	2843 5

Circuit	Gateway	1983	1984	1985	1986	1987	1988	1989	1990	1994	1999	2000
Philipp-ines	Indonesia	8 13	10.34	12.86	15.83	19 44	23.77	28.73	33.9	54.72	90.49	92.48
	total	862.1	1107.8	1398.3	1719.8	2118.2	2594.9	3166.4	3799 2	6269.1	11136 5	10799.4
	Jakarta		9 35	11.51	14	17	20.55	24.55	28 72	45.27	72.62	73.74
			1008.1	1258.5	1530 6	1864	2257.6	2723.1	3229.3	5203.4	8964.9	8639.5
	Medan		0.99	1.36	1 83	2 44	3 22	4.18	5 18	9.45	17 87	18.74
			99.7	139.8	189 2	254.2	337 3	443.3	569.9	1065.7	2171.6	2159.9
Saudi-arabia	Indonesia	5.33	6.79	8 44	10.39	12 76	15 59	18 85	22.24	35 9	56.39	60. 68
	total	518.5	666 3	841 6	1034.5	1273.9	1560 8	1904.5	2285	3770 6	6036.5	6495.3
	Jakarta			7.55	9.19	11.16	13 48	16 11	18 84	29.71	45 25	48 39
				757.4	920.7	1121	1357.9	1637.9	1942.2	3129 6	4859.4	5196.2
	Medan			0.89	1.2	1.6	2.11	2 74	3 4	6 2	11.14	12.29
				84.2	113.8	152 9	202 9	266.6	342.8	641	1177.1	1299.1
Singapore	Indonesia	149 93	190.74	237.33	292.11	358 71	438 5	530.16	625.46	1009.64	1585.83	1706 36
	total	17497.1	22483 8	28380.3	34906.7	42990.4	52666.3	64266.8	77109 7	127239	203701	219186
	Jakarta		172.51	212.28	258.37	313.69	379 08	453.05	529.96	835.34	1272.48	1360.67
			20460.3	25542.3	31067	37831.6	45819.7	55269 4	65543.2	105608	163980	175349
	Medan		18.23	25.04	33.74	45.02	59.42	77.11	95.5	174.3	313.35	345.69
			2023.5	2838	3839.7	5158.8	6846.6	8997.4	11566.5	21630 6	39721.7	43837.2
Thailand	Indonesia	5.02	6.39	7.95	9.79	12.02	14.69	17.77	20.96	33.84	53 15	57.18
	total	451.1	579.6	731.6	899.8	1108 3	1357 6	1656.7	1987.8	3280.1	5251.2	5650.4
	Jakarta		5 78	7.11	8 66	10.51	12.7	15.18	17.76	27.99	42.64	45.6
			527.4	658.4	800.8	975.3	1181.1	1424.8	1689 6	2722.5	4227.2	4520.3
	Medan		0 61	0.84	1.13	1.51	1.99	2 58	3.2	5.84	10.5	11.59
			52.2	73.2	99	133	176.5	231.9	298.2	557.6	1024	1130.1

Circuit	Gateway	1983	1984	1985	1986	1987	1988	1989	1990	1994	1999	2000
Taiwan	Indonesia	18 72	23. 82	29. 63	36. 47	44. 79	54. 75	66. 19	78. 09	126. 06	198	213. 05
	total	2184. 6	2807. 2	3543. 5	4358. 4	5367. 7	6575. 8	8024. 1	9627 7	15886. 6	25433. 5	27366. 9
	Jakarta		21. 54	26. 51	32. 26	39. 17	47. 33	56. 57	66. 17	104. 3	158. 88	169. 89
			2554. 6	3189. 1	3879	4723. 6	5720. 9	6900. 7	8183. 5	13185. 9	20474	21893 5
	Medan		2. 28	3. 13	4. 21	5. 62	7. 42	9 63	11. 92	21. 76	39. 12	43. 16
			252. 6	354. 4	479. 4	644. 1	854. 9	1123. 4	1444. 2	2700. 7	4959. 5	5473 4
Belgium	Indonesia	2. 61	3. 31	4. 12	5. 08	6. 23	7. 62	9. 21	10. 87	17. 54	27. 56	29. 65
	total	202. 7	260. 5	328. 8	404. 4	498	610. 1	744. 5	893 3	1474	2359. 8	2539. 2
	Jakarta						6. 59	7. 87	9. 21	14. 52	22. 11	23. 64
							530. 8	640. 3	759. 3	1223. 4	1899. 6	2031. 4
	Medan						1. 03	1. 34	1. 66	3. 03	5. 45	6 01
							79. 3	104. 2	134	250. 6	460. 2	507. 8
France	Indonesia	16 75	21. 29	26. 48	32. 64	40. 12	48 99	59. 22	69. 89	112. 66	176. 11	189. 73
	total	1303. 2	1674 7	2110. 4	2596. 4	3206. 5	3926 5	4782. 8	5744. 6	9465. 4	15061. 3	16247. 1
	Jakarta			23. 68	28. 87	35. 09	42. 35	50. 6	59. 22	93. 21	141. 31	151. 29
				1899. 4	2310 8	2821. 7	3416. 1	4113. 2	4882 9	7856. 3	12124. 3	12997. 7
	Medan			2. 79	3. 77	5. 04	6. 64	8. 61	10. 67	19. 45	34. 8	38. 44
				211	285. 6	384. 8	510 4	669. 6	861. 7	1609. 1	2937	3249. 4
U.S.A	Indonesia	47. 44	60. 34	75 07	92. 42	113 24	137. 84	166. 35	196 27	316. 77	497. 31	535. 17
	total	5535. 8	7113 6	8977. 5	11042. 4	13603. 2	16592 8	20164. 4	24196 8	39920. 8	63871. 2	68744. 1
	Jakarta											
	Medan											

Circuit	Gateway	1983	1984	1985	1986	1987	1988	1989	1990	1994	1999	2000
Japan	Indonesia	68	86 51	107. 64	132. 49	162.69	198 88	240. 45	283 67	457 53	718.27	772. 87
	total	7935 6	10197. 4	12871. 7	15831 8	19497. 9	23886. 4	29147. 8	34972. 5	57659. 6	92262. 7	99276. 3
	Jakarta		78. 24	96 28	117. 18	142. 27	171. 93	205. 48	240. 36	378. 54	576. 35	616. 29
			9279. 6	11584. 5	14090. 3	17158 2	20781. 2	25067. 1	29726 6	47857 5	74271. 5	79421
	Medan		8. 27	11. 36	15 3	20 42	26. 95	34. 97	43. 31	78 99	141. 92	156. 58
			917. 8	1287. 2	1741. 5	2339 7	3105 2	4080. 7	5245. 9	9802. 1	17991. 2	19855. 3
Hong-kong	Indonesia	34 23	41. 14	48 81	59. 96	73. 51	89. 85	108. 63	128 16	206 86	324. 92	349. 64
	total	3994. 7	5133 1	5836. 7	7178 9	8809. 5	10791 9	13167. 7	15800. 2	26069. 6	41732 8	44911. 5
	Jakarta		37. 22	43. 66	53. 03	64. 28	77. 67	92. 83	108. 59	171. 15	260 72	278 8
			4671, 1	5253	6389. 2	7752. 4	9389	11324. 2	13430 2	21637. 8	33594. 9	35929. 2
	Medan		3. 92	5. 15	6. 93	9. 23	12. 17	15 8	19. 57	35. 71	64. 2	70. 83
			462	583. 7	789. 7	1057. 1	1402. 9	1843. 5	2370	4431. 8	8137. 9	8982. 3
Netherlands	Indonesia	22. 45	28. 37	39. 73	48. 72	59. 65	72. 56	87. 39	103. 11	166 4	261. 0	280. 47
	total	2265 3	2010. 9	3393 4	4173. 9	5106. 2	6255	7566. 1	9079. 9	14978. 6	23974 4	25733. 7
	Jakarta			35. 54	43 09	52. 16	62. 73	74. 68	87. 37	137 67	209. 4	223 65
				3054. 1	3714. 8	4493. 5	5441. 9	6506 8	7717. 9	12432. 2	19299 4	20587
	Medan			4. 19	5. 63	7. 49	9. 83	12. 71	15 74	28 73	51. 6	56. 82
				339. 3	459. 1	612. 7	813. 1	1059. 3	1362	2546. 4	4675. 0	5146. 7
Norway	Indonesia	3. 52	2. 75	1. 72	2. 12	2. 6	3. 14	3. 75	4. 43	7. 15	11. 23	12. 08
	total	274. 1	352. 3	137. 2	168. 7	207. 7	254 4	303. 4	364	600. 7	961. 6	1034. 7
	Jakarta									5. 92	9 01	9. 64
										498. 6	774. 1	827 8
	Medan									1. 23	2. 22	2 45
										102 1	187. 5	206. 9

Circuit	Gateway	1983	1984	1985	1986	1987	1988	1989	1990	1994	1999	2000
Hawaii	Indonesia	2.13	2.71	3 37	4.15	5.1	6.23	7. 53	8. 89	14 32	22. 5	24.25
	total	165. 8	212. 9	268. 3	330	407. 9	499. 5	608. 1	730. 7	1203. 3	1923. 5	2076. 3
	Jakarta											
	Medan											
Korea Rep	Indonesia	6. 05	7. 69	9. 57	11. 78	14. 46	17. 68	21. 38	25. 22	40. 71	63. 95	68. 81
	total	705. 6	906. 7	1144. 5	1407. 6	1733. 6	2123. 7	2591. 5	3109. 4	5130. 9	8214. 2	8838. 6
	Jakarta											
	Medan											
Egypt	Indonesia			0. 41	0. 51	0. 62	0. 76	0. 92	1. 09	1. 76	2. 76	2. 97
	total			38	46 7	57. 5	70. 4	85. 9	103. 1	170. 2	272. 4	293. 1
	Jakarta										2. 21	2 37
											219. 3	234. 5
	Medan										0. 54	0. 6
											53. 1	58 6
India	Indonesia			4. 22	5 2	6. 38	7. 8	9. 43	11. 13	17. 96	28. 21	30 36
	total			504. 9	621	764. 9	937	1143. 4	1371. 9	2263. 8	3624. 2	3899 7
	Jakarta			3. 78	4. 6	5. 58	6. 74	8 06	9 43	14. 86	22. 64	24. 21
				454. 4	552. 7	673. 1	815. 2	983. 3	1166 1	1879	2917 5	3119. 8
	Medan			0. 45	0. 6	0. 8	1. 06	1. 37	1. 7	3. 1	5. 57	6. 15
				50. 5	68. 3	91. 8	121. 8	160 1	205 8	384. 8	706 7	779. 9

Circuit	Gateway	1983	1984	1985	1986	1987	1988	1989	1990	1994	1999	2000
New Zealand	Indonesia total			2.49 229	3 06 281.7	3 76 346 9	4.6 425	5.56 518 6	6.56 622.3	10.59 1026.8	16.64 1643.9	17.9 1768.8
	Jakarta					3.29 305.3	3.98 369.8	4.75 446	5.56 529	8.76 852.2	13.35 1323.3	14.27 1415
	Medan					0 47 41.6	0.62 55.2	0.81 72.6	1 93 3	1 83 174.6	3 29 320.6	3.63 353.8
Pakistan	Indonesia total			0.43 51.6	0.53 63 4	0 65 78.1	0.8 95.7	0 96 116 8	1.14 140 1	1 83 231.2	2 88 370.2	3.1 398 4
	Jakarta										2.31 298	2.47 318.7
	Medan										0 57 72 2	0.63 79.7
Papua New Guinea	Indonesia total			0.64 59	0.79 72.6	0.97 89 4	1.19 109 6	1 43 133 7	1.69 160.4	2.73 264 7	4.29 423.8	4 61 456
	Jakarta										3 44 341.2	3.68 364.8
	Medan										0.85 82.6	0.94 91.2
Sri Lanka	Indonesia total			0.36 42.7	0.44 52.5	0.54 64.6	0.66 79.2	0.8 96.6	0.94 115.9	1.52 191.3	2 38 306.2	2.57 329.5
	Jakarta									1.26 158.8	1.91 246.5	2.05 263.6
	Medan									0.26 32 5	0.47 59.7	0.52 65.9

Circuit	Gateway	1983	1984	1985	1986	1987	1988	1989	1990	1994	1999	2000
U・A・E	Indonesia			1.03	1.27	1.55	1.9	2.3	2.71	4.37	6.87	7.39
	total			94.6	116.3	143.2	175.5	214.1	256 9	424	678.7	730.3
	Jakarta							1.96	2.3	3.62	5 51	5.89
								184.1	218.4	351.9	546.4	584 2
	Medan							0.33	0.41	0.76	1.36	1.5
								30	38 5	72.1	132.3	146.1
Austria	Indonesia			1.57	1.94	2.38	2.91	3.51	4.15	6.69	10.51	11.31
	total			125.4	154 2	189.9	232.7	283.9	340.7	562 1	899.9	968.3
	Jakarta									5.54	8 43	9.02
										466.5	724.4	774.6
	Medan									1.16	2.08	2.29
										95.6	175.5	193.7
Denmark	Indonesia			1 99	2.45	3 01	3.68	4.45	5.25	8.47	13.31	14.32
	total			158.8	195 3	240.5	294.7	359.6	431.4	711.9	1139.8	1226.4
	Jakarta									7.01	10.68	11.42
										590.9	917 5	981.1
	Medan									1.46	2.63	2.9
										121	222.3	245.3
Greece	Indonesia			1.73	2.13	2.62	3 2	3 87	4.57	7.37	11.58	12.46
	total			138 2	170	209.3	256.5	312.9	375 5	619 6	991.9	1067.3
	Jakarta									6 1	9.29	9.91
										514.3	798.5	853 8
	Medan									1.27	2.29	2.53
										105.3	193.4	213.5

Circuit	Gateway	1983	1984	1985	1986	1987	1988	1989	1990	1994	1999	2000
Sweden	Indonesia total			2.07 165	2.55 202.9	3.13 250	3.82 306.1	4.62 373.5	5.45 448.2	8.8 739.6	13 83 1184	14.88 1274
	Jakarta									7. 28 613 9	11.09 953 1	11.86 1019.2
	Medan									1. 52 125 7	2 73 230.9	3.01 254 8
Nigeria	Indonesia total					0. 12 33 4	0. 51 40. 9	0 62 50	0. 73 59. 9	1. 18 98.9	1 85 158. 3	1 99 170 4
	Jakarta											
	Medan											
Brunei	Indonesia total					0. 28 33.4	0 34 40. 9	0. 41 50	0 49 59 9	0 78 98.9	1. 23 158. 3	1. 33 170. 4
	Jakarta					0 24 29. 4	0. 29 35 6	0. 35 43	0. 41 50 9	0. 65 82. 1	0. 99 127. 4	1 06 136 3
	Medan					0. 03 4	0 05 5. 3	0. 06 7	0. 07 9	0. 14 16. 8	0. 24 30. 9	0. 27 34. 1
Yugoslavia	Indonesia total					0. 46 36. 9	0. 56 45. 2	0. 68 55. 1	0. 8 66. 1	1. 3 109 1	2. 04 174. 6	2. 19 187. 9
	Jakarta											
	Medan											

Circuit	Gateway	1983	1984	1985	1986	1987	1988	1989	1990	1994	1999	2000
Brazil	Indonesia						0.89	1.08	1.27	2.05	3 22	3.47
	total						71.3	87.1	104 4	172.3	275.9	296.8
	Jakarta											
	Medan											
Kenya	Indonesia						0 35	0.42	0.5	0.8	1.26	1.36
	total						32.2	39.3	47.2	77.8	124.6	134
	Jakarta											
	Medan											
Bahrain	Indonesia						0.38	0.46	0.55	0.89	1.39	1.5
	total						35.5	43.3	52	85 8	137.4	147.8
	Jakarta											
	Medan											
Mexico	Indonesia							0.99	1.16	1.88	2.95	3.17
	total							79.7	95.6	157 8	252.6	271.8
	Jakarta											
	Medan											

Circuit	Gateway	1983	1984	1985	1986	1987	1988	1989	1990	1994	1999	2000
Finland	Indonesia total							0 88 71.3	1.04 85.5	1.68 141.1	2.64 225.9	2.84 243
	Jakarta											
	Medan											
Iran	Indonesia total								0. 36 34. 4	0. 58 56 7	0. 92 90. 8	0. 99 97 7
	Jakarta											
	Medan											
Burma	Indonesia total									0. 39 48. 7	0. 61 78	0. 65 83. 9
	Jakarta											
	Medan											
Fiji	Indonesia total									0. 41 40	0 65 64	0. 7 68 9
	Jakarta											
	Medan											

Circuit	Gateway	1983	1984	1985	1986	1987	1988	1989	1990	1994	1999	2000
Iraq	Indonesia total									0.33 32	0.52 51.2	0.56 55.1
	Jakarta											
	Medan											
New Caledonia	Indonesia total									0.33 32	0.52 51.2	0.56 55.1
	Jakarta											
	Medan											
Tanzania	Indonesia total										0.44 43.1	0.47 46.3
	Jakarta											
	Medan											
Algentina	Indonesia total										1.22 104.8	1 32 112 7
	Jakarta											
	Medan											

Circuit	Gateway	1983	1984	1985	1986	1987	1988	1989	1990	1994	1999	2000
Bangladesh	Indonesia total										0 36 46 6	0.39 50.1
	Jakarta											
	Medan											
Turkey	Indonesia total										0.85 90.8	0.91 97.7
	Jakarta											
	Medan											
USSR	Indonesia total										0 55 46 6	0.6 51 1
	Jakarta											
	Medan											
Hungary	Indonesia total										0.42 0	0.88 75.2
	Jakarta											
	Medan											