ANNEX 5-6

Future Telephone Demand (2044) in Jakarta Multi-Exchange Area

ANNEX 5-6 Future Telephone Demand (2044) in Jakarta Multi-Exchange Area

No.	Ex. Name	Telephone Demand (x 1,000)			
		1994	1999	2004	2044
1	KT1	16	19	22	60
2	KT2	47	61	78	175
3	KT3	55	63	72	176
4	PLT	37	46	52	150
5	CKG	27	39	55	144
6	ANC	22	37	55	210
7	TGA	5	7	10	68
8	GB1	54	58	60	200
9	GB2	42	59	80	240
10	SLP	34	48	65	180
11	SM1	31	47	64	200
12	SM2	44	71	96	176
13	PLM	33	49	68	170
14	KED	14	25	39	125
15	MER	8	17	28	95
16	CPP	33	48	66	150
17	RMG	38	54	67	150
18	KGD	20	29	37	
19	KGP	3	3	3	100
20	PGG	10	21	41	147
21	TPR	18	28	39	120
22	CIL	7	14	25	80
23	KB	42	52	65	210
24	KBB	14	26	42	60
25	CDG	3	6	10	20
26	CPE	29	40	54	125
27	CNE	11	17	18	30
28	CPA	9	16	25	104

No.	Ex. Name	Telephone Demand (x 1,000)			
		1994	1999	2004	2044
29	KL1	25	39	56	170
30	KL2	9	14	20	64
31	PSM	12	18	26	60
32	JAG	3	6	10	29
33	SER	5	12	20	50
34	SRU	4	9	15	40
35	SRB	3	7	13	30
36	JT1				
	JT2	37	52	70	200
37	CW	12	19	28	108
38	PSR	11	21	35	140
39	KLD	11	23	37	90
40	PDK	7	14	22	50
41	TB	28	41	59	130
42	GAN	6	12	19	100
43	PDG	7	13	21	60
44	BEK	4	8	12	40
45	BKB	13	22	33	110
46	BGG	5	9	15	50
47	CL	4	8	13	40
48	TAN	20	36	55	180
49	JIA	3	3	4	10
50	JUG	2	4	7	20
51	CPD	2	4	6	20
52	DEP	8	14	20	70
53	SKJ	11	17	26	80
54	CIB	3	5	7	20
55	SWG	4	7	12	40

ANNEX 7-1

Summary of Typical User Application and Technical Comparison among Data Transmission Services (CCITT GAS 11 Handbook)

Summary of typical user applications

Type of user application/service	Leased circuit	PSTN	CSPDN	PSPDN	ISDN
Teletex	–	Yes	Yes	Yes	Yes
Videotex	–	Yes	–	Yes	Yes
Facsimile	Yes	Yes	Yes	Yes	Yes
Message handling system	Yes	–	Yes	Yes	Yes
Electronic funds transfer	Yes	Yes	Yes	Yes	Yes
Computer time sharing	Yes	Yes	Yes	Yes	Yes
Database access	–	Yes	Yes	Yes	Yes
File transfer	Yes	–	Yes	–	Yes
Teleconferencing	Yes	–	Yes	–	Yes
Non CCITT standard protocols					
Typical manufacturer's network architecture	Yes	Yes	Yes	Yes	Yes
ISO basic mode	Yes	Yes	Yes	Yes [a)]	–

[a)] With appropriate PAD.

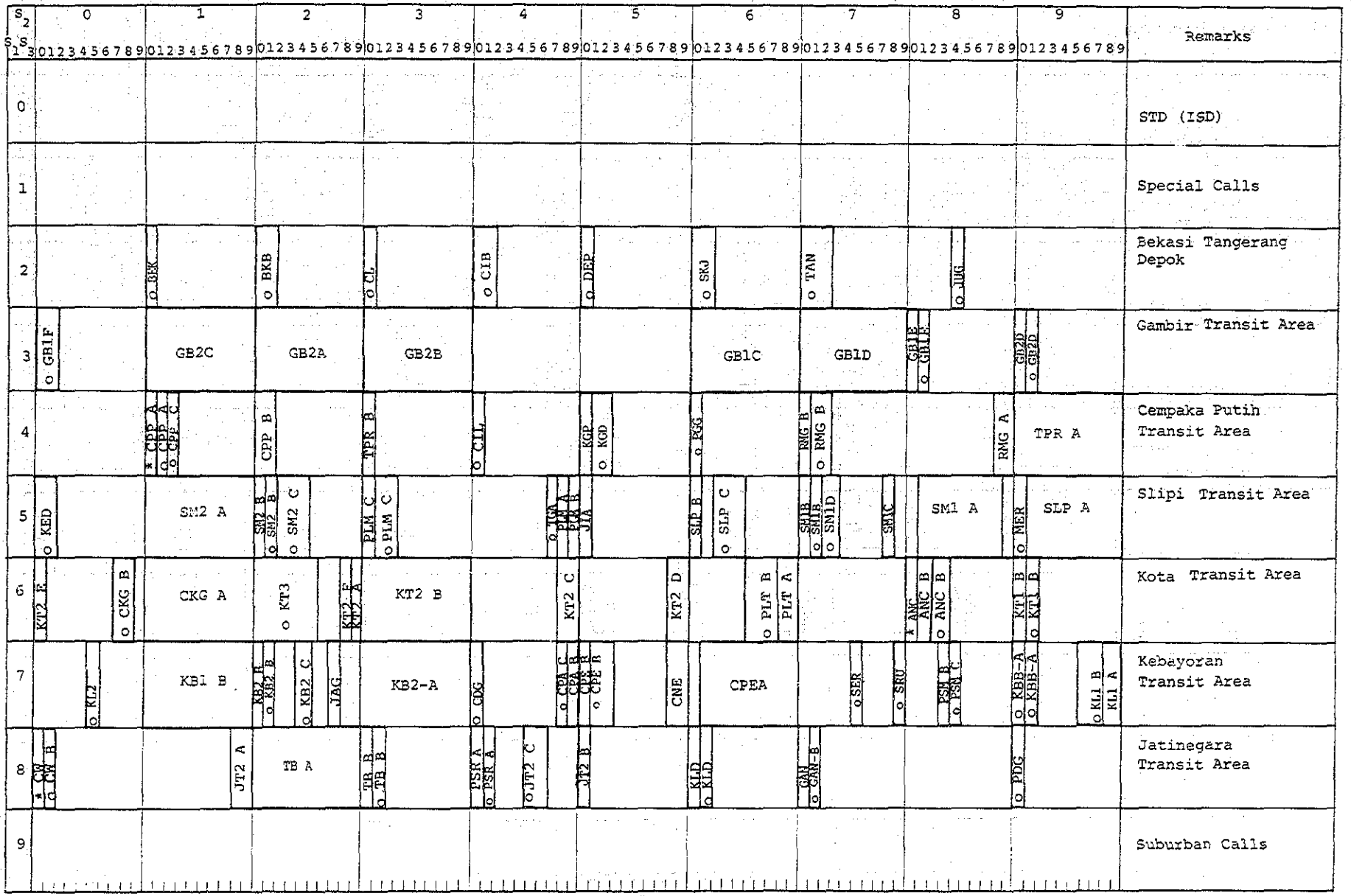
Summary of criteria for application

Item	Leased circuit	PSTN	CSPDN	PSPDN	ISDN
Transmission error rate	Low	High	Low	Low	Low
Connection	Point-to-point	Switched	Switched	Switched	Switched
Transmission system	Analog/Digital	Analog/Digital	Digital	Analog/Digital	Digital
Transmission speed	Low to high	Up to 9600 bit/s for analog	Up to 48 kbit/s	Up to 48 kbit/s	Up to 64 kbit/s
Traffic volume of data	Large volume, long duration	Small volume, short duration	Large volume, long duration	Small volume, short or long duration	Any
Format/speed conversion	No	No	No	Yes	Yes
Call set-up time	Not applicable	Long	Medium	Medium	Medium
Cost effective distance	Short	Short to medium	Short to medium	Medium to long	Medium
OSI network layer service	Not supported	Not supported	Supported	Fully supported	Fully supported
Protocol standardization requirement	Layer 1	Call control procedure Layers 1-3	Call control procedure Layers 1-3	Call control and data transfer procedure Layers 1-3	Refer to all other networks

ANNEX 8-1

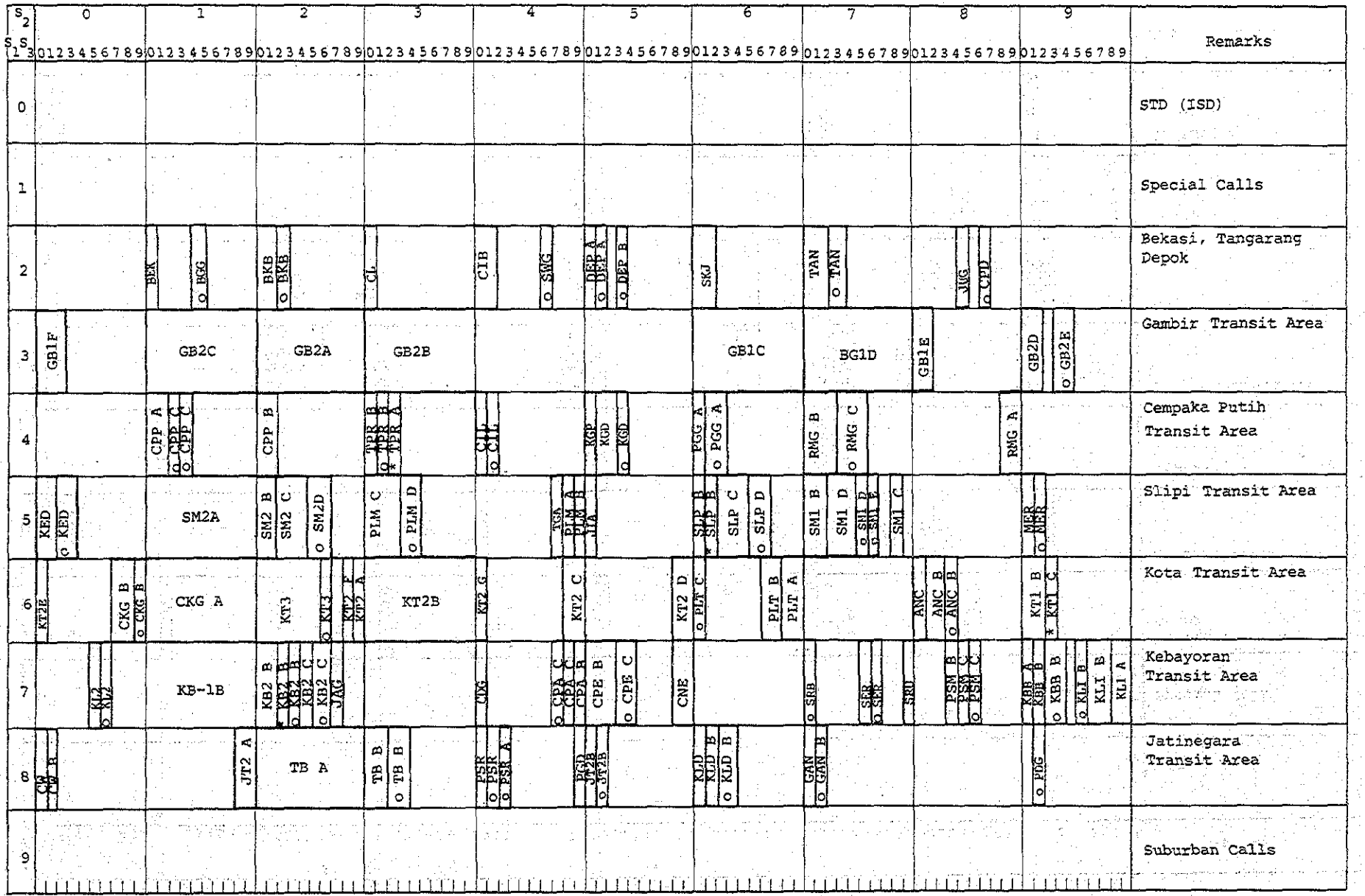
Proposed Numbering Plan in Jakarta Multi-Exchange Area

ANNEX 8-1 Proposed Numbering Plan in Jakarta Multi-Exchange Area (1/3)
(as of the End of Repelita V)



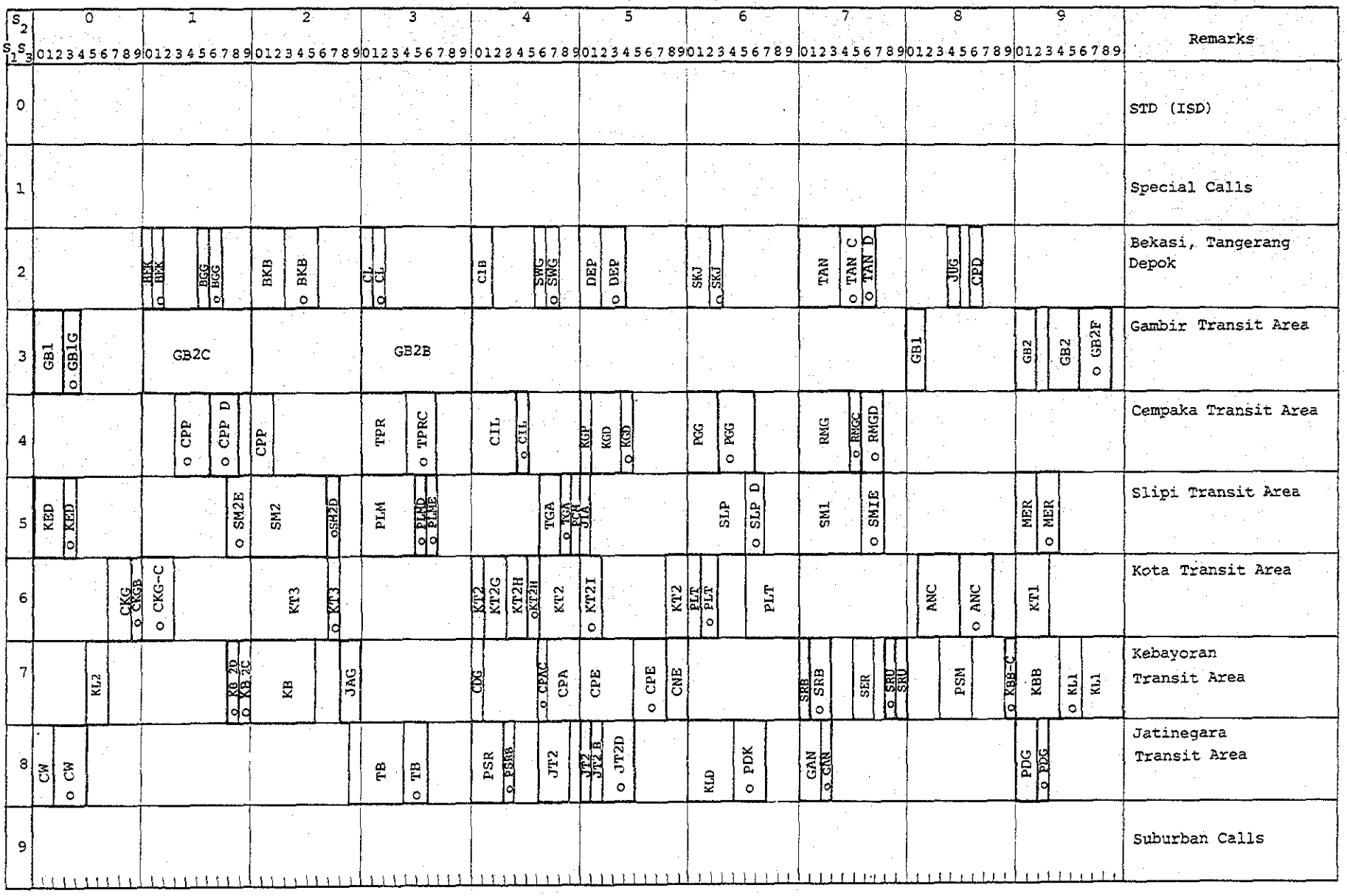
Note: * New allocation (should be rearranged) 2 exchange codes
o New allocation 50 exchange codes

ANNEX 8-1 Proposed Numbering Plan in Jakarta Multi-Exchange Area (2/3)
(as of the End of Repelita VI)



Note: * New allocation (should be rearranged) 3 exchange codes
o New allocation 42 exchange codes

ANNEX 8-1 Proposed Numbering Plan in Jakarta Multi-Exchange Area (3/3)
(as of the End of Repelita VII)

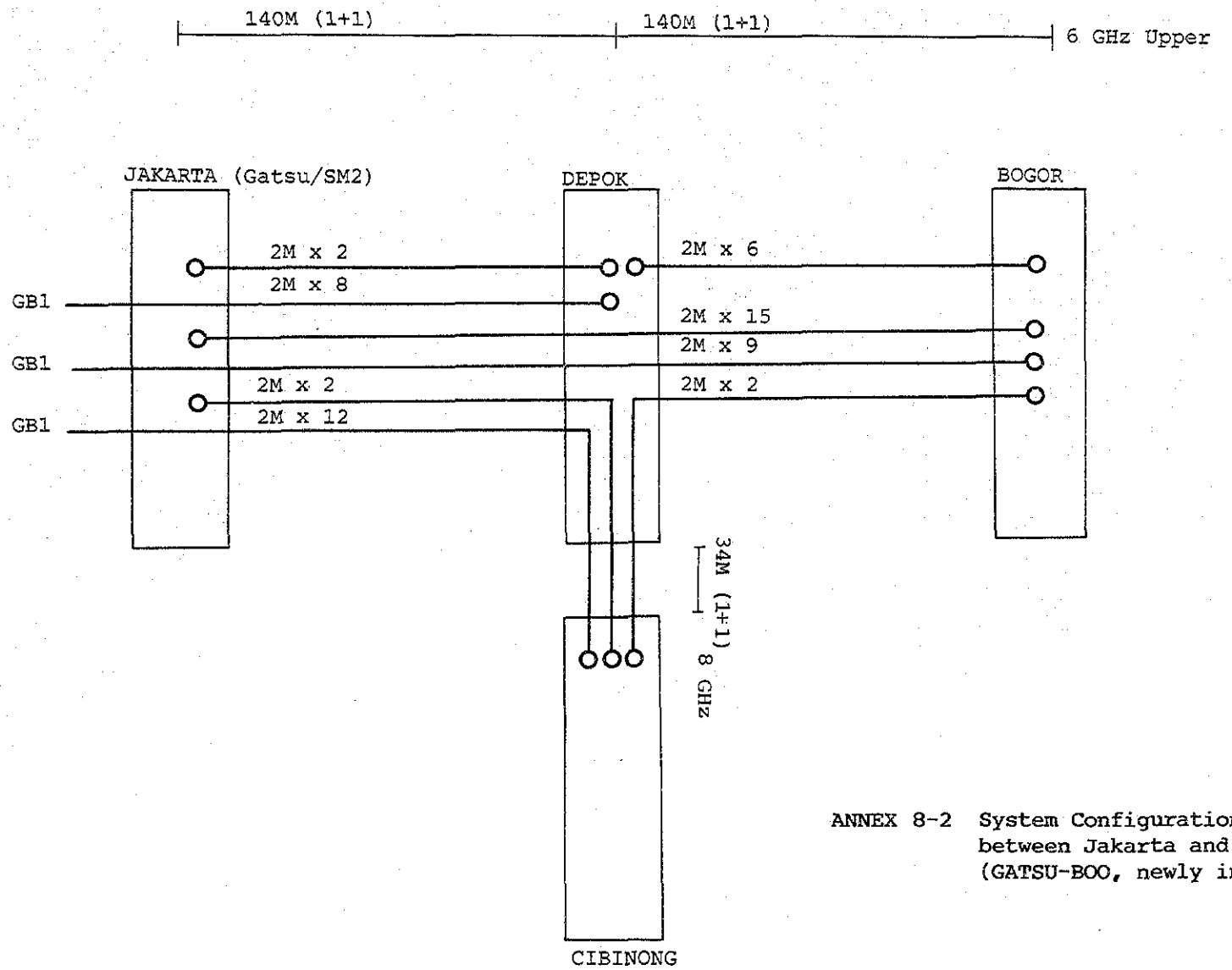


Note: * New allocation (should be rearranged) 2 exchange codes
o New allocation 50 exchange codes

ANNEX 8-2

System Configuration of Trunk Circuits between

Jakarta and Bogor (GATSU-BOO, newly installed.)



ANNEX 8-2 System Configuration of Trunk Circuits between Jakarta and Bogor (GATSU-BOO, newly installed.)

ANNEX 8-3

Switch Expansibility

ANNEX 8-3 Switch Expansibility (1/2)

No.	Ex. Name	Existing Capacity (x 1,000) Total	An	Di	L.U. Increment in Repelita (x 1,000) V-A	V-D	VI-A	VI-D	VII-A	VII-D	SW Room Status V	VI	VII	Additional Requirement(m²) V	VI	VII	Remarks
1	KT1	19.8	10.0	9.8	-10.0	6.2	0	2.9	0	2.9	◎	◎	◎				Around half sub. of EMD be transfered to KT2.
2	KT2	52.6	46.6	6.0	0	0	0	7.9	-31.0	48.0	◎	◎	△			9‡12	Storage room (1st floor) be used.
3	KT3	0	0	0	0	54.9	0	8.0	0	8.9	▲	◎	◎	27‡15			
4	PLT	11.5	11.5	0	0	25.9	0	8.4	-11.5	17.7	△	▲	◎	6‡15	9‡15		Antenna tower be removed during Repelita VI.
5	CKG	7.9	7.9	0	2.1	16.5	0	12.4	-10.0	26.1	◎	◎	▲			6‡15	
6	ANC	8.7	8.7	0	1.5	11.7	0	14.6	-10.2	28.5	◎	◎	▲			6‡15	
7	GB1	47.4	36.4	11.0	-20.0	26.7	0	3.4	-16.4	18.9	△	◎	◎	16‡12			4th floor of SKKL Building be used.
8	GB2	23.6	23.6	0	0	18.0	0	17.6	-8.2	29.2	△	◎	▲	170		8‡15	Administrative Building be used.
9	SLP	24.0	7.5	16.5	-7.5	17.1	0	14.0	0	17.3	△	◎	◎	6‡17			EMD be replaced during Repelita V.
10	SM1	14.8	10.1	4.7	-7.0	22.7	0	16.6	0	16.9	△	◎	◎	6‡15			EMD be replaced during Repelita V using Adm. Bldg.
11	SM2	23.2	8.4	14.8	0	21.0	0	26.8	-8.4	33.4	▲	◎	◎	24‡15			
12	PLM	17.0	13.1	3.9	0	16.3	0	15.9	-7.7	26.0	◎	▲	◎		9‡15		
13	KED	0	0	0	0	13.8	0	11.2	0	14.0	◎	▲	◎		9‡15		
14	MER	0	0	0	0	8.2	0	8.9	0	11.0	◎	◎	▲			6‡12	
15	TGA	0	0	0	0	5.3	0	2.1	0	2.8	◎	◎	◎				
16	JIA	1.8	0	1.8	0	0.7	0	0.5	0	0.5	◎	◎	◎				
17	CPP	23.2	10.2	13.0	0	9.5	0	15.0	-10.2	28.3	▲	◎	◎	12‡15			
18	RMG	20.3	12.3	8.0	0	17.3	0	16.4	-12.3	25.7	◎	▲	◎		12‡15		
19	KGD	0	0	0	0	19.8	0	9.2	0	7.6	◎	◎	◎				
20	KGP	3.0	0	3.0	0	0	0	0	0	0	◎	◎	◎				Non L.U. expansion.
21	PGG	0	0	0	0	9.8	0	11.1	0	20.5	◎	◎	▲			9‡15	
22	TPR	9.2	9.2	0	0	8.8	0	9.5	-9.2	20.7	◎	◎	▲			9‡15	
23	CIL	0	0	0	0	7.0	0	7.0	0	11.0	◎	◎	▲			6‡12	
24	KB	26.4	21.4	5.0	-4.0	19.2	0	10.5	-8.2	21.3	◎	◎	◎				1st and 2nd floor in Building II.
25	KBB	0	0	0	5.1	9.1	0	11.8	0	16.0	◎	◎	▲			3‡10	PRX:container type.
26	CDG	0	0	0	0	2.8	0	2.9	0	3.8	▲	◎	◎	6‡12			SSP112
27	CPE	15.7	8.4	7.3	0	12.9	0	11.6	-8.4	22.2	◎	◎	▲			6‡15	
28	CNE	0	0	0	0	11.4	0	5.6	0	1.3	▲	◎	◎	9‡15			
29	CPA	3.5	3.5	0	-0.5	6.0	0	7.0	0	9.0	◎	◎	◎				EMD be replaced during Repelita V.
30	KL1	13.8	13.8	0	0	11.1	0	14.5	-13.8	30.8	◎	◎	▲			6‡15	Additional space be reserved in Repelita V.
31	KL2	0	0	0	0	8.8	0	4.7	0	6.3	▲	◎	◎	9‡15			
32	PSM	6.8	6.8	0	1.4	3.8	0	6.4	0	7.8	◎	◎	◎				EMD sub. be cut-over to PRX during Repelita V.
33	JAG	0.2	0	0.2	0	2.5	0	2.9	0	4.4	◎	◎	◎				
34	SER	0	0	0	1.0	4.4	0	6.2	0	8.7	▲	◎	◎	9‡15			PRX:container type.
35	SRU	0	0	0	0	4.2	0	4.5	0	6.3	▲	◎	◎	6‡15			
36	SKB	0	0	0	0	0	0	7.2	0	5.4		▲	◎		6‡15		
37	JT1	4.5	2.0	2.5	-2.0	-2.5	0	0	0	0							Covered by JT2.
38	JT2	18.8	10.3	8.5	0	18.2	0	14.8	-10.2	28.4	◎	◎	◎				
39	CW	6.1	6.1	0	3.1	3.0	0	6.7	-9.2	17.8	◎	◎	◎				
40	PSR	3.9	0	3.9	0	6.9	0	9.7	0	14.4	◎	◎	◎				
41	KLD	3.3	0	3.3	0	15.2	0	17.9	0	1.0	◎	◎	◎				
42	PDK	0	0	0	0	0	0	0	0	21.8			▲			12‡12	
43	TB	13.1	13.1	0	0	14.5	0	13.4	-13.1	30.6	◎	◎	▲			6‡15	
44	GAN	1.0	1.0	0	-1.0	6.2	0	5.3	0	7.4	◎	◎	▲			6‡12	First system:SSP112.
45	PDG	0	0	0	0	6.8	0	6.2	0	8.1	▲	◎	◎	9‡15			
46	BEK	2.0	2.0	0	-3.0	5.4	0	3.2	0	4.0	◎	◎	◎				EMD be replaced during Repelita V.
47	BKB	0	0	0	0	12.6	0	9.0	0	11.1	▲	◎	◎	12‡15			
48	BGG	0	0	0	0	0	0	9.4	0	5.5		▲	◎		6‡15		
49	CL	0	0	0	0	4.3	0	3.9	0	5.2	▲	◎	◎	6‡15			
50	TAN	4.0	4.0	0	-4.0	20.3	0	15.2	0	19.1	◎	◎	▲			9‡15	EMD be replaced during Repelita V.
51	JUG	0	0	0	0	1.7	0	2.1	0	2.8	▲	◎	◎	6‡9			SSP112
52	CPD	0	0	0	0	0	0	4.1	0	2.3		▲	◎		6‡9		SSP112
53	DEP	2.0	0	2.0	0	6.1	0	5.5	0	6.7	◎	△	◎		5‡9		Recreation room be used. Second system:SSP112.
54	SKJ	0	0	0	0	10.5	0	6.9	0	8.3	▲	◎	◎	9‡15			
55	CIB	1.5	1.5	0	1.8	1.8	0	1.8	0	2.1	▲	◎	◎	6‡9			SSP112
56	SWG	0	0	0	0	0	0	7.1	0	4.6		▲	◎		6‡12		SSP112

◎ : Available using existing dedicated room space without modification
△ : Available using additional room with modification
▲ : Available with additional building construction

ANNEX 8-3 Switch Expansibility (2/2)

No.	Ex. Name	Existing Capacity (x 1,000) Total	An	Di	L.U. Increment in Repelita (x 1,000) V-A	V-D	VI-A	VI-D	VII-A	VII-D	SW Room Status V	VI	VII	Additional Requirement(㎡) V	VI	VII	Remarks
57	CK	0	0	0	0	8.8	0	9.7	0	13.3	▲	◎	◎	12‡15			
58	STN	0	0	0	0	0	0	0	0	4.3			▲			6‡9	SSP112
59	SRG	0	0	0	0	0	0	0	0	2.4			▲			6‡9	SSP112
60	JGL	0	0	0	0	0	0	0	0	6.6			▲			6‡9	SSP112
61	CKP	0	0	0	0	1.4	0	1.7	0	2.3	▲	◎	◎	6‡9			SSP112
62	TGS	0	0	0	0	0	0	6.0	0	4.6		▲	◎		6‡12		SSP112
63	PSK	0	0	0	0	0	0	4.8	0	3.3		▲	◎		6‡12		SSP112
64	BLJ	0	0	0	0	0	0	0	0	6.0			▲			6‡9	SSP112
65	CUG	0	0	0	0	0	0	0	0	6.1			▲			6‡9	SSP112
66	PPG	0	0	0	0	0	0	0	0	5.3			▲			6‡9	SSP112
67	BOO	14.0	10.0	4.0	0	17.9	0	18.8	-10.0	31.6	◎	▲	◎		12‡15		
68	CWI	0	0	0	0	3.2	0	1.7	0	2.0	▲	◎	◎	6‡9			SSP112
69	CAA	0.07	0.07	0	-0.07	3.0	0	1.8	0	2.1	▲	◎	◎	6‡9			SSP112
70	SPL	0	0	0	0	0	0	0	0	5.6			▲			6‡9	SSP112
71	CSA	1.0	1.0	0	-1.0	2.4	0	1.3	0	1.6	▲	◎	◎	6‡9			SSP112
72	LWL	0.06	0.06	0	0	0	-0.06	5.8	0	3.1		▲	◎		6‡12		SSP112
73	JSG	0.05	0.05	0	0	0	-0.05	3.1	0	2.2		▲	◎		6‡9		SSP112

◎ : Available using existing dedicated room space without modification
△ : Available using additional room with modification
▲ : Available with additional building construction

ANNEX 8-4

MDF/Cable Vault Expansibility

ANNEX 8-4 MDF/Cable Vault Expansibility (1/2)

No.	Ex. Name	Existing MDF Room Capacity (No. of Verticals) Used	Non-Used	Without Modifi.	With Modifi.	Capa. Total	Expansion Plan (X 1,000 pairs) Rep. V	Rep. VI	Rep. VII	MDF Room Status Rep. V	Rep. VI	Rep. VII	Additional MDF Requirement (V) Rep. V	Rep. VI	Rep. VII	Total	Additional Room Requirement(m²) Rep. V	Rep. VI	Rep. VII	Remarks
1	KT1	183	12	25	0	220	7.0	0	0.2	◎	◎	◎	0	0	0	0				
2	KT2	92	40	28	0	160	23.6	6.0	23.2	◎	◎	◎	0	0	0	0				
3	KT3					0	80.6	4.2	10.0	▲	◎	◎	101	5	13	119	6*15			
4	PLT	37	0	0	37	74	29.0	9.9	7.5	○	◎	▲	0	12	9	21			4.5*9	Modified by PMC O/T
5	CKG	14	7	25	45	91	33.7	18.0	19.2	○	◎	◎	0	0	12	12				
6	ANC	11	10	30	56	107	29.2	22.1	25.4	◎	○	◎	0	0	0	0				
7	GB1	318	23	42	0	383	-16.5	1.0	2.5	◎	◎	◎	0	0	0	0				
8	GB2	81	5	0	50	136	19.9	24.4	26.4	○	◎	▲	0	1	33	34			6*9	Administrative Buil. be used
9	SLP	82	32	14	0	128	24.3	15.8	23.6	◎	◎	▲	0	5	29	34			6*9	
10	SM1	87	9	33	0	129	35.9	21.2	19.3	◎	○	◎	3	27	24	54				Rearangement of old MDF Room
11	SM2	25	32	36	93	186	76.8	19.8	28.3	○	◎	◎	0	0	0	0				Modified by PMC O/T
12	PLM	34	12	0	45	91	30.6	20.0	22.1	○	◎	▲	0	7	27	34			6*9	Modified by PMC O/T
13	KED			55	15	70	25.8	16.3	17.0	◎	◎	○	0	0	4	4				
14	MER			55	15	70	16.4	13.0	13.6	◎	◎	◎	0	0	0	0				
15	TGA			55	15	70	8.2	3.2	4.3	◎	◎	◎	0	0	0	0				
16	JIA					0	0	0	0	◎	◎	◎	0	0	0	0				
17	CPP	52	20	0	0	72	28.8	18.0	25.9	△	◎	▲	40	0	31	71			4.5*9	Expanded by PMC O/T
18	RMG	46	16	35	0	97	24.8	22.1	14.3	◎	◎	▲	0	8	18	26			4.5*9	
19	KGD	15	0	36	51	102	26.9	10.2	6.1	◎	○	◎	0	0	0	0				
20	KGP	5	0	0	0	5	0	0	0	◎	◎	◎	0	0	0	0				
21	PGG			55	15	70	19.3	20.6	38.4	◎	◎	▲	0	0	28	28			4.5*9	
22	TPR	56	9	0	45	110	3.2	13.4	16.2	◎	○	◎	0	0	0	0				
23	CIL			55	15	70	8.9	11.9	15.3	◎	◎	◎	0	0	0	0				
24	KB	154	45	0	0	199	12.4	16.5	17.0	◎	◎	△	0	0	13	13			2*18	
25	KBB			47	0	47	28.8	15.4	21.1	◎	◎	▲	0	9	28	35			6*9	
26	COG					0	5.3	4.5	5.6	▲	◎	◎	7	6	7	20	4.5*9			
27	CPE	25	16	0	45	86	30.0	16.1	18.2	○	◎	▲	0	0	20	20			4.5*9	Modified by PMC O/T
28	CNE					0	20.6	1.4	1.7	▲	◎	◎	26	2	2	30	4.5*9			
29	CPA	25	0	125	0	150	12.7	10.5	12.4	◎	◎	◎	0	0	0	0				
30	KL1	20	11	0	115	146	32.2	17.3	23.5	○	◎	◎	0	0	0	0				Modified by PMC O/T
31	KL2					0	15.7	5.8	8.3	▲	◎	◎	20	7	11	38	6*9			
32	PSM	16	26	23	0	65	14.8	9.1	10.3	◎	◎	◎	0	0	0	0				
33	JAG	6	8	39	15	68	1.2	4.7	6.8	◎	◎	◎	0	0	0	0				
34	SER			40	0	40	11.0	9.8	13.0	◎	◎	◎	0	0	3	3				
35	SRU					0	8.4	6.9	9.7	▲	◎	◎	11	9	12	32	4.5*9			
36	SRB					0	0	12.9	6.4		▲	◎	0	17	8	25		4.5*9		
37	JT1					0	-5.2	0	0				0	0	0	0				
38	JT2	54	18	82	0	154	40.8	15.0	24.1	◎	◎	◎	0	0	0	0				
39	CW	11	5	28	45	89	18.4	4.7	12.6	◎	◎	○	0	0	0	0				
40	PSR	10	42	0	52	104	14.7	16.4	22.6	◎	◎	○	0	0	0	0				
41	KLD	22	16	7	107	152	18.3	26.3	0	◎	○	◎	0	0	0	0				
42	PDK					0	0	0	35.3			▲	0	0	45	45			6*9	
43	TB	27	23	0	80	130	34.2	12.6	25.1	○	◎	◎	0	0	0	0				
44	GAN	9	6	21	14	50	9.0	8.7	12.8	◎	◎	○	0	0	0	0				
45	PDG					0	12.8	9.5	12.4	▲	◎	◎	16	12	18	44	6*9			
46	BEK	13	0	37	0	50	4.6	4.5	6.0	◎	◎	◎	0	0	0	0				
47	BKB					0	22.3	12.6	15.8	▲	◎	◎	28	16	20	64	6*9			
48	BOG					0	0	15.8	8.1		▲	◎	0	20	10	30		4.5*9		
49	CL					0	8.5	5.5	7.5	▲	◎	◎	11	7	9	27	4.5*9			
50	TAN	19	6	23	48	96	26.1	22.0	25.5	○	◎	▲	0	0	15	15			4.5*6	
51	JUG					0	3.8	3.0	3.7	▲	◎	◎	5	4	5	14	4.5*6			
52	CPD					0	0	6.8	3.1		▲	◎	0	9	4	13		4.5*6		
53	DEP	3	6	24	14	47	11.8	7.5	10.3	◎	◎	○	0	0	0	0				
54	SKJ					0	17.8	10.0	12.2	▲	◎	◎	23	12	15	50	6*9			
55	C18	2	9	0	0	11	5.7	2.5	2.8	◎	◎	▲	0	2	3	5			4.5*6	Add. space be reserved during Rep.V
56	SWG					0	0	12.3	5.5		▲	◎	0	16	7	23		4.5*9		

◎ : Available using existing room space without modification
○ : Available using existing room space with modification
△ : Available using additional room with modification
▲ : Available with additional building construction

ANNEX 8-4 MDF/Cable Vault Expansibility (2/2)

No.	Ex. Name	Existing MDF Room Capacity (No. of Verticals)					Expansion Plan (X 1,000 pairs)			MDF Room Status			Additional MDF Requirement (V)				Additional Room Requirement(㎡)			Remarks
		Used	Non-Used	Without Modifi.	With Modifi.	Capa. Total	Rep. V	Rep. VI	Rep. VII	Rep. V	Rep. VI	Rep. VII	Rep. V	Rep. VI	Rep. VII	Total	Rep. V	Rep. VI	Rep. VII	
57	CK					0	17.8	14.7	18.8	▲	◎	◎	23	18	24	65	8‡9			
58	STN					0	0	0	8.2			▲	0	0	11	11			4.5‡6	
59	SRG					0	0	0	4.0			▲	0	0	5	5			4.5‡6	
60	JGL					0	0	0	10.4			▲	0	0	13	13			4.5‡6	
61	CKP					0	2.9	2.8	3.1	▲	◎	◎	4	4	3	11	4.5‡6			
62	TGS					0	0	11.0	5.9		▲	◎	0	14	8	22		4.5‡9		
63	PSK					0	0	8.5	4.0		△	◎	0	11	5	16		4.5‡6		
64	BLJ					0	0	0	9.8			▲	0	0	13	13			4.5‡6	
65	CUG					0	0	0	10.0			▲	0	0	13	13			4.5‡6	
66	PPG					0	0	0	8.5			▲	0	0	11	11			4.5‡6	
67	BOO	13	3		50	66	37.6	25.3	29.8	○	△	◎	0	26	37	63		3‡12		
68	CWI					0	5.0	2.5	1.3	▲	◎	◎	7	3	1	11	4.5‡6			
69	CAA					0	5.0	2.5	1.3	▲	◎	◎	7	3	1	11	4.5‡6			
70	SPL					0	0	0	8.7			▲	0	0	11	11			4.5‡6	
71	CSA	4	3		12	19	1.7	2.2	1.5	◎	○	◎	0	0	0	0				MDF spase be reserved during Rep.V
72	LWL					0	0	9.9	2.6		▲	◎	0	13	3	16		4.5‡6		
73	JSG					0	0	5.5	3.2		▲	◎	0	7	4	11		4.5‡6		

◎ : Available using existing room space without modification
○ : Available using existing room space with modification
△ : Available using additional room with modification
▲ : Available with additional building construction

ANNEX 8-5

Transmission System Expansibility

ANNEX 8-5 Transmission System Expansibility (1/2)

No.	Ex. Name	Expansion No. of 140M Rep.V	Rep.VI	Rep.VII	Floor Capa. (㎡)	Existing Space (㎡)	Expan. Space (㎡)	Existing Space (%)	Expan. Space (%)	PCM Room Status Rep.V	Rep.VI	Rep.VII	Additional Requirement(㎡) Rep.V	Rep.VI	Rep.VII	Remarks
1	KT1	0	0	2	60	29	31	48	52	◎	◎	◎				
2	KT2	10	2	9	48	48	0	100	0	△	◎	◎	6‡12			Expansion to Staff Room.
3	KT3	7	0	2	New	0	New	0	100	▲	◎	◎	6‡6			
4	PLT	0	0	2	37	12	25	33	67	◎	◎	◎				
5	CKG	3	1	5	39	20	19	51	49	◎	◎	◎				
6	ANC	2	0	1	76	8	68	11	89	◎	◎	◎				
7	GB1	2	1	16	164	164	0	100	0	△	◎	◎	6‡12			Expansion to Staff Room.
8	GB2	0	0	1	107	35	72	33	67	◎	◎	◎				
9	SLP	3	5	15	34	34	0	100	0	△	◎	◎	6‡9			Expansion to Staff Room.
10	SM1	0	2	3	35	35	0	100	0	◎	◎	△			6‡12	Expansion to Office Use Building.
11	SM2	4	4	12	116	116	0	100	0	▲	◎	◎	6‡9			Expansion to New Building.
12	PLM	1	2	5	40	13	27	32	68	◎	◎	◎				
13	KED	1	0	2	12	7	5	59	41	△	◎	◎	3‡6			Expansion to Staff Room.
14	MER	0	0	2	14	0	14	0	100	◎	◎	◎				
15	TGA	0	0	1	24	0	24	0	100	◎	◎	◎				
16	JIA	0	0	0	55	0	55	0	100	◎	◎	◎				
17	CPP	1	3	13	101	62	38	62	38	◎	◎	◎				
18	RMG	0	0	2	37	17	20	47	53	◎	◎	◎				
19	KGD	1	1	0	76	8	67	11	89	◎	◎	◎				
20	KGP	0	0	0				100	0	◎	◎	◎				Cable PCM
21	PGG	0	2	2	15	0	15	0	100	◎	◎	◎				
22	TPR	1	0	1	37	23	14	63	37	◎	◎	◎				
23	CJL	0	0	0	15	0	15	0	100	◎	◎	◎				
24	KB	7	12	23	85	85	0	100	0	△	◎	◎	6‡9			Expansion to Staff Room.
25	KBB	1	1	2	39	8	31	20	80	◎	◎	◎				
26	CDG	1	0	0	New	0	New	0	100	▲	◎	◎	6‡6			
27	CPE	2	5	6	37	13	24	35	65	◎	◎	◎				
28	CNE	1	1	0	New	0	New	0	100	▲	◎	◎	6‡6			
29	CPA	1	1	5	34	12	23	34	66	◎	◎	◎				
30	KL1	2	4	8	38	38	0	100	0	▲	◎	◎	6‡9			Expansion to New Building.
31	KL2	1	0	1	New	0	New	0	100	▲	◎	◎	6‡6			
32	PSM	0	1	3	34	12	22	34	66	◎	◎	◎				
33	JAG	0	1	3	12	6	6	53	47	◎	◎	△			3‡3	Expansion to Staff Room.
34	SER	2	2	3	39	8	31	20	80	◎	◎	◎				
35	SRU	1	0	0	New	0	New	0	100	▲	◎	◎	6‡6			
36	SRB	0	1	0	New	0	New	0	100		▲	◎		6‡6		
37	JT1	0	0	0				100	0							
38	JT2	3	15	14	53	53	0	100	0	△	◎	◎	6‡9			Expansion to Staff Room.
39	CW	0	6	4	55	18	37	33	67	◎	◎	◎				
40	PSR	1	4	3	38	13	25	34	66	◎	◎	◎				
41	KLD	8	8	4	34	8	26	23	77	◎	◎	◎				
42	PDK	0	0	2	New	0	New					▲			6‡6	
43	TB	0	3	1	47	17	30	36	64	◎	◎	◎				
44	GAN	0	0	2	22	9	12	44	56	◎	◎	◎				
45	PDG	1	1	0	New	0	New	0	100	▲	◎	◎	6‡6			
46	BEK	6	5	0	15	15	0	100	0	◎	△	◎		3‡6		Expansion to Staff Room.
47	BKB	2	2	0	New	0	New	0	100	▲	◎	◎	6‡6			
48	BGG	0	1	0	New	0	New	0	100		▲	◎		6‡6		
49	CL	1	1	1	New	0	New	0	100	▲	◎	◎	6‡6			
50	TAN	4	2	3	18	7	11	38	62	◎	◎	△			6‡6	Expansion to Staff Room.
51	JUG	1	0	0	New	0	New	0	100	▲	◎	◎	6‡6			
52	CPD	0	1	0	New	0	New	0	100		▲	◎		6‡6		
53	DEP	3	5	2	48	16	32	34	66	◎	◎	◎				
54	SKJ	1	1	1	New	0	New	0	100	▲	◎	◎	6‡6			
55	CIB	0	2	0	0	0	0	100	0	▲	◎	◎	6‡6			Expansion to Staff Room.
56	SVG	0	1	1	New	0	New	0	100		▲	◎		6‡6		

◎ : Available using existing dedicated room space without modificatio▲ : Available with additional building construction
△ : Available using additional room with modification

ANNEX 8-5 Transmission System Expansibility (2/2)

No.	Ex. Name	Expansion No. of 140M Rep.V	Rep.VI	Rep.VII	Floor Capa. (㎡)	Existing Space (㎡)	Expan. Space (㎡)	Existing Space (%)	Expan. Space (%)	PCM Room Status Rep.V	Rep.VI	Rep.VII	Additional Requirement(㎡) Rep.V	Rep.VI	Rep.VII	Remarks
57	CK	1	2	3	New	0	New	0	100	▲	◎	◎	6‡6			
58	STN	0	0	1	New	0	New	0	100			▲			6‡6	
59	SRG	0	0	1	New	0	New	0	100			▲			6‡6	
60	JGL	0	0	1	New	0	New	0	100			▲			6‡6	
61	CKP	1	2	3	New	0	New	0	100	▲	◎	◎	6‡6			
62	TGS	0	1	1	New	0	New	0	100		▲	◎		6‡6		
63	PSK	0	1	1	New	0	New	0	100		▲	◎		6‡6		
64	BLJ	0	0	1	New	0	New	0	100			▲			6‡6	
65	CUG	0	0	1	New	0	New	0	100			▲			6‡6	
66	PPG	0	0	1	New	0	New	0	100			▲			6‡6	
67	BOO	3	3	3	38	38	0	100	0	△	◎	◎	6‡6			Expansion to Staff Room.
68	CWI	2	2	2	New	0	New	0	0	▲	◎	◎	6‡6			
69	CAA	1	2	2	0	0	0	0	100	▲	◎	◎	6‡6			
70	SPL	0	0	1	New	0	New	0	100			▲			6‡6	
71	CSA	1	1	1	0	0	0	0	100	▲	◎	◎	6‡6			
72	LWL	0	1	1	0	0	0	0	100		▲	◎		6‡6		
73	JSG	0	1	1	0	0	0	0	100		▲	◎		6‡6		

◎ : Available using existing dedicated room space without modif
△ : Available using additional room with modification
▲ : Available with additional building construction

ANNEX 9-1

"Build, Operate and Transfer (BOT)" Approach

ANNEX 9-1 "Build, Operate and Transfer (BOT)" Approach

This annex presents background, examples, institutional relationship and the pros and cons of BOT approach in general based on examples in other countries and sectors other than the telecommunications sector.

1. Definition and Background

BOT stands for "Build, Operate and Transfer." The idea originally came from Prime Minister Ozal of Turkey in promoting a nuclear power plant in 1985. Since then, the idea draw worldwide attention and attempts have been made to apply the idea to a number of types of infrastructure projects.

By BOT method, private investors, either foreign or domestic, establish a joint-venture (J/V) corporation with the government. This J/V corporation constructs project facilities and takes responsibility in operating the project during an agreed period of time. After it recovers investment costs and gains sufficient profits, the ownership of the project will be transferred from the J/V corporation to the government.

The background factors that gave birth to the BOT concept are as follows:

a) Government can be relieved from bearing a large amount of investment cost, while it is able to meet growing demands for infrastructure facilities. This point is the most significant advantage for governments of developing countries suffering from the shortage of development fund.

b) Developing country governments are coming to recognize that management by private investor would lead to more efficient operation of the project and transfer of technology will also be enhanced.

c) BOT is in line with the worldwide trend of privatization. The World Bank and IMF are emphasizing the enhanced role of market economy through privatization.

2. Examples of BOT

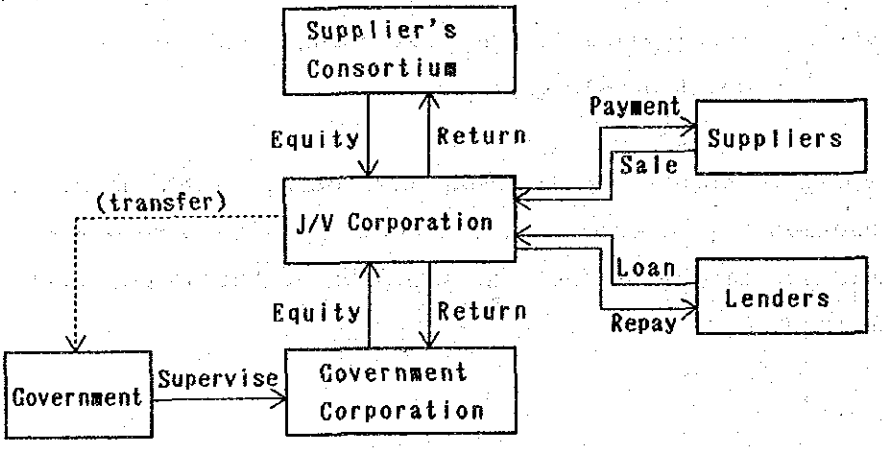
A number of types of projects have been planned and negotiated to be implemented by BOT method worldwide including the following:

- thermal power plant;
- tollroad;
- industrial estate;
- airport terminal;
- bridge;
- tunnel;
- subway;
- steel mill, etc.

A common characteristics of these types of projects is that they are fairly independent of other related facilities and operation and management on their own are possible. For these types of projects, it is easy for investors to calculate revenues attributable to the project and judge financial attractiveness of the project.

3. Institutional Relationship of BOT Project

The following chart presents a typical institutional relationship of BOT approach.



A corporation is locally established in the form of joint-venture firm of private sector and the government. J/V corporation will be responsible for the implementation and operation of the project. Suppliers consortium and the responsible government office or corporation take an equity stake that is equivalent to a certain portion of the total investment costs of the project. The rest of the required fund will be raised by J/V corporation from lenders. Materials and equipment for the project are purchased from suppliers. During an agreed number of years, the J/V corporation recovers the investment cost and gains sufficient profits. When the contracted period is over, the ownership of project facilities is transferred from the J/V corporation to the government. Operation of the project thereafter will be in the hands of the government.

4. The Pros and Cons of BOT Project

As a new type of financing infrastructure projects, BOT presents a number of advantages as well as involves certain kinds of elements to be solved. The pros and cons of BOT are presented hereunder.

(1) The Cons

a) By BOT method, a project with need and high priority could be implemented even under the tight financial and budgetary conditions of the government.

b) Since a project is promoted on a private basis, efficiency will be enhanced both at the implementation and operation stages. The period necessary for implementation is likely to be shortened. Manpower required for operation could also be reduced by BOT method.

c) Efficiency is expected to be increased in terms of investment cost as well. In the case of an industrial estate in Thailand, investment cost is expected to be saved by 20 to 30 percent by applying BOT method.

(2) The Cons

a) Since the private sector plays the major role in the case of BOT, project needs to be attractive enough for potential investors. To enhance the financial attractiveness of the project, provision of guarantee and certain measures in a number of items needs to be considered such as:

- guarantee of repatriation of profits;
- tax exemption for raw materials and equipment;
- measure to cover foreign exchange risk;
- prohibition of development of competitive project; and
- guarantee of no expropriation of project facilities.

b) A conflict might arise in determining tariff level. From the investor's viewpoint, tariff level should be high enough such that sufficient amount of revenues to cover investment cost plus profits will be generated. From the government's viewpoint, on the contrary, tariff level, for public services especially, should be limited so as not to place excessive burden on beneficiaries. Tariff level should, therefore, be set at an appropriate level taking into consideration these two views, which often conflict each other.

c) The legal basis of the BOT approach is complex. The legal aspects should be cleared for such matters as government and supplier relation, transfer of ownership, etc.

ANNEX 9-2

Experience of Subscriber Bond in Japan

ANNEX 9-2 Experience of Subscriber Bond in Japan

1. Background and History

Due to the devastation caused by World War II, the number of telephone subscribers in Japan fell to 540,000 in 1946 from the pre-war peak of 1,080,000. This level was roughly equivalent to 0.6 subscriber per 100 people. In the past war period, economic and social activities were seriously hampered by the shortage of telephone. To trigger and accelerate the economic growth in those years, there was an urgent need to improve the telecommunications services, particularly telephone. As an effort to raise fund to meet growing demand for telephone, the system of subscriber bond was introduced in 1949. After some modifications, the system was maintained under "the Law for Temporary Measures for the Charge of Cost of Telephone Installation" between 1951 and 1960 and "the Expansion Law and Compulsory Purchase of Subscriber Bond (hereinafter referred to as "the Expansion Law") between 1960 and 1982.

2. System

The subscriber bonds is a kind of privately offered bonds, not offered to general public. Under the Expansion Law, an applicant for telephone subscription was compelled to purchase the subscriber bonds. A person who has made an application for subscription contract purchases a subscriber's bond when he is notified of the acceptance of his application. In case a person who has made an application for telephone subscription fails to subscribe for a bond, acceptance of application loses its validity.

Since 1960, price of the bonds ranged between 150,000 yen and 10,000 yen per subscriber with an average price of about 100,000 yen per subscriber. Differential price level was set depending on the area where a subscriber lives, the size of the exchange area and the type of subscriber. The basis for charging higher prices for the subscribers in larger cities and exchange areas with a larger number of subscribers are the value of service concept and cost-bearing ability. Those

subscribers living in large cities, which are most of the cases exchange areas with more subscribers, enjoy greater benefits from telephone installation. Besides these subscriber's affordability is generally higher than that of rural population.

In 1960 when the Expansion Law became effective, the construction cost of telecommunications facilities was about 210,000 yen per subscriber. About 110,000 yen or 50% was estimated to be met by internal fund and bonds offered to the public. The rest of 100,000 yen was raised by subscriber bond.

3. Types and Conditions

Two types of subscriber bonds were being issued: coupon bonds and discount bonds. Coupon bonds are bonds whose interest is paid at a fixed date each year in exchange for a coupon. Discount bonds are bonds which are issued for a price fixed by deducting the amount equivalent to its interest to maturity from its face value and whose face value is redeemed at the maturity date.

Bond issuance conditions for the two types of the bonds were as follows between 1953 and 1973.

Conditions of Bonds

Type	Yield to Maturity(%)[1/]	Term to Maturity (year)
Coupon Bond	between 6.5 and 7.4	10
Discount Bond	between 6.5 and 7.38	between 9 3/4 and 11

1/ equivalent to interest rate

4. Amount of Fund Raised by Subscriber Bond

The actual amount of fund raised by subscriber bond is as follows.

Fund Raising Performance of NTT[1/]

5-Year Plan	Period	Fund Raised Total	External	Internal	(Subscriber Bond)
		(in billion yen)			
1	1953 - 57	304	104	200	(39)
2	1958 - 62	795	277	518	(193)
3	1963 - 67	1,959	941	1,018	(629)
4	1968 - 72	4,535	2,349	2,186	(1,459)
5	1973 - 77	9,180	5,333	3,847	(1,886)
6	1978 - 80	6,744	2,217	4,527	(826)
	Total	23,517	11,221	12,295	(5,031)
		(% distribution)			
1	1953 - 57	100.0	34.3	65.7	(12.9)
2	1958 - 62	100.0	34.9	65.1	(24.2)
3	1963 - 67	100.0	48.0	52.0	(32.1)
4	1968 - 72	100.0	51.8	48.2	(32.2)
5	1973 - 77	100.0	58.1	41.9	(20.5)
6	1978 - 80	100.0	32.9	67.1	(12.2)
	Total	100.0	47.7	52.3	(21.4)

1/ NTT: Nippon Telegraph and Telephone Public Corporation[2/]

Fund raised by subscriber bond accounted for 21 percent of the total fund raised between 1953 and 1980. Its peak was during the 4th Five Year Plan Period (1968 to 1972) accounting for 32 percent of the total fund raised. Since then, the proportion declined. The system itself was abolished in 1982 at the expiration of the Expansion Law.

2/ privatized in 1985