11.2 Projects for UPTC Management Improvement

Proposed projects for UPTC management improvement during the master plan period are listed in Table 11-2-1.

Table 11-2-1 Projects for UPTC Management Improvement

No.	Project Title	Location	Phase
1	Billing System Modernization Project	Kampala ASCs	1
2	Management Modernization Project (Customer Service, Training Center, Maintenance Center, Headquarter OA)	Kampala	1
3	Subscriber Management System Expansion	GSCs EOs	2
4	Maintenance Center Modernization Project	ASCs	2

11.3 Costs for Project Implementation

11.3.1 Case Study of Investment Cost

The investment costs for 19 example counties were estimated as shown in Table 11-3-1 and Table 11-3-2. By using these figures, the regression models were developed to estimate investment costs for all counties. The results are shown in Table 11-3-3.

11.3.2 Investment Cost for All Counties

Based on the regression model relating to telephone/100 sq.km, the investment costs were estimated for all counties as shown in Table 11-3-4 through Table 11-3-7.

Considering the costs of the recently completed projects and additional management projects, the investment costs during the master plan period are summarized in Table 11-3-8.

Table 11-3-1 Investment Costs in Example Counties (1/2)

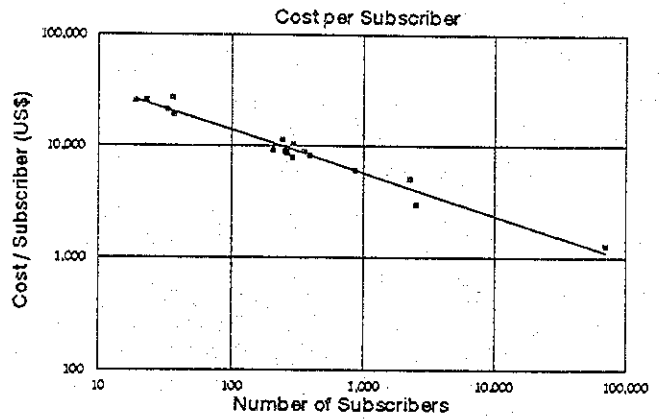
			Sample No.	1	2	3	4	5	6	7	8	9	10
			County	Kampala MEA	Mukono-Buikwe	Kasese-Busongora	Apac-Oyam	Luwero-Nakaseke	Tororo-Bunyole	Mpigi-Butambala	Mpigi-Mawokota	Soroti-Kaberamaido	Soroti-Serere
			Area (sq km)	262.5	1,337.5	1,687.5	2,037.5	3,225.0	650.0	475.0	1,069.0	737.5	800.0
			Demand	78,424	2,828	3,183	779	483	368	327	1,728	524	572
			Subs.	70,582	2,262	2,546	390	242	37	33	864	262	286
			LU	91,700	2,900	3,100	500	250	40	40	1,500	300	300
			pairs(+DSubs)	119,300	3,700	3,900	590	250	40	40	1,570	300	300
			Subs/sq km	268.88	1.69	1.35	0.19	0.08	0.06	0.08	1.40	0.41	0.38
	Items	Description	Unit										
1	Land	-400 Subs.					2	4	1	1	1	1	1
2		400-1,000 Subs.			1								
3		1,000-2,000 Subs.		8	4	1					1		
4	Building	-400 Subs.					2	4	1	1	1	1	1
5		400-1,000 Subs.			1								
6		1,000-2,000 Subs.		8	4	1					1		
7	MSU	Basic	Unit	9									
8		Subs. Unit	LU	91,700									
9	RLU	Basic	Unit		4	1	1				2		
10		Subs. Unit	LU		2,900	3,100	500				1,500		
11	Subs. Cable	- 500 pars	par				500				100		
12		500-2,000	pair		3,500						1,400		
		2000 - 5000	pair			3,400							
13		5000 pairs -	pair	119,300									
14	Junction	Equipments	Section	7	4								
15	(Fiber)	Civil & Cable	km	35	45								
16	Junction	Terminal(1+1,Both)	Sta.										
	(Radio)	Terminal(1+1,One)	Sta.				2				2		
17	(8/17Mbps)	Repeater(1+1)	Sta.										
18	DMARS	Base Sta.	Sta.		1	1	1				1		
19		Repeater	Sta.				1	4	1	1	1	1	1
20		Subs. Unit (5 Subs.)	Subs.						40	40	70		
21		Subs. Unit (10 Subs.	Subs.		200	500	90	250				300	300
22	Trunk Link (Radio)	20 % of Above Cost											
23	Engineering	7% of Above Cost											
24	Total	(US$)		89,862,024	11,499,504	7,585,872	3,220,272	2,747,760	716,472	716,472	5,186,076	2,272,680	2,272,680
25	Cost per LU	(US$)		980	3,965	2,447	6,441	10,991	17,912	17,912	3,457	7,576	7,576
	Cost per Subs.	(US$)		1,273	5,084	2,980	8,257	11,354	19,364	21,711	6,002	8,674	7,946

Table 11-3-2 Investment Costs in Example Counties (2/2)

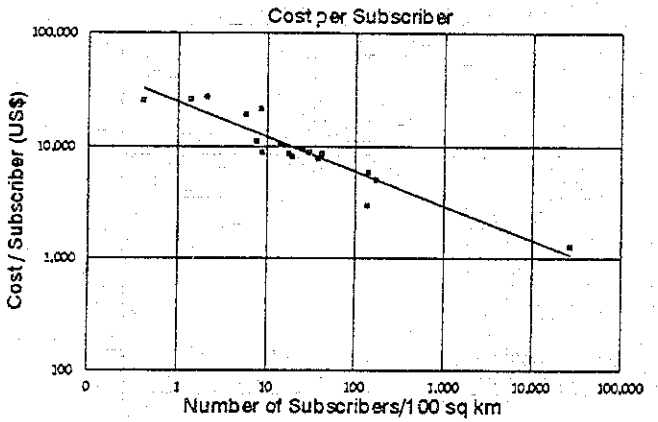
			Sample No.	11	12	13	14	15	16	17	18	19
			County	Soroti-Usuk	Arua-Koboko	Arua-Madi-Okoll	Moroto-Bokora	Moroto-Kadam	Rukungiri-Kinkizi	Kabarole-Mwenge	Kabarole-Burahya	Kibale-Buyaga
			Area (sq km)	2,287.5	712.5	1,900.0	4,850.0	2,187.5	1,200.0	2,175.0	1,700.0	1,350.0
			Demand	412	510	362	187	226	528	585	516	715
			Subs.	206	255	36	19	23	264	293	258	357
			LU	200	300	40	20	30	300	300	300	400
			pairs	200	300	40	20	30	300	300	300	400
			LU/sq km	0.09	0.42	0.02	0.00	0.01	0.25	0.14	0.18	0.30
	Items	Description	Unit									
1	Land	-400 Subs.		2	1	2	1	1	2	4	1	
2		400-1,000 Subs.										
3		1,000-2,000 Subs.										
4	Building	-400 Subs.		2	1	2	1	1	2	4	1	
5		400-1,000 Subs.										
6		1,000-2,000 Subs.										
7	MSU	Basic	Unit									
8		Subs. Unit	line									
9	RLU	Basic	Unit									
10		Subs. Unit	line									
11	Subs. Cable	- 500 pairs	pair									
12		500-2,000	pair									
		2000-5000	pair									
13		5000 pairs -	pair									
14	Junction	Equipments	Section									
15	(Fiber)	Civil & Cable	km									
16	Junction	Terminal(1+1,Both)	Sta.									
	(Radio)	Terminal(1+1,One)	Sta.									
17	(8/17Mbps)	Repeater(1+1)	Sta.									
18	DMARS	Base Sta.	Sta.									
19		Repeater	Sta.	2	1	2	1	1	2	4	1	2
20		Subs. Unit (5 Subs.)	Subs.			40	20	30				
21		Subs. Unit (10 Subs.	Subs.	200	300				300	300	300	400
22	Trunk Link	20 % of Above Cost										
	(Radio)											
23	Engineering	7 % of Above Cost										
24	Total	(US$)		1,874,640	2,272,680	986,112	493,056	604,764	2,542,320	3,081,600	2,272,680	3,210,000
25	Cost per LU	(US$)		9,373	7,576	24,653	24,653	20,159	8,474	10,272	7,576	8,025
	(Cost per Subs)			9,100	8,912	27,392	25,950	26,294	9,630	10,517	8,809	8,992

Table 11-3-3 Regression Model for Investment Costs

Regression 1 Log(Subs)&Log(Cost/Subs)



Regression 2 Log(Subs/100sqkm)&Log(Cost/Subs)



No.	From the above tables: Subs	Subs /100sqkm (10 x 10 km)	Cost/Subs (US$)	Log(Subs)	Log (Subs /100sqkm)	Log (Cost/Subs)	Using Regression Formula: Cost / LU Reg1 (Cost) (US$)	Reg2 (Cost) (US$)
1	70,582	26,888.4	1,273	4.85	4.43	3.10	1,109	1,064
2	2,262	169.1	5,084	3.35	2.23	3.71	4,192	5,119
3	2,546	134.9	2,980	3.41	2.13	3.47	4,005	5,491
4	390	19.1	8,257	2.59	1.28	3.92	8,269	10,056
5	242	7.5	11,354	2.38	0.88	4.06	9,944	13,443
6	37	5.7	19,364	1.57	0.76	4.29	20,547	14,644
7	33	8.4	21,711	1.52	0.93	4.34	21,476	12,971
8	864	140.3	6,002	2.94	2.15	3.78	6,080	5,424
9	262	40.7	8,674	2.42	1.61	3.94	9,643	7,961
10	286	37.5	7,946	2.46	1.57	3.90	9,322	8,164
11	206	8.7	9,100	2.31	0.94	3.96	10,582	12,821
12	255	42.1	8,912	2.41	1.62	3.95	9,745	7,877
13	36	2.1	27,392	1.56	0.32	4.44	20,766	19,932
14	19	0.4	25,950	1.28	(0.38)	4.41	26,584	33,036
15	23	1.4	26,294	1.36	0.14	4.42	24,692	22,764
16	264	25.0	9,630	2.42	1.40	3.98	9,615	9,258
17	293	13.8	10,517	2.47	1.14	4.02	9,235	11,131
18	258	17.6	8,809	2.41	1.25	3.94	9,701	10,313
19	357	29.6	8,992	2.55	1.47	3.95	8,556	8,783

Regression 1 Reg1 (Cost/Subs) = ((Subs)^(X Coeffi.))*(10^(Const.))

Regression Output:

Constant	4.9188301
Std Err of Y Est	0.061636
R Squared	0.9672653
No. of Observations	19
Degrees of Freedom	17
X Coefficient(	-0.386476 -0.386476
Std Err of Coe	0.0172436 0.0172436

Regression 2 Reg2(Cost/Subs) = ((Subs/100sqkm)^(X Coeffi.))*(10^(Const.))

Regression Output:

Constant	4.3997573
Std Err of Y Est	0.1143299
R Squared	0.8873686
No. of Observations	19
Degrees of Freedom	17
X Coefficient(	-0.309926 -0.309926
Std Err of Coe	0.02678 0.02678

Table 11-3-4 Investment Costs for All Counties (1/4: Central Region)

X Coeff.: -0.309926 For Municipality: a... KLA Central e... Masaka
Const.: 4.3997573 X Coeff.: -0.386476 b... KLA Rural f... Mbarara
Const: 4.0166301 c... Jinja g... F/Portal
d... Mbale h... Gulu

Central Region

District	NO.	County	Exchange (***) ... Not Work	E.C.s	Walters	E.C.s + Walters	1995 Demand	1995 Supply	1995 Reg. Cost	2000 Demand	2000 Supply	2000 Reg. Cost	2005 Demand	2005 Supply	2005 Reg. Cost	2010 Demand	2010 Supply	2010 Reg. Cost	
Kalangala	1	Bukumbo	Kalangala	11	20	31	65	11	176,396	89	27	325,273	122	37	404,360	170	51	508,393	e
	2	Kyamuswa					29	0	0	40	12	162,269	56	17	204,679	78	23	257,285	e
		(TOTAL)		*11*	*20*	*31*	*94*	*11*		*129*	*39*		*178*	*54*		*248*	*74*		
Kampala	3	Kampala C.C.	Kampala Central	10,268	4,921	14,619	12,482	11,234		18,234	16,411		26,481	23,833		38,050	34,253		a
			Makerere	870	92	962	3,069	2,760		4,513	4,061		6,553	5,898		9,419	8,477		a
			Kawempe (FLU)	268	112	380	1,705	1,535		2,491	2,242		3,618	3,256		5,200	4,680		a
			Mengo (XB)	411	70	481	3,215	2,894		4,697	4,227		6,821	6,139		9,803	8,823		a
			Nsambya (FLU)	1,065	150	1,215	1,574	1,417		2,299	2,070		3,339	3,005		4,800	4,320		a
			Lubowa (FLU)	117	45	162	558	502		815	734		1,181	1,066		1,702	1,532		a
			Kyambogo (XB)	215	20	235	1,500	1,350		2,191	1,971		3,181	2,863		4,572	4,115		a
			Mityana (RLU)	849	41	890	1,600	1,440		2,337	2,103		3,394	3,055		4,878	4,390		a
		(Total)		*14,063*	*4,661*	*18,944*	*25,721*	*23,149*	*34,794,179*	*37,573*	*33,816*	*45,194,599*	*54,566*	*49,109*	*58,466,173*	*78,424*	*70,582*	*75,095,516*	
Kiboga	4	Kiboga	Kiboga	50	50	80	285	50	1,142,205	456	50	1,142,203	707	354	4,408,889	1,057	529	5,817,203	b
		(TOTAL)		*50*	*50*	*80*	*285*	*50*		*456*	*50*		*707*	*354*		*1,057*	*529*		
Luwero	5	Burull	Nakasongola	33	30	63	261	33	617,604	360	33	617,604	501	250	3,300,830	699	350	4,171,104	b
	6	Katlennu	Bombo	22	35	57	187	22		257	77		358	179		500	400		b
			Luwero	42	26	68	211	42		290	87		405	203		565	452		b
			Wobulenzi	29	13	42	247	29		340	102		474	237		661	529		b
			(Sub-Total)	*93*	*74*	*167*	*645*	*93*	*1,187,543*	*897*	*266*	*2,452,439*	*1,237*	*619*	*4,392,619*	*1,726*	*1,381*	*7,642,165*	
	7	Nakaseke	Seeruto	8	15	23	74	8		102	8		142	8		199	99		b
			Nakaseke	5	28	33	106	5		146	5		204	5		285	143		b
			(Sub-Total)	*13*	*43*	*56*	*180*	*13*	*432,507*	*249*	*13*	*432,507*	*346*	*13*	*432,507*	*483*	*242*	*3,253,111*	
	8	Wabusana (Bwanande)					200	0	0	275	0	0	383	0	0	535	268	2,500,722	b
		(TOTAL)		*139*	*147*	*268*	*1,286*	*139*		*1,770*	*312*		*2,467*	*882*		*3,444*	*2,241*		
Masaka	9	Bukomansimbi	Byoga (PCO)	1	20	21	196	1	43,172	257	1	43,172	341	1	43,172	480	230	1,840,624	e
	10	Bukoto	Bukoto	4	7	11	560	4	170,823	467	4	170,823	621	311	3,441,603	836	503	4,792,852	e
	11	Kakungu	Lukaya	15	17	32	161	15		209	15		278	139		374	187		e
			Kakungu	1	14	15	189	1		246	1		327	163		440	220		e
			(Sub-Total)	*16*	*31*	*47*	*350*	*16*	*333,152*	*454*	*16*	*333,152*	*604*	*302*	*2,529,871*	*814*	*407*	*3,108,303*	
	12	Lwenyega					75	0	0	97	0	0	130	0	0	175	17	336,225	e
	13	Masaka Munic	Masaka	557	355	912	2,372	2,135	3,628,896	3,081	2,773	4,346,444	4,098	3,688	5,201,680	5,524	4,972	6,503,152	e
	14	Nkwogola					210	0	0	272	0	0	362	0	0	488	244	2,730,703	e
		(TOTAL)		*578*	*413*	*991*	*3,324*	*2,156*		*4,659*	*2,794*		*6,156*	*4,302*		*8,299*	*6,373*		
Mpigi	15	Entebbe Munic	Entebbe	1,048	85	1,133	2,335	2,155	3,652,323	2,984	2,686	4,251,078	3,829	3,446	5,049,556	5,014	4,513	6,082,686	b
	16	Buloto	(Neddangira)				813	0	0	1,015	0	0	1,299	650	4,055,936	1,702	851	5,968,842	b
	17	Butembela					156	0	0	194	0	0	249	0	0	327	33	454,328	e
	18	Gomba					205	0	0	255	0	0	327	0	0	429	214	2,433,666	e
	19	Kyendondo	Kasangati	81	15	96	793	238		988	296		1,268	1,015		1,661	1,329		b
			Nsimbonge	5	40	45	179	54		223	67		286	229		375	300		b
			(Matuga)				426	0		530	0		680	544		891	713		b
			(Sub-Total)	*86*	*55*	*141*	*1,398*	*292*	*1,975,058*	*1,741*	*363*	*2,295,285*	*2,234*	*1,788*	*6,900,902*	*2,927*	*2,342*	*8,313,342*	
	20	Mawokota	Mpigi	52	81	133	765	52		951	285		1,223	611		1,600	800		b
			(Nitasa Maria)				61	0		76	0		98	49		128	64		e
			(Sub-Total)	*52*	*81*	*133*	*826*	*52*	*799,528*	*1,027*	*285*	*2,586,359*	*1,321*	*660*	*4,616,992*	*1,728*	*864*	*5,560,016*	
		(TOTAL)		*1,186*	*221*	*1,407*	*5,793*	*2,499*		*7,214*	*3,334*		*9,260*	*6,544*		*12,126*	*8,817*		
Mubende	21	Buruli					148	0	0	206	0	0	296	0	0	424	212	1,807,358	b
	22	Buwekula	Mubende	68		68	540	68	1,484,036	756	236	2,930,681	1,124	562	5,334,934	1,600	800	6,806,979	b
	23	Kasasenda					224	0	0	321	0	0	459	229	2,630,482	653	326	3,358,451	b
	24	Mityana	Mityana	180	95	275	651	180		931	279		1,332	666		1,895	1,516		b
			Busimbi	1	40	41	97	1		139	42		199	99		283	226		b
			(Sub-Total)	*181*	*135*	*316*	*748*	*181*	*1,940,509*	*1,069*	*321*	*2,881,537*	*1,530*	*765*	*5,246,746*	*2,178*	*1,742*	*9,257,918*	
		(TOTAL)		*269*	*135*	*404*	*1,667*	*269*		*2,364*	*557*		*3,411*	*1,355*		*4,855*	*3,080*		
Mukono	25	Biwale					141	0	0	222	0	0	338	0	0	500	250	2,340,963	b
	26	Buikwe	Lugazi	75	57	132	287	66		452	226		687	550		1,018	814		c
			Buikwe	4	12	16	155	4		244	4		371	297		550	440		c
			Ngogwe	0	17	17	74	0		116	0		177	142		262	210		c
			Nkokonjeru	4	30	34	117	4		184	4		280	224		415	332		c
			Nyenga	19	21	40	164	49		258	129		393	315		583	466		c
			(Sub-Total)	*102*	*137*	*239*	*797*	*143*	*1,725,021*	*1,254*	*363*	*3,275,566*	*1,906*	*1,527*	*8,827,630*	*2,829*	*2,262*	*11,579,056*	
	27	Buvuma Islands					65	0	0	102	0	0	155	0	0	229	23	313,335	c
	28	Mukono	Mukono (NSU)	222	10	232	469	222		738	222		1,122	561		1,653	1,331		b
			(Seta)				129	0		204	0		310	155		459	367		b
			(Sub-Total)	*222*	*10*	*232*	*599*	*222*	*2,158,338*	*941*	*222*	*2,158,338*	*1,432*	*716*	*4,642,493*	*2,122*	*1,698*	*8,787,359*	
	29	Nakisunu	Kazavo	12	20	32	95	12		149	12		227	114		336	168		b
			(Nagalama)				99	0		155	0		236	118		350	175		b
			(Sub-Total)	*12*	*20*	*32*	*194*	*12*	*256,314*	*304*	*12*	*256,314*	*463*	*232*	*1,978,879*	*686*	*343*	*2,591,780*	
	30	Ntenjeru	Kayunga	72	15	87	457	72		719	216		1,094	547		1,620	810		b
			(Kangulumira)				85	0		134	0		203	102		301	151		b
			(Sub-Total)	*72*	*15*	*87*	*542*	*72*	*796,905*	*853*	*216*	*1,700,810*	*1,297*	*649*	*3,633,849*	*1,921*	*961*	*4,762,706*	
		(TOTAL)		*408*	*182*	*590*	*2,397*	*449*		*3,675*	*813*		*5,593*	*3,124*		*8,266*	*5,597*		
Rakai	31	Kabula	Lyantonde	0	85	85	228	0	0	344	0	0	511	255	2,210,452	744	372	2,868,501	e
	32	Kakuuto	(Kakuuto)				153	0	0	231	0	0	343	172	1,416,782	500	250	1,837,546	e
	33	Kooki	Rakai	4	15	19	219	4	152,605	330	68	1,280,760	469	123	1,625,029	713	178	2,097,145	e
	34	Kyotera	Kyotera	39	30	69	154	39		232	39		344	172		501	250		e
			Kalisizo	33	32	65	180	33		272	33		403	202		588	294		e
			(Sub-Total)	*72*	*62*	*134*	*334*	*72*	*1,072,808*	*504*	*72*	*1,072,808*	*747*	*374*	*3,344,235*	*1,089*	*544*	*4,331,025*	
		(TOTAL)		*76*	*162*	*238*	*935*	*73*		*1,410*	*180*		*2,000*	*924*		*3,043*	*1,344*		
Central (GW)				16,810	6,161	22,971	41,662	26,705	58,730,919	59,243	41,875	80,118,071	84,435	66,848	145,357,210	119,784	98,576	210,117,141	

Table 11-3-5 Investment Costs for All Counties (2/4: Eastern Region)

Eastern Region

District	NO.	County	Exchange (***) = Not Work	E.C.s	Wallers	E.C.s + Wallers	1995 Demand	1995 Supply	1995 Reg. Cost	2000 Demand	2000 Supply	2000 Reg. Cost	2005 Demand	2005 Supply	2005 Reg. Cost	2010 Demand	2010 Supply	2010 Reg. Cost	
Iganga	35	Bugweri	Buwesa	15	28	43	216	15	247,553	317	15	247,553	448	224	1,599,275	624	312	2,010,154	o
	36	Bukooli	Bugiri	46	40	86	365	46	819,348	551	46	819,348	751	376	3,402,300	1,045	523	4,383,393	o
	37	Bunya	Nkyuge	15	13	28	312	15	344,450	454	15	344,450	642	161	1,771,781	893	224	2,223,286	*o
	38	Butaiki	Buwambaiyn	20	16	36	206	20	383,373	303	20	383,373	429	214	1,967,781	597	298	2,472,900	o
	39	Kigulu	Iganga	207	120	327	866	259		1,238	378		1,781	890		2,476	1,983		c
			(Nemangalwe)				72	22		104	31		148	74		206	164		o
			(Sub-Total)	207	120	327	937	281	2,155,215	1,385	409	2,792,443	1,929	964	5,045,866	2,684	2,147	6,768,244	
	40	Luuka	Kiyunga	4	30	34	213	4	113,125	310	4	113,125	439	219	1,791,317	610	305	2,251,353	o
		(TOTAL)		307	248	555	2,251	561		3,277	509		4,657	2,158		6,453	5,609		
Jinja	41	Bulembe	Kakira	46	34	78	445	44	830,392	693	44	830,392	1,022	511	2,890,740	1,461	731	3,888,146	o
	42	Jinja Municipal	Jinja	1,505	202	1,507	5,698	3,328	4,928,593	5,754	5,178	6,687,912	8,488	7,659	8,748,342	12,137	10,925	11,194,345	o
	43	Kagoma	Buwenge	9	26	35	275	9	182,265	427	9	182,265	631	158	1,316,561	902	226	1,685,442	*o
		(TOTAL)		1,558	352	1,710	6,418	3,381		6,874	5,231		10,140	8,328		14,500	11,880		
Kamuli	44	Bulopa					225	0	0	334	0	0	526	66	1,206,577	755	126	1,843,715	*o
	45	Bugabula	Bulopa	4	11	15	48	4		75	4		112	56		161	80		o
			Kamuli	34	45	79	251	34		395	119		587	294		843	421		*o
			Nawaendwa	1	7	8	20	1		31	1		46	23		66	33		o
			(Sub-Total)	39	63	102	319	39	647,092	502	99	647,092	745	373	3,073,805	1,070	535	3,942,511	
	46	Bulamogi	Kaliro	35	25	60	214	35	550,676	337	55	550,676	500	250	2,133,607	717	359	2,745,233	o
	47	Busaiya					199	0	0	300	0	0	445	74	766,865	639	106	1,006,100	*o
		(TOTAL)		74	88	162	948	74		1,402	74		2,213	785		3,181	1,120		
Kapchorwa	48	Kongasis					87	0	0	119	0	0	165	0	0	216	20	303,476	* d
	49	Kween					100	0	0	136	0	0	183	0	0	247	20	392,021	* d
	50	Tingey	Kapchorwa	33	13	46	206	166	1,352,612	282	226	1,688,750	381	305	2,033,843	513	410	2,521,852	* d
		(TOTAL)		33	13	46	393	166		536	226		729	305		976	450		
Kumi	51	Bukedea	(Bukedea)				153	0	0	208	0	0	276	0	0	370	37	591,402	d
	52	Kumi	Kumi	45	30	75	442	45	714,243	475	143	1,583,051	637	318	2,755,364	853	427	3,374,402	* d
	53	Ngora	(Ngora)				135	0	0	179	0	0	240	0	0	321	32	507,065	d
		(TOTAL)		45	30	75	729	45		860	143		1,153	318		1,544	496		
Mbale	54	Bubulo	Nyakze	20	25	45	229	20	334,139	302	28	334,139	398	20	334,139	527	264	1,982,469	d
	55	Budadiri	Budadiri	15	10	25	200	13		265	13		348	174		460	230		d
			Sironko	13	10	23	200	13		263	13		348	174		460	230		d
			(Sub-Total)	28	20	48	400	26	408,916	527	26	408,916	695	348	2,449,491	920	460	2,069,601	
	56	Bukhumbuli					140	0	0	184	0	0	243	0	0	321	32	512,420	d
	57	Bungokho	Nalwoloke	5	21	26	172	5		227	5		300	150		397	198		d
			Menafwa	3	8	11	78	3		103	3		136	68		179	90		d
			(Sub-Total)	8	29	37	250	8	169,470	330	8	169,470	435	218	1,658,062	576	288	2,009,350	
	58	Menjya	Bukuda	11	15	26	154	11		202	11		267	133		353	177		d
			Bukuchele	5	12	17	114	5		149	5		197	99		261	130		d
			(Sub-Total)	16	27	43	267	16	222,391	352	16	222,391	464	232	1,407,820	614	307	1,708,027	
	59	Mbale Municipal	Mbale (2 Units)	685	70	755	1,402	1,316	4,699,832	1,925	1,733	3,142,350	2,541	2,287	3,805,278	3,363	3,027	4,617,427	d
		(TOTAL)		755	171	926	2,748	1,366		3,619	1,803		4,777	3,105		6,322	4,378		
Pallisa	60	Budaka	Kamonkoli	1	7	8	197	1	37,015	306	1	37,015	453	227	1,583,905	648	324	1,992,125	d
	61	Butebo					151	0	0	235	0	0	348	0	0	498	249	1,817,368	d
	62	Kibuku					187	0	0	291	0	0	430	215	1,669,297	615	308	2,139,256	d
	63	Pallisa	Pallisa	16	15	31	225	16	333,152	350	105	1,220,338	518	259	2,275,441	741	371	2,915,870	* d
		(TOTAL)		17	22	39	759	17		1,182	106		1,749	701		2,502	1,252		
Soroti	64	Amuria	(Amuria)				220	0	0	282	0	0	388	0	0	476	238	2,575,370	* d
	65	Kabermaido	(Kabermaido)				242	0	0	312	0	0	402	201	1,811,653	524	262	2,175,235	* d
	66	Kaliidi	(Okuboi)				208	0	0	268	0	0	344	0	0	448	224	1,854,668	* d
	67	Kapelebyong					142	0	0	182	0	0	234	0	0	304	30	525,194	* d
	68	Kasilo					166	0	0	212	0	0	274	0	0	356	36	625,858	* d
	69	Serere	(Serere)				264	0	0	340	0	0	438	219	1,971,188	572	286	2,369,860	* d
	70	Soroti					206	0	0	380	0	0	490	245	2,547,156	638	319	3,056,014	* d
	71	Soroti Municipal	Soroti	207	120	327	660	594	1,500,035	846	751	1,760,789	1,094	984	2,126,337	1,424	1,282	2,552,211	d
	72	Usuk	(Katakol)				191	0	0	245	0	0	316	0	0	412	206	2,616,967	d
		(TOTAL)		207	120	327	2,359	594		3,065	751		3,958	1,649		5,156	2,883		
Tororo	73	Budyole					189	0	0	232	0	0	291	0	0	366	37	541,845	d
	74	Kisoko (W. Bukonna)					214	0	0	265	0	0	329	0	0	417	209	1,800,266	* d
	75	Samia-Bugwe	Busia	62	30	92	722	217		890	267		1,113	557		1,411	705		d
			Lumino	3	15	18	278	83		343	103		429	214		543	272		d
			(Sub-Total)	65	45	110	1,000	300	2,375,721	1,232	370	2,745,656	1,541	771	4,557,006	1,954	977	5,365,954	
	76	Tororo	Malaba	50	25	55	262	85	916,315	347	104	1,057,865	434	217	1,756,183	550	440	2,860,341	* d
	77	Tororo Municipal	Tororo	351	70	401	1,174	1,056	2,232,522	1,446	1,301	2,578,254	1,809	1,628	3,009,699	2,293	2,064	3,545,185	d
		(TOTAL)		466	140	566	2,658	1,441		3,521	1,775		4,404	2,616		5,563	3,727		
Eastern Total				3,225	1,185	4,410	17,496	7,485	26,200,331	24,426	10,627	30,247,611	33,756	16,945	73,567,500	46,217	30,001	110,749,011	

Table 11-3-6 Investment Costs for All Counties (3/4: Northern Region)

Northern Region

District	NO.	County	Exchange (***)... Not Work	E.C.s	Welters	E.C.s + Welters	1605 Demand	1605 Supply	1605 Reg. Cost	2000 Demand	2000 Supply	2000 Reg. Cost	2005 Demand	2005 Supply	2005 Reg. Cost	2010 Demand	2010 Supply	2010 Reg. Cost	
Apac	78	Kole					209	0	0	321	0	0	464	232	2,180,555	650	325	2,762,068	h
	79	Kwania	Aduku	5	11	14	178	3	122,058	274	82	1,168,830	396	198	2,200,729	555	277	2,772,330	* h
	80	Maruzi	Apac	23	15	38	272	23	536,319	418	125	1,728,665	608	303	3,177,675	848	424	4,008,888	* h
	81	Oyam					250	0	0	385	0	0	557	139	1,924,581	779	195	2,430,754	* h
		(TOTAL)		*28*	*28*	*52*	*909*	*26*		*1,398*	*208*		*2,023*	*872*		*2,832*	*1,221*		
Arua	82	Aringa					181	0	0	248	0	0	329	0	0	438	218	2,850,030	h
	83	Arua Municipal	Arua	96	27	123	785	706	1,660,947	1,068	959	2,064,006	1,426	1,283	2,353,585	1,891	1,702	3,103,452	h
	84	Ayivu					191	0	0	259	0	0	347	0	0	461	230	1,660,561	h
	85	Koboko	(Koboko)				212	0	0	287	66	999,193	384	115	1,221,358	510	255	2,112,285	* h
	86	Madi - Okollo	(Pirimo Camp)				150	0	0	204	0	0	273	0	0	362	86	741,579	h
	87	Maracha					169	0	0	258	0	0	345	0	0	455	228	1,758,313	h
	88	Terego					181	0	0	248	0	0	329	0	0	436	218	2,196,888	h
	89	Vurra					142	0	0	193	0	0	256	0	0	343	34	555,446	h
		(TOTAL)		*99*	*27*	*123*	*2,030*	*706*		*2,797*	*1,045*		*3,089*	*1,398*		*4,803*	*2,851*		
Gulu	90	Aswa					148	0	0	180	0	0	222	0	0	277	28	634,548	h
	91	Gulu Municipal	Gulu	250	75	325	973	675	1,960,863	1,400	1,314	2,596,005	2,100	1,971	3,434,168	3,265	2,957	4,545,476	* h
	92	Kilak					162	0	0	199	0	0	247	0	0	306	31	724,654	h
	93	Nwoya					96	0	0	118	0	0	146	0	0	183	18	622,609	h
	94	Omoro					172	0	0	211	0	0	262	0	0	327	33	676,049	h
		(TOTAL)		*250*	*75*	*325*	*1,550*	*675*		*2,109*	*1,314*		*3,057*	*1,971*		*4,360*	*3,057*		
Kitgum	95	Agago					200	0	0	274	0	0	389	0	0	493	246	3,352,051	h
	96	Amuru					162	0	0	223	0	0	300	0	0	400	40	933,675	h
	97	Chua	Kitgum	55	35	90	494	55	1,255,823	677	203	3,093,983	912	456	5,405,451	1,218	608	8,592,461	* h
	98	Lamwo					151	0	0	207	0	0	279	0	0	372	37	1,021,313	h
		(TOTAL)		*55*	*35*	*90*	*1,007*	*55*		*1,381*	*203*		*1,880*	*456*		*2,483*	*931*		
Kotido	99	Dodoth					121	0	0	163	0	0	217	0	0	287	144	2,880,759	* d
	100	Jie	(Kotido)	0	25	25	206	0	0	281	84	1,621,109	374	112	1,974,869	495	247	3,402,706	* d
	101	Labwor					117	0	0	157	0	0	210	0	0	277	28	627,124	d
		(TOTAL)		*0*	*25*	*25*	*446*	*0*		*601*	*84*		*801*	*112*		*1,059*	*419*		
Lira	102	Dokolo	(Dokolo)				188	0	0	255	0	0	326	0	0	430	215	2,109,568	h
	103	Erute	Aboke	2	20	22	229	2	90,481	320	2	90,481	436	218	2,304,268	585	293	2,823,631	h
	104	Kioga					140	0	0	207	0	0	282	0	0	380	38	686,204	h
	105	Lira Municipal	Lira	117	150	267	518	468	1,288,485	722	649	1,595,515	983	885	1,976,300	1,321	1,189	2,422,964	h
	106	Moroto	(Aloi)				105	0	0	272	0	0	370	0	0	497	249	2,575,784	h
	107	Otuke					112	0	0	156	0	0	212	0	0	285	29	559,150	h
		(TOTAL)		*119*	*170*	*289*	*1,371*	*468*		*1,911*	*651*		*2,603*	*1,103*		*3,498*	*2,013*		
Moroto	108	Bokora					96	0	0	119	0	0	149	0	0	187	19	637,745	d
	109	Kadam (Chekwi)					115	0	0	143	0	0	179	0	0	226	23	568,506	d
	110	Matheniko	(Nakapiripirit)				113	0	0	141	0	0	176	0	0	221	22	626,995	d
	111	Moroto Municip	Moroto	96	45	143	272	245	814,602	338	304	945,389	423	380	1,102,771	532	479	1,293,620	d
	112	Pian					74	0	0	92	0	0	115	0	0	145	14	381,565	d
	113	Upe					58	0	0	72	0	0	90	0	0	113	11	295,927	d
		(TOTAL)		*96*	*45*	*143*	*728*	*245*		*905*	*304*		*1,131*	*380*		*1,424*	*569*		
Moyo	114	East Moyo					190	0	0	252	0	0	352	0	0	435	218	3,015,946	h
	115	Obongi					70	0	0	93	0	0	122	0	0	160	16	314,290	h
	116	West Moyo	Moyo	51	30	81	279	51	769,733	370	111	1,316,942	487	244	2,267,075	639	319	2,727,685	* h
		(TOTAL)		*51*	*30*	*81*	*538*	*51*		*715*	*111*		*941*	*244*		*1,234*	*553*		
Nebbi	117	Jonam	(Pakwach)				232	0	0	314	94	1,136,265	417	209	1,071,624	552	276	2,387,961	* h
	118	Okoro					427	0	0	577	0	0	787	192	1,800,004	1,015	254	2,183,542	* h
	119	Padyere	(Nebbi)				292	0	0	395	119	1,356,484	525	263	2,424,503	674	347	2,935,306	* h
		(TOTAL)		*0*	*25*	*25*	*952*	*0*		*1,285*	*213*		*1,710*	*664*		*2,251*	*877*		
Northern Total				895	458	1,153	9,531	2,426	8,510,321	13,122	4,133	19,600,780	17,824	7,201	37,027,506	24,081	12,576	81,205,540	

Table 11-3-7 Investment Costs for All Counties (4/4: Western Region)

Western Region

District	RO	County	Exchange (***)... Not Work	E.C.s	Walkers	E.C.s & Walkers	1995 Demand	1995 Supply	1995 Reg. Cost	2000 Demand	2000 Supply	2000 Reg. Cost	2005 Demand	2005 Supply	2005 Reg. Cost	2010 Demand	2010 Supply	2010 Reg. Cost	
Bundibugyo	120	Bwamba					282	0	0	371	111	1,264,663	484	242	2,161,635	632	316	2,588,616	* g
	121	Ntoroko					119	0	0	156	0	0	204	0	0	266	27	484,364	g
		(TOTAL)		0	23	23	*401*	0		*527*	*111*		*686*	*242*		*898*	*343*		
Bushenyi	122	Bushenyi					139	0	0	200	0	0	301	0	0	419	210	1,886,842	f
	123	Bunyaruguru					188	0	0	252	0	0	361	0	0	504	252	2,345,044	f
	124	Igara	Bushenyi	97	184	281	520	260	2,230,588	786	394	2,970,040	1,152	566	5,814,014	1,570	1,265	6,637,132	* f
	125	Ruhinda					223	0	0	335	0	0	485	243	1,973,020	677	339	2,483,772	f
	126	Sheema	Kabwohe (PCO)	1	55	56	255	1	46,877	356	107	1,177,788	512	256	2,151,916	714	357	2,707,020	f
		(TOTAL)		*98*	*789*	*287*	*1,283*	*261*		*1,943*	*501*		*2,791*	*1,065*		*3,893*	*2,421*		
Hoima	127	Buyaliya	Hoima	180	21	190	808	404	3,838,188	986	493	4,171,302	1,214	607	4,818,069	1,510	1,208	7,743,373	* g
	128	Buhaguzi					146	0	0	178	0	0	219	0	0	273	27	505,808	g
		(TOTAL)		*180*	*21*	*190*	*954*	*404*		*1,164*	*493*		*1,433*	*607*		*1,783*	*1,235*		
Kabale	129	Kabale Municipal	Kabale	650	97	746	2,129	1,916	5,367,749	2,476	2,229	5,738,416	2,923	2,631	4,191,605	3,504	3,155	4,746,221	f
	130	Ndorwa					205	0	0	239	0	0	282	0	0	338	34	495,366	f
	131	Rubanda					202	0	0	235	0	0	278	0	0	333	33	509,491	f
	132	Rukiga					157	0	0	182	0	0	215	0	0	258	26	591,562	f
		(TOTAL)		*650*	*97*	*746*	*2,693*	*1,916*		*3,133*	*2,229*		*3,698*	*2,631*		*4,433*	*3,248*		
Kabarole	133	Burahengabu					211	0	0	288	0	0	386	0	0	515	257	2,039,170	g
	134	Buwaiza					212	0	0	289	0	0	388	0	0	516	258	2,788,056	g
	135	F/Portal Municip	Fort Portal	448	109	555	1,112	1,001	2,151,619	1,515	1,364	2,665,777	2,033	1,829	3,261,465	2,705	2,435	3,973,551	g
	136	Kibale					205	0	0	280	0	0	375	0	0	499	250	2,734,309	g
	137	Kingowenda					183	0	0	222	0	0	298	0	0	397	40	557,785	g
	138	Kyaka					140	0	0	191	0	0	256	0	0	341	34	662,215	g
	139	Mwenge	(Buffl)(Kyenjojo)	0	42	42	241	0	0	326	164	2,200,662	440	220	2,695,974	585	293	3,285,428	* g
		(TOTAL)		*448*	*151*	*597*	*2,293*	*1,001*		*3,113*	*1,528*		*4,176*	*2,049*		*5,556*	*3,507*		
Kasese	140	Bukonjo					375	0	0	480	0	0	618	155	1,617,519	706	190	1,921,928	* g
	141	Busongora	Kasese	236	120	356	732	236		1,582	781		2,060	1,664		2,496	1,998		* g
			Kilembe	19	25	44	106	32		136	41		175	140		225	180		g
			(Hima)	0	15	15	78	23		100	30		129	103		166	133		g
			(L. Katwe)	0	30	30	138	41		177	53		228	182		294	235		g
		Busongora	*(Sub-Total)*	*255*	*190*	*445*	*1,054*	*332*	3,427,360	*1,975*	*905*	6,846,903	*2,612*	*2,089*	12,190,259	*3,183*	*2,546*	13,979,195	
		(TOTAL)		*255*	*190*	*445*	*1,427*	*332*		*2,455*	*905*		*3,250*	*2,244*		*3,979*	*2,743*		
Kibale	142	Bugangazi	Kakamiro	11	30	41	128	11	310,907	186	11	310,907	267	11	310,907	372	37	718,072	g
	143	Bwaga	Kagadi	0	25	25	237	0	0	336	107	1,417,580	513	257	2,566,864	715	357	3,247,933	* g
	144	Buseruka					115	0	0	170	51	765,344	244	122	1,451,155	339	170	1,823,073	* g
		(TOTAL)		*11*	*55*	*66*	*479*	*11*		*714*	*169*		*1,024*	*390*		*1,426*	*564*		
Kisoro	145	Bukimbiri	Kisoro	66	40	106	347	66	830,106	546	164	1,539,183	802	401	2,855,040	1,134	567	3,623,085	* f
		(TOTAL)		*66*	*40*	*106*	*347*	*66*		*546*	*164*		*802*	*401*		*1,134*	*567*		
Masindi	146	Mujenje	Budindi	9	5	14	73	9		98	29		128	38		166	50		* g
			(Budongo)				150	0		200	60		250	75		330	99		* g
		Mujenje	*(Sub-Total)*	*9*	*5*	*14*	*223*	*9*	244,595	*298*	*89*	1,187,135	*378*	*113*	1,400,217	*496*	*149*	1,695,146	
	147	Bulisa	Bulisa	5	25	30	116	5	195,472	159	5	195,472	201	5	195,472	263	26	609,290	g
	148	Buruli	Masindi	207	80	287	787	394	3,931,179	1,040	520	4,764,993	1,364	682	5,745,659	1,787	1,430	9,575,255	* g
	149	Kibanda	Kiryumba	11	25	36	181	11	395,751	239	11	395,751	314	11	395,751	411	205	2,978,654	g
		(TOTAL)		*232*	*135*	*367*	*1,309*	*419*		*1,729*	*625*		*2,255*	*811*		*2,957*	*1,809*		
Mbarara	150	Bukanga					155	0	0	205	0	0	267	0	0	347	35	665,083	f
	151	Isingiro	Isingiro (PCO)	1		1	234	1	54,226	506	92	1,226,877	396	198	2,052,106	518	259	2,509,453	* f
	152	Isingiro					215	0	0	279	0	0	364	0	0	473	237	2,382,984	f
	153	Kashari					167	0	0	257	0	0	333	0	0	436	218	2,121,851	f
	154	Rwampara					140	0	0	183	0	0	238	0	0	310	31	590,259	f
	155	Mbarara Munici	Mbarara	694		694	1,635	1,471	2,808,280	2,139	1,925	3,378,637	2,786	2,507	4,054,283	5,626	5,264	4,863,677	f
	156	Nyabushozi	Kashare (PCO)	1		1	154	1	70,219	202	61	1,192,595	263	79	1,430,795	342	103	1,715,121	* f
	157	Rwampara	Kinoni (PCO)	1		1	196	1	46,634	256	77	932,892	333	100	1,116,771	434	217	1,909,083	* f
		(TOTAL)		*697*	*0*	*697*	*2,024*	*1,474*		*3,827*	*2,154*		*4,983*	*2,893*		*6,467*	*4,364*		
Ntungamo	158	Kajara	(Rwashamaire)				276	0	0	406	0	0	575	288	1,911,726	790	395	2,388,886	f
	159	Rukienyi					268	0	0	360	0	0	537	268	2,045,459	740	370	2,555,332	f
	160	Ruhaama	Ntungamo	17		17	377	17	360,664	535	167	1,741,528	783	392	3,144,485	1,080	540	5,622,350	* f
		(TOTAL)		*17*	*0*	*17*	*911*	*17*		*1,341*	*167*		*1,893*	*948*		*2,610*	*1,305*		
Rukungiri	161	Kinkizi					168	0	0	238	0	0	375	0	0	528	264	2,642,784	f
	162	Rubabo					124	0	0	192	0	0	230	0	0	394	39	537,289	f
	163	Rukungiri	Rukungiri	84		84	298	149	1,879,562	483	232	2,276,416	674	337	2,949,772	949	474	3,732,699	* f
		(TOTAL)		*84*	*0*	*84*	*587*	*149*		*913*	*232*		*1,309*	*337*		*1,871*	*777*		
Western Total				2,930	693	3,620	15,892	6,032	25,791,765	21,405	9,277	46,386,765	28,308	14,607	72,596,921	37,029	22,943	122,509,562	
		(Grand Total)		23,666	8,697	32,363	84,909	44,761	119,245,337	118,195	65,912	176,595,117	164,312	108,601	329,691,197	227,091	164,099	524,469,064	

NOTE: Indicator (*) shows the supply volume has been modified through the Team-UFTC discussion.

Supply Volume Ratio

County	Phase I			Phase II		Phase III
	1995		2000	2005		2010
Supply	50%		50%	50%		50%
Big	2,000		2,000	2,000		2,000
Supply	30%		30%	50%		50%
Medium	800		800	400		400
Supply	0%		0%	0%		10%

Municipality	90%

Supply Volume by RTM Area

RTM Area	2000	2005	2010
a) KLA Central	33,819	49,115	70,590
b) KLA Rural	4,703	10,884	17,608
c) Jinja	8,262	12,779	19,099
d) Mbale	5,202	9,186	14,173
e) Masaka	2,993	5,529	8,102
f) Mbarara	5,449	8,265	12,680
g) F/Portal	3,831	6,343	10,264
h) Gulu	3,744	6,706	11,563
Total	66,002	108,809	164,099

Table 11-3-8 Project Cost Estimation

(Mil. US$)

		Phase-1	Phase-2	Phase-3	Total
1	No. of Subs (x 1,000)	66	109	164	339
2	Increase of Subs. No. (x 1,000)	36	43	55	134
3	Calculated Cumulative Cost	176.6	329.6	524.5	524.5
4	Cost for No Replacement	-12.4	-1.7	0	-14.1
5	Adjusted Cumulative Cost 1	164.2	327.9	524.5	524.5
6	Cost for each Phase	164.2	163.7	196.6	524.5
7	Trunk Cost (0.2/1.2=0.1666...)	-27.4	-27.3	-32.8	-87.5
8	Allotment of Whole Trunk Cost	54.8	21.9	10.8	87.5
9	Adjusted Cost for each Phase	191.6	158.3	174.6	524.5
10	Other Adjustments (W/B Cable Cost) (MSK, MBR, SW Phase Shift) (I'national+Management)	 -27.0 -4.0 26.0	 -11.0 4.0 20.0	 -1.0 - 30.0	 -39.0 0.0 76.0
11	Total Cost for each Phase	186.6	171.3	203.6	561.5

11.4 Priority Projects up to Year 2000

Proposed priority projects up to year 2000 are summarized in Table 11-4-1. Within this period, the number of LU will be increased as estimated in Table 11-4-2, and the project cost allotment is estimated as shown in Table 11-4-3.

Table 11-4-1 TELECOM PROJECTS UP TO YEAR 2000

No.	Project Title	Location	Volume (lines)	Components SW	TRS	CBL	RSUB	Cost (Mil.$)	Funding Source	(Mil.$)
1	Ten-Town (Nine-Town)	Mbale	3,000	X		X			Korea	7.0
		Busia	450	X	X	X				
		Malaba	450	X	X	X				
		Kapchorwa	450	X	X	X				
		Soroti	900	X	X	X				
		Masindi	1,000	X	X	X				
		Hoima	1,000	X	X	X				
		Luwero	900	X	X	X				
		Wobulenzi	600	X	X	X		23.6		
2	Central & Western Rural Telecom	Mityana					X		W/B (IDA-2)	
		F.Portal					X	5.4		
3	Mpoma Earth Stn Digitalization (IDR)	Mpoma	Rehabilitation		X				W/B & Intersat	
			Digitalization		X			3.0		
4	Entebbe & Kampala Rehabilitation	Entebbe	3,000	X		Exist				
		KLA, RSU	24,000	X		Exist				
		KPL-ETB	2 hops		X			10.6		
5	Northern Uganda Rehabilitation (NURP)	Gulu	3,000	X		X			W/B (NURP)	
		KLA-GUL	8 hops		X			11.9		
6	Greater Kampla Network Expansion (Including INTS)	KLA, RSU	+ 16,000	X	X	Exist	X			
		Mpigi	800	X	X	X				
		Mukono	1,800	X	X	X	X	16.3		
7	Jinja Area Rehabilitation	Jinja/Kamuli	6,300	X		Exist				
		Lugazi	600	X	X	X				
		Iganga	1,000	X	X	X				
		KPL-MBL	8 hops		X			17.8		
8	Mbale Area Network Expansion	Tororo	2,000	X	Exist	X				
		Pallisa	400	X	X	X				
		Kumi	500	X	X	X		5.7		
9	Moroto Area Rehabilitation	Moroto	600	X		X				
		Kotido	100				X			
		SRT-MRT	3 hops		X			6.9		
10	Gulu Area Network Expansion	Lira	1,000	X	X	X				
		Apac	500	X	X	X	X			
		Kitgum	500	X	X	X		9.5		
11	Arua Area Rehabilitation	Arua	1,500	X	X	X	X			
		Moyo	200				X			
		Nebbi	500	X	X	X		13.5		
12	Fort Portal Area Rehabilitation	Fort Portal	2,300	X		X	X			
		Kasese	2,300	X		X	X			
		KP-FT-KS	10 hops		X			19.3		
13	Mbarara Area Rehabilitation	Mbarara	(2000)	Exist	Exist	X	X			
		Kabwohe	350	X	X	X				
		Ntungamo	200	X	X	X				
		Kisoro	200				X			
		KS-MB	5 hops		X			11.7		
14	Masaka Area Network Expansion	Masaka	(2000)	Exist	Exist	X	X			
		Rakai	200				X			
		Kalangala	50				X	3.5		
15	International Network Expansion	Mpoma	Replace of AOR		X			5.0		
16	Others for Network Expansion		Payphones Others					5.0		
17	Management Modernization	Kampala	Customer Service Training Center Maintenance Center Headquarter					18.0		
	Total		78,650					186.7		

(Note) SW: Switch, TRS: Transmission, CBL: Cables, RSUB: Radio Subscribers

Table 11-4-2 Capacity of Exchange (L.U. of Switch)

		1			2			3			4			5			6			7		
		94/95			95/96			96/97			97/98			98/99			99/2000			2000/01		
No	Project Title	Remove	New	Total	Remove	New	Total	Remove	New	Total	Remove	New	Total	Remove	New	Total	Remove	New	Total	Remove	New	Total
1	Ten-Town			3,000	1,600	3,000	4,400	600	2,000	5,800	800	3,750	8,750			8,750			8,750			8,750
2	C&W Rural			0			0			0			0			0			0			0
3	Mpoma Digital			0			0			0			0			0			0			0
4	EBB&KLA Rehab.			20,800			20,800	16,200	23,000	27,600	4,600	4,000	27,000			27,000			27,000			27,000
5	NURP			400			400	400	1,000	1,000	0	2,000	3,000			3,000			3,000			3,000
6	Greater KLA			14,000			14,000			14,000			14,000	13,200	16,000	16,800	100	800	17,500	700	1,800	18,600
7	Jinja Rehab.			3,600			3,600			3,600	2,400	5,300	6,500	400	1,600	7,700	800	1,000	7,900			7,900
8	Mbale			1,110			1,110			1,110			1,110			1,110			1,110	1,110	2,900	2,900
9	Moroto			270			270			270			270			270	270	600	600			600
10	Gulu			460			460			460			460			460			460	460	2,000	2,000
11	Arua			150			150			150			150			150	150	1,500	1,500		500	2,000
12	F/Portal			1,600			1,600			1,600			1,600	600	2,300	3,300	1,000	2,300	4,600			4,600
13	Mbarara			2,000			2,000			2,000			2,000			2,000	(Note)		2,000			2,000
14	Masaka			2,000			2,000			2,000			2,000			2,000			2,000	(Note)		2,000
15	International			0			0			0			0			0			0			0
16	Others			0			0			0			0			0			0			0
17	Management			0			0			0			0			0			0			0
	Non Project			10,560			10,560			10,560			10,560			10,560			10,560			10,560
	Sub-Total	0	0	59,950	1,600	3,000	61,350	17,200	26,000	70,150	7,800	15,050	77,400	14,200	19,900	83,100	2,320	6,200	86,980	2,270	7,200	91,910

Note: At Mbarara and Masaka, the switching system will not be replaced in Phase-1.

Table 11-4-3 Investment Schedule for Projects

(Million US$)

No	Project Title	1 94/95	2 95/96	3 96/97	4 97/98	5 98/99	6 99/2000	7 Total
1	Ten-Town	5.0	8.0	10.6				23.6
2	C&W Rural		2.0	3.4				5.4
3	Mpoma Digital	1.0	2.0					3.0
4	EBB&KLA Rehab.	2.0	5.0	3.6				10.6
5	NURP	3.0	4.0	4.9				11.9
6	Greater KLA				7.0	5.0	4.3	16.3
7	Jinja Rehab.			4.0	7.0	6.8		17.8
8	Mbale					2.0	3.7	5.7
9	Moroto				2.0	4.9		6.9
10	Gulu					2.0	7.5	9.5
11	Arua				3.0	3.0	7.5	13.5
12	F/Portal			5.0	9.0	5.3		19.3
13	Mbarara				4.0	7.7		11.7
14	Masaka					1.0	2.5	3.5
15	International					1.0	4.0	5.0
16	Others					1.0	4.0	5.0
17	Management		2.0	3.0	5.0	4.0	4.0	18.0
	Total by Year	11.0	23.0	34.5	37.0	43.7	37.5	186.7
	Accumurated	11.0	34.0	68.5	105.5	149.2	186.7	

CHAPTER 12

FINANCIAL EVALUATION

CHAPTER 12 FINANCIAL EVALUATION

12.1 Financial Evaluation

12.1.1 Project Outline

As of 1994, Uganda had approx. 30,000 telecommunication subscribers. The telecommunication industry was formed during the country's lengthy civil war, when business activities were closely regulated. As a result, many problems are cropping up in various fields, the solutions to which will require so much effort that virtually the entire network will have to be reconstructed.

There is high demand for telecommunications in urban areas, and previous investments are producing high returns (the majority of telephone equipment installed by 1993 belongs to urban users). However, due to the chronic lack of funding for capital investment, Uganda Post and Telecom. Corporation (UPTC), which is responsible for telecommunications development, cannot carry out its projects by itself and has therefore been unable to meet demand.

For rural areas, UPTC is not actively planning development of telecommunications despite the rural people's strong interest in (and subsequent demand for) telecommunications services, because of the expected low returns on such investments. Since Uganda is mostly rural, we can conclude that a minimal telecommunications network should be introduced to both urban and rural areas to meet the most basic telecommunication needs. The necessity of such a telecommunications network becomes especially clear when viewed from the perspective of Uganda's Master Plan.

12.1.2 Necessity of a Telecommunications Project

The Ugandan government is planning an economic recovery focused on agriculture. They are developing agriculture in the north, west and east regions where yearly rainfall is high, so that Uganda's main industry may take root throughout the nation. A reliable telecommunications network is widely recognized as vital to maintaining communications among scattered areas and improving the nation's economic viability. Furthermore, as agriculture develops in line with the Ugandan economic recovery plan, and as the amount of farm goods available on the market increases, the demand for seeds, seedlings, fertilizer, fuel, and so on, will also increase. Improved communication networks are needed to perform agricultural business effectively.

In addition, telecommunications reduces energy outlays because it can serve as a partial replacement for transportation and also contributes to the more efficient use of transportation facilities. In consideration of these social benefits, the nationwide improvement of the telecommunications system will be essential to achieving the economic recovery outlined by the Ugandan government.

12.1.3 Government's Recognition of Importance of Telecommunications

The Ugandan government has realized that telecommunications is becoming increasingly vital to the success of the economic development.
Better communications and rapid flows and greater availability of information are required for the success of the government policies aimed at trade and market growing up.

However, the government has also realized that it is unlikely that UPTC will have sufficient resources to provide the required quality and quantity of services demanded by the economy.

Failure to provide adequate telecommunications services may deter potential new foreign investors, all of which need good quality telecommunications to maintain their competitiveness.

Therefore, the Ugandan government has decided to review the policy and legal framework under which UPTC provides services on a monopolistic basis with a view to determining how additional resources can be realized through providing the necessary motivation for efficient management and mobilizing resources through the private sector.

12.1.4 Appraisal Prerequisite

The financial evaluation has not dealt with nominal change of value, such as inflation and currency exchange rate fluctuation to reveal essential viability of the Master-Plan.

In this sense, Net present value and Internal rate of return are typical means as the evaluation tool under the appraisal prerequisite, for the Master Plan.

a. Project Appraisal Period

Fiscal 1994/95 to fiscal 2009/10 (16 years)

b. Fixed Price Base

All costs shall be fixed at November 1993 level. This price level, which was estimated to be the standard market price in 1993, will be adopted for all costs, such as construction costs and operating costs.

c. Exchange Rate

US$ 1.00 = Ush 1190.0 (Dec.93)
US$ 1.00 = Yen 105.0

d. Gross Required Funding

Estimate of the gross required capital funding for this Master Plan is presented in Chapter 11 for the purpose of financial analysis. Refer to Table 12-1-4.

e. Sales Revenue

For this provisional estimate, we used a sales revenue figure, about US$ 1,000 per person according to UPTC fiscal year 1994/95 budget on the assumption that present subscribers keep their contracts. Since new subscribers will consist of people from different societies, revenue per person is expected to decrease. We estimate that revenue per person in fiscal year 2009/10 will be at about US$ 700 on the assumption that fees are not raised.

Poor bill collection is currently one of UPTC's most significant problems, and taking measures to cope with the situation becomes an urgent issue according to the Master Plan. Regarding this point we used a collection target value defined in the Master Plan.

Fiscal Year	Expected Collecting Ratio
94/95	72 %
99/2000	80 %
04/05	85 %
09/10	90 %

Refer to Table 12-1-1 for the provisional estimate from the fiscal year sales revenue.

Table 12-1-1 Summary of Sales Revenue

Unit: 1000 USD

year	Sales Revenue	year	Sales Revenue
94/95	24,480	03/04	71,164
95/96	26,400	04/05	76,433
96/97	30,080	05/06	81,545
97/98	34,680	06/07	86,674
98/99	40,915	07/08	91,751
99/00	47,292	08/09	96,722
00/01	52,770	09/10	101,532
01/02	58,587		
02/03	64,782	Total	985,805

f. Operation and Maintenance Cost

In table 12-1-2, the summary of the direct operation costs do not include interest payment and depreciation.

Table 12-1-2 Summary of Operation and Maintenance Cost

Unit: 1000 USD

year	O/M Cost	year	O/M Cost
94/95	20,587	03/04	36,924
95/96	21,523	04/05	38,888
96/97	23,270	05/06	40,900
97/98	25,991	06/07	43,016
98/99	27,872	07/08	45,184
99/00	29,810	08/09	47,465
00/01	31,477	09/10	49,867
01/02	33,222		
02/03	35,153	Total	551,149

g. Foreign Grant Aid

Since Uganda belongs to the LLDC, bilateral aids are basically conducted through foreign grant aids. The foreign grant aids should be real grants, not to be subsidiary loans.

Duty : No duty, No charge
Belongings : UPTC asset

h. Long-Term Loan

It is assumed that international financial institutions and bilateral aids will finance UPTC's long-term loans as a government subsidiary loan. UPTC's liability is fixed at 30% of the fiscal year's gross investment.

Table 12-1-3 Current Long-Term Loan Condition
(Subsidiary Loan Condition)

Interest rates	8.0% p.a.
Repayment	20 times over 10 years fixed principal payment
Grace period	5 years without interest
IDC	not charged

Note: Original IDA loan condition shown in follows, had not been applied to launching of UPTC's projects.

Original IDA Loan Condition:

Interest rates	:	0.0 %
Service charge	:	0.75 %
Repayment	:	40 years Fixed principal payment
Grace period	:	10 years

i. Short Term Finance

In case of shortage of funds during the operation period, the short term finance is required to fulfill the cash deficits, if any.

Interest : 23.0% p.a.
Repayment : repaid in next year after borrowing

j. Debt Swapping

Negotiations have been going on with Government to have its debt swapped against outstanding on lent loans. Actually Shs.14,499,049,296 (approx. US$14 million) being government debts due to services rendered as of 30th June, 1993, is to be swapped.

k. Equity Contribution

In order to improve the financial conditions of UPTC, some of the on lent loans need to be capitalized as equity contribution. IDA credit No.1991 (IDA II) provided that US$6.6 million be capitalized as equity contribution by Government from the proceeds of the credit.

For this Master Plan to succeed there is need to capitalize French Protocols and part of the IDA Credits.

l. Tax

Corporation Income tax rate is 30% on taxable income.

m. Depreciation

The depreciation condition is settled as follows. Full value of all the asset items is depreciated without remaining salvage value, over the estimated useful lives of these assets.

Items	Depreciation Method
Equipment & Facilities	
- Outside (Cable)	15 years straight line
- Others	10 years straight line
Building	50 years straight line
Others (Vehicles)	4 years straight line

12.1.5 Financial Analysis

The purpose of financial analysis is to measure and assess the financial viability of the Master Plan under the above mentioned conditions and assumptions.

(1) Summary of financial statement

1) Financial statements
The result of this financial analysis is detailed in the output sheets that are attached to the end of this section.

- Income Statement
- Cash Flow Statement
- Balance sheets

2) Major Financial Index
The major financial indicators in each operation year are shown in Table 11-10. Each indicator is obtained from the following formula:

(a) Ratio of Profit to Revenue
Profit after tax / Revenue

(b) TURN OVER RATIO of Net Assets
Revenue / Net Assets

(c) Ratio of Profit to Net Assets
Profit after tax / Net Assets

(d) Debt Service Coverage Ratio
(Net Profit tax + Depreciation + Interest) / (Payment + Interest)

(e) Equity Ratio
Total Equity / Net Assets

(f) Long Term Loan Ratio
Long Term Loan / Net Assets

(g) Break Even Points (B.E.P.)
Profit B.E.P. - Sales Revenue

$(OPC + D + I) / r$

Cash B.E.P. - Sales Revenue

$((OPC + D + I) + (R - D) / (1 - g) + WCI) / r$

where,

OPC	: Operating Costs
r	: Sales revenue at each project year
R	: Repayment of Long-term Loan
D	: Depreciation
I	: Interest on Long-term Loan
g	: Tax rate
WCI	: Working Capital increase

12.1.6 Financial State of the Present Network

As mentioned in Chapter 10, to cope with fund shortages, UPTC is deferring long-term loan payments. But the situation is expected to worsen due to decrepitude of facilities, new equipment investment, and the start of long-term loan payments. It is necessary to take the current business and operational situations into consideration in order to evaluate the feasibility of executing the Master Plan. In other words, it is necessary to predict the cash position in the event that the current network continues to operate, and to include the cash position in the Master Plan.

a. Foreign Loans

Foreign Loans are evaluated based on the cumulative loan amount as of June 1993. The repayments are calculated based on the long-term loan repayments provisions.

Table 12-1-4 Combined Repayment Schedule for Long Term Debt as of June 30, 1993

Data	IDA I	IDA II	French Protocols	Total
93/94	2,996		4,146	7,142
94/95	2,836	3,905	1,136	7,877
95/96	2,675	7,562	1,067	11,304
96/97	2,515	7,229	998	10,742
97/98	2,354	6,897	596	9,847
98/99	2,194	6,565	126	8,885
99/2000	2,034	6,232		8,266
2000/01	957	5,900		6,857
01/02		5,568		5,568
02/03		5,235		5,235
03/04		4,903		4,903
04/05		4,570		4,507
05/06		2,160		2,160
06/07				0
07/08				0
08/09				0
09/10				0

b. Present Facilities

Present facilities are becoming decrepit and inappropriate for use. Therefore their supply capability is assumed to be deteriorating.

c. Exchange Rates

The exchange rate was fixed at US$ 1 = Ush 1190.0, the rate for 31st December 1993, so exchange losses/gains will be incurred after this point.

In consideration of the above circumstances, the model of the UPTC future financial situation has been made under hypothetical conditions which assume US dollar instead of Uganda Shillings.

12.1.7 Project Evaluation

(1) Concept of Project Evaluation

One aim of the Master Plan is to improve the soundness of UPTC's financial status, because UPTC is currently facing financial difficulties, and to strengthen operations to make it more viable.

The telecommunications network, the target source of UPTC's revenues, has only 30,000 subscribers. Sales revenues generated from this telecommunication network during the 1994/95 period will be about US$ 24.4 million. Operating expenses for the telecommunication network will reach US$ 20.5 million. After the deduction of interest and depreciation, UPTC will face a loss. To improve this situation, it is necessary for UPTC to formulate and possess an effective Master Plan that enables UPTC to realize revenues to adequately cover operating costs and disbursements for debt servicing.

UPTC is to adopt the Master Plan as the fundamental long range development plan for its total operations with the augment of the existing facilities. Therefore the appraisal of the Master Plan call for the analysis of financial situation foreseen as a whole business entity, which means that consolidated cash position is to be analyzed assuming the financial outputs obtained by the existing facilities. By such analysis, it is obviously proved how the financial position of UPTC has been improved as a whole.

Financial Internal Rate of Return (FIRR) is the index used for the evaluation of the Master Plan. The figure for return on the newly made investments, as well as the previously made investments, are incorporated in the amalgamated Internal Rate of Return (IRR). The principal fixed assets remaining on the books are the investments with the financing under IDA II and French Protocol.

Therefore, the FIRR as calculated in the above manner is considered appropriate for determining the effectiveness of the Master Plan.

(2) Project Evaluation for Master Plan (Case 1)

As a prerequisite for raising funds, we will use foreign grant aids and long-term loans for the first five years, fiscal year 1995/96 through fiscal year 1999/2000, and evaluate the Master Plan (about 30% is from foreign grant aids and the remaining 70% is from long-term loans. For fiscal years 1994/95 the long term loan with the Ugandan Government equity will each constitute the funding because the project will be under way, and the project cost is to be covered by the long-term loans and the funds from operation (internally generated funds) after fiscal year 2000/01. The Ugandan government's provisions for the long-term loans to UPTC are as follows: annual interest, 8.0%; grace period, 5 years; repayment period, 10 years.

In considering the overall financial situation, the Master Plan works as a favorable factor for UPTC's financial situation through the entire period of the Master Plan. As Table 12-3 shows, the single-year profit and loss from the Master Plan will turn positive in fiscal year 2000/01. However, the accumulated profit and losses will not turn profitable until 2007/08 and is expected to operate in the red for 13 years. The main factor affecting the long-run cumulative deficit is the excessive burden of obligation incurred under the above conditions.

On the other hand, cash flow will turn positive after fiscal year 2004/05. However, Cash flow statement (refer to Table 12-1-3) shows the difficultics in actual operations year because the fund shortage for each operation year of the Master Plan required large amount of short term finance, which will continue 9 years long, amounting to US$ 9.6 million (1997/98)--over 35% of the annual investment costs.

12.1.8 Future Proposal

As we see in the Master Plan (Case 1:Table 12-3), the single-fiscal-year cash flow will become profitable in fiscal year 2004/05. This shows how difficult it is to operate in the red for ten straight years. It is difficult to predict that UPTC will endure such a burden judging from the current business situation. That is, under present loan provisions, the business situation will be unfavorable due to the cash flow restrictions imposed by the heavy long-term loan burden. This will be the case even though service meets demand and the number of subscribers increases tremendously as we say in the Master Plan (Case 1: Table 12-3). However, it can also be expected that UPTC business situation will improve, the present accumulated debt will be paid off, and a small profit will be realized once the deficit period is overcome.
We would like to discuss how to overcome this deficit period.

Financial problems of UPTC:

a. Massive debt (repayment starts from financial year 1993/94)
b. Poor money collection, Poor debt collection strategies
c. High O/M cost

UPTC faces three major problems: they are beset with huge debt, difficulties in collecting money, and constant expenses. The countermeasures for problems b. and c. are to be proposed in the Master Plan. However, they cannot be drastic measures, nor can they be expected to be a quick fix for the financial deficit.
Concerning the debt situation, the heavy burden at the start of the project is covered in Table 12-3, 12-4. The long-term loan repayments start in the same time period and become a negative cash flow factor once obligations begin to accumulate rapidly. Therefore, we examined the Master Plan (Case 2: TABLE 12-4), in which the Equity contribution by the Government must be introduced in order to carry out the Master Plan.

12.1.9 Case Study : Master Plan (Case 2)

The Master Plan (Case 2) will introduce the Equity contribution by the Government, to improve UPTC's operating conditions in the initial stage, while expanding the telecommunication network which will meet 70% of the expected growth in demand by the year 2009/10.

The prerequisites for raising funds are the same conditions set out in Case 1 (refer to Table 12-3).

The Equity contributions were applied to the UPTC's present long-term loans (a part of IDA I and French protocols).
The size of the Equity contribution has been set at a maximum of US$ 15.0 million for the first 3 years, given the financial restrictions.

The result of the provisional estimate is shown in Table 12-4.

The single-fiscal-year profit and loss will enter the black in fiscal year 1999/2000 and stabilize even though it fluctuates due to depreciation in fiscal year 2003/04. The accumulated profit and loss will show losses for 13 years until fiscal 2006/07. After that, it will stabilize and show a profit. UPTC can overcome the deficit period through its own efforts, for example, by reducing expenses, improving its collection system, and issuing bonds.

The fiscal year cash flow will turn positive as early as fiscal year 1998/99, and the accumulated cash flow will remain positive after fiscal year 2003/04.
It is possible to eliminate the deficit in the six year of the Master Plan, with the Equity ratio exceeding 15% in fiscal year 2009/10. This situation cannot be avoided considering that in the 16 years of the Master Plan, investments will be concentrated on the most important objective, i.e., the construction of a basic telecommunications network. After completion of the Master Plan, the equity ratio must be further improved by boosting earning capacity, increasing capital and other such measures. The increase in investment in initial stages will enable UPTC to respond to the increase in depreciation. These figures indicate that UPTC can manage its business independently.

FIRROE is expected at 17.0%, above the socioeconomic infrastructure project's bench mark.

However the total long-term loans will reach US$ 289 million. Since constant fund procurement is difficult, UPTC must rely on Official Development Assistance(ODA).

Looking at the evaluation result of the Master Plan from the perspective of donor countries, it is clear that the potential for revenues is insufficient compared with the size of investment. Considerable efforts will be necessary to obtain assistance from donor countries.

However, issues concerning isolated district centers will be eliminated, when the Master Plan is completed. The telecommunications network will serve as a socioeconomic infrastructure extending throughout the country.

12.1.10 Summary of financial analysis

The summary of the result of the above financial analysis is shown in Table 12-1-5.

Table 12-1-5 Summary of Financial Analysis (Case 2)

Item	Case 2	Item	Case 2
Total Investment	562,272	Corporation Tax	
		Project Total	13,642
		(Annual Average)	853
Project Funding Equity			
(Own Capital)	6,600	Net Profit	
Foreign Grant	52,710	Project Total	16,812
Long Term Loan	397,348	(Annual Average)	1,051
Fund from Operation	105,614		
Total	562,272	Cash Flow During Operation	
		Project Total	
Sales Revenue		(Annual Average)	53,881
Project Total	985,805		3,368
(Average Annual)	61,613	Expected Project Return	
		IRROE	
Operating Costs, Interest &			17.0 %
Depreciation			
Project Total	955,350		
(Average Annual)	59,709		

12.1.11 Sensitivity Analysis

The effects on the profitability of the projects by the changes of conditions assumed in this financial analysis have been analyzed.

The change of conditions (variable factors) and their variable ranges have been assumed as follows:

(1) Total Investment Cost

+10% and -10% of the fluctuation of the total investment cost at the project period.

(2) Sales Revenue

+20% and -20% of the fluctuation of the sales revenue in each project year.

(3) Interest on subsidiary loan

+4.0% and -4.0% of the fluctuation of the Interest of subsidiary loan.

(4) Grant portion rate

+20% and -20% of the fluctuation against the required investment costs for equipment/ facilities and engineering fee which are assumed in the Master Plan as the grant element items.

The result of the sensitivity analysis is summarized in Table 12-1-6.

Table 12-1-6 Summary of Sensitivity Analysis

Variable Factor	Variation	FIRR(%)
Total Investment	- 10.0 %	19.40
	Base	17.00
	+ 10.0 %	12.44
Sales Revenue	- 20.0 %	N.A.
	Base	17.00
	+ 20.0 %	58.80
Interest on Long-Term Loan	4.0 % p.a.	20.29
	8.0 % p.a.	17.00
	12.0 % p.a.	12.30
Grant Portion Ratio	- 20.0 %	11.62
	Base	17.00
	+ 20.0 %	20.02

12.1.12 Necessity of Governmental Aid

UPTC privatization is part of a long-term policy for the telecommunications sector. UPTC's main problem for the time being is to create a viable business situation despite its current financial problems. For privatization to be successful, it is vital that UPTC first becomes financially stable. According to the Profit and Loss streams and cash flow in the Master Plan (Case 2), the business will stabilize and enter the black after fiscal year 1999/2000. Also, Grant Aids are not required after fiscal year 2000/01. Though it would be possible to consider about privatization of UPTC at this point, the full cooperation of the Ugandan government would be needed to realize the Master Plan (Case 2). In addition, more bilateral and multilateral aids and the introduction of Equity contribution by the Government will be needed.

Furthermore, in implementing the Master Plan (Case 2), an issue concerning Ugandan telecommunications services will be pointed out as follows in comparison with the telecommunications services of other countries.

- Reexamination of Long-distance Telephone Charge

  The communication system between the Urban area and rural areas virtually does not exist because of the poor transmission conditions and the high rates charged for long-distance telephone calls. The long-distance telephone call rate should be reduced.

  The above issue is crucial since both could hinder the execution of the economic recovery plan. However, it will also be necessary to improve UPTC's financial situation in order to solve these problems. This is one of the reasons why the Master Plan (Case 2) needs to be carried out.

12.1.13 Considerations

As shown in Chapter 12.1.9, if the Government provides assistance, UPTC's financial status will improve along with expansion of the telecommunications network through implementation of the Master Plan. This will also enable UPTC to invest its internally generated funds from 2000/01 period onwards.
However, as a precondition to the evaluation, UPTC will require foreign Grants totaling about US$ 53 million, as well as Long Term Loans of about US$ 397 million.
Furthermore, UPTC will need debt capitalization of US$ 15 million from the Government. Given the fact that about 50% of the national budget comes from overseas assistance, procuring these funds will be difficult.
Since evaluations up until the previous clause have assumed that all of these funds will be procured, the alternative Scenarios are examined with a focus on fund procurement.

(1) Examination of Alternative scenarios

The key concept of the Master Plan is to implement highly profitable projects at an early stage and support low return projects, as well as finance the principal part of the project. Phase I projects of the Master Plan that will be constructed from 1994/95 to 1999/2000 follow this concept. When Phase I projects of the Master Plan are completed, the number of subscribers should reach 80,000. At the same time, the subscriber trunk dialing network will expand to include the district centers of Uganda. This means that a basic telecommunications network will be in place. This is one of the principal targets of the Master Plan and accomplishing this task is vital.

However, the total cost to implement phase I projects of the Master Plan will be about US$ 186 million, with an average annual amount being US$ 31.0 million. It will be difficult to procure this amount in the six year period leading up to 1999/2000.

Accordingly, we examined alternative scenario A in which the total investment costs of Phase I is reduced. Therefore, we postponed three projects that originally came under Phase I to Phase II. The three projects are categorized as "Low Return Project". Alternative scenario B in which the deadline for completion of Phase I is extended to 2004/05 is also examined.

The fund plans under each alternative scenario allowed for an figure of Financial Internal Rate of Return (FIRR) close to that of the Master Plan (Case 2) of 17.0%.

(2) Alternative scenario A (Refer to Table 12-5)

Compared with the Master Plan (Case 2), alternative scenario A exhibits a slightly better earning capacity. Nonetheless, there is no major difference in results.

The fund applications table for the fiscal years from 2000/01 to 2004/05 shows that 40% of the annual investment is appropriated from internal funds, restricting the use of those funds. Therefore, when evaluating results the alternative scenario A is not a significant improvement over the Master Plan (Case 2).

(3) Alternative scenario B (Refer to Table 12-6)

Since alternative scenario B has a high earning capacity, it enables to set the foreign grant for only 3 years (total amount: US$ 17.34 million, less than the Master Plan (Case 2) by US$ 35 million), and Equity contribution for only 2 years (total amount: US$ 10.0 million, less than the Master Plan (Case 2) by US$ 5 million) in the initial stage.

Under Phase II, 60% of the annual investment amount must be raised by Long Term Loans. The remaining 40% can be appropriated from Internally generated funds.

Under Phase III, the investment amount will be jumped. Therefore, 70% of the annual investment amount must be appropriated through long term loans. However, external funds, which should be reserved throughout the Master Plan period, will be US$ 261 million, accounting for only 72% of the total investment cost.

Looking at the statement of Profit and Loss, depreciation expenses are sufficiently covered during the period of the Master Plan.
Since the earning power is ample compared with the original Master Plan with equity contribution (Case 2), profit after tax will increase steadily, resulting in the accumulation of net capital in the form of retained earnings. The Equity ratio will reach 33%. Therefore, procurement of Long Term loans from donor countries under Phase III will be much easier than for the base plan. Furthermore, alternative scenario B prepares sufficiently for unexpected financial fluctuations.
This mean, UPTC financial condition is improved by Alternative Scenario B.

However, in the year 2009/2010, the number of telephones in the country will reach the average telephone density of the sub-Sahara region at 1994 levels. Therefore, UPTC will be able to meet less than 50% of telephone demand. This means that results under alternative scenario B will require a significant downward revision from the original Master Plan's final target.

(4) Total Evaluation

Although the original Master Plan satisfies the final target, it requires too much investment relative to the earning capacity.

Alternative Scenario A does not present any major differences in terms of evaluation results, but it poses major problems in fund procurement.

Alternative Scenario B does not realize the final goal of the original Master Plan, but it will create 105,000 subscribers. Therefore, alternative scenario B delivers the maximum investment benefits at a minimum investment amount.

In implementing the Master Plan, consideration of the feasibility of the plan is a key factor.

Based on this point of view, alternative scenario B is recommended for UPTC's future.

12.2 Economic Evaluation of Master Plan (Case 2)

The financial analysis conducted in the previous section indicated investment schedules and fund schemes required to strengthen UPTC's financial status. Whether or not to implement the Master Plan is determined by thoroughly examining the financial indices including provisional estimates of long-term borrowing, total debt capitalization and foreign grant amounts in the Master Plan (Case 2).

The results of financial analysis of the Master Plan (Case 2) suggest that the project is feasible, although considerable efforts are still necessary.

The total investment amount of US$561 million is 1.5 times the total amount of official development assistance (ODA) Uganda received in fiscal 1993. It would be a mistake, when evaluating the Master Plan, to assess and discuss only one issue -- whether the large-scale investment will pay off or not. It will also be necessary to recognize and assess other issues; for example, the benefits of a countrywide communications network, solving the security problems of northern regions and providing services to isolated areas.

It is difficult to quantitatively calculate the benefits that would result from the success of the project. A technique to examine the feasibility of this type of public project based on economic analysis has not been developed. Projects have been evaluated mainly through financial analysis.

Given this situation, an economic evaluation must be performed by assessing the economic benefits and costs of the Master Plan within a viable range of quantitative estimation, and then, incorporating qualitative evaluations into the results.

A tentative calculation of EIRR (Economic Internal Rate of Return) is merely a guide for expressing in numerical figures the economic benefits and cost, both of which are difficult to quantitatively determine. However, It is useful as a rough criterion for analysis, as it reflects to a certain extent the benefits to society, which are not taken into consideration during financial analysis.

12.2.1 Method of Economic Evaluation

In this Economic Analysis, the economic effect expected from the performance of these projects will be assessed dealing mainly with the calculation of Economic Internal Rates of Return (EIRR) when discounting sets of economic cost and benefit streams for the Master Plan. Through elimination of the value of transfer items and application of appropriate shadow prices to the financial cost and benefit streams, the financial cash flows are transferred into economic cost and benefit streams to calculate the EIRR.

12.2.2 Economic Benefit

Economic Benefit of the Master Plan will be divided into direct and indirect benefits, which will be assessed separately.

(1) Direct Benefit

The direct benefit of these projects lays its importance in the economic value. Sales revenues in economic value to be generated by the Master Plan are estimated, based on investigation results concerning user's willingness to pay.

(2) Indirect Benefit

The improvement of telecommunication networks will contribute a great deal to the improvement of the national well-being not simply in the form of economic benefit but also in terms of social benefit. Such indirect benefits conceivable are:

For Nations:

- Greater ease in emergency access to medical institutions.
- Improved emergency communication, leading to upgrading and diversification of government and private services.
- Economic effects to enhance business activities.
- Increase in employment opportunities, improvement in security, etc.

For UPTC:

- Nationwide expansion of telecommunications service.
- Improvement of telecommunications service.
- Rapid innovation in telecommunications.
- Simplification of network management.
- Creating new services.

With the combination of above effects, national economic growth is promoted.

12.2.3 Economic Costs

For the economic costs, the following items must be considered.

(1) Initial Investment Costs for Implementation of the Projects.

The Equipment and Facilities costs, Engineering services costs, Pre-operation costs and Initial working capital will be necessary as the initial cost for the implementation of the projects.

The economic value of these costs will be calculated by separating the local and foreign currency portions, considering the premiums for the economic value.

(2) Operating and Maintenance Costs

As the operating and maintenance costs, the staff costs, general expenses and insurance charges are required. These expenses must be analyzed economically considering their economic values.

(3) Items of Transfer

The tax imposed on UPTC is an actual expenditure for UPTC. However, looking at the tax from a social perspective, it is only a transfer of cash from UPTC to the government. Since it does not require any resources, it will not be considered a cost.

For the same reason, the insurance to be paid to domestic companies is a transfer item and therefore is excluded from the cost.

12.2.4 Economic Parameters

The financial value projected in the Financial Analysis will be converted to the economic value using the following factors.

(1) Foreign Exchange Premium

The Foreign exchange premium utilized in converting the market value into economic value is derived from the following Standard Conversion Factor (SCF) formula.

$$SCF = (M+X)/\{(M+Tm)+(X-Tx)\}$$

where,

SCF : Standard Conversion Factor

M : CIF value of imports
X : FOB value of exports
Tm : All taxes on imports
Tx : All taxes on exports

Each value of the above parameters to obtain SCF and the result of calculation are summarized in Table 12-2-1.

Table 12-2-1 Standard Conversion Factor

Year	Exports (FOB) (M.US$)	Imports (CIF) (M.US$)	Tax (Exp) (M.US$)	Tax (Imp)	SCF
1988/89	272.0	699	33.0	79.5	0.896
1989/90	227.0	679	41.3	106.9	0.859
1990/91	175.8	462	21.9	113.6	0.825
1991/92	162.5	494	2.1	104.1	0.860
1992/93	167.5	570	Nil	132.8	0.847
Average SCF					0.857
Foreign Exchange Premium					1.170

Source : Background Budget 93/94

(2) The financial values of costs items presented in 'Financial Evaluation' will be divided into local and foreign currencies, and the local currency portion will be further divided into skilled labor, unskilled labor, and local Material. Although the value of national parameter is not announced by the Ugandan government, the value is set up for the Master Plan with the assumption that socio-economic environment in the country will reach the average level of the sub-Sahara region. Therefore, the Zambia's parameter has been referred to as the national parameter of Uganda. Then the economic values will be calculated using the value of national parameters (premium of economic value) as shown below:

- Local Material* 0.86
- Skilled Labor * 0.85
- Unskilled Labor* 0.54
- Working Capital* 1.00
- Foreign Exchange Premium 1.17

* : Sub SAHARA level

12.2.5 Economic Evaluation

To confirm and estimate the economic benefit of telecommunications, the field surveys were designed to investigate how much the telephone subscriber would be willing to pay for the actual value of the services. The economic benefit is generally known as Consumer's surplus. For the purposes of estimating the Consumer's surplus in the current investigation, interview surveys were conducted in six rural areas and Kampala urban area.

- Interview survey:
  The main questions asked relating to the economic benefit were as follows:
  a. The amount the respondent was willing to pay to use telecommunications services.
  b. The situations relating to the use of substitute means for telecommunications.

  Because most of the residents in rural areas who were surveyed lived in circumstances where there were no telephones, interviews were concentrated on waiting subscribers or former subscribers who were able to understand the benefit of the telephone.

Economic evaluation is more conceptual approach than the financial evaluation with the assumption that economic evaluation employs perspective of society while financial evaluation is based on business entity's perspective. Therefore, Economic benefit and cost are not directly related to actual monetary flow.

(1) Determination of Economic Direct Benefit

The following three approaches are adopted to estimate the Economic Direct Benefit and emphasis was placed on understanding the trends.

- The average value of the amounts the respondents were willing to pay as illustrated in the interview results.
- The Shadow price which is hidden in the tariff structure.
- The direct benefit estimated from the transport substitute.

1) Willingness to Pay

The average value of the amounts the respondents were willing to pay is given in the interview results. The Economical Direct benefit is taken as the amount of money the beneficiary is willing to pay, in addition to the Direct Benefit used in financial analysis.

In cases where there are significant disparities in living standards between urban and rural areas, such as exist in the Republic of Uganda, it is necessary to segregate and understand the consumer surplus because the attributes of those who receive the benefit differ greatly. Separate rural and urban Consumer's surpluses were therefore estimated and incorporated in the Economic Evaluation.

Table 12-2-2 Willingness to pay

Items	Urban	Rural
Call Charge (Domestic)	580 %	216 %
Installation	142 %	213 %
Rental	94 %	250 %

Note: The result of Interview survey is shown in Supporting Document.

As a general comment, residents of rural areas cannot make large lump sum payments, but would be willing to pay a premium for monthly rental fee and Call charge under the newly adopted tariff level. By contrast, urban residents accept a premium being added to the subscription charge which is a once-only levy, but do not accept the addition of a premium to monthly rental fee or call charge at regular intervals. This illustrates vividly the fact that the savings habit is not part of the way of life of residents in rural areas, and that large, one-off expenditure is extremely difficult.

Note: The interview surveys were conducted at different times for rural and urban areas. However, the charges were revised between the two times, and hence they cannot be evaluated on the same standards. Understanding therefore, that if a certain percentage premium had been accepted in respect of the base price at the time of the interview, above figures were multiplied by the base price at the time of the evaluation.

2) Shadow Price(1) which is hidden in the current tariff level. The shadow prices that accompany fluctuations in the exchange notes are considered.

Table 12-2-3 shows the tariff system in Uganda, quoted in Uganda Shillings. It is evident that charges quoted in Uganda Shillings are increasing each year. However, when they are converted into US dollars, as indicated in Table 12-2-3, it is clear that the charges are actually decreasing gradually. The highest in the call charge prices was recorded in 1987, at US$0.17 per call. Subscribers paid charges under this charge system. This means that subscribers understood that the value of a call was US$0.17.

As of May, 1994, the charge is priced at US$.0.05 per call. This does not mean that the value of the call has declined, but rather a cosmetic drop in value resulting from exchange rate fluctuations.

Table 12-2-3 TRACE OF TELEPHONE CHARGES

DATE	INSTALLATION		RENTAL FEE		UNIT CHARGE	
	U.SHS	US$	U.SHS	US$	U.SHS	US$
1987	5,325.00	88.75	300.00	5.00	10.00	0.17
1988	5,325.00	35.50	300.00	2.00	10.00	0.07
1989	10,200.00	51.00	800.00	4.00	20.00	0.10
1990	10,200.00	25.50	800.00	2.00	20.00	0.05
1991	10,200.00	14.57	800.00	1.14	40.00	0.16
1992	10,200.00	8.50	800.00	0.67	50.00	0.04
1993	10,200.00	8.72	800.00	0.68	50.00	0.04
1994	60,000.00	60.00	1,500.00	1.50	50.00	0.05

It can be interpreted that a premium is already incorporated in the current charges, the difference between the two, US$ 0.12 per call, is therefore seen as a shadow premium, and maximum values of the last 8 years were applied in the estimate. The same way of thinking was applied to installation and rental fees.
Shadow price (Maximum case) for Domestic call

Premium of call charges	: US$ 0.17	U.Shs. 202.3
Installation fee	: US$ 88.75	U.Shs. 105,612
Rental fee	: US$ 5.00	U.Shs. 5,950

Note: 1993 price basis (1 US$: 1,190 Ush).

3) Shadow Price (2) estimated from the transport substitute

The only other reliable means of communication apart from telecommunications in the Republic of Uganda is direct personal travel. People with business to conduct somewhere actually go to the place in question. The costs associated with this personal travel can be considered to comprise the time spent in travelling and the labor costs involved, in addition to the travel costs directly incurred. However, regional differences greatly affect the time spent in travelling and cannot be quantified. Focusing therefore on the transport costs directly incurred, the direct benefit should be calculated as the Communication Costs which have been substituted by this personal travel. The average value obtained from the interview survey (US$20/time) was used as this transport cost.

If those interview respondents who could become the focus of demand are specifies, people who leave town for other parts more than ten times a month would come into that category. The estimate of the minimum level of that transport cost can be found as follows:

US$ 20/time x 10 times/month x 12 month = US$ 2,400

Given that the introduction of telecommunications reduces the physical movement of people whose objective is communication, if it is assumed that half of this travel can be substituted by telecommunications, US$ 2,400/2 = US$ 1,200 represents the component that can be substituted by telecommunications. Since the cost associated with telecommunications has been set at US$ 1,000 per subscriber, the difference of US$ 200 can be considered to be representing the premium.

Note: Many of the residents at the time of interview thought that if telecommunications were introduced, the number of times they would leave the city would be halved.

The Total economic benefits by each Economic Benefit case assumed are summarized as shown in Table 12-2-4.

Table 12-2-4 Economic Benefit Streams

Unit: 1000 USD

	Willingness to pay	Shadow Price (Tariff)	Shadow Price (Transport)
1(94/95)	79,529	53,856	29,376
2(95/96)	85,460	57,994	31,656
3(96/97)	97,051	65,990	36,044
4(97/98)	111,709	76,058	41,550
5(98/99)	131,507	89,675	49,169
6(99/00)	151,998	103,722	57,052
7(00/01)	168,062	115,761	63,900
8(01/02)	184,834	128,532	71,215
9(02/03)	202,431	142,131	79,058
10(03/04)	220,247	156,149	87,208
11(04/05)	234,295	167,741	94,283
12(05/06)	248,937	178,975	101,291
13(06/07)	263,470	190,233	108,459
14(07/08)	277,710	201,375	115,722
15(08/09)	291,499	212,286	123,030
16(09/10)	304,675	222,843	130,332

(2) Economic Cost Streams

1) Initial Investment Cost for Performance of the Master Plan.

The total investment and costs in each construction year described are summarized in Table 12-2-5 for Economic Analysis. The economic cost streams will be calculated by separating the local and foreign currency portions. The local currency portion is divided into the costs of the skilled, unskilled and local materials. The cost of each item is converted into the economic cost using value of national parameter.

The Economic costs stream is shown in Table 12-2-5.

2) Operating Cost

The economic value of the cost of the labor and other expenses will be calculated as the cost for operating. The transfer items are excluded from financial value estimated, and the rest of the costs are converted into economic value using value of national parameter as shown in Table 12-2-5.

Table 12-2-5 Investment Cost and Operating Cost on Economic Value

Year	Investment Cost	Operating Cost
1994/95	12,455	16,702
95/96	24,543	17,460
96/97	36,814	18,912
97/98	39,481	21,193
98/99	46,631	22,752
99/2000	40,015	24,357
00/01	36,558	25,716
01/02	36,558	27,140
02/03	36,558	28,720
03/04	36,558	30,163
04/05	36,558	31,769
05/06	43,451	33,417
06/07	43,451	35,151
07/08	43,451	36,931
08/09	43,451	38,803
09/2010	43,451	40,776
Total	599,984	449,962

(3) Assessment of Result of Economic Analysis

EIRR during the economic life span for the Master Plan (Case 2) is calculated using the economic benefits and costs, and shown in Tables 12-2-4 and 12-2-5. In these tables, the economic cash flows by the variation of economic benefits are calculated;

in other words, the cash flows and EIRR in relation to the economic values of the Master Plan (Case 2) are presented. Labor, the measures to assess the economic viability, are summarized as shown in Table 12-2-6 and 12-2-7.

Table 12-2-6 Summary of Economic Analysis

Economic Benefit Value	Premium to Financial Benefit	EIRR (IRROI) (%)
Willingness to pay	3.20	91.09
Shadow price (tariff)	2.20	45.74
Shadow price (transport)	1.20	6.00

Note : FIRR (IRROE) is 17.0%

The result of Economic Analysis clearly states that EIRR is much higher than the FIRR. This implies that the economic benefit is very high due to the greatness of people's demand for telecommunication services even though the present tariff in market price is controlled under a relatively low charge.

When consideration is given to the anticipated benefits accruing from the implementation of the Master Plan (Case 2), while understanding the characteristics of the telecommunications project, which is a public project, then implementing the Master Plan with the Government support will contribute to Uganda's economic development and infrastructure improvement, especially in remote areas.n The same implementation is also expected to improve the operations of UPTC and become a cornerstone in UPTC's shift to sound operations.

To conclude, Implementation of the Master Plan is likely to contribute to enhancement of economic development and improvement of social welfare of Ugandan.

Table 12-2-7 The Result of Economic Analysis

UNIT : 1000 USD

PROJECT YEAR	ECONOMIC BENEFIT (1)			ECONOMIC COST			ECONOMIC CASH FLOW (1) - (2)		
	WILLINGNESS TO PAY	SHADOW PREMIUM(A)	SHADOW PREMIUM(B)	INVESTMENT	OPERATING COST	TOTAL(2)	WILLINGNESS TO PAY	SHADOW PREMIUM(A)	SHADOW PREMIUM(B)
-1(B.M/P)	-	-	-	55,000	-	55,000	-55,000	-55,000	-55,000
1(94/95)	79,529	53,856	29,376	12,455	16,702	29,157	50,372	24,699	219
2(95/96)	85,460	57,994	31,656	24,543	17,460	42,003	43,457	15,991	-10,347
3(96/97)	97,051	65,990	36,044	36,814	18,912	55,726	41,325	10,264	-19,682
4(97/98)	111,709	76,058	41,550	39,481	21,193	60,674	51,035	15,384	-19,124
5(98/99)	131,507	89,675	49,169	46,631	22,752	69,383	62,124	20,292	-20,214
6(99/2000)	151,998	103,722	57,052	40,015	24,357	64,372	87,626	39,350	-7,320
7(00/01)	168,062	115,761	63,900	36,558	25,716	62,274	105,788	53,487	1,626
8(01/02)	184,834	128,532	71,215	36,558	27,140	63,698	121,136	64,834	7,517
9(02/03)	202,431	142,131	79,058	36,558	28,720	65,278	137,153	76,853	13,780
10(03/04)	220,247	156,149	87,208	36,558	30,163	66,721	153,526	89,428	20,487
11(04/05)	234,295	167,741	94,283	36,558	31,769	68,327	165,968	99,414	25,956
12(05/06)	248,937	178,975	101,291	43,451	33,417	76,868	172,069	102,107	24,423
13(06/07)	263,470	190,233	108,459	43,451	35,151	78,602	184,868	111,631	29,857
14(07/08)	277,710	201,375	115,722	43,451	36,931	80,382	197,328	120,993	35,340
15(08/09)	291,499	212,286	123,030	43,451	38,803	82,254	209,245	130,032	40,776
16(09/10)	304,675	222,843	130,332	43,451	40,776	84,227	220,448	138,616	46,105
TOTAL	3,058,414	2,163,321	1,219,345	654,984	449,962	1,104,946	91.09%	45.74%	6.00%

Master Plan (Case 1 : without Equity Contribution)

Master Plan (Case 1 : without Equity Contribution)

Table 12-3-1 Base Data

PROJECT YEAR / ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16
SUBSCRIBER																
TOTAL SUBSCRIBER	34,000	36,000	40,300	45,800	53,600	61,000	68,700	77,000	86,000	95,500	105,000	114,800	125,200	136,200	147,800	160,000
INCREASE	0	2,000	4,300	5,500	7,800	7,400	7,700	8,300	9,000	9,500	9,500	9,800	10,400	11,000	11,600	12,200
TRANSFER	0	800	16,900	4,780	8,380	2,400	1,940	500	800	1,000	0	0	0	0	0	0
FOR MASTER PLAN	0	1,000	21,600	31,500	47,360	56,960	66,400	75,200	85,000	95,500	105,000	114,800	125,200	136,200	147,800	160,000
REVENUE																
REVENUE PER SUBSCRIBER	1,000	1,000	1,000	1,000	980	960	940	920	900	880	850	820	790	760	730	700
COLLECTING RATIO	72.0%	73.0%	74.0%	75.0%	77.0%	80.0%	81.0%	82.0%	83.0%	84.0%	85.0%	86.0%	87.0%	88.0%	89.0%	90.0%
CALL & RENTAL CHARGE	24,480	26,280	29,822	34,350	40,447	46,848	52,308	58,089	64,242	70,594	75,863	80,957	86,050	91,091	96,026	100,800
INSTALLATION CHARGE	0	120	258	330	468	444	462	498	540	570	570	588	624	660	696	732
TOTAL REVENUE (MIL USD)	24,480	26,400	30,080	34,680	40,915	47,292	52,770	58,587	64,782	71,164	76,433	81,545	86,674	91,751	96,722	101,532
STAFF																
TOTAL	2,500	2,600	2,700	2,800	2,900	3,000	3,150	3,300	3,450	3,600	3,750	3,900	4,050	4,200	4,350	4,500
EFFICIENCY(STAFF)	14	14	15	16	18	20	22	23	25	27	28	29	31	32	34	36
STAFF COST (MIL USD)	11,211	11,741	12,290	12,906	13,548	14,213	15,042	15,901	16,797	17,681	18,602	19,513	20,464	21,403	22,386	23,415
OTHER COST (MIL USD)	9,376	9,782	10,980	13,085	14,324	15,597	16,435	17,321	18,356	19,243	20,286	21,387	22,552	23,781	25,079	26,452
INVESTMENT (MIL USD)																
TOTAL INVESTMENT	11,672	23,000	34,500	37,000	43,700	37,500	34,260	34,260	34,260	34,260	34,260	40,720	40,720	40,720	40,720	40,720
OF WHICH :																
LONG TERM LOAN	8,698	16,100	24,150	25,900	30,590	26,250	20,556	20,556	20,556	20,556	20,556	32,576	32,576	32,576	32,576	32,576
SHARE PERCENT(%)	74.5%	70.0%	70.0%	70.0%	70.0%	70.0%	60.0%	60.0%	60.0%	60.0%	60.0%	80.0%	80.0%	80.0%	80.0%	80.0%
FOREIGN GRANT	0	6,900	10,350	11,100	13,110	11,250	0	0	0	0	0	0	0	0	0	0
SHARE PERCENT(%)	0.0%	30.0%	30.0%	30.0%	30.0%	30.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
FUND FROM OPERATION	0	0	0	0	0	0	13,704	13,704	13,704	13,704	13,704	8,144	8,144	8,144	8,144	8,144
SHARE PERCENT(%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	40.0%	40.0%	40.0%	40.0%	40.0%	20.0%	20.0%	20.0%	20.0%	20.0%
EQUITY INFUSION	2,974	-0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SHARE PERCENT(%)	25.5%	-0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Master Plan (Case 1 : without Equity Contribution)

Table 12-3-2 Profit and Loss Table

UNIT: 1000USD

PROJECT YEAR ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16	TOTAL
SALES REVENUE																	
CALL/RENTAL	24,480	26,280	29,822	34,350	40,447	46,848	52,308	58,089	64,242	70,594	75,863	80,957	86,050	91,091	96,026	100,800	978,245
INSTALLATION	0	120	258	330	468	444	462	498	540	570	570	588	624	660	696	732	7,560
NET SALES	24,480	26,400	30,080	34,680	40,915	47,292	52,770	58,587	64,782	71,164	76,433	81,545	86,674	91,751	96,722	101,532	985,805
OPERATING COSTS																	
STAFF COST	11,211	11,741	12,290	12,906	13,548	14,213	15,042	15,901	16,797	17,681	18,602	19,513	20,464	21,403	22,386	23,415	267,113
OTHER COST	9,376	9,782	10,980	13,085	14,324	15,597	16,435	17,321	18,356	19,243	20,286	21,387	22,552	23,781	25,079	26,452	284,036
TOTAL O/M COST	20,587	21,523	23,270	25,991	27,872	29,810	31,477	33,222	35,153	36,924	38,888	40,900	43,016	45,184	47,465	49,867	551,149
INTEREST	3,074	4,423	4,294	4,801	5,001	4,147	2,707	3,805	5,052	6,095	7,016	7,726	8,111	8,414	8,553	8,527	91,746
DEPRECIATION	1,992	5,470	6,919	9,092	11,423	13,819	16,182	19,265	22,349	25,432	28,515	27,749	30,287	32,261	34,113	35,636	320,505
PROFIT BEFORE TAX	-1,173	-5,016	-4,403	-5,205	-3,382	-484	2,404	2,295	2,228	2,713	2,013	5,170	5,260	5,892	6,591	7,502	22,405
CORPORATION TAX	0	0	0	0	0	0	721	688	668	814	604	1,551	1,578	1,767	1,977	2,250	12,620
PROFIT AFTER TAX	-1,173	-5,016	-4,403	-5,205	-3,382	-484	1,683	1,606	1,560	1,899	1,409	3,619	3,682	4,124	4,614	5,251	9,785

Master Plan (Case 1 : without Equity Contribution)

Table 12-3-3 Cash Flow Statement

UNIT: 1000USD

PROJECT YEAR / ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16	TOTAL
SOURCE OF FUNDS																	
CASH FROM OPERATION	819	454	2,516	3,888	8,041	13,335	18,586	21,560	24,577	28,145	30,528	32,919	35,547	38,153	40,704	43,138	342,910
LONG-TERM LOANS	8,698	16,100	24,150	25,900	30,590	26,250	20,556	20,556	20,556	20,556	20,556	32,576	32,576	32,576	32,576	32,576	397,348
EQUITY INFUSION	6,600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,600
DEBT CAPITALIZATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FOREIGN GRANT	0	6,900	10,350	11,100	13,110	11,250	0	0	0	0	0	0	0	0	0	0	52,710
SHORT-TERM FINANCE	0	1,882	6,536	9,666	8,126	1,212	2,723	2,687	2,034	249	0	0	0	0	0	0	35,114
TOTAL SOURCE OF FUNDS	16,117	25,336	43,552	50,553	59,867	52,047	41,865	44,803	47,167	48,950	51,084	65,495	88,123	70,729	73,280	75,714	834,681
APPLICATION OF FUNDS																	
TELECOM. FACILITIES & EQUIPMENT, ETC.	11,672	23,000	34,500	37,000	43,700	37,500	34,260	34,260	34,260	34,260	34,260	40,720	40,720	40,720	40,720	40,720	562,272
INCREASE IN WORKING CAPITAL	-4,108	-4,545	289	469	395	433	451	464	482	347	317	304	284	260	231	0	-3,928
REPAYMENT OF:																	
LONG-TERM LOAN	4,803	6,881	6,881	6,549	6,107	5,988	5,942	6,635	9,050	11,640	14,699	15,246	15,224	17,280	19,336	21,391	173,651
SHORT-TERM FINANCE	0	0	1,882	6,536	9,666	8,126	1,212	2,723	2,687	2,034	249	0	0	0	0	0	35,114
CORPORATION TAX PAID	3,750	0	0	0	0	0	0	721	688	668	814	604	1,551	1,578	1,767	1,977	14,120
TOTAL APPLICATION OF FUNDS	16,117	25,336	43,552	50,553	59,867	52,047	41,865	44,803	47,167	48,950	50,339	56,873	57,780	59,838	62,054	64,089	781,228
CASH SURPLUS	0	0	0	0	0	0	0	0	0	0	746	8,622	10,344	10,891	11,226	11,626	53,453
CASH FLOW	-6,600	0	0	0	0	0	0	0	0	0	746	8,622	10,344	10,891	11,226	11,626	46,853

Master Plan (Case 1 : without Equity Contribution)

Table 12-3-4 Balance Sheet

UNIT : 1000 USD

PROJECT YEAR / ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16
CURRENT ASSETS:																
CASH	4,363	-182	107	576	970	1,403	1,854	2,318	2,800	3,148	3,464	3,768	4,052	4,312	4,543	4,543
NET DEBTORS	19,526	19,526	19,526	19,526	19,526	19,526	19,526	19,526	19,526	19,526	19,526	19,526	19,526	19,526	19,526	19,526
OTHERS	10,097	10,097	10,097	10,097	10,097	10,097	10,097	10,097	10,097	10,097	10,843	19,464	29,808	40,698	51,925	63,550
TOTAL CURRENT ASSETS	33,986	29,441	29,730	30,199	30,593	31,026	31,477	31,941	32,423	32,771	33,833	42,758	53,386	64,537	75,994	87,619
CURRENT LIABILITIES :																
SHORT-TERM FINANCE	0	1,882	6,536	9,666	8,126	1,212	2,723	2,687	2,034	249	0	0	0	0	0	0
OTHERS	11,595	11,595	11,595	11,595	11,595	11,595	12,316	12,283	12,263	12,409	12,199	13,146	13,173	13,362	13,572	13,845
TOTAL CURRENT LIABILITIES	11,595	13,477	18,131	21,261	19,721	12,807	15,039	14,970	14,298	12,658	12,199	13,146	13,173	13,362	13,572	13,845
NET CURRENT ASSETS :	22,391	15,964	11,599	8,938	10,872	18,220	16,438	16,971	18,126	20,113	21,634	29,612	40,213	51,174	62,421	73,774
FIXED ASSETS :																
NET FIXED ASSETS/W.I.P	64,892	82,191	108,966	135,205	164,888	184,883	198,338	208,709	215,997	220,202	221,323	229,670	235,711	239,777	242,567	244,695
INTELSAT INVESTMENT	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772
TOTAL FIXED ASSETS	66,664	83,963	110,738	136,977	166,660	186,655	200,110	210,481	217,769	221,974	223,095	231,442	237,483	241,549	244,339	246,467
NET ASSETS :	89,055	99,927	122,337	145,915	177,533	204,875	216,548	227,452	235,895	242,086	244,729	261,055	277,696	292,723	306,760	320,241
NET ASSETS(EXCL. F. GRANT)	86,514	90,717	103,583	117,730	138,831	158,609	174,906	190,433	203,499	214,314	221,580	242,530	263,563	282,983	300,838	317,274
SOURCE OF CAPITAL :																
EQUITY/RESERVES	14,937	14,937	14,937	14,937	14,937	14,937	14,937	14,937	14,937	14,937	14,937	14,937	14,937	14,937	14,937	14,937
RETAINED EARINGS	2,356	-2,660	-7,063	-12,267	-15,649	-16,133	-14,451	-12,844	-11,284	-9,385	-7,977	-4,358	-675	3,449	8,062	13,314
TOTAL EQUITY	17,293	12,277	7,874	2,670	-712	-1,196	486	2,093	3,653	5,552	6,960	10,579	14,262	18,386	22,999	28,251
FOREIGN GRANT	2,541	9,210	18,754	28,186	38,702	46,266	41,643	37,019	32,396	27,772	23,149	18,525	14,133	9,740	5,923	2,968
LONG TERM LOANS	69,221	78,440	95,709	115,060	139,543	159,805	174,419	188,340	199,847	208,763	214,620	231,950	249,302	264,598	277,838	289,023
TOTAL SOURCE OF CAPITAL	89,055	99,927	122,337	145,915	177,533	204,875	216,548	227,452	235,895	242,086	244,729	261,055	277,696	292,723	306,760	320,241
NET SOURCE OF CAPITAL (EXCL. F. GRANT)	86,514	90,717	103,583	117,730	138,831	158,609	174,906	190,433	203,499	214,314	221,580	242,530	263,563	282,983	300,838	317,274

Master Plan (Case 1 : without Equity Contribution)

Table 12-3-5 Major Financial Index

PROJECT YEAR / ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16
RATIO OF PROFIT TO REEVENUE	-4.79%	-19.00%	-14.64%	-15.01%	-8.27%	-1.02%	3.19%	2.74%	2.41%	2.67%	1.84%	4.44%	4.25%	4.49%	4.77%	5.17%
TURN OVER RATIO OF OF NET ASSETS	27.49%	26.42%	24.59%	23.77%	23.05%	23.08%	24.37%	25.76%	27.46%	29.40%	31.23%	31.24%	31.21%	31.34%	31.53%	31.70%
RATIO OF PROFIT TO NET ASSET	-1.32%	-5.02%	-3.60%	-3.57%	-1.90%	-0.24%	0.78%	0.71%	0.66%	0.78%	0.58%	1.39%	1.33%	1.41%	1.50%	1.64%
DEBT SERVICE COVERAGE RATIO	49.42%	43.14%	59.37%	72.97%	121.77%	188.88%	242.44%	245.08%	210.19%	190.87%	170.30%	170.18%	180.33%	174.36%	169.53%	165.17%
EQUITY RATIO	19.42%	12.29%	6.44%	1.83%	-0.40%	-0.58%	0.22%	0.92%	1.55%	2.29%	2.84%	4.05%	5.14%	6.28%	7.50%	8.82%
LONG TERM LOAN RATIO	77.73%	78.50%	78.23%	78.85%	78.60%	78.00%	80.55%	82.80%	84.72%	86.23%	87.70%	88.85%	89.78%	90.39%	90.57%	90.25%
PROFIT BREAK EVEN POINT	104.79%	119.00%	113.20%	110.67%	102.83%	97.07%	94.92%	95.01%	95.61%	95.53%	97.29%	93.66%	93.93%	93.58%	93.19%	92.61%
CASH BREAK EVEN POINT	104.41%	109.42%	113.98%	101.55%	85.23%	74.33%	68.05%	65.01%	67.02%	68.33%	71.88%	72.13%	69.43%	70.54%	71.60%	72.57%

Master Plan (Case 2 : with Equity Contribution)

Master Plan (Case 2 : with Equity Contribution)

Table 12-4-1 Base Data

PROJECT YEAR ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16
SUBSCRIBER																
TOTAL SUBSCRIBER	34,000	36,000	40,300	45,800	53,600	61,000	68,700	77,000	86,000	95,500	105,000	114,800	125,200	136,200	147,800	160,000
INCREASE	0	2,000	4,300	5,500	7,800	7,400	7,700	8,300	9,000	9,500	9,500	9,800	10,400	11,000	11,600	12,200
TRANSFER	0	800	16,900	4,780	8,380	2,400	1,940	500	800	1,000	0	0	0	0	0	0
FOR MASTER PLAN	0	1,000	21,600	31,500	47,360	56,960	66,400	75,200	85,000	95,500	105,000	114,800	125,200	136,200	147,800	160,000
REVENUE																
REVENUE PER SUBSCRIBER	1,000	1,000	1,000	1,000	980	960	940	920	900	880	850	820	790	760	730	700
COLLECTING RATIO	72.0%	73.0%	74.0%	75.0%	77.0%	80.0%	81.0%	82.0%	83.0%	84.0%	85.0%	86.0%	87.0%	88.0%	89.0%	90.0%
CALL & RENTAL CHARGE	24,480	26,280	29,822	34,350	40,447	46,848	52,308	58,089	64,242	70,594	75,863	80,957	86,050	91,091	96,026	100,800
INSTALLATION CHARGE	0	120	258	330	468	444	462	498	540	570	570	588	624	660	696	732
TOTAL REVENUE (MIL USD)	24,480	26,400	30,080	34,680	40,915	47,292	52,770	58,587	64,782	71,164	76,433	81,545	86,674	91,751	96,722	101,532
STAFF																
TOTAL	2,500	2,600	2,700	2,800	2,900	3,000	3,150	3,300	3,450	3,600	3,750	3,900	4,050	4,200	4,350	4,500
EFFICIENCY(STAFF)	14	14	15	16	18	20	22	23	25	27	28	29	31	32	34	36
STAFF COST (MIL USD)	11,211	11,741	12,290	12,906	13,548	14,213	15,042	15,901	16,797	17,681	18,602	19,513	20,464	21,403	22,386	23,415
OTHER COST (MIL USD)	9,376	9,782	10,980	13,085	14,324	15,597	16,435	17,321	18,356	19,243	20,286	21,387	22,552	23,781	25,079	26,452
INVESTMENT (MIL USD)																
TOTAL INVESTMENT	11,672	23,000	34,500	37,000	43,700	37,500	34,260	34,260	34,260	34,260	34,260	40,720	40,720	40,720	40,720	40,720
OF WHICH :																
LONG TERM LOAN	8,698	16,100	24,150	25,900	30,590	26,250	20,556	20,556	20,556	20,556	20,556	32,576	32,576	32,576	32,576	32,576
SHARE PERCENT(%)	74.5%	70.0%	70.0%	70.0%	70.0%	70.0%	60.0%	60.0%	60.0%	60.0%	60.0%	80.0%	80.0%	80.0%	80.0%	80.0%
FOREIGN GRANT	0	6,900	10,350	11,100	13,110	11,250	0	0	0	0	0	0	0	0	0	0
SHARE PERCENT(%)	0.0%	30.0%	30.0%	30.0%	30.0%	30.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
FUND FROM OPERATION	0	0	0	0	0	0	13,704	13,704	13,704	13,704	13,704	8,144	8,144	8,144	8,144	8,144
SHARE PERCENT(%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	40.0%	40.0%	40.0%	40.0%	40.0%	20.0%	20.0%	20.0%	20.0%	20.0%
EQUITY INFUSION	2,974	-0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SHARE PERCENT(%)	25.5%	-0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Master Plan (Case 2 : with Equity Contribution)

Table 12-4-2 Profit and Loss Table

UNIT 1000USD

PROJECT YEAR ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16	TOTAL
SALES REVENUE																	
CALL/RENTAL	24.480	26.280	29.822	34.350	40.447	46.848	52.308	58.089	64.242	70.594	75.863	80.957	86.050	91.091	96.026	100.800	978.245
INSTALLATION	0	120	258	330	468	444	462	498	540	570	570	588	624	660	696	732	7.560
NET SALES	24.480	26.400	30.080	34.680	40.915	47.292	52.770	58.587	64.782	71.164	76.433	81.545	86.674	91.751	96.722	101.532	985.805
OPERATING COSTS																	
STAFF COST	11.211	11.741	12.290	12.906	13.548	14.213	15.042	15.901	16.797	17.681	18.602	19.513	20.464	21.403	22.386	23.415	267.113
OTHER COST	9.376	9.782	10.980	13.085	14.324	15.597	16.435	17.321	18.356	19.243	20.286	21.387	22.552	23.781	25.079	26.452	284.036
TOTAL O/M COST	20.587	21.523	23.270	25.991	27.872	29.810	31.477	33.222	35.153	36.924	38.888	40.900	43.016	45.184	47.465	49.867	551.149
INTEREST	3.074	4.423	3.861	3.298	2.778	2.278	2.429	3.205	4.434	5.627	6.959	7.726	8.111	8.414	8.553	8.527	83.696
DEPRECIATION	1.992	5.470	6.919	9.092	11.423	13.819	16.182	19.265	22.349	25.432	28.515	27.749	30.287	32.261	34.113	35.636	320.505
PROFIT BEFORE TAX	-1.173	-5.016	-3.970	-3.701	-1.159	1.385	2.683	2.895	2.846	3.180	2.070	5.170	5.260	5.892	6.591	7.502	30.454
CORPORATION TAX	0	0	0	0	0	415	805	868	854	954	621	1.551	1.578	1.767	1.977	2.250	13.642
PROFIT AFTER TAX	-1.173	-5.016	-3.970	-3.701	-1.159	969	1.878	2.026	1.992	2.226	1.449	3.619	3.682	4.124	4.614	5.251	16.812

Master Plan (Case 2 : with Equity Contribution)

Table 12-4-3 Cash Flow Statement

UNIT: 1000 USD

PROJECT YEAR / ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16	TOTAL
SOURCE OF FUNDS																	
CASH FROM OPERATION	819	454	2,949	5,391	10,265	15,204	18,865	22,160	25,195	28,612	30,585	32,919	35,547	38,153	40,704	43,138	350,959
LONG-TERM LOANS	8,698	16,100	24,150	25,900	30,590	26,250	20,556	20,556	20,556	20,556	20,556	32,576	32,576	32,576	32,576	32,576	397,348
EQUITY INFUSION	6,600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,600
DEBT CAPITALIZATION	0	5,000	5,000	5,000	0	0	0	0	0	0	0	0	0	0	0	0	15,000
FOREIGN GRANT	0	6,900	10,350	11,100	13,110	11,250	0	0	0	0	0	0	0	0	0	0	52,710
SHORT-TERM FINANCE	0	0	0	0	0	0	115	0	0	0	0	0	0	0	0	0	115
TOTAL SOURCE OF FUNDS	16,117	28,454	42,449	47,391	53,965	52,704	39,536	42,716	45,751	49,168	51,141	65,495	68,123	70,729	73,280	75,714	822,733
APPLICATION OF FUNDS																	
TELECOM. FACILITIES & EQUIPMENT, ETC.	11,672	23,000	34,500	37,000	43,700	37,500	34,260	34,260	34,260	34,260	34,260	40,720	40,720	40,720	40,720	40,720	562,272
INCREASE IN WORKING CAPITAL	-4,108	-1,427	0	0	0	0	-1,082	464	482	347	317	304	284	260	231	0	-3,928
REPAYMENT OF:																	
LONG-TERM LOAN	4,803	6,881	6,881	6,549	6,107	5,988	5,942	6,635	9,050	11,640	14,699	15,246	15,224	17,280	19,336	21,391	173,651
SHORT-TERM FINANCE	0	0	0	0	0	0	0	115	0	0	0	0	0	0	0	0	115
CORPORATION TAX PAID	3,750	0	0	0	0	0	415	805	868	854	954	621	1,551	1,578	1,767	1,977	15,142
TOTAL APPLICATION OF FUNDS	16,117	28,454	41,381	43,549	49,807	43,488	39,536	42,279	44,660	47,101	50,230	56,890	57,780	59,838	62,054	64,089	747,252
CASH SURPLUS	0	0	1,068	3,842	4,158	9,216	0	437	1,091	2,067	912	8,604	10,344	10,891	11,226	11,626	75,481
CASH FLOW	-6,600	-5,000	-3,932	-1,158	4,158	9,216	0	437	1,091	2,067	912	8,604	10,344	10,891	11,226	11,626	53,881

Master Plan (Case 2 : with Equity Contribution)

Table 12-4-4 Balance Sheet

UNIT : 1000 USD

PROJECT YEAR / ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16
CURRENT ASSETS:																
CASH	4.363	2.936	2.936	2.936	2.936	2.936	1.854	2.318	2.800	3.148	3.464	3.768	4.052	4.312	4.543	4.543
NET DEBTORS	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526
OTHERS	10.097	10.097	11.165	15.007	19.165	28.381	28.381	28.818	29.908	31.976	32.887	41.492	51.836	62.726	73.952	85.578
TOTAL CURRENT ASSETS	33.986	32.559	33.627	37.469	41.627	50.843	49.761	50.662	52.235	54.649	55.878	64.786	75.414	86.564	98.021	109.647
CURRENT LIABILITIES :																
SHORT-TERM FINANCE	0	0	0	0	0	0	115	0	0	0	0	0	0	0	0	0
OTHERS	11.595	11.595	11.595	11.595	11.595	12.010	12.400	12.463	12.449	12.549	12.216	13.146	13.173	13.362	13.572	13.845
TOTAL CURRENT LIABILITIES	11.595	11.595	11.595	11.595	11.595	12.010	12.515	12.463	12.449	12.549	12.216	13.146	13.173	13.362	13.572	13.845
NET CURRENT ASSETS :	22.391	20.964	22.032	25.874	30.032	38.832	37.246	38.199	39.786	42.100	43.662	51.640	62.241	73.202	84.449	95.801
FIXED ASSETS :																
NET FIXED ASSETS/W.I.P	64.892	82.191	108.966	135.205	164.888	184.883	198.338	208.709	215.997	220.202	221.323	229.670	235.711	239.777	242.567	244.695
INTELSAT INVESTMENT	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772
TOTAL FIXED ASSETS	66.664	83.963	110.738	136.977	166.660	186.655	200.110	210.481	217.769	221.974	223.095	231.442	237.483	241.549	244.339	246.467
NET ASSETS :	89.055	104.927	132.770	162.851	196.692	225.487	237.356	248.680	257.555	264.074	266.757	283.082	299.724	314.751	328.788	342.269
NET ASSETS(EXCL. F. GRANT)	86.514	95.717	114.016	134.666	157.990	179.221	195.713	211.661	225.159	236.302	243.608	264.557	285.591	305.011	322.865	339.301
SOURCE OF CAPITAL :																
EQUITY/RESERVES	14.937	19.937	24.937	29.937	29.937	29.937	29.937	29.937	29.937	29.937	29.937	29.937	29.937	29.937	29.937	29.937
RETAINED EARINGS	2.356	-2.660	-6.630	-10.331	-11.490	-10.521	-8.643	-6.617	-4.624	-2.398	-949	2.670	6.352	10.476	15.090	20.341
TOTAL EQUITY	17.293	17.277	18.307	19.606	18.447	19.416	21.294	23.320	25.313	27.539	28.988	32.607	36.289	40.413	45.027	50.278
FOREIGN GRANT	2.541	9.210	18.754	28.186	38.702	46.266	41.643	37.019	32.396	27.772	23.149	18.525	14.133	9.740	5.923	2.968
LONG TERM LOANS	69.221	78.440	95.709	115.060	139.543	159.805	174.419	188.340	199.847	208.763	214.620	231.950	249.302	264.598	277.838	289.023
TOTAL SOURCE OF CAPITAL	89.055	104.927	132.770	162.851	196.692	225.487	237.356	248.680	257.555	264.074	266.757	283.082	299.724	314.751	328.788	342.269
NET SOURCE OF CAPITAL (EXCL. F. GRANT)	86.514	95.717	114.016	134.666	157.990	179.221	195.713	211.661	225.159	236.302	243.608	264.557	285.591	305.011	322.865	339.301

Master Plan (Case 2 : with Equity Contribution)

Table 12-4-5 Major Financial Index

PROJECT YEAR / ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16
RATIO OF PROFIT TO REEVENUE	-4.79%	-19.00%	-13.20%	-10.67%	-2.83%	2.05%	3.56%	3.46%	3.08%	3.13%	1.90%	4.44%	4.25%	4.49%	4.77%	5.17%
TURN OVER RATIO OF OF NET ASSETS	27.49%	25.16%	22.66%	21.30%	20.80%	20.97%	22.23%	23.56%	25.15%	26.95%	28.65%	28.81%	28.92%	29.15%	29.42%	29.66%
RATIO OF PROFIT TO NET ASSET	-1.32%	-4.78%	-2.99%	-2.27%	-0.59%	0.43%	0.79%	0.81%	0.77%	0.84%	0.54%	1.28%	1.23%	1.31%	1.40%	1.53%
DEBT SERVICE COVERAGE RATIO	49.42%	43.14%	63.40%	88.24%	146.79%	206.47%	244.77%	249.36%	213.40%	192.77%	170.49%	170.18%	180.33%	174.36%	169.53%	165.17%
EQUITY RATIO	19.42%	16.47%	13.79%	12.04%	9.38%	8.61%	8.97%	9.38%	9.83%	10.43%	10.87%	11.52%	12.11%	12.84%	13.69%	14.69%
LONG TERM LOAN RATIO	77.73%	74.76%	72.09%	70.65%	70.94%	70.87%	73.48%	75.74%	77.59%	79.05%	80.46%	81.94%	83.18%	84.07%	84.50%	84.44%
PROFIT BREAK EVEN POINT	104.79%	119.00%	113.20%	110.67%	102.83%	97.07%	94.92%	95.01%	95.61%	95.53%	97.29%	93.66%	93.93%	93.58%	93.19%	92.61%
CASH BREAK EVEN POINT	104.41%	121.23%	113.02%	100.20%	84.27%	73.42%	65.15%	65.01%	67.02%	68.33%	71.88%	72.13%	69.43%	70.54%	71.60%	72.57%

Master Plan (Alternative Scenario A with Equity Contribution)

Table 12-5-1 Base Data

Table 12-5-2 Profit and Loss Table

Table 12-5-3 Cash Flow Statement

Table 12-5-4 Balance Sheet

Table 12-5-5 Major Financial Index

MASTER PLAN (Alternative Scenario A with Equity Contribution)

Table 12-5-1 Base Data

PROJECT YEAR / ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16
SUBSCRIBER																
TOTAL SUBSCRIBER	34,000	36,000	40,300	45,800	53,600	60,200	66,700	74,200	82,700	91,700	101,200	111,200	122,200	134,200	147,000	160,000
INCREASE	0	2,000	4,300	5,500	7,800	6,600	6,500	7,500	8,500	9,000	9,500	10,000	11,000	12,000	12,800	13,000
REMOVE	0	800	16,900	4,780	8,380	800	1,140	500	800	1,000	0	0	0	0	0	0
FOR MASTER PLAN	0	1,000	21,600	31,580	47,360	54,560	62,000	70,000	81,700	91,700	101,200	111,200	122,200	134,200	147,000	160,000
REVENUE																
REVENUE PER SUBSCRIBER	1,000	1,000	1,000	1,000	980	960	940	920	900	880	850	820	790	760	730	700
COLLECTING RATIO	72.0%	73.0%	74.0%	75.0%	77.0%	80.0%	81.0%	82.0%	83.0%	84.0%	85.0%	86.0%	87.0%	88.0%	89.0%	90.0%
CALL & RENTAL CHARGE	24,480	26,280	29,822	34,350	40,447	46,234	50,785	55,976	61,777	67,785	73,117	78,418	83,988	89,753	95,506	100,800
INSTALLATION CHARGE	0	120	258	330	468	396	390	450	510	540	570	600	660	720	768	780
TOTAL REVENUE (MIL USD)	24,480	26,400	30,080	34,680	40,915	46,630	51,175	56,426	62,287	68,325	73,687	79,018	84,648	90,473	96,274	101,580
STAFF																
TOTAL	2,500	2,600	2,700	2,800	2,900	3,000	3,150	3,300	3,450	3,600	3,750	3,900	4,050	4,200	4,350	4,500
EFFICIENCY(STAFF)	14	14	15	16	18	20	21	22	24	25	27	29	30	32	34	36
STAFF COST (MIL USD)	11,211	11,741	12,290	12,906	13,548	13,929	14,591	15,265	16,125	16,974	17,858	18,732	19,850	20,975	22,162	23,415
OTHER COST (MIL USD)	9,376	9,782	10,980	13,085	14,324	15,285	15,942	16,628	17,622	18,473	19,475	20,532	21,875	23,305	24,828	26,452
INVESTMENT (MIL USD)	11,672	23,000	34,500	31,000	30,100	35,000	30,000	32,000	34,000	36,000	39,300	41,000	43,000	45,000	47,000	49,700
TOTAL INVESTMENT																
OF WHICH :																
LONG TERM LOAN	8,698	16,100	24,150	21,700	21,070	24,500	18,000	19,200	20,400	21,600	23,580	32,800	34,400	36,000	37,600	39,760
SHARE PERCENTAGE(%)	74.5%	70.0%	70.0%	70.0%	70.0%	70.0%	60.0%	60.0%	60.0%	60.0%	60.0%	80.0%	80.0%	80.0%	80.0%	80.0%
FOREIGN GRANT	0	6,900	10,350	9,300	9,030	10,500	0	0	0	0	0	0	0	0	0	0
SHARE PERCENTAGE(%)	0.0%	30.0%	30.0%	30.0%	30.0%	30.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
FUND FROM OPERATION	0	0	0	0	0	0	12,000	12,800	13,600	14,400	15,720	8,200	8,600	9,000	9,400	9,940
SHARE PERCENTAGE(%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	40.0%	40.0%	40.0%	40.0%	40.0%	20.0%	20.0%	20.0%	20.0%	20.0%
EQUITY INFUSION	2,974	-0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SHARE PERCENTAGE(%)	25.5%	-0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

MASTER PLAN (Alternative Scenario A with Equity Contribution)

Table 12-5-2 Profit and Loss Table

UNIT:1000 USD

PROJECT YEAR / ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16	TOTAL
SALES REVENUE																	
CALL/RENTAL	24,480	26,280	29,822	34,350	40,447	46,234	50,785	55,976	61,777	67,785	73,117	78,418	83,988	89,753	95,505	100,800	959,318
INSTALLATION	0	120	258	330	468	396	390	450	510	540	570	600	660	720	768	780	7,560
NET SALES	24,480	26,400	30,080	34,680	40,915	46,630	51,175	56,426	62,287	68,325	73,687	79,018	84,648	90,473	96,274	101,580	967,078
OPERATING COSTS																	
STAFF COST	11,211	11,741	12,290	12,906	13,548	13,929	14,591	15,265	16,125	16,974	17,858	18,732	19,850	20,975	22,162	23,415	261,572
OTHER COST	9,376	9,782	10,980	13,085	14,324	15,285	15,942	16,628	17,622	18,473	19,475	20,532	21,875	23,305	24,828	26,452	277,964
TOTAL O/M COST	20,587	21,523	23,270	25,991	27,872	29,214	30,533	31,893	33,747	35,447	37,332	39,264	41,726	44,280	46,990	49,867	539,536
INTEREST	3,074	4,423	3,861	3,298	2,778	2,278	2,429	3,178	4,434	5,316	5,977	6,783	7,044	7,391	7,673	7,881	77,819
DEPRECIATION	1,992	5,470	6,919	9,092	11,045	12,584	14,789	17,489	20,369	23,429	26,669	26,357	28,920	31,099	33,630	36,385	306,242
PROFIT BEFORE TAX	-1,173	-5,016	-3,970	-3,701	-781	2,553	3,425	3,865	3,736	4,132	3,708	6,614	6,959	7,702	7,980	7,447	43,480
CORPORATION TAX	0	0	0	0	0	766	1,027	1,160	1,121	1,240	1,112	1,984	2,088	2,311	2,394	2,234	17,436
PROFIT AFTER TAX	-1,173	-5,016	-3,970	-3,701	-781	1,787	2,397	2,706	2,615	2,892	2,595	4,630	4,871	5,392	5,586	5,213	26,044

MASTER PLAN (Alternative Scenario A with Equity Contribution)

Table 12-5-3 Cash Flow Statement

UNIT: 1000USD

PROJECT YEAR ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16	TOTAL
SOURCE OF FUNDS																	
CASH FROM OPERATION	819	454	2,949	5,391	10,265	15,138	18,214	21,355	24,106	27,561	30,377	32,971	35,879	38,802	41,610	43,832	349,722
LONG-TERM LOANS	8,698	16,100	24,150	21,700	21,070	24,500	18,000	19,200	20,400	21,600	23,580	32,800	34,400	36,000	37,600	39,760	399,558
EQUITY INFUSION	6,600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,600
DEBT CAPITALIZATION	0	5,000	5,000	5,000	0	0	0	0	0	0	0	0	0	0	0	0	15,000
FOREIGN GRANT	0	6,900	10,350	9,300	9,030	10,500	0	0	0	0	0	0	0	0	0	0	46,080
SHORT-TERM FINANCE	0	0	0	0	0	0	0	0	0	0	254	0	0	0	0	0	254
TOTAL SOURCE OF FUNDS	16,117	28,454	42,449	41,391	40,365	50,138	36,214	40,555	44,506	49,161	54,211	65,771	70,279	74,802	79,210	83,592	817,214
APPLICATION OF FUNDS																	
TELECOM. FACILITIES & EQUIPMENT, ETC.	11,672	23,000	34,500	31,000	30,100	35,000	30,000	32,000	34,000	36,000	39,300	41,000	43,000	45,000	47,000	49,700	562,272
INCREASE IN WORKING CAPITAL	-4,108	-1,427	0	0	0	0	-494	0	141	363	345	339	340	320	257	0	-3,924
REPAYMENT OF;																	
LONG-TERM LOAN	4,803	6,881	6,881	6,549	6,107	5,988	5,942	6,635	9,050	11,220	13,327	13,699	13,422	15,342	17,382	19,542	162,768
SHORT-TERM FINANCE	0	0	0	0	0	0	0	0	0	0	0	254	0	0	0	0	254
CORPORATION TAX PAID	3,750	0	0	0	0	0	766	1,027	1,160	1,121	1,240	1,112	1,984	2,088	2,311	2,394	18,952
TOTAL APPLICATION OF FUNDS	16,117	28,454	41,381	37,549	36,207	40,988	36,214	39,662	44,350	48,703	54,211	56,404	58,746	62,750	66,949	71,636	740,322
CASH SURPLUS	0	0	1,068	3,842	4,158	9,150	0	893	155	458	0	9,367	11,532	12,052	12,261	11,956	76,892
CASH FLOW	-6,600	-5,000	-3,932	-1,158	4,158	9,150	0	893	155	458	0	9,367	11,532	12,052	12,261	11,956	55,292

MASTER PLAN (Alternative Scenario A with Equity Contribution)

Table 12-5-4 Balance Sheet

UNIT : 1000 USD

PROJECT YEAR / ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16
CURRENT ASSETS:																
CASH	4.363	2.936	2.936	2.936	2.936	2.936	2.442	2.442	2.583	2.946	3.291	3.630	3.970	4.290	4.547	4.547
NET DEBTORS	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526
OTHERS	10.097	10.097	11.165	15.007	19.165	28.314	28.314	29.207	29.362	29.820	29.820	39.187	50.719	62.771	75.033	86.989
TOTAL CURRENT ASSETS	33.986	32.559	33.627	37.469	41.627	50.776	50.283	51.175	51.472	52.292	52.637	62.343	74.216	86.588	99.106	111.062
CURRENT LIABILITIES :																
SHORT-TERM FINANCE	0	0	0	0	0	0	0	0	0	0	254	0	0	0	0	0
OTHERS	11.595	11.595	11.595	11.595	11.595	12.361	12.622	12.755	12.716	12.835	12.707	13.579	13.683	13.906	13.989	13.829
TOTAL CURRENT LIABILITIES	11.595	11.595	11.595	11.595	11.595	12.361	12.622	12.755	12.716	12.835	12.961	13.579	13.683	13.906	13.989	13.829
NET CURRENT ASSETS :	22.391	20.964	22.032	25.874	30.032	38.415	37.660	38.421	38.756	39.458	39.676	48.764	60.533	72.682	85.117	97.233
FIXED ASSETS :																
NET FIXED ASSETS/W.I.P	64.892	82.191	108.966	129.205	145.816	165.036	176.175	186.615	196.175	204.674	213.234	223.806	234.046	244.107	254.212	265.124
INTELSAT INVESTMENT	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772
TOTAL FIXED ASSETS	66.664	83.963	110.738	130.977	147.588	166.808	177.947	188.387	197.947	206.446	215.006	225.578	235.818	245.879	255.984	266.896
NET ASSETS :	89.055	104.927	132.770	156.851	177.620	205.223	215.608	226.808	236.702	245.904	254.681	274.342	296.351	318.561	341.100	364.129
NET ASSETS(EXCL.F.GRANT)	86.514	95.717	114.016	130.466	144.648	164.947	179.403	194.674	208.639	221.912	234.760	258.492	284.341	310.391	336.195	361.626
SOURCE OF CAPITAL :																
EQUITY/RESERVES	14.937	19.937	24.937	29.937	29.937	29.937	29.937	29.937	29.937	29.937	29.937	29.937	29.937	29.937	29.937	29.937
RETAINED EARINGS	2.356	-2.660	-6.630	-10.331	-11.112	-9.325	-6.928	-4.222	-1.606	1.286	3.881	8.511	13.383	18.774	24.360	29.573
TOTAL EQUITY	17.293	17.277	18.307	19.606	18.825	20.612	23.009	25.715	28.331	31.223	33.818	38.448	43.320	48.711	54.297	59.510
FOREIGN GRANT	2.541	9.210	18.754	26.386	32.972	40.276	36.205	32.134	28.063	23.992	19.921	15.850	12.010	8.170	4.905	2.503
LONG TERM LOANS	69.221	78.440	95.709	110.860	125.823	144.335	156.393	168.958	180.309	190.689	200.942	220.043	241.021	261.680	281.898	302.116
TOTAL SOURCE OF CAPITAL	89.055	104.927	132.770	156.851	177.620	205.223	215.608	226.808	236.702	245.904	254.681	274.342	296.351	318.561	341.100	364.129
NET SOURCE OF CAPITAL (EXCL. F. GRANT)	86.514	95.717	114.016	130.466	144.648	164.947	179.403	194.674	208.639	221.912	234.760	258.492	284.341	310.391	336.195	361.626

MASTER PLAN (Alternative Scenario A with Equity Contribution)

Table 12-5-5 Major Financial Index

PROJECT YEAR ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16
RATIO OF PROFIT TO REVENUE	-4.79%	-19.00%	-13.20%	-10.67%	-1.91%	3.83%	4.68%	4.80%	4.20%	4.23%	3.52%	5.86%	5.75%	5.96%	5.80%	5.13%
TURN OVER RATIO OF NET ASSETS	27.49%	25.16%	22.66%	22.11%	23.03%	22.72%	23.74%	24.88%	26.31%	27.79%	28.93%	28.80%	28.56%	28.40%	28.22%	27.90%
RATIO OF PROFIT TO NET ASSET	-1.32%	-4.78%	-2.99%	-2.36%	-0.44%	0.87%	1.11%	1.19%	1.10%	1.18%	1.02%	1.69%	1.64%	1.69%	1.64%	1.43%
DEBT SERVICE COVERAGE RATIO	49.42%	43.14%	63.40%	88.24%	146.79%	201.43%	234.34%	238.18%	203.35%	191.33%	182.56%	184.65%	199.53%	193.03%	187.15%	180.43%
EQUITY RATIO	19.42%	16.47%	13.79%	12.50%	10.60%	10.04%	10.67%	11.34%	11.97%	12.70%	13.28%	14.01%	14.62%	15.29%	15.92%	16.34%
LONG TERM LOAN RATIO	77.73%	74.76%	72.09%	70.68%	70.84%	70.33%	72.54%	74.49%	76.18%	77.55%	78.90%	80.21%	81.33%	82.14%	82.64%	82.97%
PROFIT BREAK EVEN POINT	104.79%	119.00%	113.20%	110.67%	101.91%	94.52%	93.31%	93.15%	94.00%	93.95%	94.97%	91.56%	91.78%	91.49%	91.71%	92.67%
CASH BREAK EVEN POINT	104.41%	121.23%	113.02%	100.20%	84.67%	74.31%	67.64%	65.67%	68.27%	68.95%	69.57%	69.10%	66.03%	66.96%	67.87%	68.98%

Master Plan (Alternative Scenario B with Equity Contribution)

Master Plan (Alternative Scenario B with Equity Contribution)

Table 12-6-1 Base Data

PROJECT YEAR / ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16
SUBSCRIBER																
TOTAL SUBSCRIBER	34,000	36,000	37,300	42,800	48,600	53,400	58,800	62,400	68,300	73,300	75,200	76,500	80,900	88,900	96,900	105,000
INCREASE	0	2,000	1,300	5,500	5,800	4,800	5,400	3,600	5,900	5,000	1,900	1,300	4,400	8,000	8,000	8,100
TRANSFER	0	800	700	18,700	2,380	740	8,000	60	1,040	800	400	1,500	500	800	0	0
FOR MASTER PLAN	0	1,000	2,400	8,870	14,760	36,100	49,400	54,560	62,500	67,800	70,100	72,900	77,800	86,600	95,000	105,000
REVENUE																
REVENUE PER SUBSCRIBER	1,000	1,000	1,000	1,000	1,000	1,000	990	980	970	960	950	940	930	910	880	850
COLLECTING RATIO	72.0%	73.0%	74.0%	75.0%	77.0%	80.0%	81.0%	82.0%	83.0%	84.0%	85.0%	86.0%	87.0%	88.0%	89.0%	90.0%
CALL & RENTAL CHARGE	24,480	26,280	27,602	32,100	37,422	42,720	47,152	50,145	54,988	59,109	60,724	61,843	65,456	71,191	75,892	80,325
INSTALLATION CHARGE	0	120	78	330	348	288	324	216	354	300	114	78	264	480	480	486
TOTAL REVENUE (MIL USD)	24,480	26,400	27,680	32,430	37,770	43,008	47,476	50,361	55,342	59,409	60,838	61,921	65,720	71,671	76,372	80,811
STAFF																
TOTAL	2,500	2,570	2,640	2,710	2,780	2,860	2,940	3,020	3,100	3,190	3,280	3,370	3,460	3,550	3,650	3,750
EFFICIENCY(STAFF)	14	14	14	16	17	19	20	21	22	23	23	23	23	25	27	28
STAFF COST (MIL USD)	11,211	11,596	11,994	12,406	12,832	13,272	13,728	14,199	14,687	15,191	15,713	16,252	16,810	17,388	17,985	18,602
OTHER COST (MIL USD)	9,376	9,867	10,385	10,930	11,505	12,111	12,749	13,422	14,130	14,877	15,664	16,494	17,369	18,290	19,261	20,286
INVESTMENT (MIL USD)																
TOTAL INVESTMENT COST	11,672	16,000	24,900	16,900	21,800	11,300	12,000	18,700	23,000	20,400	11,700	25,000	30,000	35,000	40,000	41,300
OF WHICH :																
LONG TERM LOAN	8,698	11,200	17,430	11,830	15,260	7,910	7,200	11,220	13,800	12,240	7,020	17,500	21,000	24,500	28,000	28,910
SHARE PERCENT(%)	74.5%	70.0%	70.0%	70.0%	70.0%	70.0%	60.0%	60.0%	60.0%	60.0%	60.0%	70.0%	70.0%	70.0%	70.0%	70.0%
FOREIGN GRANT	0	4,800	7,470	5,070	0	0	0	0	0	0	0	0	0	0	0	0
SHARE PERCENT(%)	0.0%	30.0%	30.0%	30.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
FUND FROM OPERATION	0	0	-0	0	6,540	3,390	4,800	7,480	9,200	8,160	4,680	7,500	9,000	10,500	12,000	12,390
SHARE PERCENT(%)	0.0%	0.0%	-0.0%	0.0%	30.0%	30.0%	40.0%	40.0%	40.0%	40.0%	40.0%	30.0%	30.0%	30.0%	30.0%	30.0%
EQUITY INFUSION	2,974	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SHARE PERCENT(%)	25.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Master Plan (Alternative Scenario B with Equity Contribution)

Table 12-6-2 Profit and Loss Table

UNIT 1000USD

PROJECT YEAR / ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16	TOTAL
SALES REVENUE																	
CALL/RENTAL	24.480	26.280	27.602	32.100	37.422	42.720	47.152	50.145	54.988	59.109	60.724	61.843	65.456	71.191	75.892	80.325	817.429
INSTALLATION	0	120	78	330	348	288	324	216	354	300	114	78	264	480	480	486	4.260
NET SALES	24.480	26.400	27.680	32.430	37.770	43.008	47.476	50.361	55.342	59.409	60.838	61.921	65.720	71.671	76.372	80.811	821.689
OPERATING COSTS																	
STAFF COST	11.211	11.596	11.994	12.406	12.832	13.272	13.728	14.199	14.687	15.191	15.713	16.252	16.810	17.388	17.985	18.602	233.866
OTHER COST	9.376	9.867	10.385	10.930	11.505	12.111	12.749	13.422	14.130	14.877	15.664	16.494	17.369	18.290	19.261	20.286	226.716
TOTAL O/M COST	20.587	21.463	22.379	23.336	24.337	25.383	26.477	27.621	28.817	30.068	31.377	32.746	34.179	35.678	37.246	38.888	460.582
INTEREST	3.074	4.423	3.861	3.298	2.778	2.510	2.429	2.816	3.614	3.858	4.261	3.999	3.870	4.065	4.360	4.429	57.644
DEPRECIATION	1.992	5.470	6.478	8.047	9.111	10.716	11.733	12.813	14.496	16.566	18.402	15.605	17.071	18.551	20.873	22.947	210.872
PROFIT BEFORE TAX	-1.173	-4.956	-5.038	-2.251	1.544	4.399	6.837	7.111	8.416	8.917	6.798	9.570	10.599	13.377	13.893	14.547	92.590
CORPORATION TAX	0	0	0	0	463	1.320	2.051	2.133	2.525	2.675	2.039	2.871	3.180	4.013	4.168	4.364	31.802
PROFIT AFTER TAX	-1.173	-4.956	-5.038	-2.251	1.081	3.079	4.786	4.977	5.891	6.242	4.758	6.699	7.420	9.364	9.725	10.183	60.788

Master Plan (Alternative Scenario B with Equity Contributior

Table 12-6-3 Cash Flow Statement

UNIT: 1000US$

PROJECT YEAR ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16	TOTAL
SOURCE OF FUNDS																	
CASH FROM OPERATION	819	514	1,440	5,796	10,655	15,115	18,570	19,924	22,912	25,483	25,200	25,175	27,671	31,929	34,766	37,494	303,462
LONG-TERM LOANS	8,698	11,200	17,430	11,830	15,260	7,910	7,200	11,220	13,800	12,240	7,020	17,500	21,000	24,500	28,000	28,910	243,718
EQUITY INFUSION	6,600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,600
DEBT CAPITALIZATION	0	5,000	5,000	0	0	0	0	0	0	0	0	0	0	0	0	0	10,000
FOREIGN GRANT	0	4,800	7,470	5,070	0	0	0	0	0	0	0	0	0	0	0	0	17,340
SHORT-TERM FINANCE	0	0	0	0	1,008	0	0	0	0	0	0	0	0	0	0	0	1,008
TOTAL SOURCE OF FUNDS	16,117	21,514	31,340	22,696	26,923	23,025	25,770	31,144	36,712	37,723	32,220	42,675	48,671	56,429	62,766	66,404	582,128
APPLICATION OF FUNDS																	
TELECOM. FACILITIES & EQUIPMENT, ETC.	11,672	16,000	24,900	16,900	21,800	11,300	12,000	18,700	23,000	20,400	11,700	25,000	30,000	35,000	40,000	41,300	359,672
INCREASE IN WORKING CAPITAL	-4,108	-1,367	-441	-753	-984	351	180	377	276	8	0	187	413	284	247	0	-5,331
REPAYMENT OF;																	
LONG-TERM LOAN	4,803	6,881	6,881	6,549	6,107	5,988	5,942	6,145	7,888	9,071	10,597	9,310	7,953	9,075	10,455	11,679	125,322
SHORT-TERM FINANCE	0	0	0	0	0	1,008	0	0	0	0	0	0	0	0	0	0	1,008
CORPORATION TAX PAID	3,750	0	0	0	0	463	1,320	2,051	2,133	2,525	2,675	2,039	2,871	3,180	4,013	4,168	31,188
TOTAL APPLICATION OF FUNDS	16,117	21,514	31,340	22,696	26,923	19,110	19,441	27,273	33,297	32,004	24,972	36,536	41,237	47,538	54,715	57,147	511,859
CASH SURPLUS	0	0	0	0	0	3,916	6,329	3,870	3,414	5,719	7,248	6,139	7,434	8,890	8,052	9,257	70,269
CASH FLOW	-6,600	-5,000	-5,000	0	0	3,916	6,329	3,870	3,414	5,719	7,248	6,139	7,434	8,890	8,052	9,257	53,669

Master Plan (Alternative Scenario B with Equity Contribution)

Table 12-6-4 Balance Sheet

UNIT : 1000 USD

PROJECT YEAR / ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16
CURRENT ASSETS:																
CASH	4.363	2.996	2.555	1.802	818	1.169	1.349	1.726	2.002	2.011	2.011	2.197	2.610	2.894	3.141	3.141
NET DEBTORS	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526	19.526
OTHERS	10.097	10.097	10.097	10.097	10.097	14.013	20.341	24.212	27.626	33.345	40.593	46.732	54.166	63.057	71.109	80.366
TOTAL CURRENT ASSETS	33.986	32.619	32.178	31.425	30.441	34.707	41.216	45.464	49.154	54.882	62.129	68.456	76.303	85.477	93.775	103.032
CURRENT LIABILITIES :																
SHORT-TERM FINANCE	0	0	0	0	1.008	0	0	0	0	0	0	0	0	0	0	0
OTHERS	11.595	11.595	11.595	11.595	12.058	12.915	13.646	13.728	14.120	14.270	13.634	14.466	14.775	15.608	15.763	15.959
TOTAL CURRENT LIABILITIES	11.595	11.595	11.595	11.595	13.066	12.915	13.646	13.728	14.120	14.270	13.634	14.466	14.775	15.608	15.763	15.959
NET CURRENT ASSETS :	22.391	21.024	20.583	19.830	17.375	21.792	27.570	31.735	35.035	40.612	48.495	53.990	61.528	69.868	78.012	87.073
FIXED ASSETS :																
NET FIXED ASSETS/W.I.P	64.892	75.191	92.982	100.582	111.595	110.503	109.094	113.305	120.133	122.290	113.912	121.631	133.115	148.118	166.200	184.131
INTELSAT INVESTMENT	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772	1.772
TOTAL FIXED ASSETS	66.664	76.963	94.754	102.354	113.367	112.275	110.866	115.077	121.905	124.062	115.684	123.403	134.887	149.890	167.972	185.903
NET ASSETS :	89.055	97.987	115.337	122.184	130.742	134.067	138.435	146.812	156.939	164.674	164.180	177.393	196.415	219.759	245.984	272.976
NET ASSETS(EXCL. F. GRANT)	86.514	90.877	101.388	104.419	114.652	119.654	125.698	135.750	147.554	156.965	158.146	173.035	193.502	218.291	245.562	272.976
SOURCE OF CAPITAL :																
EQUITY/RESERVES	14.937	19.937	24.937	24.937	24.937	24.937	24.937	24.937	24.937	24.937	24.937	24.937	24.937	24.937	24.937	24.937
RETAINED EARINGS	2.356	-2.600	-7.638	-9.888	-8.808	-5.728	-943	4.035	9.926	16.168	20.926	27.625	35.045	44.409	54.134	64.317
TOTAL EQUITY	17.293	17.337	17.299	15.049	16.129	19.209	23.994	28.972	34.863	41.105	45.863	52.562	59.982	69.346	79.071	89.254
FOREIGN GRANT	2.541	7.110	13.949	17.766	16.090	14.414	12.738	11.062	9.386	7.710	6.034	4.358	2.913	1.468	423	0
LONG TERM LOANS	69.221	73.540	84.089	89.370	98.523	100.445	101.703	106.778	112.691	115.860	112.283	120.473	133.520	148.946	166.491	183.722
TOTAL SOURCE OF CAPITAL	89.055	97.987	115.337	122.184	130.742	134.067	138.435	146.812	156.939	164.674	164.180	177.393	196.415	219.759	245.984	272.976
NET SOURCE OF CAPITAL (EXCL. F. GRANT)	86.514	90.877	101.388	104.419	114.652	119.654	125.698	135.750	147.554	156.965	158.146	173.035	193.502	218.291	245.562	272.976

Master Plan (Alternative Scenario B with Equity Contribution)

Table 12-6-5 Major Financial Index

PROJECT YEAR / ITEM	94/95 1	95/96 2	96/97 3	97/98 4	98/99 5	99/2000 6	00/01 7	01/02 8	02/03 9	03/04 10	04/05 11	05/06 12	06/07 13	07/08 14	08/09 15	09/10 16
RATIO OF PROFIT TO REVENUE	-4.79%	-18.77%	-18.20%	-6.94%	2.86%	7.16%	10.08%	9.88%	10.64%	10.51%	7.82%	10.82%	11.29%	13.07%	12.73%	12.60%
TURN OVER RATIO OF NET ASSET	27.49%	26.94%	24.00%	26.54%	28.89%	32.08%	34.29%	34.30%	35.26%	36.08%	37.06%	34.91%	33.46%	32.61%	31.05%	29.60%
RATIO OF PROFIT TO NET ASSET	-1.32%	-5.06%	-4.37%	-1.84%	0.83%	2.30%	3.46%	3.39%	3.75%	3.79%	2.90%	3.78%	3.78%	4.26%	3.95%	3.73%
DEBT SERVICE COVERAGE RATIO	49.42%	43.67%	49.35%	92.35%	145.98%	194.45%	226.36%	229.97%	208.68%	206.25%	184.56%	197.64%	239.88%	243.39%	235.97%	233.17%
EQUITY RATIO	19.42%	17.69%	15.00%	12.32%	12.34%	14.33%	17.33%	19.73%	22.21%	24.96%	27.93%	29.63%	30.54%	31.56%	32.14%	32.70%
LONG TERM LOAN RATIO	77.73%	75.05%	72.91%	73.14%	75.36%	74.92%	73.47%	72.73%	71.81%	70.36%	68.39%	67.91%	67.98%	67.78%	67.68%	67.30%
PROFIT BREAK EVEN POINT	104.79%	118.77%	118.20%	106.94%	95.91%	89.23%	85.60%	85.88%	84.79%	84.99%	88.83%	84.54%	83.87%	81.34%	81.81%	82.00%
CASH BREAK EVEN POINT	104.41%	121.23%	118.69%	98.02%	81.94%	74.34%	68.55%	67.71%	68.23%	66.98%	70.50%	70.32%	64.68%	62.84%	62.64%	62.08%

CHAPTER 13

FINANCIAL ANALYSIS ON PRIORITY PROJECTS

CHAPTER 13 FINANCIAL ANALYSIS ON PRIORITY PROJECTS

13.1 General

The Priority projects will be financially analyzed in this section. That is, the expected revenue and expenditure in the project will be analyzed and the financial soundness of the project is to be assessed. In this financial analysis, it is defined that its economic life span is 15 years.

13.1.1 Method of Financial Analysis

The method contrasts the total amount of the costs of construction, operation, etc. with the revenues obtained by the Call charge, Installation fees and Rental fees to calculate the profit and make the various financial statements, etc.

This section deals mainly with the calculation of Financial Internal Rates of Return (FIRR) which, by definition, is the discount rate which achieve a net present value of zero, when discounting sets of financial cash flows expected in the project.

The cost information for the project, i.e., capital cost estimates, operating cost estimates, etc., is assumed with their schedule as shown in Chapter 11 and is put into a systematic and consistent framework to permit projections of cost streams which will be used in the FIRR analysis.

13.1.2 Main Assumptions for Financial Analysis

While existing facilities are still in operation, it is difficult to evaluate the degree of contribution of the new investment. However, we tentatively figured revenues and expenditures assuming realistic conditions, extracted the parts related to the project and used these parts as the evaluation target.
Concerning revenues, the charge contribution ratio was also calculated based on the capital investment ratio and a comprehensive evaluation of subscriber rates.
Concerning expenditures, the cost contribution ratio was determined based on the target number of subscribers and used for evaluation.

(1) Analyzed Cases

The Priority projects will be implemented including those for the target areas of remote and rural areas which have experienced a difficult economy in the depopulated situation.
From this point of view, the project financing scheme sustained by the Foreign Grant-Aid of bilateral country basis is set as the case to be analyzed (Grant case), in addition to the conventional financing case (Loan case).

Loan Case : Equity (Owned funds) / Long-Term Loan

Equity (Owned funds) : covers 30% of "Project Costs"
Long-Term Loan : covers 70% of "Project Costs"

Grant Case : Grant / Equity

Grant portion :
Equipment & Facilities including Engineering Fee in "Project Costs"

Equity (Owned funds) portion :
Preparatory works by UPTC, and Initial Working Capital in project cost.

(2) Financial Condition

a. Condition of Long-Term Loan

Interest : 8.0% p.a.
Debt Repayment : Equal Semi-Annual payment for 10 years including Grace Period of 5 years

b. Short term finance

In case of shortage of funds during the operation period, the short term finance is required to fulfill the cash deficits, if any.
Interest : 23.0% p.a.
Repayment : repaid in next year after borrowing

(3) Taxes, Insurance

a. Corporation Tax

Corporation Tax rate is 30% on taxable income.

b. Insurance

The cost for insurance has been assumed to be approximately 0.1% of the book value of Equipment & facilities costs in each project year based on the current insurance system.

(4) Depreciation

The depreciation condition was settled as follows. Full value of all asset items is depreciated without remaining salvage value.

Table 13-1-1 Depreciation

Item	Depreciation method
Equipment & Facilities	
External	15 years straight line
Others	10 years straight line
Building	30 years straight line
Engineering Work	5 years straight line

(5) Working Capital

a) Working capital during the operation
The amount of Working capital was assumed to be as follows for each year of operation:

Account Receivable : Sales Revenue for 2 months
Accounts Payable : Operating costs for 2 months

b) Initial working capital (I.W.C)
The equivalent amount to the working capital required in the first year of operation is reserved prior to the service-in of the new communication network.

13.2 Sales Projection

13.2.1 Revenue Items

Revenue from telecommunications services consists of the following three categories:

(1) Call charges

a) Local calls : Call charges within each Telecommunication Exchange Area

b) Trunk calls : Call charges on the calls exchanged with other Telecommunication Exchange Areas

(2) Installation fee

This represents the charges to a subscriber imposed when the telephone is newly installed.

(3) Rental fee

This represents the Monthly Rental Tariff paid by a subscriber in a fixed amount for his usage of the end terminal.

13.2.2 Present Tariff System

Present UPTC's tariff system for telephone subscribers is summarized in the following table. Uganda telephone tariff system is characterized by accelerative charges for the distances. Call charges within the telecommunication exchange area is constant (Local calls), but charges to other exchange areas (trunk calls) depend on distance and duration.

Table 13-2-1 Present Tariff System (1994)

Item	Price (Ush)
Call Charges	50 /unit
Installation	60,000 /line
Rental	1,500 /month

13.2.3 Sales Revenue

The sales revenue of about US$1,000 per person in the fiscal 1994/95 budget was used for this provisional estimate. Also each present subscriber is assumed to continue paying US$1,000 in future. Since new subscribers will consist of people from different societies, the revenue per person is expected to decrease. We estimate that the revenue per person in fiscal year 2009/10 at about US$700 on the assumption that fees are not raised.

Poor bill collection is currently one of UPTC's most significant problems, and taking measures to cope with the situation become an urgent issue according to the Master Plan. Regarding this point, a target collection rate defined in the Master Plan was used for the provisional estimate.

Table 13-2-2 Collecting Ratio

Fiscal Year	Expected Collecting Ratio
94/95	72%
99/2000	80%
04/05	85%
09/10	90%

Refer to Table of Base Data for each priority project for the provisional estimate from the fiscal year sales revenue.

13.3 Total Investment Cost

Total Investment Cost of each priority project can be summarized in each summary table, which is attached at end of this Section.

13.4 Operating Costs

The summary of the direct operating costs for each priority project is indicated in Table of Base Data. The operating costs do not include interest payment and depreciation.

The operating costs in the representative years are listed in the table since the costs carry every year of operation due to the increase of terminals.

13.5 Financial Analysis

The purpose of the financial analysis is to measure and assess the financial viability of the project under the above mentioned condition and assumptions. The financial analysis will be performed for the selected base cases set by different financing schemes, namely (1) case 1: Equity/Long-term Loan case, and (2) Case 2: Equity/Grant case.

(1) Financial statements

The result of this financial analysis is detailed in the output sheets that are attached to the supporting report.

- Income Statements
- Cash Flow Statements

(2) Summary of financial analysis

The summary of the result of the above financial analysis is shown in the tables that are attached to the end of this section.

13.5.1 Major financial indicators

The major financial indicators in each operation year are attached to the end of this section. Each indicator is obtained from the following formula:

(1) Net Profit on Equity on Sales Revenue

(Net Profit tax) / Equity (Paid-in share capital)

(2) Debt Service Coverage Ratio

(Net Profit tax + Depreciation + Interest)
/ (Repayment + Interest)

(3) Break-Even Points (B.E.P.)

i) Profit B.E.P. - Sales Revenue

(OPC + D + I) / r

ii) Cash B.E.P. - Sales Revenue

$$((OPC + D + I) + (R - D) / (1 - g) + WCI) / r$$

where,

OPC	:	Operating Costs
r	:	Sales revenue at each project year
R	:	Repayment of Long-term Loan
D	:	Depreciation
I	:	Interest on Long-term Loan
g	:	Tax rate
WCI	:	Working Capital increase

13.6 Assessment of Result of Financial Analysis

The expected profitability and financial condition will be discussed here, project by project. While a nations's economy is developing, the spread of telephones in that nation generally grows at a faster pace than the economy. Telecommunication is one of the prerequisites for growth in these areas; namely, this project is one which serves to meet basic human needs and which will provide principal infrastructure in the form of a public enterprises. The major issue when discussing the project's financial state is the scale of sales revenue. As Uganda is still developing, growth in demand is expected to be slight, in line with low income growth. This poses difficulties in carrying out a project requiring a large investment. This means that although telecommunications networks are required for economic growth, revenues will be insufficient to finance the construction of such networks. The profitability of a project planned under these circumstances is very low, which makes it difficult to carry out this kind of project using conventional fund raising methods. An assessment has therefore been set up for a normal Loan case, and a Grant case.

Table 13-6-1 shows the results of a calculation of FIRR.

The loan scheme suggests that the priority projects other than the projects number 3,4,6,7 and 15 would be difficult to be implemented. Projects number 4,6 and 7 target urban areas, with high population densities. These areas are the centers of economic activity in Uganda. Furthermore, as of 1994, international calls, which account for about 50% of UPTC revenues, are made chiefly in these urban areas. Projects number 3 and 15 are constructed for international telephone calls.
This means that a small number of profitable projects and areas support the telecommunications network of Uganda.

Implementing only profitable projects is one strategy for ensuring economic stability. However, when factoring in the social benefits of a telecommunications network, it is clear that the implementation of projects should not be determined only from the perspective of profitability. It is necessary to implement projects that will help stabilize UPTC's operations and improve the basic telecommunications network of Uganda, concurrently carrying out both high and low profitability projects.

In this sense, the Master Plan indicated in this report serves as one guide that clearly sets out UPTC's future policies.

Table 13-6-1 The Result of Financial Analysis
(summary table of FIRROE)

Project No.	Loan case	Grant case
1	n.a.	21.03%
2	n.a.	n.a.
3	105.82%	-
4	86.61%	-
5	n.a.	32.33%
6	19.32%	-
7	29.05%	-
8	n.a.	23.74%
9	n.a.	20.55%
10	n.a.	28.98%
11	n.a.	35.21%
12	n.a.	48.32%
13	n.a.	n.a.
14	n.a.	n.a.
15	147.33%	-

Note ; FIRROE (Financial Internal Rate of Return on Equity)

13.7 Conclusion of Financial Evaluation

In implementing the Master Plan, financial assessment results of priority projects suggest that most of the projects are feasible based on the Grant scheme but not on the Loan scheme. The principal reason is the low income earning capacity due to a small number of subscribers. Projects in low-subscriber regions inevitably show a low return. This is the most striking feature of this type of project.
However, reaching the final goal of the Master Plan is impossible unless low-return projects are implemented. UPTC must operate under the risk encountered by low-return projects. UPTC's business environment is very severe and will require further support from its government.

Priority projects targeting a small number of subscribers are less efficient in terms of operating costs than urban projects. Since a more or less fixed amount of operating costs are incurred despite the limited income generated by low subscriber projects, these projects usually yield a very small return or no return at all. This is the most striking aspect of low-subscriber projects.

The Table 13-6-1 shows that the figure of IRR could not be calculated under the Project No.2, 13 and 14 when both Loan and Grant Funding scheme are adopted. In short, it shows the strict situation that the too small revenue cannot cover even the operating cost. Therefore, if low return project nor no return project is unable to be performed under the UPTC's own funds, it will be encouraged that either project be implemented with the high return project at a tie-in.

Severe loan conditions further complicate the situation.
The project assessment results suggest that UPTC will incur operating losses the moment loan repayment begins. This clearly indicates that the subsidiary loan conditions, which specify a five-year grace period and a 10 year repayment period, are not suited to low-subscriber projects.

When a subsidiary loan is necessary for implementing a project, the low return or less will significantly impair UPTC operations. This necessitates an urgent review of such loan conditions.

Note: Original IDA loan condition

Interest rates	:	0.0 %
Service charge	:	0.75 %
Repayment	:	40 years
		Fixed principal payment
Grace period	:	10 years

CHAPTER 14

CONCLUSION AND RECOMMENDATIONS

CHAPTER 14 CONCLUSION AND RECOMMENDATIONS

14.1 Overview of Master Plan

(1) Basic Policy in Telecommunications Network Expansion

a) For rural areas, basic services shall be provided for keeping urgent communication means and for improving and rationalizing government's administrative services.

b) For urban areas, all services for national development and promotion of economic activities shall be provided.

(2) Key Indexes on Master Plan

Category	F-Year / Item	1994/95	1999/2000	2004/05	2009/10	Objectives
Socio-Economy	Population (x 1,000)	18,400	20,800	23,480	26,380	
	GDP/Capita ('93 US$ Price)	176	202	236	280	
Telephone Supply	Demand (x 1,000)	84	118	164	227	Same as
	Supply (x 1,000)	34	65	105	160	Sub-Saharan level
	Telephone/100 inhabitants	0.18	0.31	0.45	0.61	
Service Provision	Network Expansion	Major Cities	District HQ	Major Counties	All Counties	Telecom service
	Counties (Automatized)	10%	37%	56%	100%	in all Sub-Counties
	New Services	Mobile Tel.	ISDN	ISDN	ISDN	
Service Quality	Call Completion Rate	40%	50%	60%	70%	Same as
	Transmission Quality	Noisy	Clear	Clear	Clear	International level
	Recovery in 24 hours	30%	40%	50%	60%	
Operation Efficiency	Number of Staff	2,500	3,000	3,750	4,500	Highest level among
	Subscribers/Staff	14	20	28	36	similar counties
Revenue	Charge/Subs (US$)	1,000	960	850	700	Same as
	Collection Rate	72%	80%	85%	90%	International level
	Revenue/Subs (US$)	720	770	720	630	
	Total Revenue (x 1,000 US$)	24,500	47,400	76,400	101,500	
Expenditure	O/M Cost (x 1,000 US$)	20,600	29,800	38,900	49,900	
	Other Cost (x 1,000 US$)	5,100	16,200	35,500	44,100	
	Total Expenditure (x 1,000 US$)	25,700	46,000	74,400	94,000	
Profit	Profit before Tax (x 1,000 US$)	-1,200	1,400	2,000	7,500	

		Phase - I	Phase - II	Phase - III	Total
Investment	Project Cost (Mil. US$)	187	171	204	562
	Switch + Cable	Urban	Sub-Urban	Rural + Urban	
	Transmission	Backbone	Spur Link	Rural	
	Fund Sources:				
	Credit (Mil. US$)	70%	60%	70%	
	Grant (Mil. US$)	30%	0%	0%	
	UPTC (Mil. US$)	0%	40%	30%	

14.2 Recommendations on Management

(1) Privatization of Telecommunications Services

The Government of Uganda is now studying the feasibility of privatization of UPTC. Privatization of telecommunications business is an international trend and has been realized in a number of countries, mainly in developed countries. Privatization can serve for upgrading of services, justification of rates, easy fund raising, etc. At the same time, it involves some demerits, such as difficulty in successful materialization, no provision of services in unprofitable areas, etc. Demerits will be serious particularly in countries where telephone penetration ratio is low, with rural areas having no access to basic services. A deliberate study should be made in deciding the timing of privatization.

The telecommunications business by UPTC involves the following problems. To solve these problems, the cooperation of the Government of Uganda and considerable time span will be required.

a) In addition to rural areas, approx. 30% provinces are not covered by reliable networks.
b) The number of subscribers is as low as 30,000, leading to small annual revenues.
c) The income level of the people is low, and large demand increase can scarcely be expected.
d) Outstanding amounts of investments during past 10 years remain to be as much as 60 million dollars.
e) The financial performance of fiscal 1994/1995 year is in the red.
f) For expansion of telecommunications networks, grant aids and low interest ODA loans are necessary.

Judging from the above, it can be said that it is still premature to carry out privatization of basic services. Telecommunications services should be provided in the form of a public corporation until 2000, when the above problems are expected to be dissolved.

On the other hand, advanced services, such as data communication and mobile communication, may preferably be licensed to private sectors, since subscribers of these services will be specific users in major cities and they can afford rather high rates.

(2) Opening of Terminal Equipment Market

At present, UPTC employs a rental system for terminal equipment in principle. In conjunction with the telecommunications network improvement, demand for terminal equipment will be diversified. To respond to such demand, the terminal equipment market is to be opened. This will also lead to service upgrading and reduction of operation and maintenance costs of UPTC. To realize the above, establishment of the technical standardization and reinforcement of type approval system are necessary.

(3) Institutional Reinforcement

In accordance with the network expansion, the organization of UPTC must be reinforced. It is proposed to the study this problem, particularly with respect to the following departments:

a) Planning, engineering and construction departments.
b) Operation and maintenance departments.
c) Customer service department.

14.3 Recommendations on Financial Matters

(1) Investments in Rural Areas

The telecommunications networks in Uganda are now concentrated in major cities. In order to meet social needs of the people of Uganda, it is recommended to extend the network up to each county center. For this purpose, approx. 20% of the total investment should be appropriated.

(2) Promotion of Revenue Increase

The financial performance of UPTC is expected to turn worse during several years to come. To cope with this problem, positive actions should be taken. Following actions are recommended:

a) Review of tariff system (increase of monthly basic charge).
b) Improvement of bill collection ratio (improvement of billing and collecting system).
c) Sales promotion in urban areas.

(3) Fund Raising

The nationwide telecommunications network expansion requires an enormous amount of money. The foreign investment in the amount of 25 - 45 million dollars will be required annually during Phase-1 period ending in 2000. It is recommended to raise such fund from the following sources:

a) ODA loans from international agencies and foreign governments (15 - 30 million dollars per year).
b) Grant aids from foreign governments (10 million dollars per year).
c) Budget appropriation by the Government of Uganda (5 million dollars per year).

(4) Tax Exemption

Main equipment and materials for telecommunications network expansion projects have to be imported from foreign countries. In accordance with the tax revision in 1993, the import tax in the amount of approx. 50% of CIF price is to be levied on such equipment and materials. The materialization of telecommunications network expansion projects proposed in the Master Plan means the improvement of infrastructure which is indispensable for national development. Hence, an appropriate measure should be taken so that equipment and materials necessary for the materialization of the Master Plan can be exempted from the import tax.

14.4 Recommendations on Technical Matters

(1) Improvement in Call Completion Ratio

The call completion ratio in Uganda is as low as 30% - 40%, as compared with the ratio of advanced countries, approx. 70%. Improvement of call completion ratio will lead to not only service grade upgrading but also revenue increase. It is recommended to take the following actions:

a) Increase of transmission system capacity.
b) Publication of telephone directory.
c) Education of subscribers (PR on correct dialling method, etc.)
d) Introduction of call waiting service.

(2) Reinforcement of Trouble Shooting System

The trouble shooting systems adopted for local cable networks in major cities are extremely inadequate. To improve the customer services, it is recommended to take the following actions:

a) Preparation of spare parts.
b) Improvement of work environmental conditions of maintenance teams (vehicles, tools, working clothes, etc.)
c) Reinforcement of training of staffs (staffs in charge of window services and maintenance).
d) Modernization of customer services window (introduction of computer systems).

(3) Human Resource Development Through Training

The training of the work force of UPTC is executed mainly in a training center in Kampala. However, this center now fails to function well due to shortage in training facilities, equipment and materials, as well as instructors. To expand the network as scheduled, some 100 personnel will have to be recruited every year. Hence, the improvement of the training center should be done urgently.

(4) Computerization of Office Work in UPTC

In accordance with the telecommunications network expansion, work volume for project management and financial administration will increase. To ensure smooth management and administration, it is recommended to introduce office automation in the UPTC. With the introduction of computer systems, data collection and analysis can be made speedily and correctly, leading to efficient business management.

(5) Employment of Consultant

In order to expand the telecommunications networks urgently as proposed in the Master Plan, 3 - 4 projects will have to be implemented every year. This requires the reinforcement of planning and construction departments. To achieve the above efficiently, it is recommended to employ foreign and national consultants, particularly with respect to the following:

a) Detailed planning for some specific projects.
b) Financial management and administration.

(6) Implementation and Review of the Master Plan

The proposed Master Plan has been prepared in consideration of the macroscopic social and economic trend in Uganda. In implementing individual projects, an appropriate revision should be made, taking into account microscopic characteristics specific to each objective area.

Further, in accordance with the variations with time in social and economic conditions in Uganda, the preconditions for the study should be reviewed and the Master Plan should be revised, wherever necessary. It is recommended to review the Master Plan every 5 years.